A Supervisor Like Me: Race, Representation, and the Satisfaction and Turnover Decisions of Public Sector Employees

Jason A. Grissom
Lael R. Keiser

Abstract

Studies of race representation in public organizations illustrate the importance of bureaucrat race in determining client-level outcomes. Building "upward" from this research, this study examines how supervisor race impacts outcomes for street-level bureaucrats using data from a nationally representative sample of public schools. Employing multiple estimation methods, we find that, consistent with the predictions of representation theory, teachers report higher job satisfaction and turn over less often when supervised by an own-race principal. We also find that race congruence impacts the tangible and intangible organizational benefits teachers receive, and, moreover, that race congruence impacts white and African American employees differently. Most troubling, we find evidence that black teachers earn substantially less in supplemental pay when they work for a white principal, even when compared to white teachers in the same school. © 2011 by the Association for Public Policy Analysis and Management.

Numerous public policies exist to overcome the historical disadvantages—economic, educational, and otherwise—of minorities in the United States. Ultimately, the success of these policies depends on the ability of implementing organizations to serve the needs of minority clients. A rich literature shows that the representation of minorities within the bureaucracy, across a variety of agency settings, increases the ability of the bureaucracy to address minority client needs (e.g., Dee, 2004; Hindera, 1993; Meier, Stewart, & England, 1989; Selden, 1997). This work suggests that the ability of public agencies to serve minority clients is directly affected by their ability to attract and retain minority bureaucrats, especially at the street level. Consequently, while high rates of turnover in the public sector may be problematic in general (Bertelli, 2007; Deere, 1987; Jovanovic, 1979; Meier & Hicklin, 2008), turnover among minority bureaucrats is particularly concerning for public organizations seeking to improve how well they serve minority groups.

Drawing on insights from the theory of representative bureaucracy, we argue that an important factor for the retention and satisfaction of minority bureaucrats is maintenance of minority representation in the supervisory ranks. Specifically, we hypothesize that increasing descriptive representation at the supervisor level will increase the job satisfaction and retention of minority frontline workers, as well as the benefits that workers receive from the organization. We test these hypotheses using nationally representative data on public school teachers and principals. In so doing, we contribute to the literatures on representation and education policy, and

also to human resource management, which has largely ignored the importance of representation at the supervisory level on the employment experiences of frontline workers.

Exploring the job impacts of minority supervisors on minority street-level bureaucrats is especially important in the public school setting. Minority children have consistently lagged behind nonminority children on a variety of educational outcomes (e.g., Fryer & Levitt, 2004; Lee, 2002), and several studies suggest increasing the stock of qualified minority teachers as a strategy for addressing these gaps. For example, Dee's (2004) analysis of data from the Tennessee STAR class size experiment found that random assignment to an own-race teacher significantly increased the math and reading achievement of African American students. In another analysis using matched teacher pairs from the National Education Longitudinal Study (NELS), Dee (2005) similarly found that African American and Hispanic students were less likely to be identified with negative labels such as *inattentive* or *disruptive* by teachers of their same ethnic background, suggesting that the own-race effect on student achievement may arise in part from teacher attitudes toward individual students, which "influence student access to future educational opportunities and may also shape the learning environment in meaningful ways" (Dee, 2005, p. 159). Results from these quasi-experimental studies are consistent with observational studies suggesting that minority achievement can be promoted by recruiting high-quality minority teachers (e.g., Meier, Wrinkle, & Polinard, 1999; Pitts, 2007). They are also consistent with studies that have found that minority students in schools with a higher proportion of minority teachers are more satisfied with their schools (Keiser & Haider-Markel, 2007) and more likely to be assigned to specialized school services, such as gifted programs (Grissom, Nicholson-Crotty, & Nicholson-Crotty, 2009; Rocha & Hawes, 2009).

Given the importance of minority teachers in promoting the achievement of the growing numbers of minority students in the public schools, understanding what factors attract minority teachers into the profession and—more importantly for this study—encourage them to stay takes on particular importance for policy. Prior studies on teacher retention have suggested that teachers' decisions to stay in their schools can be influenced by such factors as higher compensation (Hanushek, Kain, & Rivkin, 2004; Imazeki, 2004; Stinebrickner, 1998; Podgursky, Monroe, & Watson, 2004), better school facilities (Horng, 2009; Loeb, Darling-Hammond, & Luczak, 2005), and mentoring (Smith & Ingersoll, 2004), though most studies focus on the work decisions of teachers as a group rather than on minority teachers in particular. Another line of research has emphasized the importance of the principal in reducing turnover among teachers. Much of this work has been limited to the amount of administrative support teachers feel they receive (e.g., Ingersoll, 2001), though other studies have considered the extent to which principal effectiveness more generally impacts teacher work decisions (Grissom, in press). Previous research has not considered the race dimensions of the principal–teacher relationship in predicting teachers' probabilities of leaving their schools.

We find evidence that race congruence among teachers and principals increases job satisfaction and reduces turnover probabilities among teachers. We also find evidence that principals tend to allocate tangible benefits to teachers of the same race and that teacher–principal race congruence affects principal allocation of intangible benefits, including encouragement and autonomy. These results are consistent across three different estimation techniques (ordinary least squares with substantial control variables, propensity score matching, and regression with school fixed effects) that we use to isolate the impacts of supervisor race congruence on employees. However, further analysis suggests that these impacts differ between white and African American frontline workers, differences that support a more complex interpretation of intra-organizational race relationships. The next section grounds these findings within research on representation in the bureaucracy.

THEORY AND HYPOTHESES

The central idea in the theory of representative bureaucracy is that having a bureaucracy that "looks like" the public it serves enhances its responsiveness to the public's needs. Most commonly, this central tenet is articulated in terms of race. Although the body of work in this theoretical tradition has focused on understanding relationships between the bureaucracy and its clients, it has generated several insights that provide predictions for how racial similarity between supervisors and employees might affect frontline workers.

One common assumption in the literature on representative bureaucracy is that demographic characteristics of bureaucrats shape attitudes, which in turn shape implementation behavior (Dolan & Rosenbloom, 2003; Meier, 1993). These shared attitudes explain why bureaucracies that are more passively (or descriptively) representative implement policies differently than those that are less passively representative. In particular, researchers have found that bureaucracies that are more passively representative of particular demographic groups often engage in "active" representation by implementing policy in ways that are more beneficial for those groups than do bureaucracies that are less passively representative (Hindera, 1993; Keiser et al., 2002; Meier & Nicholson-Crotty, 2006; Meier & Stewart, 1992; Wilkins & Keiser, 2006). Research shows that this allocation of policy benefits results because shared values and attitudes make minority bureaucrats more likely to make implementation choices that favor minority clients, to adopt a minority advocacy role in the organization, or to gain cooperation from minority clients (Dolan & Rosenbloom, 2003; Lim, 2006; Meier, 1993; Meier & Nicholson-Crotty, 2006; Selden, 1997).

In a general sense, given that passive representation among bureaucrats can lead to active representation on behalf of minority clientele, we might expect a minority presence at the supervisor level to affect minority frontline workers. As with the bureaucrat–client relationship, minority supervisors and their subordinates are likely to share common values and attitudes. Minority supervisors might therefore be more likely to implement personnel policies that benefit minority workers. They might also adopt an advocacy role on behalf of workers with whom they share demographic characteristics, making it more likely that the organization treats them well. Similarly, supervisors may have an easier time gaining cooperation from workers when they share race characteristics, producing a more positive work environment.

Expanding the theory of representative bureaucracy "upward" in this way requires determination of what demonstrates active representation for minority frontline workers. *Active representation* is defined by the taking of action that advocates for minority interests, the adoption of policy decisions that benefit the group, and activities that eliminate discriminatory barriers (Hindera, 1993; Mosher, 1968; Pitkin, 1967). One way scholars have identified the presence of active representation is through evidence that clients view the organization and their treatment by the organization positively (Andrews et al., 2005; Theobald & Haider-Markel, 2009). They have also looked for indications that clients are more willing to engage with the organization (Meier & Nicholson-Crotty, 2006). In the case of frontline workers, we expect that when the organization is doing a better job of meeting employee needs, this treatment will be reflected in employee attitudes and willingness to remain engaged with the organization, as captured by job satisfaction and retention decisions. In other words, if, as representative bureaucracy theory predicts, race representation at the supervisor level positively affects workers, they will have higher satisfaction and lower turnover. This expectation leads to our first hypothesis.

> **H1:** Street-level workers (teachers) in bureaucracies with race-congruent supervisors (principals) will be more satisfied and less likely to turn over than street-level bureaucrats with race-incongruent supervisors.

Even more common in the literature, scholars have taken as evidence of active representation favorable policy outputs for minority clients (e.g., Hindera, 1993; Keiser et al., 2002; Meier, Stewart, & England, 1989; Selden, 1997). While frontline workers do not receive policy goods from bureaucracies in the same direct manner as clients do, they do receive benefits of various kinds from the organization. These benefits can be both tangible and intangible. The most obvious tangible benefit is compensation. Compensation can take numerous forms; in our analysis we focus on supplemental compensation for teachers, or pay for additional duties outside of the teacher salary schedule. Monetary benefits, however, are not the only benefits organizations can direct toward workers. Research in human resources has identified encouragement and support as important goods for subordinates (McGregor, 1957). Other work suggests that another benefit bureaucrats seek and value is autonomy in making decisions (Carpenter, 2001; Meier, 1993). Control over the work environment has value because it can, for example, help workers deal with stresses brought on by organizational politics (Ferris et al., 1994, 1996). Thus, the application of representation theory to the supervisor–employee relationship suggests that passive representation among managers will lead to greater tangible and intangible benefits for workers.

> **H2:** Teachers in schools with race-congruent principals will receive more monetary benefits and more intangible benefits, such as employee encouragement, support, recognition, and autonomy, than teachers without race-congruent principals.

Representative bureaucracy is not the only theoretical tradition that suggests that racial and ethnic congruence between supervisors and employees should affect worker satisfaction, turnover, and the distribution of organizational benefits (Grissom, Nicholson-Crotty, & Keiser, 2011). Sociological theories such as similarity-attraction theory and social identity theory predict that employees will be happier when they share the demographic characteristics of their supervisors. For example, the similarity-attraction paradigm predicts that demographic similarity between principals and teachers leads to mutual perceptions of similarities in values and attitudes, which in turn facilitates affection that can bias principals' conduct toward teachers and judgments about their performance (Byrne, 1971). Also, perceived compatibility and attractiveness promotes collaboration, whereas differences between individuals can result in distancing (Tajfel & Turner, 1986). Managers and employees who are of the same race may also communicate better than those who differ in racial characteristics (Lang, 1986), which may promote a more positive working relationship between them. An association between race congruence and differential employee treatment can also be consistent with conscious or unconscious discrimination and disparate treatment by managers on the basis of race. We return to these issues in our discussion of our empirical results.

DATA

The data used in this study come from the restricted-use versions of the 2003–2004 Schools and Staffing Survey (SASS) and the 2004–2005 Teacher Follow-Up Survey (TFS), both of which are administered by the National Center for Education Statistics (NCES). SASS collects nationally representative survey data from principals and teachers in every state, using a complex stratified sampling process, and links the data to information about schools and districts. The 2003–2004 collection contains responses from approximately 43,000 teachers in 8,300 schools. One year following the SASS data collection, NCES gathers additional data from principals and teachers as part of TFS, described further as follows that allow for longitudinal analysis of

teachers' work decisions. We use data collected from non-charter public schools only. After dropping observations with missing data, the main models we present below use information from approximately 37,000 teachers in 7,200 schools, though there are some variations from model to model.[1] The median school in the estimation sample has five responding teachers, though this number ranges from 1 to 20. All estimates take appropriate survey design weights into account.

Dependent Variables

Our initial analyses focus on two dependent variables: teacher satisfaction and teacher turnover. Teacher satisfaction is measured using teachers' responses to the statement, "I am generally satisfied with being a teacher at this school." Teachers indicate the extent to which they agree with this statement on a four-point scale: *strongly agree*, *somewhat agree*, *somewhat disagree*, or *strongly disagree*. We recode responses so that higher values indicate greater agreement. In general, SASS teachers report a high level of job satisfaction, with the mean response in our sample equaling 3.48.[2]

Measurement of teachers' propensity to turn over comes from TFS. In the year following the collection of the SASS data, NCES follows up with responding schools and asks principals to provide simple work information for teachers who were SASS participants in the previous year.[3] Principals are asked to identify each teacher as continuing to teach in the same school, continuing to teach but in another school, no longer in teaching, and so forth, using one of ten categories. We use the principals' designations of each teacher's whereabouts in 2004–2005 to capture turnover. A simple dichotomous measure is created. Teachers whom principals identify as continuing to teach in their same school are labeled as not turning over. All other teachers, including those who are continuing to teach but are doing so in another school and those who have left teaching altogether, are labeled as turning over. In our data, 14 percent of teachers turned over in the year between the SASS and TFS administrations, an estimate that is consistent with previous work (Ingersoll, 2001).

Independent Variables

To investigate the impact of race congruence between principals and teachers on satisfaction and turnover, a simple dichotomous variable indicating matching on this dimension is created from demographic information contained in the SASS principal and teacher questionnaires. Each responding principal and teacher indicates their race using a five-item classification: white, black or African American, Asian, Native Hawaiian/Other Pacific Islander, or American Indian/Alaska Native. A separate question assesses whether the respondent is of Hispanic or Latino origin. We group Native Hawaiians and Other Pacific Islanders with Asians to simplify the classification. We then code a teacher as congruent with their principals with

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[1] The loss of sample size is primarily due to missing school and principal questionnaire responses in the SASS data. While it is difficult to know how schools missing from the analysis may differ from those that are included, documentation provided by NCES notes that nonresponse was examined at both the item and unit level and that "little evidence of bias . . . was found" (Tourkin et al., 2007, p. 171).

[2] The distribution of the satisfaction variable is quite skewed. The distribution of responses in the sample is: strongly agree (58 percent), somewhat agree (33 percent), somewhat disagree (6 percent), and strongly disagree (3 percent). The standard deviation is 0.74.

[3] This survey of principals (called TFS-1) is used to construct a sampling frame for surveying current and former teachers for the Teacher Follow-up Survey (TFS-2 and TFS-3), which gathers a host of information about why teachers choose to remain in or leave teaching. Unfortunately, TFS-2 and TFS-3 are only collected from a subsample of teachers that is about one-tenth the size of the full SASS sample. We use TFS-1 data to measure turnover so that we can take advantage of much larger sample sizes.

Table 1. Descriptive statistics.

Variable	Mean	SD
Race congruence, all teachers	0.79	
Race congruence, white teachers only	0.84	
Race congruence, African American teachers	0.44	
Race congruence, other teachers	0.08	
School characteristics (N = 7,230 schools)		
Fraction African American students	0.16	0.25
Fraction Hispanic students	0.15	0.24
Fraction Asian students	0.03	0.08
Fraction Native American students	0.02	0.08
Fraction of free/reduced lunch students	0.44	0.29
School size (in 100s)	5.46	4.32
Elementary school	0.59	
Middle school	0.15	
High school	0.19	
Vocational school	0.01	
Alternative school	0.05	
Urban	0.24	
Rural	0.28	
Teacher characteristics (N = 37,110 teachers)		
Female	0.76	
African American	0.08	
Hispanic	0.06	
Asian	0.02	
Native American	0.01	
Total experience	13.22	10.0
Holds regular teaching certificate	0.88	
Holds MA	0.47	
Holds BA in education	0.8	
Principal characteristics (N = 7,230 principals)		
Female	0.48	
African American	0.11	
Hispanic	0.05	
Asian	0.01	
Native American	<0.01	
Total principal experience	7.8	7.10
Holds MA	0.6	
Holds doctorate	0.08	

Note: Survey weights used. Sample sizes rounded to nearest 10 per NCES nondisclosure rules.

respect to race if both gave the same combination of race and ethnic origin responses. Otherwise we code them as not racially congruent. For example, in a school with an African American, non-Hispanic principal, any African American, non-Hispanic teacher is coded as being of the same race as his or her principal, while all other teachers are coded as not of the same race.

As shown in Table 1, our population estimates indicate that 79 percent of teachers work for principals of the same race. However, this proportion is not equal across racial groups. Eighty-four percent of white teachers are supervised by white principals, while only 44 percent of African American teachers are supervised by African American principals. The proportion is even smaller among other racial groups, with just 8 percent of teachers who do not list themselves as white or African American being supervised by an own-race principal.

Control Variables

Several additional variables are collected from the data provided by SASS and included as control variables in the analyses below because of the role past work has shown they play in teachers' satisfaction and decisions to stay or leave. These variables can be divided into two groups: school characteristics and characteristics of the teachers themselves. School characteristics include separate variables for the fraction of students who are African American, Hispanic, Asian, or Native American, and the fraction of students who are eligible for free or reduced price lunch, a measure of student poverty. Prior research has found that schools with large numbers of minority and poor students have greater difficulty retaining teachers (e.g., Hanushek, Kain, & Rivkin, 2004; Ingersoll, 2001). We also include school size, plus indicator variables for the level of the school (elementary, middle, or high) and location (urban, suburban, or rural). Finally, we include indicators for different school types, i.e., whether the school is a special education school, a vocational school, or an alternative school. Controlling for such organizational characteristics may be important if principals and teachers of different races systematically select into different kinds of work environments.

Prior work also has demonstrated that teacher characteristics have important implications for satisfaction and turnover (Guarino, Santibañez, & Daley, 2006). Thus we include controls for these characteristics as a way of guarding against omitted variables bias and improving the precision of our estimates. These include gender and years of teaching experience (entered as indicator variables for each year to allow for nonlinearities), plus separate indicators for whether the teacher holds a BA in education, a regular teaching certification, or a master's degree. Each of these variables likely influences teachers' satisfaction and job attachment. We also include teacher race (white, African American, Hispanic, Asian, or Native American) as a control in some specifications to ensure that the coefficients we identify for race congruence measure the effect of matching between principals and teachers on this dimension *over and above* the effect of race on its own. Descriptive statistics for these variables are shown in Table 1.

METHODS

We employ three methodological strategies in examining the associations between supervisor–employee race congruence and employee outcomes. The first is an ordinary least squares (OLS) regression approach that models outcomes as a function of race congruence plus school and teacher control variables. The second approach uses a propensity score–based nearest-neighbor matching estimator to examine the impact of race congruence on a set of teachers relative to a set that are observationally nearly identical except that they are supervised by a race-incongruent principal. The third approach re-estimates the OLS results with the addition of a school-level fixed effect that controls for unobserved principal characteristics and compares teachers who are race-congruent with their principals to their colleagues in the same school who are of a different race and thus are race-incongruent.

Each of these approaches answers a somewhat different question about the role of supervisor race congruence on public employee outcomes. Using all three allows us to provide a more complete analysis of these relationships. Next we describe each approach in detail and discuss their respective advantages and disadvantages.

Ordinary Least Squares

The first estimation strategy is ordinary least squares regression. These models each follow the general form:

$$Y_{ij} = \beta(Race\ Congruence)_{ij} + X_{ij}\Gamma + S_j\Phi + P_j\Omega + u_{ij} \qquad (1)$$

where X_{ij} represents a vector of characteristics of teacher i in school j, S_j represents a vector of characteristics of school j, P_j represents a vector of characteristics of the principal in school j, and Y_{ij} represents an outcome variable (e.g., teacher satisfaction). When Y_{ij} is the probability of turnover, this estimation becomes a linear probability model. Linear models, rather than ordinal or simple logit or probit models, are estimated for all dependent variables to ease interpretation and to facilitate the inclusion of school fixed effects, which we discuss below.[4] In all models, standard errors are clustered at the school level to take into account that we observe responses from multiple teachers within schools.

The OLS estimate of the coefficient on the race congruence variable gives, on average across all schools and teachers, the partial correlation between supervision by a principal of the same race and a given teacher-level outcome. This correlation is conditional on a relatively large number of school and teacher covariates that otherwise may confound these associations. For example, the estimates control for student race characteristics, since schools with large numbers of minority students are more likely both to employ minority principals and teachers and to face difficulties retaining teachers. As another example, the regressions include teacher experience, which has been a strong predictor of satisfaction and turnover in prior studies (e.g., Hanushek, Kain, & Rivkin, 2004), to guard against a misattribution of an effect of experience on satisfaction or turnover to race congruence in the case that teachers systematically sort into (or away from) schools with race-congruent principals as they move through the experience distribution.

Nonetheless, the OLS estimates suffer from several potential disadvantages. The most significant is the specter of omitted variables bias. It is possible that teachers who elect to work for principals from the same racial background systematically differ from teachers who do not make this choice in ways that are related to their attitudes about their jobs. Alternatively, if race congruence is more likely to occur in some kinds of schools than others—for example, if principals and teachers are more likely to be racially similar in very resource-rich or resource-poor schools, and if resources affect teacher working conditions—the race congruence coefficient may be misestimated. To improve on the OLS results and address some of these disadvantages, two further analytical strategies are utilized. One is propensity score matching. The other is re-estimation of the OLS results with school fixed effects.

Propensity Score Matching Models

An alternative to OLS is propensity score matching. Whereas multivariate OLS controls for confounding factors that may independently impact the outcome of interest, propensity score matching works to reduce confounding from factors that influence assignment to the treatment, which in this case is supervision by a race-congruent principal.

In general, matching approaches proceed by finding, for each subject in the treatment condition, at least one other subject whose observable characteristics Q are the same *except* that the subject does not receive the treatment. The outcome Y for this control subject serves as the counterfactual for the treated subject. Under the assumption that the vector Q fully captures the factors influencing selection (the strong ignorability assumption), the difference in the average values of Y obtained for the treated subjects and their matched controls provides an unbiased estimate of the average effect of the treatment on the treated (ATT).

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[4] The main OLS results are robust to this choice of specification.

In our case, for each teacher with a race-congruent principal, we look for observationally equivalent teachers among the set with race-incongruent principals. Because we cannot fully model the process determining teacher selection into race congruence, the strong ignorability assumption is unreasonable in this context. Nonetheless, there are several reasons that matching provides a useful comparison to OLS. First, to the extent that the underlying selection process is captured by Q, bias in the estimates of race congruence effects will be reduced. Second, matching further helps reduce bias in this estimate by basing it only on observationally comparable teachers, with other teachers excluded from the analysis. Third, matching may reduce bias from misspecification of the functional form imposed by OLS.

Matching on a large vector of characteristics Q is impossible without very large samples. However, Rosenbaum and Rubin (1983) show that the dimensionality of the matching can be reduced without a loss of information through the use of propensity scores. Following this work, we employ a two-stage approach that first estimates a propensity-to-treat equation across all teachers:

$$\text{Pr}(\textit{Race Congruence})_{ij} = X_{ij}\Gamma + S_j\Phi + P_j\Omega + u_{ij} \tag{2}$$

where the vectors X, Z, and P contain teacher, school, and principal characteristics, respectively, just as in Equation (1). Thus we assume that teachers' decisions about whether or not to work for a principal of the same race are captured by their own characteristics, characteristics of the school (such as student demographics, school type, and school size), and the characteristics of the principal. Models also include a district fixed effect. Equation (2) is estimated as a linear probability model, and predicted values are obtained for each teacher.

Next, these predicted values, or propensity scores, are used to match teachers in schools with race-congruent principals to their five "nearest neighbors" (i.e., teachers with the five closest propensity scores) in schools with race-incongruent principals. Five teachers are used to populate the control group for each treated teacher to increase the information incorporated into each estimate. This nearest-neighbor matching strategy employs several restrictions to improve the quality of the estimates. First, each teacher selected for the control group for a treated teacher must be in the same school district and teach at the same school level (elementary or middle school, for example). Exact matching on district and school level ensures that teachers are being compared only to others in very similar organizations, though it does sacrifice sample size. Second, only teachers whose propensity scores are within a one-tenth of a standard deviation caliper of the treatment observation are included in the control group. This restriction ensures that control observations are appropriately similar to treatment observations, though it means that not every treated teacher's control group will contain the full set of five nearest neighbors.

ATT estimates for each outcome variable Y are obtained by averaging the differences between the treatment and control teachers' outcomes, proportionally downweighting information from teachers who appear in multiple control groups.[5] These estimates identify the impact of supervisor race congruence on teacher outcomes relative to what they would have experienced under race-incongruent principals, as proxied by the outcomes of teachers in the same district at the same school level with very similar teacher and school characteristics.

While these estimates improve in important ways over the OLS estimates, they have limitations. First, the estimates depend on the plausibility of the assumption that selection into environments with race-congruent supervisors is not influenced by variables not included in Equation (2), which is a strong assumption. Second, requiring exact matches for control group members on school district and school

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[5] The nearest-neighbor matching was conducted using the Stata routine NNMATCH with bias correction (Abadie et al., 2004).

level necessarily means that control groups cannot be formed for many teachers, who then must be dropped. Teachers in the treatment condition must not only have at least one other teacher from their district included in the SASS survey, but this teacher must be race-incongruent with his or her principal. As a result, the teachers used in the matching models systematically come from larger schools and districts in more urban areas and are not representative of the population of teachers nationwide.

School Fixed Effects Models

The last set of models approach the impact of supervisor race congruence on employee outcomes from a perspective that differs from both of the aforementioned approaches. These models take into account the concern that teachers may respond to many characteristics of their work environments that are not observable to the researcher. For example, the leadership ability of the principal may positively affect a teacher's day-to-day work experience, but principal leadership ability is not likely to be uniformly distributed across schools. In particular, if school districts systematically tend to allocate the best leaders to schools with the highest achieving students, and if this allocation is correlated with the ethnic backgrounds of the principal and teachers, estimates of the impact of principal–teacher race congruence on teacher satisfaction and turnover obtained from simple OLS models will be biased.

To account for the possibility that unobserved characteristics of the principal or school may bias the estimates of race congruence in Equation (1), we take advantage of the fact that we have multiple teacher observations for schools to estimate a variation on Equation (1) that omits school and principal characteristics in favor of a school fixed effect, α_j:

$$Y_{ij} = \beta(Race\ Congruence)_{ij} + X_{ij}\Gamma + \beta_j + u_{ij} \qquad (3)$$

We then estimate Equation (3) for both satisfaction and turnover using OLS. This school fixed effects approach, which is similar to one employed by Dee (2005) to identify the impact of teacher race congruence on students, is a powerful estimation strategy. By using only the variation *within schools* to estimate the impact of race congruence between principals and teachers on outcomes, we hold constant a multitude of other factors that could influence teachers' perceptions of their jobs and their work decisions, including the number of student discipline problems within the school, the level of student achievement, parental involvement, quality of the school facilities, and the amount of monetary resources allocated to the school by the district. Accounting for influences that are common to all teachers within a school removes them as potential sources of bias and substantially improves the estimates.

Importantly, the school fixed effects strategy also holds constant the principal's race, since only one principal is present in each school. As a result, the identification of the effects of race congruence on teacher satisfaction and turnover are identified from variation in the racial composition of responding teachers within each school. Since all school- and principal-specific factors are held constant, the estimate of β obtained from Equation (2) captures the differential attitudinal or behavioral responses of teachers whose race is the same as the principal to those whose race is not, regardless of what that race is or of working conditions common to both kinds of teachers. In other words, these results cannot be an artifact, for example, of white principals tending to share a common management style or of African American principals systematically sorting into poor schools. Instead, we suggest that they arise from within-school differences in the quality of the relationships that principals have with own-race teachers, the treatment principals afford to own-race teachers, or teachers' perceptions of these relationships and treatment. Analysis

performed later in this paper attempts to shed light on the mechanisms that drive the associations between having a principal of the same race and teachers' satisfaction and work decisions that we demonstrate in the next section.

One caveat to the interpretation of the school fixed effects results is that only 2,070 schools, or 27 percent of the full estimation sample, contain at least two surveyed teachers who vary in racial background. Because the fixed effects estimator relies on within-school variation, only these schools contribute to the fixed effects estimates. As expected, the schools in the sample with teacher race variation differ systematically from those with no variation. In particular, the schools are larger (697 to 486 students), more urban (41 percent to 18 percent), and have a larger fraction of free or reduced lunch students (54 percent to 40 percent), on average, than the schools with no variation. They also have larger fractions of nonwhite students (58 percent to 27 percent).

RESULTS FOR SUPERVISOR RACE CONGRUENCE AND EMPLOYEE SATISFACTION AND TURNOVER

The main question addressed in this study is whether a central tenet of the theory of representative bureaucracy—i.e., that clients of the bureaucracy are advantaged and accrue tangible or intangible benefits from being served by an organization whose frontline workers are representative of those clients on important dimensions—can be applied to the relationship between those frontline workers and their direct supervisors. We first examine whether employees who share the same race characteristics as their supervisors express greater job satisfaction and exhibit lower probabilities of leaving their jobs. The main results for teachers and principals in the public schools are shown in Table 2.

Selected coefficients from six models are displayed in the table.[6] Columns 1 through 3 give the results for teacher satisfaction, while columns 4 through 6 give the results for teacher turnover. For each dependent variable, the OLS results are shown first, followed by the matching results and the school fixed effects results.

The OLS model shown in column 1 includes controls for both school and teacher characteristics. The coefficient on race congruence in this model is statistically insignificant at conventional levels. However, columns 2 and 3 suggest concluding that there is no relationship between job satisfaction and race congruence would be erroneous. Column 2 contains the propensity score matching results. Notice that the sample size for this estimation is drastically smaller than the sample size for the estimates in the first column because only race-congruent teachers who could successfully be matched to similar race-incongruent teachers are used ($N = 2,440$ "treated" teachers matched to 6,240 nearest neighbors). The matching results, which compare only very similar teachers at the school level in the same district, indicate a much larger association than the one seen in the OLS results ($\beta = 0.118$). The coefficient is significant at the 0.01 level. Teachers in schools with principals of the same race are significantly more satisfied than observationally similar teachers in the same district who do not match race characteristics with their supervisors.

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[6] In consideration of space, coefficients for the extensive set of control variables are omitted from the tables in the paper. Full tables are available from the authors on request. Results for the control variables are generally consistent with prior research, particularly on teacher turnover. Teachers in schools with large numbers of nonwhite and low-income students report lower satisfaction, though the fraction of students who are African American and Native American are the only student demographic variables that are statistically significantly related to turnover ($\beta = 0.10$ in both cases). Other variables significantly associated with lower rates of turnover include school size, whether the school has a special education focus, being female, being Hispanic, and holding a regular teaching certificate. Also, teacher experience shows the typical U-shaped relationship with turnover observed in other studies (e.g., Hanushek, Kain, & Rivkin, 2004). Among principal characteristics, only gender is significantly associated with turnover, with female principals experiencing greater difficulty retaining teachers ($\beta = 0.015$).

Table 2. The role of supervisor race congruence in predicting employee satisfaction and turnover.

	Teacher Satisfaction			Teacher Turnover after 1 Year		
Dependent Variable:	OLS (1)	Matching Model (2)	School Fixed Effects (3)	OLS (4)	Matching Model (5)	School Fixed Effects (6)
Race congruence	0.027	0.118***	0.067*	−0.020	−0.061**	−0.040**
	(0.028)	(0.022)	(0.037)	(0.013)	(0.011)	(0.019)
School controls included?	Yes	n/a	No	Yes	n/a	No
Teacher controls included?	Yes	n/a	Yes	Yes	n/a	Yes
Principal controls included?	Yes	n/a	No	Yes	n/a	No
Constant	3.592***		3.415***	0.362***		0.316***
	(0.063)		(0.077)	(0.043)		(0.025)
Observations	37,110	2,440	39,430	37,010	2,440	39,310
Adjusted R^2	0.045	n/a	0.164	0.038	n/a	0.140

Notes: Standard errors in parentheses. For OLS and fixed effects models, standard errors are clustered at the school level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Matching models based on five closest nearest-neighbor matches within school district and school level (e.g., elementary), subject to propensity score of matched control observation being within a one-tenth of a standard deviation caliper of treatment observation. Average treatment on the treated (ATT) reported. Matching model observations indicate number of treated teachers. Sample sizes rounded to the nearest 10 per NCES nondisclosure rules.

The final teacher satisfaction model uses OLS with school fixed effects to control for unobservable school and principal characteristics, our preferred specification. The coefficient is 0.067, which is statistically significant at the 0.10 level. This coefficient can be interpreted to indicate that the satisfaction level of an employee who is race-congruent with his or her supervisor will be approximately 0.07 points higher on a 4-point scale than a similar worker *in the same school* who is not of the same race as the supervisor. The effect size (in standard deviation units) is 0.10, which, for comparison, is approximately three times larger than the satisfaction difference between men and women in the model and roughly the same size as the average conditional satisfaction difference between white and nonwhite teachers, with nonwhites in the same school being more satisfied.

The remaining columns use whether a teacher leaves the school in the year following the SASS survey administration as the dependent variable. In this case, negative coefficients on race congruence indicate that this variable is associated with lower probabilities of employee exit. Looking across the columns, the results for race congruence appear to be consistent with those obtained in the job satisfaction models. As was the case in column 1, the coefficient in the OLS model in column 4 is not statistically significant at conventional levels ($p = 0.13$).[7] Because turnover is estimated as a linear probability model, the coefficient can be interpreted as the difference in the predicted turnover probability for similar race-congruent and race-incongruent teachers in observationally similar school environments. Taken at face value, this coefficient ($\beta = -0.020$) suggests that supervisor race congruence is associated with a turnover rate that is 2 percentage points lower than for race incongruence.

As before, the coefficients obtained from the matching and school fixed effects estimators are larger than the OLS coefficient. For the matching comparison, $\beta = -0.06$ ($p < 0.05$), a coefficient that is roughly three times larger than the OLS result, though again, the matching sample contains a qualitatively different sample of teachers (larger districts, more urban) than the full sample.

When the comparison is limited to teachers in the same school in the fixed effects model in column 6, the coefficient is between the other two results. In this model, a race-congruent teacher is 4 percentage points less likely to turn over within the next year than a similar race-incongruent teacher in the same school. This effect is large, given that overall year-to-year turnover in the sample is 14 percent. Comparing the OLS and fixed effects models illustrates the importance of taking the characteristics of the work environment, including the efficacy of the principal, into account.[8] Correlations with unobserved workplace conditions might otherwise confound the apparently large impact of supervisor race congruence on work outcomes for public employees.[9]

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[7] We also considered in the OLS models whether the race characteristics of the other teachers in the school might be biasing the race congruence estimate by including the fraction of teachers from each race group as covariates. The race congruence coefficients were very close to those presented for both satisfaction and turnover. This stability is likely because the models already control for student race characteristics, which are highly collinear with teacher race characteristics. For example, the correlation between fraction African American teachers and fraction African American students in the school is 0.79.

[8] One alternative explanation we investigated for the race congruence results was the possibility that teacher–principal race congruence is a proxy for teacher–student race congruence. If teachers are more satisfied and less likely to turn over in schools with students with whom they share race characteristics, and race congruence between teachers and students is positively correlated with race congruence between teachers and principals, omitted teacher–student congruence could be driving the results. However, including an interaction between teacher race and the fraction of African American students in the school had virtually no effects on the teacher–principal race congruence coefficients in the satisfaction and turnover school fixed effects models in Table 2, nor was the interaction itself statistically or substantively meaningful.

[9] We also investigated whether differences in the definition of race congruence affect the results. In particular, we checked whether the results were sensitive to having an exact match on race and ethnicity by recoding all teachers and principals to be either white (non-Hispanic) or nonwhite and defining congruence accordingly. This coding scheme counts any nonwhite teacher (e.g., African American) as race congruent with any nonwhite principal (e.g., Hispanic). Coefficients obtained using this alternative coding scheme were very similar to those shown in the paper.

SUPERVISOR RACE CONGRUENCE AND THE DISTRIBUTION OF BENEFITS TO EMPLOYEES

Our application of representation theory also suggests that teachers supervised by principals of the same race will have greater organizational benefits directed toward them. We estimate the association between supervisor race congruence and multiple employee-level benefits using the same OLS, matching, and school fixed effects approaches applied in the analyses of satisfaction and turnover. We use four measures of tangible and intangible benefits that could be distributed to teachers: supplemental pay, support, autonomy, and recognition.

Supplemental Pay

First, we consider direct benefits that principals might confer on teachers. One such potential direct benefit is compensation. In the case of teachers, however, we would not expect to see race congruence translate into differences in base pay. The uniform salary schedule that nearly all districts use makes base pay a function of experience and degree attainment; typically, the principal does not have much discretion over this amount. To confirm that race congruence has no effect on teachers' base salary, we estimated Equation (3) with reported base salary as the dependent variable (not shown). As expected, the coefficient was small and not statistically distinguishable from zero.

However, in many schools teachers can receive supplemental pay on top of their base salary for taking on extracurricular work. These assignments likely have a large element of principal discretion. SASS measures supplemental pay via the teacher questionnaire: "During the current school year, do you, or will you, earn any additional compensation from this school system for extracurricular or additional activities such as coaching, student activity sponsorship, or teaching evening classes?" If respondents answer affirmatively, they are then prompted to indicate how much they earned.

The first row of Table 3 shows the result of estimating the relationship between supplemental pay and race congruence. Because supplemental pay is concentrated at the secondary level for activities such as coaching and after-school tutoring, results are based only on responses from high school teachers.[10] The results provide support in favor of Hypothesis 2. The OLS coefficient is $\beta = 326$ ($p < 0.10$). The matching and school fixed effects models both find even larger coefficients, and both are significant at the 0.05 level. The coefficients from these two models indicate that, comparing teachers both to similar teachers in the district and within the same school, high school teachers who share race with their principals receive between $400 and $500 more per year in supplemental salary than teachers who do not share those race characteristics. Given that the average high school teacher's base salary is $41,300, at about 1 percent of base pay, this return to race congruence appears to be substantial.

Intangible Benefits

Next we turn to teachers' perceptions of other, intangible benefits that may be conferred by the principal and whether the perceptions of the distributions of those benefits are associated with supervisor race congruence. In particular, we consider whether the teacher perceives that the principal provides the teacher with: (1) administrative support and encouragement; (2) autonomy in classroom decision making; and (3) recognition for good job performance. Measures of each of these benefits are taken from the teacher questionnaire.[11] As with job satisfaction,

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[10] Average supplemental pay per year by school level is: $624 (elementary), $1,242 (middle), and $1,889 (high). The substantially higher numbers for secondary schools confirms that it is appropriate to examine high schools separately.

[11] The specific questionnaire items for support and encouragement and recognition variables are: "The school administration's behavior toward the staff is supportive and encouraging" and "In this school, staff members are recognized for a job well done."

Table 3. Supervisor race congruence and the distribution of employee benefits.

Dependent Variable	OLS (1)	Matching Model (2)	School Fixed Effects (3)
Supplemental salary (high schools only)	326.2*	496.0***	407.9**
	(170.1)	(181.6)	(178.6)
	N = 17,520	N = 790	N = 18,930
Support and encouragement	0.032	−0.034	0.080*
	(0.032)	(0.021)	(0.044)
	N = 37,110	N = 2,440	N = 39,430
Autonomy	0.053*	0.077***	0.049
	(0.032)	(0.026)	(0.043)
	N = 37,110	N = 2,440	N = 39,430
Recognition for a job well done	0.019	=0.033	0.060*
	(0.031)	(0.023)	(0.037)
	N = 37,110	N = 2,440	N = 39,430

Notes: Coefficients for race congruence displayed. Standard errors in parentheses. For OLS and fixed effects models, standard errors are clustered at the school level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

OLS models include full school and teacher control variables. School fixed effects models include full teacher control variables. Matching models based on five closest nearest-neighbor matches within school district and school level (e.g., elementary), subject to propensity score of matched control observation being within a one-tenth of a standard deviation caliper of treatment observation. Average treatment on the treated (ATT) reported. Matching model observations indicate number of treated teachers. Sample sizes rounded to the nearest 10 per NCES nondisclosure rules.

responses are recorded on a 4-point scale. The classroom autonomy measure is created from six separate autonomy measures using factor analysis.[12]

The results are summarized in the remainder of Table 3. In general, the results are consistent with the idea that teachers tend to perceive greater intangible benefits from their direct supervisor when he or she is of the same race, particularly in the comparison provided by the school fixed effects (column 3). Compared to race-incongruent teachers in the same school, race-congruent teachers perceive the principal as providing modestly more support and encouragement ($\beta = 0.08$, $p = 0.07$). A similar result is obtained for perceptions of job recognition ($\beta = 0.06$, $p = 0.10$). The coefficients for classroom autonomy are statistically significant for both the OLS and matching models, though not significant in the school fixed effects model, suggesting that there may be cross-school differences in classroom autonomy by supervisor race congruence but not differences within schools. Overall, Table 3 provides some support for Hypothesis 2, that public sector employees receive greater benefits from the organization when they share race characteristics with their immediate supervisor.

DISAGGREGATING THE RESULTS BY RACE

We next test for potential differential impacts of race congruence on satisfaction and turnover and on tangible and intangible benefits to employees for street-level

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[12] The classroom autonomy measure is created from responses to the question, "How much actual control do you have IN YOUR CLASSROOM at this school over the following areas of your planning and teaching?" Respondents assess degree of control on a 4-point scale for six items: *selecting textbooks and other instructional materials*; *selecting content, topics, and skills to be taught*; *selecting teaching techniques*; *evaluating and grading students*; *disciplining students*; and *determining the amount of homework to be assigned*. Factor analysis of these six responses results in one latent factor (Cronbach's $\alpha = 0.75$). The standard linear factor scoring method is used to create an autonomy score for each teacher. Scores are standardized.

Table 4. Differences in the impact of supervisor race congruence on employee satisfaction and turnover by race.

Sample is Schools with:	African American Principals		White Principals	
Dependent Variable	OLS (1)	School Fixed Effects (2)	OLS (3)	School Fixed Effects (4)
Teacher satisfaction	0.153**	0.182**	–0.017	–0.012
	(0.060)	(0.072)	(0.028)	(0.033)
	N = 3,290	N = 3,570	N = 32,820	N = 34,790
Teacher turnover after 1 year	–0.027	–0.044	–0.004	–0.019
	(0.026)	(0.027)	(0.014)	(0.017)
	N = 3,290	N = 3,570	N = 32,720	N = 34,670

Notes: Coefficients for race congruence displayed. Standard errors in parentheses, clustered at the school level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

OLS models include full school and teacher control variables, except teacher race. School fixed effects models include full teacher control variables, except teacher race. Sample sizes rounded to the nearest 10 per NCES nondisclosure rules.

bureaucrats of different racial backgrounds. We estimate OLS and school fixed effects models separately for schools with African American and white principals. Samples are split by principal race instead of teacher race because splitting on teacher race would make the impact of race congruence inseparable from the school fixed effect in those models. Because we were only able to obtain adequate propensity score matches for a very small number of teachers in the African American subsample, we do not show matching results for the disaggregated samples.[13]

Table 4 displays the results for teacher satisfaction and turnover. The two dependent variables are shown along the rows, while the columns describe the two models estimated separately for African Americans and whites. Each cell in the table gives the coefficient and standard error for the race congruence variable for the model, plus sample sizes.

Results for African American teachers' satisfaction are consistent with the results shown in Table 2. In both models, having a race-congruent supervisor is positively associated with job satisfaction. According to the OLS model, across schools, African American teachers who work for African American principals have satisfaction ratings that are 0.15 points higher on a 4-point scale than white teachers who work for African American principals, conditional on other factors. When the comparison is limited to white teachers in the same school in the fixed effects model, the difference rises to 0.18 points. Both of these coefficients are statistically significant at the 0.05 level.

In contrast, neither of the coefficients for whites is statistically significant, despite the much larger sample sizes, and both are negatively signed. There is no evidence that white teachers who work for white principals are more satisfied than African

[13] The strategy for the matching models was to match African American teachers with race-congruent principals to African American teachers with race-incongruent principals, and similarly for white teachers. Unfortunately, the low fraction of black teachers in the sample (8 percent) combined with the large set of covariates in the propensity score models left too few teachers that could be matched in that subsample. For example, for satisfaction and turnover, we were only able to match 75 black teachers using the algorithm implemented elsewhere in the paper. Moreover, almost all of these could be matched to only one other teacher, whereas we match up to five nearest neighbors in the full sample. Given the small numbers and the already unrepresentative sample, it was not clear that the results were meaningful, so we chose to omit them.

Table 5. Differences in the impact of supervisor race congruence on the distribution of employee benefits.

Sample is Schools with:	African American Principals		White Principals	
Dependent Variable	OLS (1)	School Fixed Effects (2)	OLS (3)	School Fixed Effects (4)
Supplemental salary (high schools only)	−83.1 (297.8) N = 1,520	−54.7 (344.0) N = 1,670	741.1*** (184.8) N = 15,640	540.5*** (140.2) N = 16,880
Support and encouragement	0.177*** (0.067) N = 3,290	0.214** (0.084) N = 3,570	−0.032 (0.033) N = 32,820	−0.039 (0.036) N = 34,790
Autonomy	0.179** (0.071) N = 3,290	0.131* (0.080) N = 3,570	−0.036 (0.031) N = 32,820	−0.023 (0.037) N = 34,790
Recognition for a job well done	0.247*** (0.060) N = 3,290	0.236*** (0.079) N = 3,570	−0.040 (0.034) N = 32,820	−0.048 (0.039) N = 34,790

Notes: Coefficients for race congruence displayed. Standard errors in parentheses, clustered at the school level.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

OLS models include full school and teacher control variables, except teacher race. School fixed effects models include full teacher control variables, except teacher race. Sample sizes rounded to the nearest 10 per NCES nondisclosure rules.

American teachers who work for white principals. In general, the role of race congruence in determining worker satisfaction appears much more relevant for African American teachers than for white teachers.

Less robust differences between African Americans and whites exist in the teacher turnover models. Signs are negative across all four columns, implying a general inverse relationship between race congruence and probability of exit for both races. In general, African American coefficients are larger than white coefficients in each corresponding model. Moreover, while none of the coefficients are statistically significant at conventional levels, the *p*-value for the school fixed effects coefficient for African Americans is 0.11, despite the much smaller sample size than is available in the models for whites. We take this as weak evidence that the work decisions of African Americans and whites are differentially impacted by supervisor race and that the overall association between employee turnover and supervisor race congruence is driven by effects on black workers.

Table 5 shows the results of the analysis for tangible and intangible benefits, again split by race. Here the results are quite stark. For tangible benefits (supplemental salary), we find no evidence that African American teachers with African American principals receive more supplemental salary than white teachers, even when the comparison is limited to be within schools. In contrast, there are differences in the distribution of tangible benefits by race in schools with white principals. In particular, the fixed effects model shows that white teachers supervised by white principals receive approximately \$540 ($p < 0.01$) more in supplemental pay than African American teachers in the same school, on average.

Surprisingly, we find the opposite patterns for intangible organizational benefits. In both the OLS and fixed effects models, African American teachers supervised by African American principals are more likely to perceive that their principal provides them with support and encouragement. They also feel that they are given more

autonomy in their classroom, and they report feeling greater recognition for a job well done. Each of these coefficients appears to be relatively large in magnitude, totaling around one-fifth of a point on a 4-point scale for support and job recognition and about 0.16 standard deviation on the autonomy scale. In contrast, we find no evidence in either the OLS or school fixed effects models that black and white teachers differ in perceptions of intangible benefits when supervised by a white principal. All six coefficients are statistically insignificant.

FURTHER INVESTIGATION OF RACE CONGRUENCE AND SUPPLEMENTAL SALARY

The striking finding that supplemental salaries are higher among high school teachers who are race-congruent with their principals, particularly when those principals are white, merits further investigation. We can rule out some possible explanations. For example, one possibility is that supplemental pay opportunities grow with seniority, which might suggest that the association we observe could be a byproduct of teachers sorting toward race-congruent principals over time if the models did not control for teacher experience. Moreover, the school fixed effects models show that this result cannot be explained merely by an unequal distribution of supplemental pay across different kinds of schools. Fortunately, we can draw on additional SASS data to examine the result and possible explanations for it in a bit more depth.

At a basic level, there are two possible mechanisms through which race congruence might be associated with greater supplemental pay within the same school environment: (1) Teachers with race-congruent principals take on opportunities to earn supplemental pay more frequently, because they are more likely either to be given the opportunity or to seek them out; and (2) race-congruent teachers receive higher payment for supplemental duties, even if they take on those duties on at the same rates as race-incongruent teachers. To provide insight into the relative contributions of these two mechanisms, we draw on information collected in the SASS teacher survey about teachers' non-teaching duties. In particular, the survey asks, "During this school year, do you or will you . . . ?" followed by a list of five non-teaching duties: *coach a sport*, *sponsor any student groups*, *serve as a department chair*, *serve as a lead curriculum specialist*, and *serve on a school-wide or district-wide committee or task force*. While not comprehensive, this list does contain duties that it is reasonable to expect would be accompanied by additional compensation, though the survey does not specifically link the non-teaching responsibilities to extra pay.

For each of the five tasks, we first estimate separate versions of Equation (3) predicting the probability that a high school teacher takes on each duty as a function of teacher–principal race congruence, teacher characteristics, and school fixed effects. The results (not tabulated) indicate that race congruence is indeed associated with significantly higher probabilities of coaching a sport ($\beta = 0.032$, $p = 0.08$), sponsoring a club ($\beta = 0.049$, $p = 0.04$), and serving as a department chair ($\beta = 0.044$, $p = 0.03$). No strong evidence of a race congruence effect was found for the other non-teaching duties in the full high school sample. When the schools are broken down by principal race, we find evidence that the association between race congruence and the probability of taking on non-teaching duties seems to be stronger in schools with white principals. The coefficients in the coaching ($\beta = 0.03$, $p = 0.06$) and department chair ($\beta = 0.03$, $p = 0.04$) models are only statistically significant for schools with white principals; moreover, the coefficient in the model for serving on a district-wide committee also becomes positive and significant ($\beta = 0.06$, $p < 0.01$) when the sample is limited to those schools. For only one duty, sponsorship of student groups, is the coefficient positive and significant in the models for schools with black principals ($\beta = 0.15$, $p < 0.01$) and not for schools with white principals. In sum, there is evidence in favor of the hypothesis that the race congruence effect on supplemental salary is at least partially driven by teachers gaining access to opportunities to earn additional pay, particularly in schools led by white administrators.

To examine the second mechanism, we next re-estimate Equation (3) five times for high school teachers with supplemental salary as the dependent variable, with each re-estimation separately limiting the sample to teachers taking on each of the five supplemental job duties. These models compare supplemental compensation among teachers in the same school taking on the same extra duty for evidence that race congruence affects the amount the teacher makes. For example, the analysis of coaches implicitly compares compensation for race-congruent teachers who coach sports with observationally equivalent *incongruent* coaches in the same school.

Unfortunately, the limitations placed on the samples for these models are restrictive. For instance, only 270 high schools in the sample have at least two coaches surveyed *and* variation in race congruence among those coaches. Moreover, we are missing important information about the specific duties (e.g., what sport was coached). Thus, the results obtained must be interpreted as far from conclusive. Nevertheless, we find some evidence of differential pay within school among teachers taking on the same duties. Race congruence with one's principal is positively associated with pay for serving on a district-wide committee or task force, particularly in schools with white principals, where white teachers receive \$502 more, on average, than black teachers who report similar service ($p = 0.02$). A similar pattern holds for white teachers with white principals who report sponsoring student groups; these teachers make \$485 more than black teachers in the same school who also report serving as sponsors. Differences in pay for other non-teaching duties are not statistically significant. Again, however, these coefficients are estimated off of differences between teachers in a small fraction of SASS high schools.[14]

We interpret these results as finding evidence that the race congruence–supplemental pay relationship operates through greater propensities to take on extra duties, as well as more limited evidence of higher compensation for duties between congruent and incongruent teachers in the same school for two activities out of the five examined. However, it is important to note that teachers likely have other opportunities to earn supplemental pay that we cannot examine because SASS does not include them (e.g., tutoring). Further investigation of this result using more detailed administrative data is necessary to more thoroughly characterize the role of principal race congruence in determining teachers' total take-home pay.

DISCUSSION AND CONCLUSIONS

Substantively, staffing public organizations with bureaucrats with diverse characteristics can help ensure that the bureaucracy implements policies in ways that better serve the needs of minority clientele (e.g., Dolan & Rosenbloom, 2003; Hindera, 1993; Keiser et al., 2002; Meier, 1993; Rosenbloom & Featherstonhaugh, 1977). Our results illustrate that an important factor in maintaining the racial diversity of the front line of the bureaucracy is the diversity of the corps of managers who provide direct oversight of the street level. Teachers are substantially more likely to stay in schools run by a principal of the same race, an effect that appears to be stronger for schools with black principals. They also report higher job satisfaction, again particularly in African American–run schools, an association that may be driven by differences in how they are managed, given that teachers with race-congruent principals report feeling somewhat higher levels of administrative support, autonomy, and recognition than other teachers report. Importantly, the intangible benefits we analyze constitute only a small subset of the range of organizational benefits over which supervisors exercise discretion. The cumulative effects of having a supervisor of the

[14] Approximately 520 schools have variation in race congruence among high school teachers who work for white principals who report sponsoring a student group. For teachers who serve on a district-wide committee, there is race congruence variation in 440 high schools with white principals.

same race over all such benefits may constitute quite a large impact of race congruence on the job experiences of public sector workers.

A potentially more troubling result uncovered in this analysis is the finding that supervisor race congruence is associated with an increase in non-teaching, supplemental compensation, at least in high schools. Moreover, this effect is driven by differences between the supplemental pay of black and white teachers in schools with white principals, and it is present even when the comparison is made within schools. A closer look at supplemental activities shows evidence that these differences derive largely from white teachers being more likely to take on non-teaching duties than their nonwhite colleagues when the principal is white. We cannot be sure from these data what kinds of social or management processes underlie these differences. One possibility is that white principals tend to give access to opportunities to earn extra pay to white teachers over nonwhite teachers even though both apply at the same rate. This tendency could come from discrimination; white principals simply tend to favor white teachers over nonwhite teachers and grant them supplemental pay opportunities accordingly. Theory and findings in the literature on representative bureaucracy, as well as similarity-attraction theory, provide another explanation. Just as clients of the bureaucracy are more likely to feel comfortable interacting with those in the hierarchy who share their demographic characteristics (Meier & Nicholson-Crotty, 2006; Thielemann & Stewart, 1996), white teachers may be more comfortable requesting discretionary opportunities from white principals, and white principals may be more likely to encourage them because of higher comfort levels and shared values. It is unclear, however, why a similar process would not be at work in schools with African American principals, except perhaps that those principals may command fewer resources and therefore less discretion in allocating supplemental pay. Whatever the mechanism, the outcome appears to be that, despite single salary schedules, which came about in large part to prevent differences in pay among teachers, black teachers are earning less in sum than their observationally equivalent white colleagues in some schools. This result deserves further inquiry.

Our results also have implications for our understanding of the teacher labor market. On the whole, the results concerning satisfaction and tangible and intangible benefits suggest that teachers gain from working for race-congruent principals. Given these gains, we might expect that teachers will tend to sort toward principals of the same race as they gain experience, with movement of teachers to new schools run by own-race principals at least partially driving the turnover results we observe. Data limitations prevent us from testing this possibility directly,[15] but indirect evidence suggests that this sorting process is in fact occurring. Figure 1 shows the unconditional predicted probability that a teacher works for a race-congruent principal as a function of experience in the profession.[16] As the figure illustrates, beginning teachers have about a 75 percent likelihood of working for an own-race principal. This probability rises as teachers move through the profession, so that a teacher working 30 years has about an 85 percent chance of working for a principal of the same race. While these numbers combine the effects of race congruence on hiring, mobility, attrition, geographic sorting, and so forth, it does suggest an overall pattern of movement with respect to race among teachers (and possibly principals) that research on the labor market for school personnel might consider further.

From an education policy perspective, our results provide justification for policymakers to undertake programs targeted at increasing the flow of minority teachers

[15] Unfortunately, the Teacher Follow-up Survey does not contain information on the race of the principal at the new school of a teacher who moved.
[16] This figure results from running a simple bivariate regression of race congruence on (linear) total teaching experience.
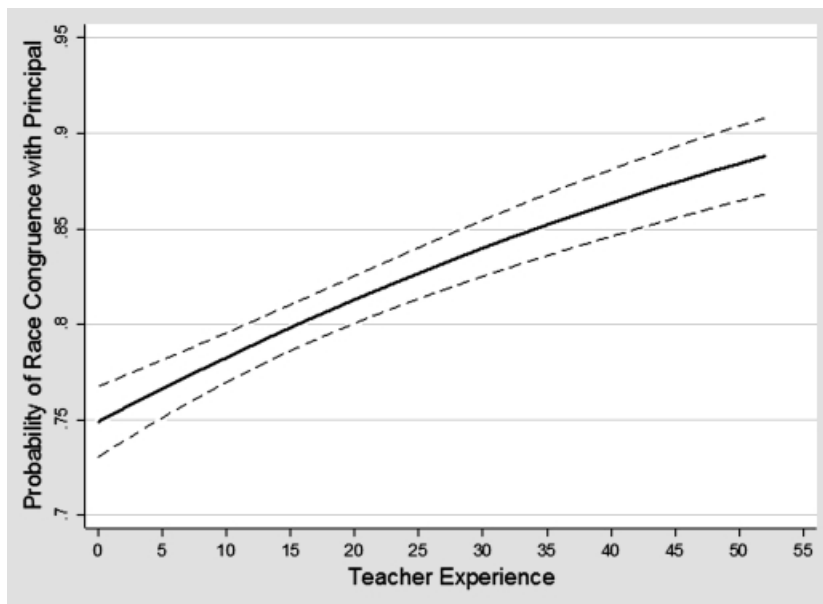
Figure 1. Teacher–principal race congruence and teacher experience.

into the principal pipeline. Traditionally, minorities have been underrepresented in the public school principalship (Brown, 2005; Fuller et al., 2007; Gates et al., 2003). This underrepresentation has been attributed to a failure to attract members of these underrepresented groups into leadership preparation programs and a lack of mentoring of these teachers for leadership positions, among other causes (Foster, 2004; Gates et al., 2003). While prior studies have found little evidence of direct effects of minority principals on minority student outcomes (Meier & Stewart, 1992; Pitts, 2007), the evidence presented here suggests that policies aimed at attracting and retaining minority principals can have long-term indirect benefits, since minority principals help schools retain minority teachers, who in turn promote the achievement of minority students and perhaps nonminority students as well (e.g., Meier, Wrinkle, & Polinard, 1999). Ensuring access to administrative positions for minority teachers could comprise one component of districts' diversity management policies, which are increasingly common in public organizations (Pitts, 2006).

Similarly, school districts might also benefit from incorporating strategies for working with and managing teachers of different races into principal professional development programs. Race appears to play an important role in how principals treat teachers and how teachers perceive the treatment they get, resulting in inequities of treatment and perception within schools. Research has demonstrated that professional development concerning race can change white educators' behaviors concerning students of color (e.g., Lawrence & Tatum, 1997). Professional development might play a similar role in changing the relationships between principals and race-incongruent teachers to promote greater satisfaction and retention.

Finally, this study makes a contribution to the literature on race and administration. Our results suggest that the principles underlying the theory of representative bureaucracy, which in previous work have been applied primarily to the relationship between frontline bureaucrats and client populations, can be applied to the relationships between supervisors and employees as well. Just as the needs of underrepresented groups can be met better when they are represented by street-level bureaucrats

with similar racial backgrounds, the interests of workers from underrepresented groups can be served better by representation above them in the organizational hierarchy. This contribution to the literature is important because it opens up a new area of empirical inquiry that has multiple implications for the management of public organizations.

JASON A. GRISSOM is Assistant Professor at the Harry S Truman School of Public Affairs, 118 Middlebush Hall, University of Missouri, Columbia, MO 65211.

LAEL R. KEISER is Associate Professor at the University of Missouri, 113 Professional Building, University of Missouri, Columbia, MO 65211.

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