



# Representation in the classroom: The effect of own-race teachers on student achievement



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## ARTICLE INFO

### Article history:

Received 29 March 2013

Revised 22 January 2015

Accepted 24 January 2015

Available online 31 January 2015

### JEL classification:

I20

### Keywords:

Race and ethnicity matching

Student/teacher assignment

Minority teachers

Minority students

Achievement gap

Educational economics

## ABSTRACT

Previous research suggests that there are academic benefits when students and teachers share the same race/ethnicity because such teachers can serve as role models, mentors, advocates, or cultural translators. In this paper, we obtain estimates of achievement changes as students are assigned to teachers of different races/ethnicities from grades 3 through 10 utilizing a large administrative dataset provided by the Florida Department of Education that follows the universe of test-taking students in Florida public schools from 2001–2002 through 2008–2009. We find small but significant positive effects when black and white students are assigned to race-congruent teachers in reading (.004–.005 standard deviations) and for black, white and Asian/Pacific Island students in math (.007–.041 standard deviations). We also examine the effects of race matching by students' prior performance level, finding that lower-performing black and white students appear to particularly benefit from being assigned to a race-congruent teacher.

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## 1. Introduction

Minority teachers are underrepresented in American public schools (Ingersoll & May, 2011; Kirby, Berends, & Naftel, 1999; Villegas, Strom, & Lucas, 2012). Though concerning in any profession, the disproportionate number of minority teachers is particularly noteworthy because a growing body of research suggests that minority students could benefit from assignment to teachers of their own race/ethnicity

(Clotfelter, Ladd, & Vigdor, 2007; Dee, 2004; Ehrenberg, Goldhaber, & Brewer, 1995; Meier, Wrinkle, & Polinard, 1999; Pitts, 2007). If that is indeed the case, then the underrepresentation of minority teachers in schools could be a contributing factor to the racial test score gap in the United States.

Many practitioners, policymakers, and others in the education community have claimed that minority teachers are uniquely positioned to improve the performance of minority students directly or indirectly, by serving as role models, mentors, advocates, or cultural translators for those students (Adair, 1984; Graham, 1987; King, 1993; Ladson-Billings, 1992; Pitts, 2007; Stewart, Meier, & England, 1989). This has resulted in calls from prominent politicians and education administrators for the large-scale recruitment of minority teachers (see, for example, U.S. Department of Education, 2010). In some cases, state policies have been enacted to recruit minority teachers. For example, Florida adopted a

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strategy in 1996 to recruit and train more minority teachers by offering an annual scholarship of up to \$4000 for African-American, Hispanic-American, Asian-American, and Native American students in Florida's public or private universities that are admitted into a teacher education program (Florida Fund for Minority Teachers, Inc., 2014).

Whether or not assignment to a teacher of the same race/ethnicity is related to student achievement is an empirical question that has yet to be fully resolved. The analyses presented in this paper add to a growing body of research by taking advantage of a large dataset that includes approximately three million students linked to 92,000 teachers over a period of seven years throughout the Florida public school system. Following the performance of individual students across an entire state as they are assigned to teachers of different race/ethnicities throughout their elementary and secondary education provides an especially rigorous test of the claims that minority teachers can boost the performance of minority students in both elementary and middle/high school grades.

We find that student math and reading achievement is significantly, positively influenced by the race/ethnicity of their teacher. Specifically, student math achievement increases by .008 standard deviations (SD) in math and .001 SD in reading. Although small, the overall match effect masks important heterogeneity by race. Results for black and white students are significantly positive in reading, with effect sizes of .004 and .005 SD, respectively. In math, results for black, white, and Asian students are .019, .007, and .041 SD, respectively. The largest positive impacts observed are for Asian students in grades six through ten, where student/teacher race matching is associated with a math achievement increase of .053 SD. Results for Hispanic students provide a notable exception to these findings and are discussed in further detail below.

The remainder of this paper proceeds as follows. In Section 2 we review the relevant literature on the effects of student/teacher race matching. In Section 3 we describe the data employed in this analysis and the student/teacher matching process. In Section 4 we present our empirical strategy. In Section 5 we present the primary results as well as additional analyses that evaluate our findings with regard to student performance levels. We discuss the results and the limitations of the study in the final section.

## 2. Literature

A number of theories exist to explain the mechanisms by which assignment to an own-race/ethnicity teacher might influence a student's achievement. Minority teachers may influence minority students in a passive way, by indirectly serving as role models (Adair, 1984; Graham, 1987; Hess & Leal, 1997; Stewart et al., 1989). If this is the case, students may respond to demographically similar role models by raising their motivation and personal expectations.<sup>3</sup> The presence of a demographically similar teacher may also re-

duce race/ethnicity-based "stereotype threat" (Steele, 1997; Steele & Aronson, 1995), which occurs when a student perceives that (s)he could be viewed through the lens of a negative stereotype and lowers academic engagement and performance as a result.

Assignment to a demographically similar teacher may also affect student achievement more directly if teachers display unintended biases or different expectations for students with different demographic traits than their own (Baron, Tom, & Cooper, 1985; Cahnmann & Remillard, 2002; Ferguson, 1998; McLoyd, 1998). In their 1995 study, Ehrenberg et al. found that teachers' race, gender, and ethnicity were likely to influence teachers' subjective evaluations of their students. These and related findings have been used to support policies for rigorous recruitment of minority teachers.

Although there is broad belief in the importance of race in student-teacher relationships, it has proved challenging to measure the impacts of these racial pairings on student achievement in a rigorous way, resulting in a relatively small body of empirical support. Dee (2004) provided the first experimental analysis of the relationship between teacher race/ethnicity and student achievement, yet his analysis is limited to grades K-3.<sup>4</sup> Dee analyzed test score data for black and white students participating in Tennessee's Project STAR, a four-year, large-scale randomized experiment designed to measure the relationship between class size and student achievement. Dee found evidence that assignment to an own-race/ethnicity teacher increases the math and reading achievement of both black and white students by between .6 and 6 percentile points.

Clotfelter, Ladd, and Vigdor (2007) affirmed Dee's findings for elementary students using panel data from North Carolina. Conversely, Howsen and Trawick (2007) analyzed a cross-sectional dataset comprised of Kentucky third-graders in 1989–1990 with an observational model that included control variables meant to capture the effect of "student innate ability," measured by a cognitive skills index, and found no statistically significant effect on student achievement. However, these studies were limited to early grades and did not consider effects for older students for whom racial/ethnic identity is enhanced. Indeed, with the exception of Ehrenberg et al. (1995) and Ehrenberg and Brewer (1995), there has been scant research on this topic at the secondary school level.

Using data from the National Educational Longitudinal Study of 1988, Ehrenberg et al. (1995) tested the race-matching hypothesis by examining students' performance gains from 8th grade to 10th grade. They were unable to control for the characteristics of the students' 9th grade teachers, however, which makes it impossible to identify if the students experienced a race-match in that intervening year or not. This significant limitation makes it difficult to interpret their null findings. In another study analyzing secondary students' outcomes, Ehrenberg and Brewer (1995) demonstrated test score improvements for black students assigned to black teachers.

<sup>3</sup> A related line of research has explored the relationship between teacher gender and student achievement, with mixed results (Bettinger & Long, 2005; Dee, 2005; Ehrenberg et al., 1995; Gibb, Fergusson, & Horwood, 2008; Neumark & Gardecki, 1998; Nixon & Robinson, 1999; Robst, Keil, & Russo, 1998; Winters et al., 2013).

<sup>4</sup> The bulk of the evidence that classroom interactions between white teachers and minority students may be a contributing factor to the black-white achievement gap had been under-developed up until that point (Crain & Mahard, 1978; Darkenwald, 1975; Ehrenberg et al., 1995; Farkas, Grobe, Sheehan, & Shauan, 1990; Glick, 1971; Maynor & Katzenmeyer, 1974; Ohberg, 1972; Sanders, 1984).

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