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POLICY BRIEF

The Effects of Teacher Diversity on Hispanic Student Achievement in Texas

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Executive Summary

In fall 2016, students of color made up the majority of public school students for the first time in the United States. But teachers of color are severely underrepresented in the teacher workforce, potentially negatively affecting students' outcomes. Evidence shows the value of a racial match between Black students and Black teachers on several outcomes, but much less is known about these effects for Hispanic and Latino students.

In this report, the researchers study the effects of exposure to Hispanic and Latino teachers on Hispanic and Latino students' scholastic and economic outcomes in Texas public schools, where the Hispanic share of teachers has increased from 15 percent to 27 percent from 1995 to 2018. The research design relies on within-school comparisons over time that control flexibly for variation in outcome dynamics across school districts. The researchers study short- and medium-term outcomes (e.g., standardized exam scores, discipline rates, and high school dropout rates) and long-term outcomes (e.g., high school graduation rates, college enrollment, college persistence, and college graduation) and find that exposure to teachers of color significantly improves short- and medium-term outcomes among elementary school students. The effects of teacher diversity are smaller and less precisely estimated for later grades and for long-term outcomes. These findings highlight the importance of policies aimed at increasing the representation of teachers of color in public schools.

What We Studied

Low levels of teacher diversity in U.S. elementary and secondary schools represent a wasted opportunity to narrow achievement gaps. Evidence from other states suggests that students of color have better outcomes in the classrooms of teachers of color, but the teaching workforce remains predominantly white. Teachers of color are underrepresented at all stages of the human capital pipeline into teaching, and demographic projections suggest that the problem is likely to worsen. Given the existing literature on teacher-student demographic match which mostly focuses on the positive effects of teacher-student race match for Black students, there are additional questions that have yet to be explored. These include the role of gender and matching effects for Latino and Hispanic students.

While there are some studies that investigate Latino and Hispanic teacher match, these studies are observational and cannot make claims to the causal effect of these matches on student outcomes. This is one of the first studies to explicitly estimate the causal impact of having same race teacher for Hispanic and Latino students, in the context of one of the largest and most diverse states in the country.

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Research Questions

1. Are Latino and Hispanic students underexposed to Latino and Hispanic teachers?
    a. How has exposure evolved over time?
    b. Are there differences in exposure across different parts of the state?

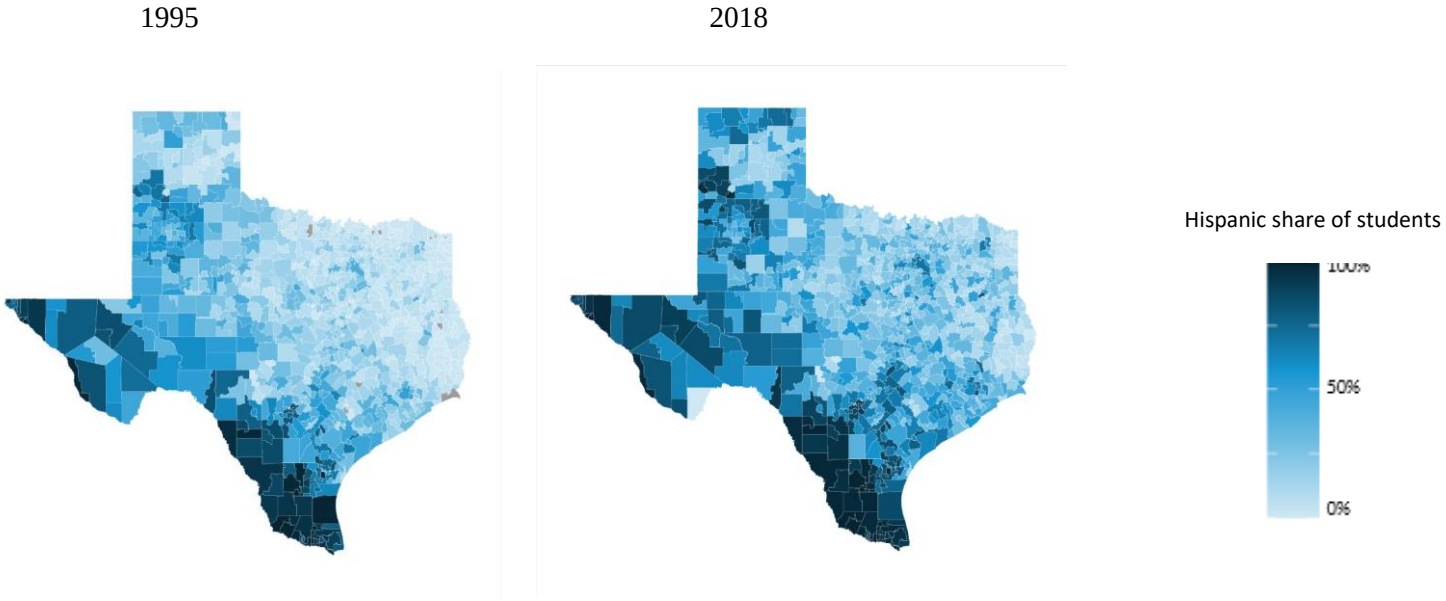
2. For a Latino and Hispanic student, what is the impact, across a range of outcomes, of having a Latino and Hispanic teacher *in the classroom*?
    a. Is this impact persistent?

How We Analyzed the Data

Researchers use administrative data from state education agencies—accessed via the Texas Education Research Center—to study the impact of Latino and Hispanic teachers on Latino and Hispanic students' short- and long-term scholastic outcomes. The Texas Education Research Center links records from the Texas Education Agency (TEA), including Texas Assessment of Academic Skills (TAAS), Texas Assessment of Knowledge and Skills (TAKS), and State of Texas Assessments of Academic Readiness (STAAR) testing data; the Texas Higher Education Coordinating Board (THECB); and the Texas Workforce Commission (TWC). The researchers observe longitudinally linked student records, containing information regarding school enrollment, student and staff demographics, student performance in standardized exams, discipline rates, high school graduation, college enrollment and completion, and labor market earnings. They use deidentified data for students who attended grades three through nine between 1995 and 2018 from these three sources.

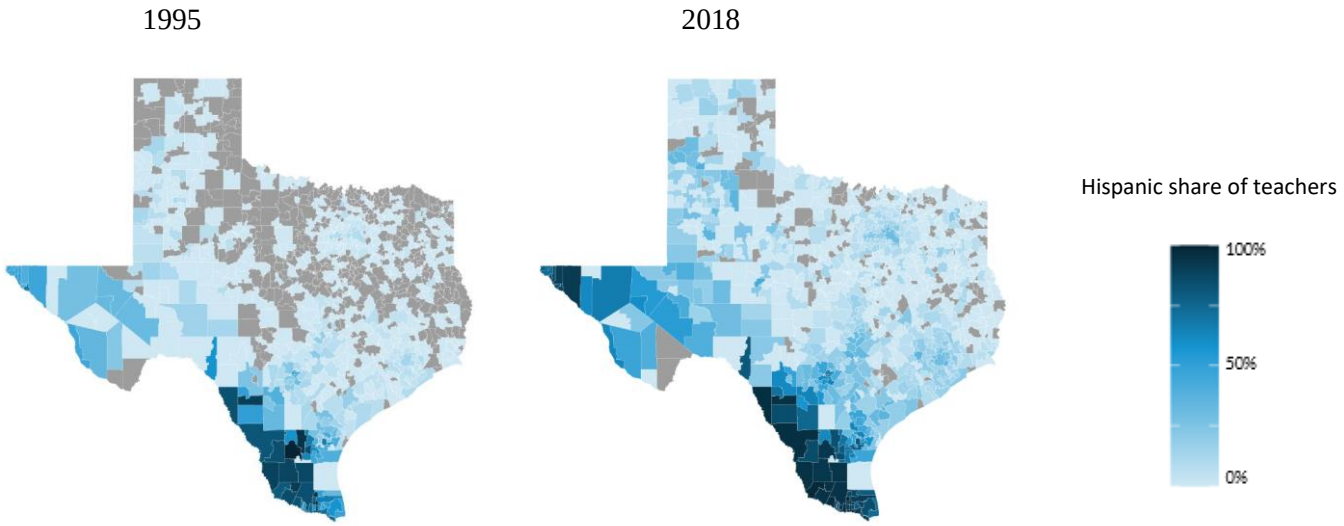
The researchers began their analysis by characterizing the distribution of K-12 teachers and students by race and ethnicity, by geography, and by school year. See Figures 1 & 2 to understand the change in share of Hispanic students and teachers from 1995 through 2018. See Figures 3 & 4 to understand the trend in outcomes for Hispanic students.

Figure 1
Hispanic Share of Students in Texas School Districts



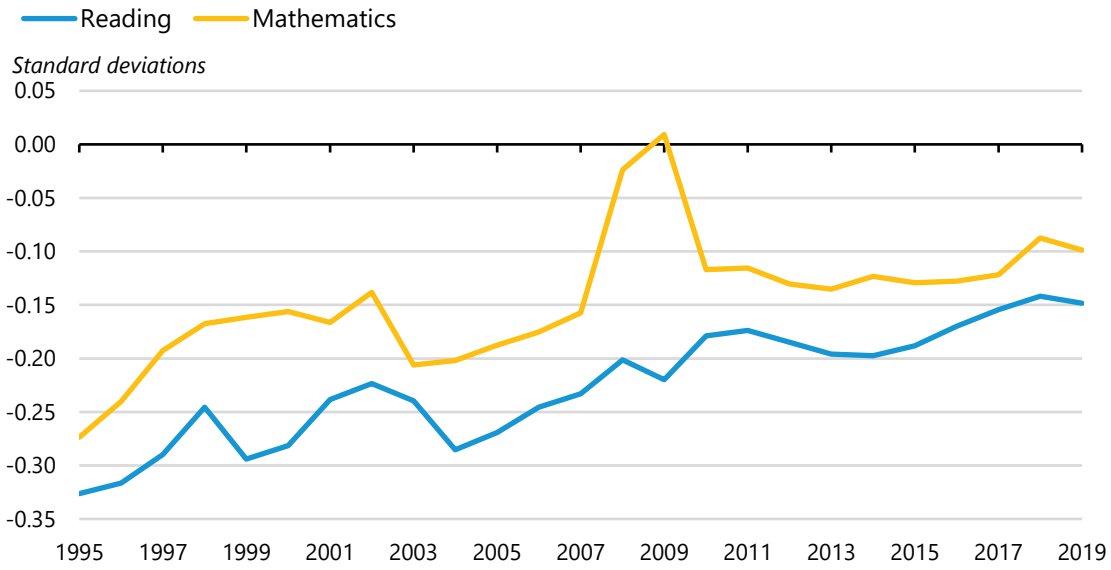
Source: 1995 and 2018 Texas Education Agency data via the Texas Education Research Center.

Figure 2
Hispanic Share of Teachers in Texas School Districts



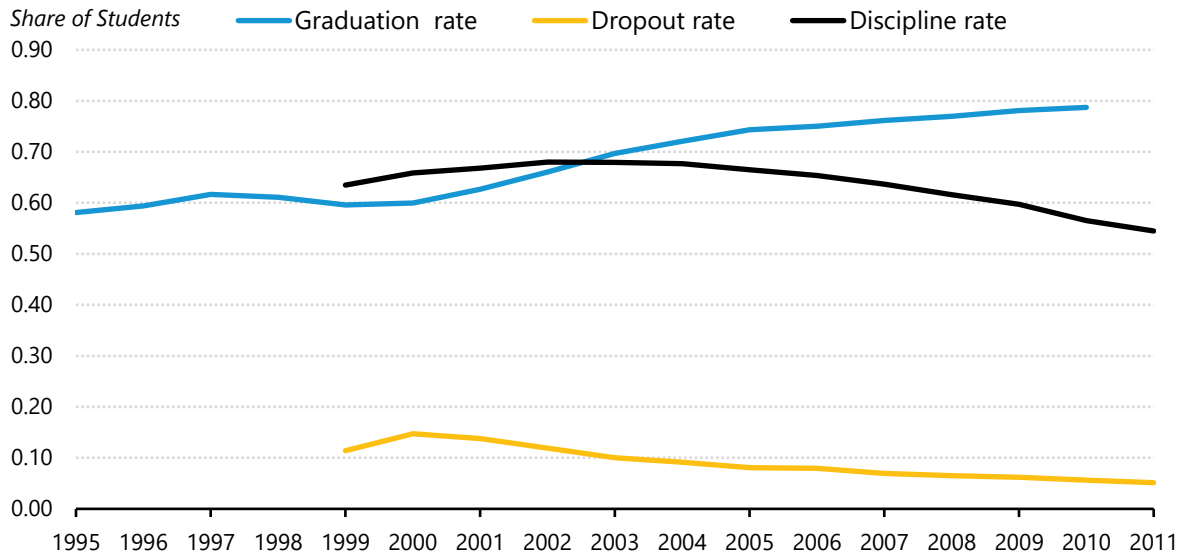
Source: 1995 and 2018 Texas Education Agency data via the Texas Education Research Center.
Note: These maps contain data for lead teachers only, not assistant teachers or paraprofessionals. Gray districts indicate zero Hispanic teachers.

Figure 3
Trends in Hispanic Students' Test Scores
Grade five cohorts



Source: 1995–2018 Texas Education Agency data via the Texas Education Research Center.

Figure 4
Trends in Hispanic Students' Medium-Term Outcomes
Grade five cohort



Source: 1995–2011 Texas Education Agency data via the Texas Education Research Center.
Note: See table 1 for descriptions of each variable.

Approach
The main results of the study are based regression models of student outcomes as a flexible function of school and student characteristics. Careful econometric modeling of student outcomes was necessary to establish causality, as simple comparisons of student outcomes by same-race teacher exposure may confound other important determinants of outcomes and conflate student selection patterns across schools and classrooms. If urban schools tend to have different average quality than other schools – perhaps due to urban-suburban differences in teacher or principal experience – then simple comparisons of outcomes by Hispanic or Latino teacher exposure would wrongly attribute part of this urban school effect to the same-race teacher effect. The researchers control for this, and many other possible mechanisms when attempting to establish causality.

The estimates leverage within-school longitudinal variation in the composition of the teacher force to identify causal effects. In other words, our estimates are based on comparisons restricted within the same school over time, assessing whether changes in faculty composition are linked to changes in student outcomes in each school in the state. Increases in the share of teachers that are Hispanic or Latino in a school increases the likelihood of exposure to a Hispanic or Latino teacher in the classroom. Thus, finding effects for school-wide composition – known as the "reduced form effects" in econometrics — is likely due to classroom level ethnicity matches between students and teachers, but perhaps also due to out-of-classroom interactions.

What We Discovered

The researchers estimate that the Hispanic faculty share leads to a 0.043 and 0.064 standard-deviation increase in reading and math scores for Hispanic students. The magnitude of these coefficients implies that a 25 percentage-point increase in the Hispanic faculty share, on average, leads to about a 0.01 and a 0.02 standard-deviation increase in reading and math scores. These are meaningful positive impacts on student achievement.

Looking across elementary school grades (grades three through six), they find statistically significant positive impacts for exposure to Hispanic teachers on Hispanic students' disciplinary action rates, eventual dropout rates, and likelihood of high school graduation. Notably, the test score impacts in grades three and four are larger than in grades five and six.

Student-teacher race matches in earlier grades lead to a reduction in the number of disciplinary events. Students are also less likely to ever receive disciplinary actions when they are matched at these earlier grades. As before, these impacts are concentrated in early elementary school grades. For high school outcomes, the estimates are more imprecise, but they still indicate that exposure to Hispanic teachers is causally linked to improved Hispanic student outcomes, especially for dropout rates. The magnitude of impacts for both disciplinary and high school outcomes is modest, on average, but heterogeneity analyses suggest that the effects may be larger in schools with low baseline Hispanic teacher exposure

The researchers do not detect impacts for college enrollment, but for the earliest grades, there are statistically significant positive impacts of being matched in earlier and later grades on college persistence (measured for a sample that conditions on college enrollment) and evidence that these matches matter for ever earning a bachelor's degree. The researchers have a sample an order of magnitude smaller for wages as they're only observed for the earliest cohorts of third- through sixth graders in the data. The evidence is not compelling in either direction for wage outcomes across any of the models.

Discussion/Policy Recommendations

The results fit in with the literature on teacher-student race matching for students of color. Using a large longitudinal administrative dataset from Texas, the researchers find positive results for elementary school students on reading and math standardized test scores, disciplinary outcomes, and high school dropout. They do not find statistically significant results for long-term outcomes, such as college enrollment, college completion, or labor market earnings. The researchers also do not find consistently positive effects for students in higher grade levels.

These results contribute to the evidence that undergirds calls to continue to diversify the teacher workforce. The present study, combined with the literature, not only indicates that the workforce should become more diverse but prompts an investigation of what teachers of color do differently in the classroom. Texas should consider the results of this study as the state sets priorities in developing and maintaining a strong and successful teacher workforce.