Who believes in me? The effect of student–teacher demographic match on teacher expectations

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ARTICLE INFO

ABSTRACT

Teachers are an important source of information for traditionally disadvantaged students. However, little is known about how teachers form expectations and whether they are systematically biased. We investigate whether student–teacher demographic mismatch affects high school teachers' expectations for students' educational attainment. Using a student fixed effects strategy that exploits expectations data from two teachers per student, we find that non-black teachers of black students have significantly lower expectations than do black teachers. These effects are larger for black male students and math teachers. Our findings add to a growing literature on the role of limited information in perpetuating educational attainment gaps.

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"You have to ignore it when a child says, 'I don't want to,' because what they're really saying is, 'I don't think I can and I need you to believe in me until I can believe in myself.'"[1]

Shanna Peeples, 2015 CCSSO National Teacher of the Year

1. Introduction

Socio-demographic gaps in educational attainment are well documented (Bailey & Dynarski, 2011; Bound & Turner, 2011). These gaps are especially concerning if they reflect under-investments in human capital among traditionally disadvantaged groups, such as racial minorities or children from low-income families. Sub-optimally low investments in human capital might arise if disadvantaged groups face barriers to educational attainment (e.g., credit constraints).

Limited information, incorrect beliefs, and biased expectations comprise another potentially important, but relatively understudied, source of socio-demographic gaps in educational attainment (Hoxby & Turner, 2013). We examine the formation of public school teachers' expectations of student educational attainment. Teachers likely play an important role in shaping students' beliefs about their academic prospects (Burgess & Greaves, 2013; Dee, 2015), particularly among relatively disadvantaged students who rarely interact with college-educated adults outside of school settings (Jussim & Harber, 2005; Lareau, 2011; Lareau & Weininger, 2008). More concerning, teachers' forecasts can affect students' performance. In a famous

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experiment, Rosenthal and Jacobson (1968) manipulated teachers' beliefs of student ability by providing false information regarding students' performance on a nonexistent test and found significantly greater school-year gains among the students who were falsely identified to teachers as "growth spurters". It is troubling, then, that teachers have significantly lower expectations for the educational attainment of socioeconomically disadvantaged and racial minority students (Boser, Wilhelm, & Hanna, 2014). However, whether these "expectation gaps" are evidence of biases in teachers' expectations or simply reflect accurate forecasts (perhaps due to differences in preparation or early childhood investments) is an open question that we address in the current paper.

Specifically, we test for systematic biases in teachers' expectations related to the demographic match between student and teacher using nationally representative survey data in which two teachers reported their expectations for each student's ultimate educational attainment. Differences between two teachers' expectations for the same student may be random in that they reflect idiosyncratic forecasting errors or interactions with a given student. Ex ante, such differences could even be legitimate if they reflect true within-student variation in ability across subjects. For example, if a student excels in math but struggles in reading, the math teacher might correctly forecast a higher level of educational attainment for this student than the student's reading teacher, and vice versa. However, barring a specific type of endogenous sorting of students to teachers – that we later show does not occur – neither of these reasons would explain an association between student–teacher demographic mismatch and within-student differences in teachers' education expectations. Rather, if within-student differences in teachers' expectations are systematically related to the demographic match between student and teacher, this suggests that on average, teachers have systematically biased beliefs about student potential that are at least partly explained by student demographics.

More broadly, large and nationally representative surveys increasingly collect information on subjective beliefs or expectations. For researchers to make causal inferences about how beliefs and expectations affect individuals' decisions and outcomes, they must recognize that beliefs are not only endogenous, but are also potentially biased. Indeed, our key results provide evidence of systematic biases in teachers' expectations. This result highlights the importance of developing and employing credible identification strategies that accurately measure expectations, and biases in expectations, in light of these endogeneity problems when examining the causal relationship between beliefs and economic decision making and outcomes. The identification strategy we propose in this paper borrows heavily from a paper by Dee (2005), which leverages multiple concurrent teacher assessments per student, to implement a student fixed effects strategy. We extend the seminal work of Dee (2005) and subsequent analyses of the impact of student–teacher racial mismatch on teachers' perceptions of student traits and abilities (e.g., Ouazad, 2014) to test for systematic biases in U.S. secondary school teachers' expectations for students' educational attainment.

Expectations are likely correlated with the types of perceptions studied in Dee (2005), e.g., whether a student is frequently disruptive. Still, we argue that evidence of biases in teachers' educational expectations offers important new insights that systematic differences in perceptions cannot. The reason is that the information content is different. Perceptions reflect a teacher's view of a set of a student's characteristics or traits, which may or may not be related to a student's ultimate human capital investments. Expectations questions, in contrast, ask teachers to forecast these investments directly. Therefore, our findings offer direct evidence that demographic mismatch influences how a teacher forms expectations over students' long-run investments. If biased teacher expectations are directly or indirectly communicated to students, they provide precise information about educational investments that perceptions of student traits do not. Precise signals of biased or inaccurate information are worrisome since they could have a relatively large impact on students' own expectations in comparison to information that is less precise.[2] Biased expectations could be incorporated into students' own beliefs, thus influencing their investment decisions. This is especially concerning for disadvantaged students with little prior information on the returns to educational investments. Finally, while a teacher's perceptions reflect their current views of abilities or traits, their expectations are prone to becoming self-fulfilling prophecies if, for example, based on inaccurate forecasts, a teacher shifts scarce resources such as time and effort to another student.

A primary contribution of the current study, then, is to offer guidance to researchers in how to appropriately and fruitfully exploit increasingly available measurements of expectations in large observational data sets. We contribute to the broader literature on the impact of student–teacher racial mismatch along several other dimensions as well, by accounting for more nuanced sources of heterogeneity, such as race-by-gender specific effects. The latter is particularly timely and policy relevant, given recent research documenting the sometimes dramatic sex differences in how disadvantaged children respond to home, school, and neighborhood quality (e.g., Autor, Figlio, Karbownik, Roth, & Wasserman, 2015, 2016; Chetty, Hendren, Lin, Majerovitz, & Scuderi, 2016).

We identify the impact of demographic mismatch on teachers' expectations for students' educational attainment by exploiting a unique feature of the Educational Longitudinal Study of 2002 (ELS): two teachers report their educational expectations for each student. This data structure allows us to condition on unobserved student heterogeneity by making within-student comparisons between the expectations of demographically matched and mismatched teachers. This student fixed effects (FE) identification strategy is motivated by an influential paper by Dee (2005) that exploits a similar feature of the NELS:88

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[2] This is based on the idea that, in a standard model with Bayesian updating, noisier signals have a smaller impact on beliefs relative to less noisy, more precise signals since they contain more information (Verrecchia, 1982). Here, the idea is that a teacher's forecast about college-going is a less noisy signal than a teacher's perception that might or might not relate to college-going.