

Re-opening Pandora's Box: the Association between Teachers' Expectations and Students' Educational Expectations, Aspirations, and Self-Efficacy

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Background

Prior research has shown that teachers' expectations have an impact on students' achievement (Good, 1987; Jussim & Harber, 2005; Rosenthal and Jacobson 1968a, 1968b). Yet, there is still limited evidence on the role teachers' expectations play on shaping students' own expectations (i.e., beliefs about future outcomes), aspirations (i.e., goals for the future), and self-efficacy (i.e., belief about how well can execute and accomplish a task or action). Also, little is known about the way teachers' expectations modify their own teaching practices based on their own expectations. This dearth of research is especially salient in low and middle income countries, where the role of teachers is highlighted as a mechanism to close educational gaps (Ganimian & Murnane, 2016).

Purpose of the study

The aim of this study is to explore the links between upper-secondary mathematics teachers' expectations and students' expectations, aspirations, and self-efficacy in public schools of Colombia, a middle income country where gaps in education achievement are particularly wide and are related to low levels of social mobility. After exploring these associations, we also examine the extent to which selected teaching practices are also modified as a function of these teacher expectations.

Data and research design

We use a novel nationally representative dataset of upper-secondary students ($N = 13,243$) and teachers ($N = 685$) in Colombia. Data includes information on teachers' predictions about their students' outcomes, student reports on their teachers' teaching practices as well as students' own beliefs and aspirations about their own future outcomes,

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and self-efficacy. We also use administrative data that was linked to the sampled schools in order to measure effective rates of higher education enrollment.

Following Madon et al. (1997), we quantitatively isolate teachers' expectations by regressing teachers' stated prediction of their students' tertiary education enrollment rate one year after graduation, and the observed proportion of students that actually transitioned to tertiary education in each school. Residuals from this model are said to be an index for teachers' expectations (Hinnant et al., 2009) that are not based on observed information, but rather may be based on beliefs of what students can achieve. Residuals equal to zero reveal that teachers' expectations were accurate forecasts of students' potential, whereas negative or positive residuals suggests teachers were underestimating or overestimating, respectively, their students' true potential to enter to a tertiary education program (and thus having low or high expectations). Subsequently, we use the index for teachers' expectations (i.e., residuals) to predict students' stated expectations and aspirations on higher education enrolment after graduation from upper-secondary school, and students' self-efficacy. In our models we control for a rich set of students' characteristics, teachers' characteristics, and schools' characteristics. Lastly, we explore how teaching practices vary according to teachers' expectations.

Results

We find a positive and statistically significant relation between teachers' expectations and students' expectations. Particularly, an increment in 1 *SD* in the index of teachers' expectations is associated with a 2.3 percentage points increase in the probability that students expect to enter a higher education program the subsequent year after they graduated. The estimated effect amounts to an increase of 4.13% compared to base levels in the probability that a student expects to enter to a higher education program (55.7%). We also find a positive and significant association between teachers' expectations and students' aspirations, though smaller than the observed for students' expectations. Moreover, we find a positive association between teachers' expectations and students' self-efficacy: one *SD* difference in teachers' expectations is linked with differences of 0.29 *SD* in an overall score for students' self-efficacy.

Findings also underscore the importance that teaching practices may have in explaining these associations. Teachers with high expectations about their students' potential were more likely to discuss educational opportunities with their students, to spend more time in class planning, to have better relationships with their students, and to provide more feedback, and motivate their students to put forth their best effort than teachers with low expectations.

Conclusions

Our results suggest teachers' expectations relate to upper-secondary students' beliefs, even after controlling for a set of student, teacher, and school characteristics, as well as municipality unobserved heterogeneity. Our findings build on previous evidence supporting theoretical models on the way teachers' expectations ultimately affect students' achievement. Furthermore, the results suggest that teachers' high expectations may possibly serve as a boost for students' outcomes, while low expectations may constitute an additional barrier that, explicitly through teachers' behaviors or implicitly through differences in exposure to information and curricular content.

The cross-sectional design of our study limits our capacity to infer causal relationships, a common problem throughout self-fulfilling prophecies literature (Jussim & Harber, 2005). This study attempted to control for several confounding variables at the individual and school level, as well as for unobserved heterogeneity across municipalities, however, other unobserved factors may be correlated with both teachers' expectations and students' beliefs and perceptions, thus confounding the effects. Longitudinal, experimental, or quasi-experimental approaches are desirable to causally estimate self-fulfilling prophecy effects.

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