

How Peers Affect Student Performance

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In an effort to improve educational outcomes of urban students, numerous experiments have been launched over the years. The Metco program, for example, was established as a voluntary racial-integration scheme that would bus students from Boston to suburban public schools (to “provide enhanced educational opportunities for participating students, to reduce the racial isolation of suburban school districts, and to reduce segregation in city schools”). It remains one of the country’s longest-running urban-education experiments, celebrating its 56th birthday in 2012.¹

How Metco and similar initiatives have affected students is a subject of some controversy. Some critics believe that Metco removes motivated and high-achieving students from Boston’s public schools, undermining the learning experience of the remaining students. Others hold that Metco

students’ past schooling has left them relatively low achievers needing remediation and that the receiving schools are diverting resources from suburban students, hurting their academic achievement.

Classmates and Scholastic Aptitude

Both of those views are related to the idea that the other students in a child’s school, grade, and classroom directly affect his or her academic performance. But is that true? Recent research offers insight and holds implications for a variety of education-policy initiatives that influence the way students of different backgrounds and abilities are assigned to classrooms and schools.

Typically, scholastic aptitude, or “ability,” is measured using a baseline test score for the student. Such a measure reflects a combination of innate ability as well as the

impact of teachers, parents, and peers encountered prior to the baseline test. Thus for purposes here, “ability” does not mean innate ability only.

It may seem natural to assume that a student’s classmates will affect his or her performance in school, but it is actually quite difficult to prove that so-called “peer effects” occur systematically. There are many other factors that influence a student’s academic performance, and those factors—such as the teacher, the school, and the home environment—may vary in lockstep with the peer group, making it difficult to isolate the influence of any given element.

Although not foolproof, econometric analysis—a tool used frequently by economists and other social scientists—offers a variety of techniques for coping with the challenge of identifying peer effects in an academic setting. With sufficient data on

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academic outcomes such as test scores, and information about relevant inputs, such as peer aptitude, teacher effectiveness, and school quality, econometric techniques can help us to determine, for example, whether and to what extent having classmates with high scholastic aptitude leads to a higher test score for a given student, compared with the test score the student would achieve when placed with classmates of lower scholastic aptitude (holding all other factors constant).

Two Studies

In recent years, economists have gained insights into the nature of academic peer effects by making advantageous use of data and harnessing innovative techniques. One study, conducted by Caroline Hoxby and Gretchen Weingarth, examined peer effects using data on students from a county in North Carolina, where some students were reassigned to different schools from one year to the next.² This reassignment was part of a larger program intended to promote greater economic integration in the district's schools. By isolating random components in the school-reassignment process, the researchers were able to minimize the risk of finding spurious peer effects.

An interesting feature of the study was that it examined different ways in which peer effects might work. For instance, the authors were able to test whether the presence of a single low-aptitude student in a classroom hinders the improvement of all other students in the class. (Answer: It doesn't.) Overall, Hoxby and Weingarth find that students tend to perform better in classrooms consisting of peers of slightly higher ability than themselves rather than with peers in the top tier of ability. They also find support for the hypothesis that, regardless of a student's own ability, the student will perform better in a classroom in which ability is "focused"—that is, a classroom in which abilities do not vary a great deal across students but are concentrated in a relatively narrow range. Teachers in such classrooms may be able to do a better job of targeting lessons to the specific needs of the group. Additionally, the authors find that students of the highest overall ability levels experience some benefits from interactions with students of slightly lower abilities.

Mary Burke, a senior economist at the Federal Reserve Bank of Boston, and Tim Sass, of Georgia State University, studied classroom peer effects using several years'

worth of data from the public schools in Florida.³ Unlike many other related studies, this one had data indicating which teacher was assigned to each classroom. That allowed the researchers to control for teacher effectiveness. Without such controls, improvements in student performance caused by teachers might be misattributed to the mix of students in the classroom.

Burke and Sass's findings bear some similarities to those of Hoxby and Weingarth. For instance, they find that lower-ability students benefit more from interaction with students in the middle of the ability distribution rather than the top tier—a finding suggesting that if a school district wants to improve the performance of low-ability students, it should place such students in classes with peers of modestly higher ability. Burke and Sass also find that high-ability students perform best when placed with other high-ability peers. That effect may be due to increased competition among students. Taken along with the results of Hoxby and Weingarth, the results suggest that high-ability students benefit from interactions with peers of similar ability levels.

The findings of these two studies have the potential to inform a number of education-policy debates. School vouchers, charter schools, and other school-choice policies would, if implemented, change the mix of students in schools. Although neither of the two studies can predict with certainty the effects of such policies, their findings mean that policymakers should strongly consider potential changes in student peer groups that might result from the implementation of school-choice policies.

Classroom-assignment policies within schools, such as "tracking," also may benefit from the insights of peer-effect studies.⁴ When assigning students to classrooms within schools, administrators and teachers may wish to bear in mind study results—for example, the finding that high-ability peers benefit from interaction with other high-ability peers. Additionally, the results from the peer-effect studies suggest that urban-suburban programs like Metco are unlikely to be detrimental to student performance in the aggregate.

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Endnotes

- ¹ See <http://www.doe.mass.edu/metco/faq.html?section=a>.
- ² Caroline M. Hoxby and Gretchen Weingarth, "Taking Race Out of the Equation: School Reassignment and the Structure of Peer Effects" (unpublished manuscript, 2006).
- ³ Mary A. Burke and Tim R. Sass, "Classroom Peer Effects and Student Achievement" (public policy discussion paper no. 11-5, Federal Reserve Bank of Boston, 2011).
- ⁴ Tracking is defined here as "a system of classroom assignment that groups students of similar academic achievement levels or ability levels into classrooms."

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