RESEARCH INSIGHTS

Do Different Classroom Assignment Strategies in Middle School Matter for Student Performance?

- We implemented a large-scale field experiment in 171 public schools in Mexico grouping students based on initial academic performance under two models: tracking (i.e., sorting students by initial performance) and bimodal classrooms (i.e., grouping weak and strong students together in the same classroom).
- Students in tracking and in bimodal classroom experienced similar average learning gains of about 0.08 of a standard deviation.
- The treatment effects were larger and more persistent among initially high-achieving students and no significant among low-achievers.

CONTEXT

Is it possible to enhance student learning by grouping them in classrooms based on their initial academic achievement? Those who advocate for tracking students according to their academic performance argue that more homogeneous classrooms enable teachers to tailor their teaching methods to the students' abilities. An alternative approach is a cooperative model, where weak and strong students are placed in the same classroom. This model allows top performers to be exposed to a larger pool of similarly high-ability students compared to random allocation, while bottom performers learn from greater exposure to good peers (we refer to this model as "bimodal"). Experimental evidence suggests that both models can have positive effects on student performance, as shown by Duflo et al. (2011) and Carrell et al. (2013). However, this evidence is limited and varies across different contexts. This paper aims to experimentally evaluate the relative effectiveness of these two popular methods of allocating students to classrooms.

PROJECT

We conducted a large-scale randomized control trial in 171 public schools in Mexico, involving 40,000 middle-school students and over 500 teachers. The trial aimed to evaluate the effects of different methods of grouping students in classrooms. The two methods used were tracking and bimodal. In tracking schools, students were sorted by their admission test scores and grouped into classrooms based on their relative standing at the school level and class size, resulting in homogeneous classrooms with either low- or high-achieving students. In contrast, bimodal schools formed classrooms with both students from the low and high achieving terciles of the admission test score. Control schools randomly allocated students to classrooms.

RESULTS

Our findings indicate that organizing students according to their initial achievement led to improved test scores in both tracking and bimodal schools. As seen in Figure 1, the point estimates and 95% confidence intervals of the estimated effects demonstrate that by the end of seventh grade, the first year of exposure, both grouping strategies resulted in similar average performance gains of around 0.08 standard deviation.

The effects of the treatment vary depending on the students' initial ability levels. Figure 1 also shows the estimates for low- and high-achievers (terciles 1 and 3 of the school distribution of the standardized middle school admission test score). The highest learning gains were seen among top-performing students in both tracked classes (0.18 of a standard deviation) and bimodal classrooms (0.13 of a standard deviation). Additionally, these gains were only sustained among top-performing students. In contrast, low-performing students did not experience any significant changes in their performance compared to those in the control group throughout their middle school years.

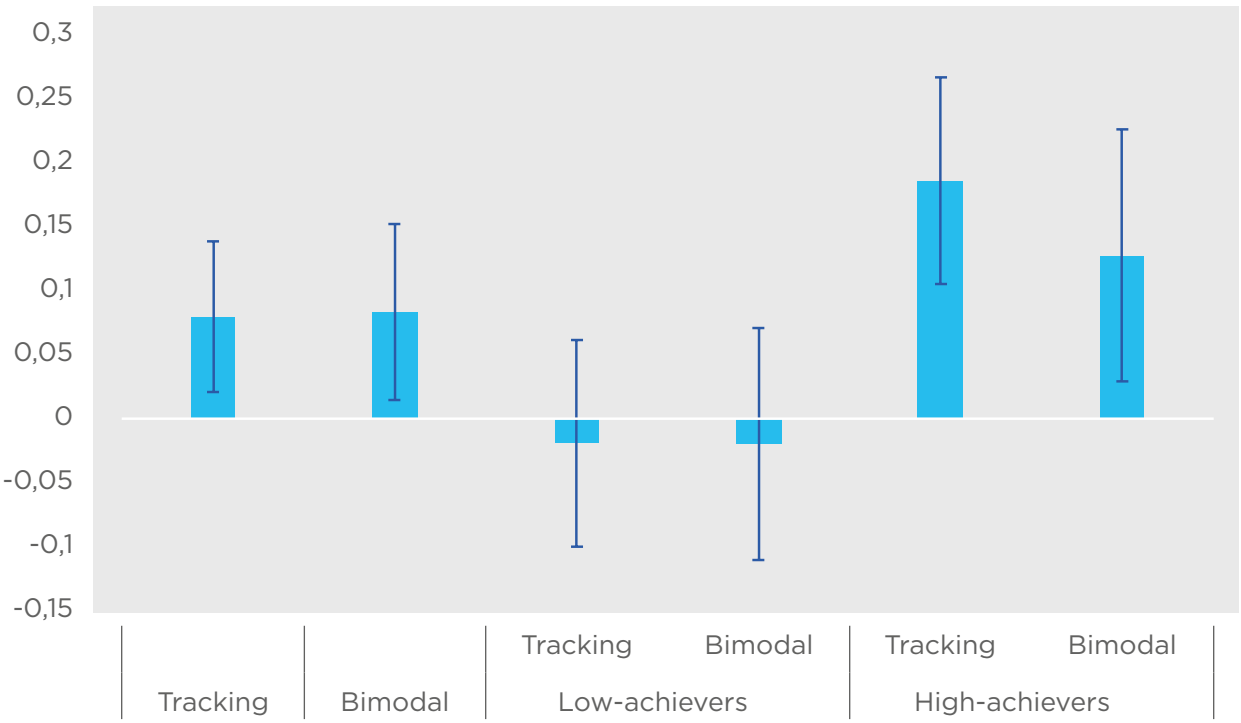
We also examined the ways in which teachers and students responded to changes in classroom composition. Students in top tracking had many advantages, such as a high concentration of high-performing peers and a homogeneous classroom that made it easier for teachers and increased students' effort levels. On the other hand, bimodal classes fostered greater effort among top students, while teachers allocated more time to practice and feedback activities and less time to lectures. Finally, we found that low-performing students in bimodal classes tended to associate more with other low-achievers rather than high-achievers, which may have limited the positive effects of peer learning.

POLICY IMPLICATIONS

The study indicates that changes to the way students are grouped by ability can lead to significant improvements in student performance. Specifically, students in tracking or in bimodal classrooms had similar average learning gains of about 0.08 standard deviation. Although the impact of these models was greater for high-achieving students, there were no negative effects for initially low-performing students.

As changing student classroom allocation is a relatively low-cost policy, its significant impact on student learning makes it a cost-effective way to improve education quality. Our findings support the allocation of students to homogeneous classes to maximize performance gains among top students without negative effects on low-achievers. To support weaker students and promote performance gains among low-achievers in bimodal and low-tracked classes, additional policies such as teacher training and remediation programs delivered during or after school may be necessary.

Figure 1. Overall Effects of Tracking and Bimodal Classroom Assignment



Note: The bars represent the treatment effects in standard deviations of the intervention on the aggregate standardized test score after one year of exposure to peers. Confidence intervals at the 95% level.

Key Concept

ABILITY GROUPING

The practice of dividing students into different groups or classes based on their academic abilities, typically measured by standardized test scores, grades, or teacher recommendations.

FULL STUDY

Busso, M., and V. Frisancho. 2022. "Ability Grouping and Student Performance: Experimental Evidence from Middle Schools in Mexico."

DEPARTMENT OF RESEARCH AND CHIEF ECONOMIST

The Department of Research and Chief Economist generates new ideas to enrich the knowledge base that supports the policy agenda of the Inter-American Development Bank (IDB) and its member countries for achieving sustainable and equitable development in the region. To maximize the impact of its research, the Research Department carries out activities that serve as inputs to other IDB departments, governments, the academic community and public opinion in the region.

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