

The Impact of School Tracking and Peer Quality on Student Achievement: Regression Discontinuity Evidence from Thailand

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Introduction

The belief that peers can potentially affect individuals, especially children, is an important factor behind many decisions made by parents and policy makers. One common motivation for studying peer effects is to understand the likely impact of policies such as school tracking, which allocates students into classes on the basis of student ability. However, relatively few papers directly identify the impact of being tracked into classrooms with higher or lower peer ability, despite the fact that tracking is a common practice in schools around the world. This paper contributes to the literature by directly estimating the impact of being tracked into a classroom with higher ability peers on student academic performance using data from middle schools in Thailand. To distinguish the impact of peers from other confounding factors due to selection, I use a regression discontinuity design (RDD) that compares the academic outcomes of students just above and just below the threshold.

Data

I use data from public middle schools in Thailand (grade 7-9), because they track students into classes based on ability, which is measured by the preliminary exam taken before the start of 7th grade. For example, schools with 2 classes in each grade can sort students into classes by putting students that score above the 50 percentile into one class and the rest into another. This tracking system therefore creates the threshold in preliminary exam score between classes and students who score above the threshold get to be in one class while the others do not. This threshold also creates a discontinuity in peer quality, as students that score just above the threshold will be tracked into the class with much higher average peer quality than students that score just below the threshold. This discontinuity in peer quality is what allows me to apply the regression discontinuity design (RDD) to estimate peer effects.

My data comes from 9 public middle schools in Bangkok, Thailand. The schools in my data set are good representative of schools in Thailand as they are mostly mid-sized non-competitive schools whose students are predominantly from low- and middle- income families living in the area. My data set covers students starting 7th grade in 2013 through 2017 and follows students' performance throughout their middle school career, starting from the preliminary exam score, which is used for class assignment, to their GPA in each following semester. In addition, it also includes data on students' class assignments, timetables, assigned teachers, and characteristics.

Methodology

Using RDD with the data mentioned above, I estimate peer effects by comparing the academic performance, specifically GPA, of students just above the cutoff to the performance of students just below the cutoff. The method lays on the assumption that

students just above and just below the cutoff are comparable and that the only difference between them, that could drive the difference in performance, is the peer quality they are exposed to. To verify this assumption, I make sure that students on either side of the cutoff have the same characteristics and are exposed to the same type of curriculum and teachers. I also check that there is no manipulation of the threshold by looking at the distribution of the preliminary score. A spike in the number of students just above the cutoff would raise concern, as it would suggest that some students are able to manipulate the threshold and the estimations would be biased.

Results

My estimation results show that while all the other factors and student characteristics are smooth across the cutoff, there is a large jump of 0.7 standard deviations in peer preliminary score, which is used as a proxy for peer quality. This confirms the assumption that the only thing that is different for the students just above and just below the cutoff is their peer quality. Next, I look at student performance, specifically their GPA, after they have spent one semester with their assigned peers and find that there is no statistically significant jump in student GPA at the cutoff. This suggests that in the short run, having higher-quality peers does not improve student academic performance. Additionally, since students stay in the same class with the same peers for the whole three years of middle schools, I am also able to look at the long-term effects of being tracked into class with high-quality peers. Using students' 8th grade and 9th grade GPAs as outcomes, my estimation results again show no discontinuity in student performance at the cutoff. This means that peer quality does not affect student performance in the long run either. Lastly, for robustness check, I also alter the bandwidth and functional form used for the estimations and find that the estimates are relatively insensitive to the choice of bandwidth and functional form.

In conclusion, using data from Thailand with the regression discontinuity design, my estimation results indicate that significant increase in peer quality do not improve student academic performance in either the short term or the long term. This suggests that any gains due to tracking, at least in Asian contexts similar to this, are likely due to other factors changing, such as teacher quality or the intensity of the curriculum, rather than to changes in peer quality.

Potential for generating discussion during the Symposium

The topic is relatable and relevant to almost everyone, especially those who have kids. The methodology used in this paper is relatively easy to follow, even for people with no background in applied microeconomics or undergraduates. The results are quite surprising as it goes against the intuition. I think that the surprising results and the accessibility of the paper will make it more interesting to the symposium participants and can induce interesting discussion.