Peer Effects in the Classroom: Evidence from New Peers

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Abstract

Peer effects in education are of interest to parents, policy-makers, and researchers alike. However, there are serious obstacles to estimating these effects, generally defined as selection, endogeneity and reflection problems. In this paper I assemble a rich longitudinal data set of individual-level test scores and introduce an empirical strategy to circumvent these obstacles and estimate the extent and structure of ability spillovers among elementary students in the same classroom. My identification strategy is based on the impact of new students to a school, who can plausibly be viewed as randomly assigned to a class within their new school. I implement this strategy by using the new students lagged test score (from Grade 3 in their previous school) as an instrument for the average quality of the peers in their new Grade 6 class, as measured by the average class performance. I simultaneously account for the potentially endogenous selection of students into schools, and school-specific time trends, by incorporating school-by-year fixed effects. Using the administrative test scores data for three cohorts of Ontario elementary students (observed in Grades 3 and 6 for three subjects – mathematics, reading and writing), I find positive and statistically significant peer effects – a one standard deviation in classmates average test score leads to 0.25 standard deviation increase in the individual test score. However, the effect is not linear. I find heterogeneous effect of classmate average ability that varies with a students individual ability measured by past achievement. While the magnitude of the estimates differs across three school subjects, the structure of the effects is the same. High achievers seem to be immune to the ability composition of the classroom, while low achievers benefit both from good peers and those of the same achievement level. This finding contributes to the debate of the efficient distribution of students across classrooms and schools and provides evidence of the benefit of mixed, as opposed to ability-streamed classrooms in elementary education. I then show that the impact of grade-level peers is less important than the impact of immediate classmates by contrasting school and classroom-level estimates. This helps to explain why researchers estimate smaller peer effects at the grade or cohort-level, as oppose to the classroom level. I also discuss why estimates from elementary school may differ from high school, most notably that it is classroom peers who matter at the elementary level: students spend much more time with their classmates.

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