

Do Teachers Matter for Academic Achievement of Students? Evidence from Administrative Panel Data

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Abstract

This paper examines empirically the effect of teachers on students' academic outcomes. Using large administrative panel data of reading and math test scores of students in public elementary schools in a large municipality in Japan, we estimate the distribution of teacher fixed effects controlling for student, school, and year fixed effects. Our results show that variation of teacher fixed effects is substantial: improvement of teacher fixed effect by one standard deviation raises student's z-score by 0.23 standard deviation for reading and by 0.32 standard deviation for math. We find that teacher's experience and class size matter for students' achievement of both reading and math. The first several years of teaching experience result in improvement of students' outcomes. Small class size results in high students' performance. The magnitude of class size effect is comparable to ones in Angrist and Lavy (1999). Finally, the magnitude of the teacher effect is equal to the class size effect with reduction of 3.1 students for reading and 5.9 students for math test scores.

Keywords: Education; teacher fixed effect; class size; teaching experience.

JEL Codes: I21, J24.

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