The Effect of the Curriculum Changes in Math Education on Student Outcomes

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Abstract

We study the impact of the curriculum change, on elementary school students' academic outcomes. The curriculum change, which increases math education, introduces a calculation class that uses the abacus as a calculation method without altering the total instructional time. Time lags in the curriculum change among schools and birth cohorts allow us to exploit difference-in-difference strategy. Using an administrative dataset from Amagasaki city in Japan, we find that the curriculum change improves the academic scores of female students substantially, while this effect is not observed for males. To explore the possible mechanisms, we examine the impact of the curriculum change on students' non-cognitive skills and academic behaviors. Overall, both male and female's non-cognitive skills enhanced, but only female's academic behaviors improved, such as listening to her teacher. We find further heterogenous effects that females with low socio-economic status (SES) and low academic performance benefit from the curriculum change the most.

Keywords: Gender gap, Mathematics, Elementary school

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