

Disrupting Education? Experimental Evidence on Technology-Aided Instruction in India

ECON 280 – Part 4

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November 29, 2025

1 Extension

I have decided to extend the main IV results (Table 9) of the paper by looking into heterogeneity of the effect of an additional day of attendance on test scores by gender. The researchers performed a similar heterogeneity test for their OLS results looking at treatment vs no treatment, but not for their IV estimation. I think this is an important test to see if an additional day is more beneficial for males or females. The equation for the IV regression extension is

$$Y_{is2} = \alpha + \gamma \cdot Y_{is1} + \mu_1 \cdot Attendance_i + \delta \cdot Attendance_i \times \mathbf{1}\{Female_i\} + \beta \cdot \mathbf{1}\{Female_i\} + \eta_{is2}, \quad (1)$$

where Y_{ist} is student i 's test score, in subject s at period t (normalized to $\mu = 0$, $\sigma = 1$ on the baseline test), $Attendance_i$ is the number of days a student logged into the Mindspark system (which is zero for all lottery losers), $\mathbf{1}\{Female_i\}$ is an indicator for the student being a female, and η_{ist} is the error term.

The results of the extension are found in Table 1. It appears as though an additional day of attendance is more beneficial for males than for females, however, the results are insignificant.

Table 1: Heterogeneity of IV

	Math score		Hindi Score	
	(1) Endline math score	(2) Endline math score	(3) Endline Hindi score	(4) Endline Hindi score
Attendance (days)	0.0067*** (0.0011)	0.0082*** (0.0019)	0.0043*** (0.0011)	0.0047* (0.0022)
Attendance $\times \mathbf{1}\{\text{female}\}$		-0.0019 (0.0023)		-0.0006 (0.0025)
Baseline score	0.5641*** (0.0385)	0.5632*** (0.0386)	0.6775*** (0.0363)	0.6776*** (0.0361)
Observations	535	535	537	537
R-squared	0.431	0.432	0.479	0.481
AP F-statistic	1,207	419	1,244	441
Diff-in-Sargan p-value	0.142	0.137	0.917	0.951
Effect of 90 days attendance	0.607	0.569	0.385	0.370

Notes: Robust standard errors in parentheses. Columns 1 and 3 instrument attendance in Mindspark with the randomized allocation of a scholarship and include randomization strata fixed effects. Columns 2 and 4 interact attendance with an indicator for the student being female and the effect of 90 day attendance is for females.