Impact of Differential School Investment on Educational Outcomes in Khyber Pakhtunkhwa, Pakistan

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Motivation

Imran Khan's party improves services in Pakistan's wildest province

> [T]he party has appointed 40,000 more teachers, rebuilt institutions blown up by the Taliban and furnished others with toilets and electricity. Teacher absenteeism has fallen.

The Economist (2017)

Introduction

Question: To what extent has PTI's investment in public primary school infrastructure affected educational outcomes in rural KPK?

Methodology: Difference-in-differences (DID) estimation

Main finding: No change in educational outcomes as a result of school investment

Data

1. Pakistan Social and Living Standards Measurement Survey
2. Annual School Census Reports

	Treated	Comparison	t-test
Years of education	4.75	4.87	-0.607
Total enrollment rates	0.56	0.55	0.552
Basic Facilities Index (0-100)	60.83	76.96	-7.065***
Literacy rate	0.39	0.38	0.701
Employment rate	0.95	0.97	-2.717***
Home ownership rate	0.90	0.89	1.107
Estimated income per capita (PKR)	88,095.39	92,731.37	-0.950
Proportion in public schools	0.86	0.88	-1.336

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Empirical strategy

Educational attainment in KPK (2005-2015)
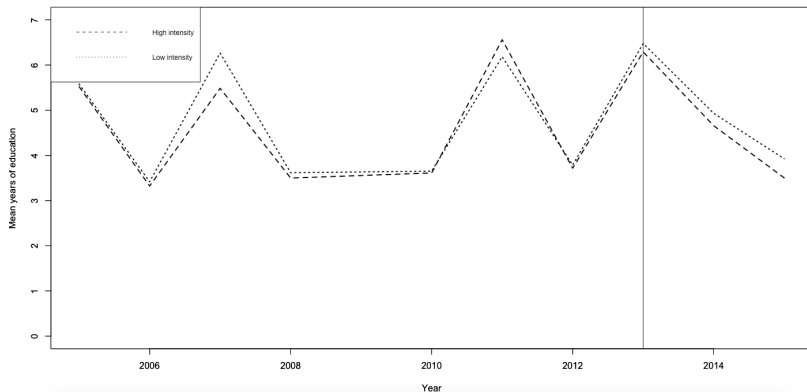
Empirical strategy

$$Y_{ct} = \alpha_c + \beta_t + \delta D_{ct} + \gamma X_{ct} + \epsilon_{ct}$$

- Y_{ct}: the city-year educational outcome of interest (i.e., educational attainment or enrollment rates);
- α_c: city fixed effects;
- β_t: year fixed effects;
- D_{ct}: dummy variable indicating whether a city received high intensity investment in the post-period;
- X_{ct}: socioeconomic controls (i.e., literacy rate, employment rate, and estimated household income);
- ϵ_{ct}: city-level clustered error.

Results

Impact on Educational Outcomes

	(1)	(2)
	Years of education	Enrollment
Treated × Post 2013	-0.124	-0.0299
	(0.113)	(0.0258)
Literacy rate	1.794**	0.134
	(0.626)	(0.134)
N	240	240

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Results

Impact on Educational Outcomes of Female Respondents

	(3) Years of education	(4) Enrollment
Treated x Post 2013	-0.209	-0.0555
	(0.173)	(0.0334)
Literacy rate	2.726**	0.155
	(0.791)	(0.172)
N	240	240

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Conclusion

Investment in schools has had no effect on educational attainment or enrollment rates.

Literacy rates have a significant impact on educational attainment: every 10% increase in literacy accounts for a 0.18 year increase in educational attainment within a city.

Implications

Siddique (2021):

> *I propose that if the federal government is unwilling to rigorously self-evaluate its own initiatives, it should at least provide the people with enough information to assess their efficacy themselves.*

References

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