, **"Illiteracy and innumeracy are forms of insecurity in themselves. Not to be able to read or write or count or communicate is a tremendous deprivation."** – *Nobel laureate Amartya Sen*

Is public expenditure on primary education effective? Evidence from districts across India

By
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Introduction

Against the background of international commitment to the Millennium Development Goal (MDGs) for the universalization of primary education, my research investigates the effectiveness of public spending on primary education outcomes in three states in India

Unit of analysis

Analysis at the district level - the lowest viable spatial units for initiating and implementing decentralized planning in India

Why ?

Different districts, even within the same state, have different characteristics and require unique developmental approaches.

State-level analysis is far too broad to accurately determine the micro determinants of educational outcomes

Data and methodology

Data

Data for 115 districts across three states in India – Uttar Pradesh, Andhra Pradesh and Karnataka – for the years 2006 and 2007

Models

1) Ordinary Least Squares (OLS)

2) Fixed effects with state dummies

3) Fixed effects with state dummies and interaction terms

Why?

The fixed effects model is useful because it adjusts for all fixed (or time-invariant) sources of heterogeneity between subjects that might bias the model results if they were not properly controlled.

Drawback

The drawback is that the coefficients of time-invariant variables like (i) *%urban population*, (ii) *% scheduled caste population*, and *(iii) % literate adults* cannot be estimated.

However, these can be included in the analysis through interaction terms.

Regression model

Educational outcomes studied

•**Net enrollment rate (NER)**

•**Transition rates**

•**Performance on exams (Percent of boys / girls who received more than 60% in examinations in grade V)**

Controls used

•**Primary education expenditure per student**

•**Per capita Income (PCI)**

•**Percent public schools**

•**Student-teacher ratio**

Interaction terms

•**Expenditure per primary school student (in logs) * percent overall literacy**

•**Per capita income (in logs) * percent urban population**

•**Student-teacher ratio * percent scheduled caste population**

Outcomes

Controls

$$Y_{i,t} = \beta_0 + \beta_1 expen_{i,t} + \beta_2 pci_{i,t} + \beta_3 pergov_{i,t} + \beta_4 str_{i,t} + \beta_5 expenlit_{i,t} + \beta_6 expencaste_{i,t} + \beta_7 strurban_{i,t} + \alpha_i + u_{i,t}$$

Interaction terms

Results

Summary of outcomes using the fixed effects model

	Transition Rate	NER	Performance in Exams	
			Boys	Girls
Expenditure per Primary School Student (in logs)* UP dummy	-	-	-	-
Expenditure per Primary School Student (in logs) *AP dummy	Positive **	-	-	-
Expenditure per Primary School Student (in logs)* Karnataka dummy	-	Positive *	-	-
Per Capita Income (in logs)	-	Positive**	-	-
Percent Public Schools	Negative***	Negative***	Negative*	Negative*
Student-Teacher Ratio	-	-	-	-
Expenditure per Primary School Student (in logs) * Percent Literate Adults	Positive*	Positive**	-	-
Per Capita Income (in logs) * Percent Urban Population	-	-	-	-
Student-teacher Ratio * Percent Scheduled Caste Population	-	-	-	-

t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

•Increased primary educational spending not effective to improve outcomes

•But increased literacy levels can increase efficacy of expenditure

•Per capita income significant for some outcomes

•Decreasing student-teacher ratio does not improve outcomes

•Lower ratios of public to private primary schools very significant
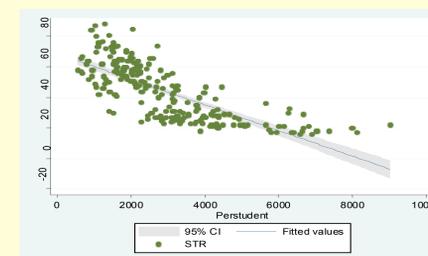
Though student-teacher ratios decrease with increased spending on education, this does not result in better educational outcomes

Comparison with other studies

•Several previous studies indicate that expenditure is not effective unless it is accompanied by increased community support, parental involvement and teacher monitoring

•Some papers find that the quality of primary education is better in private schools ,and that private primary students have better outcomes

•Reducing the student teacher ratio has no effect unless teachers are better monitored and/or offered incentives to teach properly. Kremer et al (2004) find that 25% of teachers in India are absent on any given day, and of those present, only half actually teach. The rest drink tea and socialize! They have little or no incentive since they earn tenure early as government school teachers

Policy recommendations

•**Public-private partnerships should be considered, as should contracting more primary schools to private institutions**

•**School voucher systems like in the US**

•**Subsidies to poor parents**

•**Free midday meals**

•**Local workshops to activate community support and involve parents**

•**But main focus should be on making *existing* expenditure more efficient**

• Future research needs to be conduced on the relative costs and benefits of the numerous government initiatives in primary education

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