

Randomized Evaluation Start-to-finish

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J-PAL

Course Overview

1. Importance of Evaluation
2. Outcomes, indicators and measuring impact
3. Impact evaluation – why randomize
4. How to randomize
- 5. Randomized Evaluation: Start-to-finish**
6. Generalizability

The Paper

“Report Cards: The Impact of Providing School and Child Test-scores on Educational Markets”

by Tahir Andrabi, Jishnu Das, and Asim Khwaja

NEEDS ASSESSMENT

Education in Pakistan - Challenges

- Learning and Education Achievement in Punjab Schools
- Primary school enrollment is low
 - net-enrollment rate (2004) of 66 percent
 - Compared to: 90 percent in India, 97 percent in Sri-Lanka and 78 percent in Nepal
- Learning quality is poor:
 - By the end of class III, just over 50 percent of children have mastered the Mathematics curriculum for class I
 - In Urdu, they cannot form a sentence with the word “school” or the word “beautiful”

Learning Outcomes: Urdu

- Basic recognition of simple words with pictures
- Only 33% can make sentence with common words

Subject	The Question	Percentage who answered correctly	Corresponding Grade for Curriculum
Urdu	Tick the correct answer to match the picture (picture of house)	52	I-II
Urdu	Tick the correct answer to match the picture (picture of book)	73	I-II
Urdu	Write a sentence with the word “beautiful”	33	I-II
Urdu	Write a sentence with the word “school”	31	I-II

Learning Outcomes: English

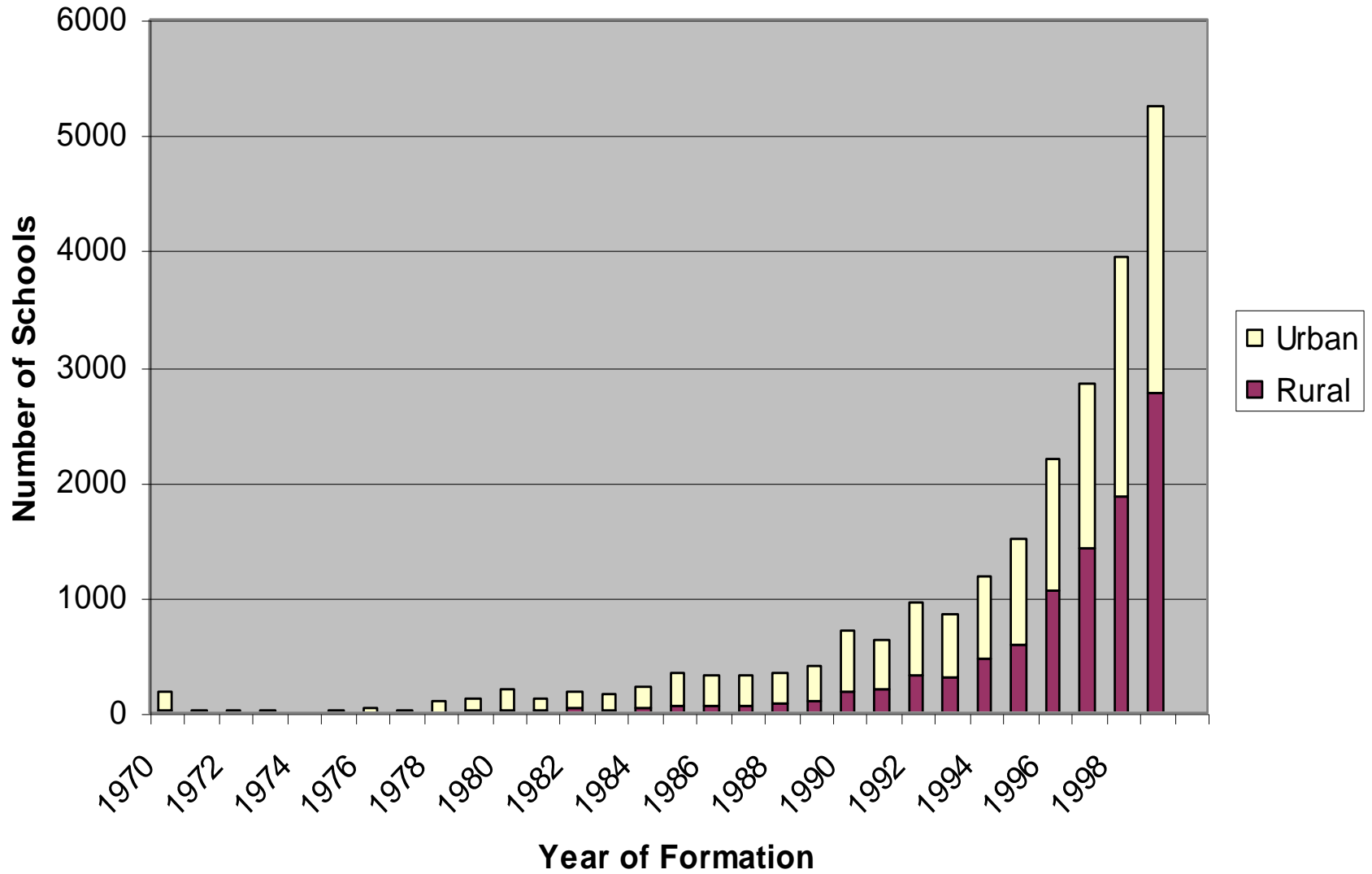
- Most children can recognize alphabets
- Only 29% can complete a simple word

Subject	The Question	Percentage who answered correctly	Corresponding Grade for Curriculum
English	Write the letter “D” (spoken out loud)	86	I-II
English	Fill in the right letter D _ F	70	I-II
English	Tick the correct answer to match the picture (picture of book)	70	I-II
English	Fill in the missing letters (picture of a ball) BA _ _	45	I-II
English	Fill in the missing letters (picture of a flag) F L A _	29	I-II

Education in Pakistan - Opportunities

- Two main players in the educational market
 - Public
 - Private
- Increase in the number of private schools
- Private schools are locating in rural areas

Formation of Private Schools in Punjab



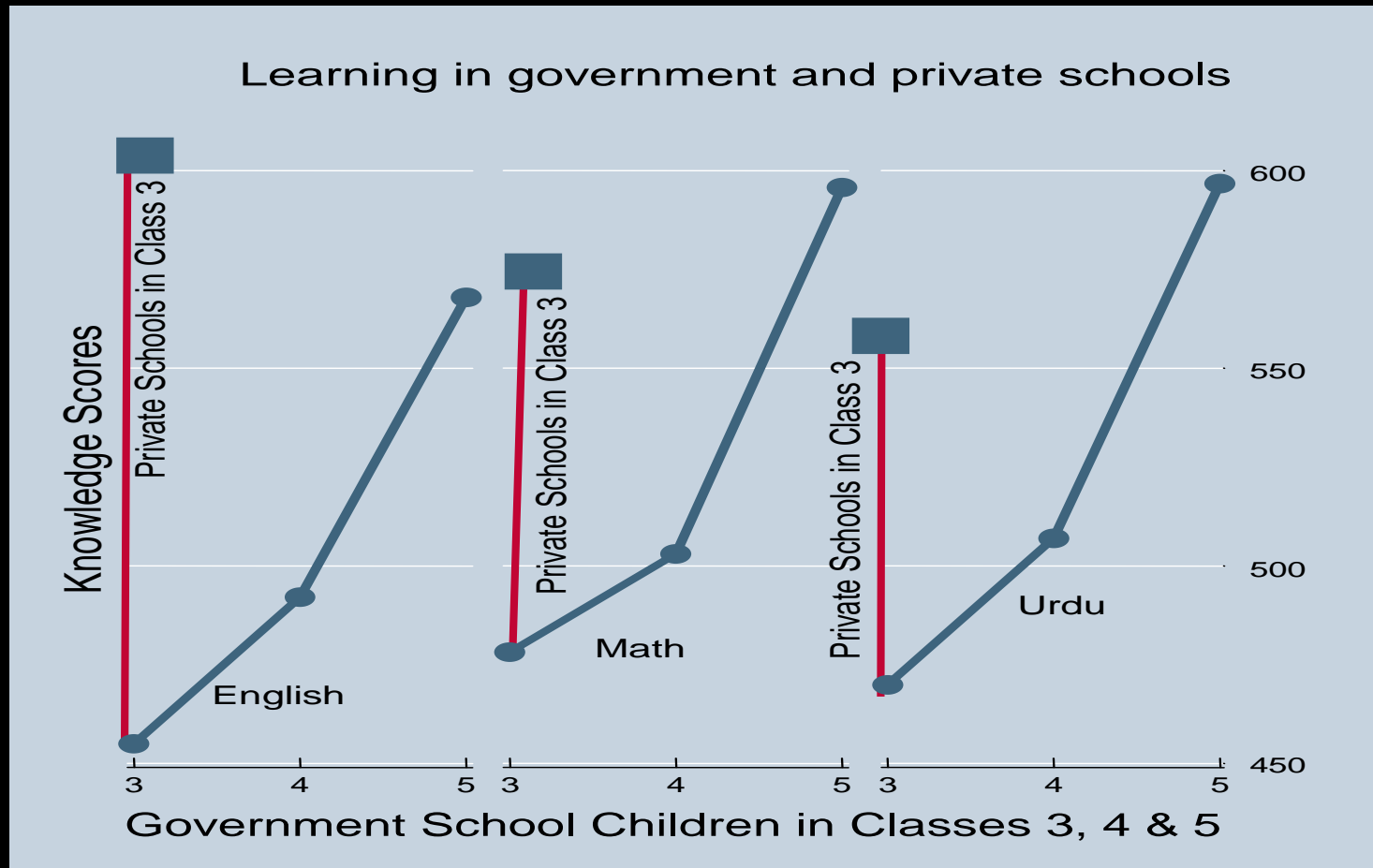
Education in Pakistan - Opportunities

- More schooling choices
 - On average villages have 7-8 schools
- Attendance in government schools stagnated since 1991 while private school enrollment has risen rapidly
- Private schools not too expensive for the poor – Cost \$1/month, lower than the daily wage rate for unskilled labor (2004)
- Public/Private school differential

A Typical Village in the Sample



Public-Private Gap



Children in private schools are 1.5-2.5 years ahead of children in government schools

The Need

- Primary enrollment is low
- Quality of education is poor
- Learning outcomes are poor
- The private school revolution
- School fees not reflective of quality
- Public vs. private differential

The Setting

- The project took place in Punjab, Pakistan
- Intervention
 - Information Dissemination
 - Report Cards
- Outcome
 - Child learning

PROGRAM THEORY AND MEASUREMENT

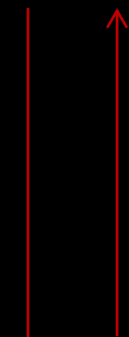
Goals

- Informed decision-making
- Better education quality
- Better learning outcomes
- More competitive educational market

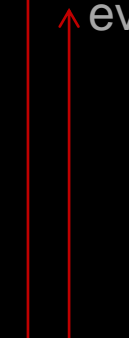
Log Frame

	Objectives Hierarchy	Indicators	Sources of Verification	Assumptions / Threats
Impact (Goal/ Overall objective)	Improvement in child test scores	Child Test score	Testing in Math, English and Urdu	Children are motivated to learn; Parents invest more in children's education
Outcome (Project Objective)	Improved school quality	Investment in teachers, infrastructure, teacher attendance	School Survey	Parents hold school accountable
Outputs	Parents receive report cards; understand information enclosed	Whether or parents received report cards; Parent comprehension	Household Survey	Discussion groups are effective; Parents care about their children's education;
Inputs (Activities)	Report cards	Report cards were printed and distributed	Observations	Sufficient materials, funding, manpower

Needs assessment



Impact evaluation



Process evaluation

Timeline for Surveys

Activity	Survey Type	Date
Sampling Frame	Household Census School Listing	August, 2003 August, 2003
Year 1 Surveys	Household-level Surveys School-level Surveys	February – April, 2004 February – March, 2004
Intervention	Report Card Delivery	September, 2004
Year 2 Surveys	Household-level Surveys School-level Surveys	November – December, 2004 January – February, 2005

Study Design: Sample Frame

Unit	Number	Instrument	Criteria
Village	112	2000 Census	At least one private school
School	823	Survey	Government and private
Child	12,000	Test, Survey	Grade III
Teacher	5,000	Survey	Current or previous, Head teacher, Grade III teacher
Household	1,800	Survey	Has grade III children, school-age children not in school

Data Collection

- Child tests
 - English, Urdu, Math
- School Surveys
 - Infrastructure, fees, enrollment, costs, facilities
- Teacher Surveys
 - Demographics, qualifications, pay, tenure
- Household Surveys
 - Roster, expenditures, child and parental time use, school information and ranking, household learning environment



INTERVENTION

Report Cards

- Child report card
- School report card

Report Cards: Information Provided

Child report card

- Child test score
- Child quintile rank (1-5 scale) – 1 (Needs Significant Improvement) and 5 (Very Good)
- School average test score
- Village average test score
- Instruction on how to read the report card

Child Report Card

Learning and Educational Achievement in Punjab Schools

رپورٹ کارڈ برائے تعلیمی کارکردگی

نام:	سکول کا نام:
والد کا نام:	جماعت:

ریاضی	انگریزی	اردو	درجہ بندی
حاصل کردہ نمبر (کل 100) : درجہ (صحیح/سید) :	حاصل کردہ نمبر (کل 100) : درجہ (صحیح/سید) :	حاصل کردہ نمبر (کل 100) : درجہ (صحیح/سید) :	پہلا نمبر : بہت اچھا اور اول نمبر : اچھا تیسرا نمبر : ٹھیک ٹھیک چوتھا نمبر : نسبت کی ضرورت پانچواں نمبر : بہت کم نسبت کی ضرورت
			بچے کی کارکردگی
			آپ کے سکول کے بچوں کی اوسط کارکردگی
			موضوع کے تمام سکولوں کے بچوں کی اوسط کارکردگی

Jahno Anshu
 پروفیسر اور کونسلر اور رانی
 پرائیویٹ انسٹیٹیوٹ

ستاروں سے آگے جہاں اور بھی ہیں

پتہ :
 جی این کے سٹیٹ ٹی وی سٹیٹ 2004

Report Cards: Information Provided

School report card

- Average score and quintile rank for all schools in the village
- Number of children tested
- Instructions on how to read the report card

School Report Card

Learning and Educational Achievement in Punjab Schools

کے تمام سکولوں کے بچوں کی اوسط کارکردگی

ریاضی	انگریزی	اردو	اجتہاد فٹے پگال کی تعداد	سکول کا نام	
					حاصل کردہ نمبر (کل نمبر 100)

ریاضی	انگریزی	اردو	نمبروں کو لکھنے کا طریقہ:
20 سے کم = اچھا کارآمد 21 سے 34 تک = اچھا کارآمد 35 سے 49 تک = اچھا 50 سے 60 تک = اچھا 61 سے 75 تک = اچھا	20 سے کم = اچھا کارآمد 21 سے 34 تک = اچھا کارآمد 35 سے 49 تک = اچھا 50 سے 60 تک = اچھا 61 سے 75 تک = اچھا	20 سے کم = اچھا کارآمد 21 سے 34 تک = اچھا کارآمد 35 سے 49 تک = اچھا 50 سے 60 تک = اچھا 61 سے 75 تک = اچھا	

Report Card Distribution

- Report cards delivered through discussion groups
 - Comprehension of information as important as distribution of information
- Discussion groups to focus on positive aspects of the card
 - Understand what influences test scores before blaming the child
- Parents and teachers were informed that this exercise would be repeated in a year



RANDOMIZATION DESIGN

Randomization Unit

- Village
- Educational marketplace
- Closed and complete market
- Practical reasons

Study Design: Clustered Design

Target Population
112 Villages
Stratified by: District

Control
56 Villages

Treatment
56 villages

Online Appendix Table I: Randomization Balance

	Control	Difference (Treatment - Control)
	(1)	(2)
Panel A: Village Level Variables		
<i>Village Wealth (Median Monthly Expenditure)</i>	4585.375	87.661 (203.377)
<i>Number of Households in Village</i>	626.5	9.349 (73.067)
<i>Village Inequality (Gini Index)</i>	0.533	-0.019 (0.038)
<i>Number of Government Schools in Village</i>	4.125	0.425 (0.372)
<i>Number of Private Schools in Village</i>	2.643	0.131 (0.441)
<i>Village enrollment % (All)</i>	70.617	0.400 (2.289)
<i>Village enrollment % (Boys)</i>	76.464	-0.455 (2.005)
<i>Village enrollment % (Girls)</i>	64.106	1.389 (2.820)
<i>Level of Competition between Schools in Village (Herfindahl Index)</i>	0.197	-0.005 (0.014)
<i>No. of Grade 3 Children Tested in Village</i>	103.321	9.881 (12.815)
<i>Village Adult (>24 yrs) Literacy (%)</i>	38.472	-2.441 (1.910)
Panel B: School Level Variables		
<i>School Average Test Score</i>	0.028	0.001 (0.062)
<i>School Fees</i>	510.934	-108.992 (69.986)
<i>Number of Students (Grades 1 to 5) Enrolled at School</i>	91.613	-5.113 (6.248)
Panel C: Child Level Variables		
<i>Average Test Score</i>	-0.013	-0.016 (0.061)
<i>Female Child</i>	0.439	0.001 (0.018)
<i>Child Age</i>	9.680	0.003 (0.082)
<i>Father's Education</i>	2.206	-0.081 (0.045)*
<i>Mother's Education</i>	1.565	-0.002 (0.045)
<i>Wealth (Child Asset Index)</i>	0.074	-0.173 (0.130)

RESULTS

Results – child learning

- Impact:
 - 0.1 standard deviation gain in average child learning – a third of the the average yearly gain experienced by children
 - 21% drop in the school fees of private schools (public schools are free)
 - Enrollment increase by 3.2 percentage points
- Impact Heterogeneity:
 - Learning improved for the initially low performing private schools, well over 0.3 standard deviations
 - Learning did not increase for initially better performing private schools, but their fees dropped by 23%
 - Learning improved by 0.1 standard deviations for government schools

Investments

- Schools increase investment
 - More likely to have the tested class teacher improve qualification
 - Bad private schools see a large and significant effect in teaching material
 - Bad private schools decrease total break time
- Households don't change investment
 - No significant change in the number of hours spent by parents helping their children with schoolwork
 - There is a decrease in annual spending on children's education

Cost-Benefit Analysis

- Cost of providing information (\$1/child) for the entire population comparable to the fee reduction in initially well performing schools
- Household welfare – benefit of increased learning at (essentially) zero cost
- Gains highest for low performing private schools but government schools improved too

Conclusions

- The net benefits of increasing quality decrease at higher quality levels
 - Concavity in quality/effort trade-off
- Increased information leads to better price-adjusted quality across schools
 - After intervention, left with better quality but free public sector and higher quality and somewhat cheaper private sector