

Management and motivation
in Ugandan primary schools
Evidence from a field experiment

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Context

Substantial enrollment gains following Universal Primary Education. While resources have begun to catch up, problems remain:

- ▶ Teacher absenteeism is rife in Ugandan primary schools.
 - ▶ Chaudhury and coauthors estimate a 27% absenteeism rate for Uganda (2006)
- ▶ Sanctioning of teachers by District Education Offices is rare.
 - ▶ Substantial political barriers to scaling up of pay-for-performance in government schools.
- ▶ School Management Committees (SMCs) function poorly
 - ▶ No correlation in Uganda between SMC activity levels and absenteeism in Chaudhury et al.
 - ▶ We find that head teachers are absent (according to minutes) 40% of the time from SMC meetings.

Strengthening local accountability

Record of interventions to improve service delivery through discretionary processes is mixed.

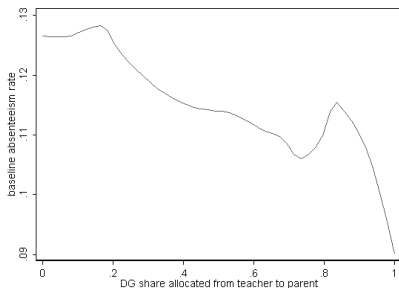
- ▶ Bjorkman and Svensson (2009) report striking results of a 'community scorecard' in Ugandan health clinics; and
- ▶ in Kenya, giving SMCs discretionary authority over contract teachers has been effective (Duflo, Dupas & Kremer 2009)

But

- ▶ SMCs (de Laat, Kremer & Vermeersch 2008) and head teachers (Kremer and Chen 2001) fail to effectively incentivize teachers with discretionary prizes.
- ▶ Laboratory experiments in 100 Ugandan schools suggests head teachers are particularly conflicted (Barr & Zeitlin 2011);
- ▶ *Lack of interest and collective action problems* cited as constraints in India (Banerjee et al. 2004; Banerjee et al. 2008).

Intrinsic motivation matters

Evidence from a Dictator Game in Ugandan schools



Source: Barr and Zeitlin (2010)

Accountability as a double-edged sword:

- ▶ Concerns of **crowding out** (Bénabou and Tirole 2006; Frey and Oberholzer-Gee 1997)
- ▶ Identification with mission/sense of ownership may improve **mission match** (Akerlof & Kranton 2005, Besley & Ghatak 2005)

This project

- ▶ We test the hypothesis that the *participatory* component of community-based management is key to success.
- ▶ We have conducted a RCT in 100 rural Ugandan primary schools, testing two types of community-based monitoring interventions:
 - ▶ a [standardized approach](#), in which SMCs were trained in monitoring, using 'best practice' tools; and
 - ▶ a [participatory approach](#), in which SMCs set their own priorities and designed their own monitoring instruments.
- ▶ Coupled this work with laboratory experiments conducted in the field to measure motivation

2. Experimental design

Experimental treatments

In a sample of 100 schools, 30 each were allocated to either:

1. Standard design

including measures of teacher and parent activities; physical inputs; school finances; health and welfare; or

2. Participatory design

in which parents, teachers, and management designed own objectives and indicators.

Standard design—a partial snapshot:

Teaching activities

Preparations. Do teachers have up-to-date...	...schemes of work?	Y / N	How well prepared do teachers seem to be?
	...lesson plans?	Y / N	
Presence. How many teachers are present by 8:30 AM on the day of your			How satisfactory is progress in teachers' presence in this school?
Methods. What did you find the teacher doing? Choose: Reading, Explanation, Discussion, Drill and Practice, Projects, Monitoring Seatwork, Managing Students, Resting			How satisfactory is progress in teaching methods?
		Are teachers using visual aids?	How satisfactory is progress in the assessment of homework?
		Are pupils asking questions?	
		Are pupils using textbooks?	
Assessment. Has pupils' written work been assessed in the last week?		Y / N	
Materials and facilities			How satisfactory is progress in the

Process and implementation

Process

- ▶ A 3-day training was conducted by the Ministry's Centre Coordinating Tutors (CCTs), resident in the counties where they worked, with support by SNV and World Vision;
- ▶ Each term, 12 members of the SMC (representing parents, teachers, foundation body, head teacher, and pupils) visited school and completed a scorecard measuring progress.
- ▶ A 'consensus-building' meeting was held to agree on a single scorecard and on steps forward, with results reported to PTA and District.

Timeline

- ▶ Baseline study in July 2008;
- ▶ Intervention launched in third term of 2009;
- ▶ Follow-up study November 2010.

Data

Baseline

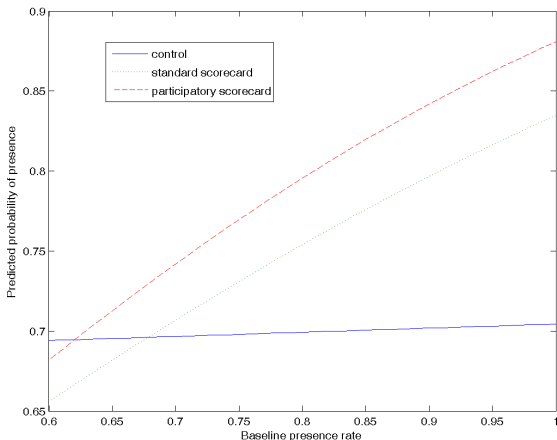
- ▶ Tests of pupils in P3 and P6 administered by Uganda National Examinations Bureau;
- ▶ Survey measures of school characteristics and individual char's (for representative subset of teachers, parents, and SMC);
- ▶ Laboratory experiments in schools, with individuals in roles defined by relationship to school.

Follow-up

- ▶ Re-test of pupils from P3 baseline cohort (P6 graduated), plus renewed cross-section;
- ▶ Unannounced visits to measure teacher and pupil presence and activities;
- ▶ Survey measures of school and individual outcomes.

3. Results

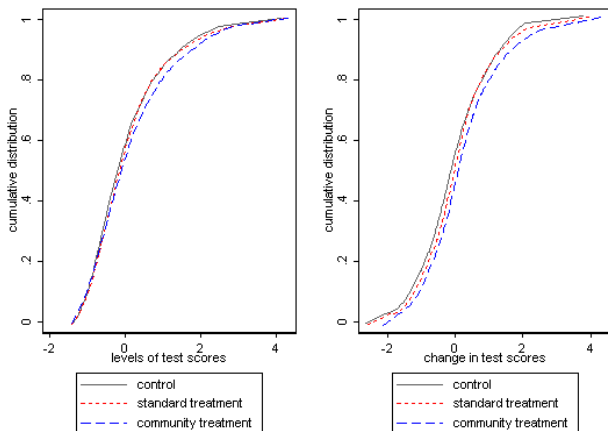
Treatment effects by baseline presence rate



Estimated impact on average is **14 percentage points**. Note: Mean baseline presence rate is 0.87 (administrative measure).

Did interventions affect pupil learning?

Pooled test scores, balanced panel sample



- Participatory approach has estimated impact of **0.19 standard deviations** on test scores of P3 cohort from baseline.

Discussion

- ▶ Evidence for participatory approach suggests that building ownership is important to success of a delegated/discretionary community-based mechanism;
 - ▶ Teacher presence is one mechanism for observed effects. 'Crowding in'?
 - ▶ Preliminary evidence from a post-intervention lab experiment suggests relative effects on social capital matter (Barr, Serneels, Zeitlin).
- ▶ Implementation through government CCTs, and partnership with Ministry and District officials: cost, ownership.
 - ▶ Intervention costs per school approx. GBP 320.
 - ▶ If we assume benefits accrue to 90 pupils in P3, cost 3.60 per 0.1sd of test scores (NB: attrition, affects on other years).
 - ▶ Compare with, e.g., 2.40/0.1sd for Duflo and Hanna 'cameras' experiment; 2.35/0.1sd for Kremer's scholarships.

4. Ongoing work

Second wave of interventions

Motivation

- ▶ Currently much government interest in incentivizing teachers attend school, particularly in remote schools.
- ▶ Around the time of Universal Primary Education, government focus was on building staff houses to encourage teacher attendance.
- ▶ Disappointment with this approach has led to search for alternatives
 - ▶ Hardship pay is discussed, but appropriate schools are difficult to define in practice.

Second wave of interventions

Design

To address these issues we are rolling out a new wave of interventions in our 120 schools:

1. Continuing the [participatory approach](#) that appears to have had impacts
2. Teacher incentives based on *change* in [pupil test scores](#) in their school as a whole.
 - ▶ Continue partnership with Uganda National Examinations Bureau, who conducted all testing for first phase.
 - ▶ Cross-school contest design
3. Performance bonuses (contest) based on [SMC reports](#).
 - ▶ Exploring use of mobile phones to communicate monitoring outcomes to District.

Supplementary materials

Treatment allocation

- ▶ Treatment allocations were stratified by subcounty to improve power; analysis will make use of this (Bruhn & McKenzie 2008).
- ▶ Randomization appears to have successfully balanced key baseline characteristics across treatment and control.

Variable	T0	T1	T2	T1-T0	T2 - T0
	Control	Standard	Participatory		
Absence rate (admin)	0.117 (0.159)	0.131 (0.162)	0.138 (0.138)	0.013 (0.024)	0.021 (0.019)
Pupil test scores: numeracy	0.001 (0.999)	0.043 (1.012)	-0.059 (0.987)	0.053 (0.192)	-0.060 (0.186)
Pupil test scores: literacy	0.068 (1.075)	-0.026 (0.980)	-0.065 (0.906)	-0.094 (0.169)	-0.133 (0.166)

Note: Means and standard deviations shown by treatment arm. Differences and cluster-robust standard errors in columns (4) and (5).

Effects on teacher presence

	(1)	(2)	(3)
spotpresent			
standard treatment	0.253 (0.16)	0.265 (0.17)	0.267 (0.17)
participatory treatment	0.387** (0.18)	0.412** (0.18)	0.431** (0.18)
presence rate at baseline		0.873* (0.45)	0.0739 (0.65)
standard \times baseline presence rate			1.355 (0.93)
participatory \times baseline presence rate			1.691* (1.01)
Observations	564	540	540
MFx: standard treatment	0.087 (0.054)	0.090 (0.057)	0.089 (0.056)
MFx: participatory treatment	0.133** (0.058)	0.139** (0.059)	.144** (0.058)

Notes: Probit coefficients reported. Dependent variable = 1 if teacher is present for unannounced visit. Robust standard errors, clustered at school level. Baseline presence demeaned prior to interaction. Strata indicator variables included in all specifications.

Did interventions affect pupil learning?

Pooled test scores, panel sample




	(1) Pooled	(2) Controls	(3) Pupil FE	(4) Pupil-exam FE
standard treatment, wave 2	0.108 (0.10)	0.144 (0.12)	0.0774 (0.10)	0.0787 (0.10)
participatory treatment, wave 2	0.195* (0.10)	0.229** (0.11)	0.189* (0.10)	0.191* (0.10)
participatory treatment	-0.0985 (0.11)	-0.143 (0.15)		
standard treatment	-0.0237 (0.10)	-0.0639 (0.13)		
wave	0.397*** (0.12)	0.513 (0.44)	-0.245 (0.18)	0.278 (0.19)
numeracy	0.0664* (0.04)	0.0897** (0.04)	0.0664* (0.03)	
Observations	5141	4249	5141	5141

Dependent variable is standardized test z-score. Math and literacy tests results pooled. Standard errors clustered at school level for all estimates. All specifications include strata-year controls. Controls for age and gender in specification (2).

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