Accountability and school performance: Evidence from Big Results Now in Tanzania

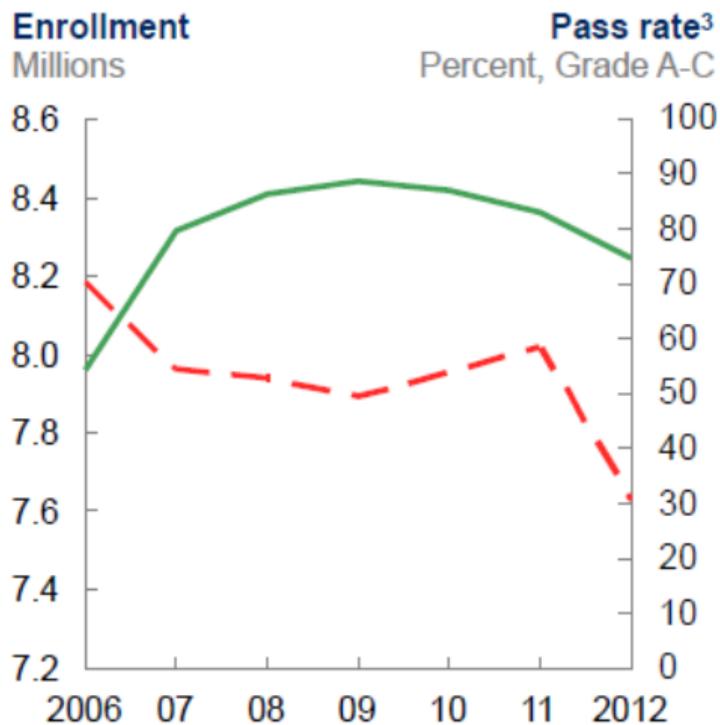Jacobus Cilliers, Isaac Mbiti, and Andrew Zeitlin

Accountability and school performance: Evidence from Big Results Now in Tanzania

Jacobus Cilliers, Isaac Mbiti, and Andrew Zeitlin

RISE Conference
June 2018

1. Introduction

A learning crisis?

Source: BRN Education Lab 'Storyline'

Big Results Now in Education

Government responded to this perceived crisis with a nine-point plan to address resource needs and incentives.

By 2016, average school pass rates recovered from under 30 percent to 69 percent.

At the core of these reforms was the public ranking of school performance.

Here, we study the impacts of publication of *within-district rankings* within this context, which we hypothesize would have created particular pressure on schools at the top and bottom of their districts to improve.

2. Empirical strategy

Data

To understand impacts of BRN's school ranking, we combine data from four sources:

- ▶ NECTA PSLE exam data from 2011–2016;
- ▶ EMIS data on student enrollments from 2015 & 2016; and
- ▶ SDI dta on teaching activities in 2014 & 2016;
- ▶ RISE-collected survey data on school resources and reform perceptions in 600 primary schools from 2016/17.

Extraordinary heterogeneity in district performance levels
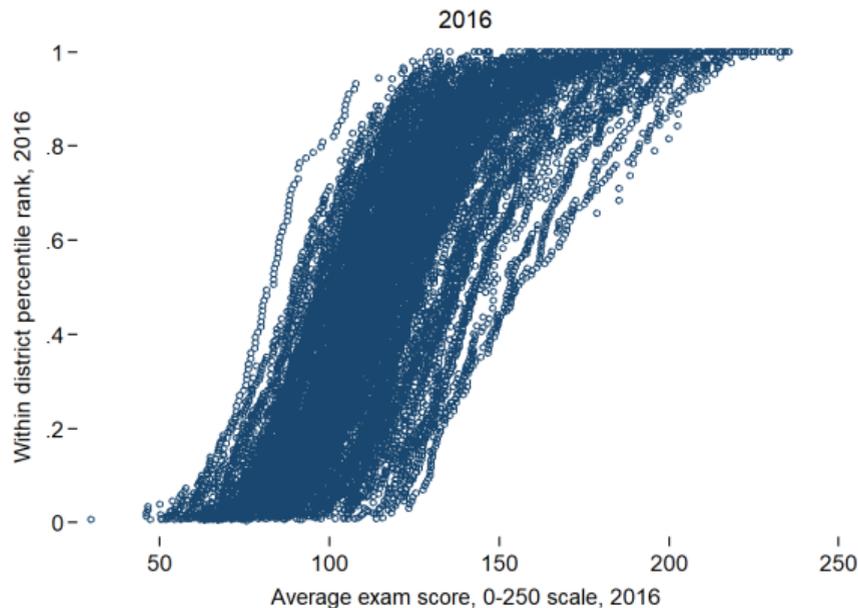
A triple-difference approach

Compare schools at the tails of the district distribution—where accountability is hypothesized to have the most traction—to schools near the median, in post- vs pre-reform period:

$$
\begin{aligned}
y_{s,t} &= \sum_q \alpha_q I_q(rank_{s,t-1}) + \sum_q \beta_q \left(I_q(rank_{s,t-1}) \times Post_t \right) \\
&+ f_t(y_{s,t-1}) + \gamma_d \times \tau_t + \epsilon_{s,d,t},
\end{aligned}
$$

where $y_{s,t}$ are our set of outcomes including school level test scores and number of test takers. We use a series of quantile dummies to flexibly control for a school's lagged district ranking, $rank_{s,t-1}$, in the pre-reform and post-reform period ($Post$). I_q is an indicator function that is equal to 1 if a school is ranked in quantile q.

3. Results

PSLE performance by within-district decile rank

Average marks
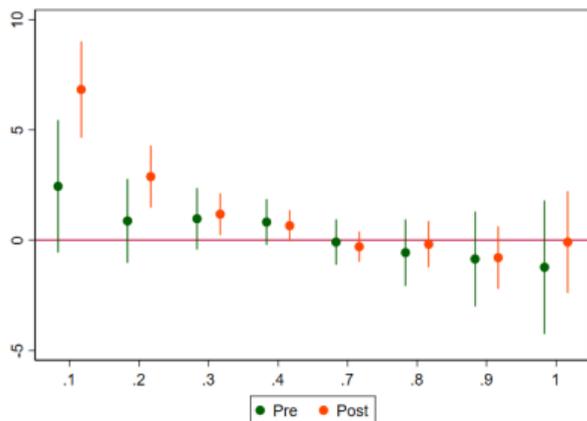
Pass rate

Marks, pass rate, and total passes improve in bottom-decile schools

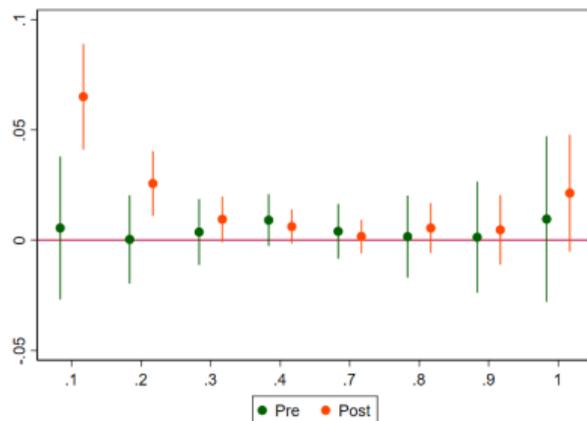|	(1)	(2)	(3)
	Marks	Pass rate	Number passed
90-100th percentile in previous year	0.952	0.0112	1.918
	(0.94)	(0.01)	(1.27)
80-90th percentile in previous year	-0.0629	0.00292	-0.376
	(0.66)	(0.01)	(0.54)
10-20th percentile in previous year	2.049***	0.0241***	0.852**
	(0.56)	(0.01)	(0.38)
0-10th percentile in previous year	4.406***	0.0577***	2.180***
	(1.00)	(0.01)	(0.75)
Observations	77731	77731	77731
R^2	0.655	0.607	0.384

Gains aren't driven by reallocation of physical resources. . .

	(1) Received textbooks	(2) Number of textbooks	(3) Received teachers
90-100th percentile in previous year	-0.179 (0.14)	-20.98 (71.83)	-0.0921 (0.06)
80-90th percentile in previous year	0 (.)	0 (.)	0 (.)
10-20th percentile in previous year	-0.188 (0.18)	-356.1** (179.13)	0.0902 (0.07)
0-10th percentile in previous year	0.0873 (0.11)	-89.64 (66.74)	0.0857 (0.06)
Control mean	0.74	218.95	0.04
Observations	473	285	473

. . . or by improvements in teacher absence. . .

	(1) School Absence	(2) Classroom Absence
90-100th percentile in previous year	0.117**	0.0802
	(0.05)	(0.06)
80-90th percentile in previous year	0.0391	0.0258
	(0.05)	(0.06)
10-20th percentile in previous year	0.0611	0.0250
	(0.04)	(0.06)
0-10th percentile in previous year	0.0607**	0.0158
	(0.03)	(0.06)
Control mean	0.15	0.46
Observations	786	786

. . . or by the reallocation of top-down monitoring visits.

	Government Visits		Contacted by district or regional education officer		Contacted by ward education officer	
	(1)	(2)	(3)	(4)	(5)	(6)
90-100th percentile in previous year	-1.388	0.417	-0.0895	0.149	-0.131	0.0645
	(4.18)	(0.96)	(0.10)	(0.13)	(0.10)	(0.12)
80-90th percentile in previous year	0	1.228	0	0.0881	0	-0.0596
	(.)	(0.78)	(.)	(0.14)	(.)	(0.11)
10-20th percentile in previous year	1.458	-0.847	0.0197	0.00105	-0.0775	-0.0475
	(8.03)	(0.76)	(0.13)	(0.10)	(0.11)	(0.10)
0-10th percentile in previous year	0.902	-1.014	0.0900	-0.137	0.103	-0.189
	(3.06)	(0.67)	(0.12)	(0.12)	(0.11)	(0.12)
Control mean	11.42	4.90	0.16	0.61	0.20	0.69
Observations	487	481	520	481	520	481

We *do* see more accurate knowledge of district rankings at the bottom

	(1)	(2)
	District rank	National rank
90-100th percentile in previous year	0.0251	0.000815
	(0.06)	(0.03)
80-90th percentile in previous year	0.107	-0.0296
	(0.09)	(0.04)
10-20th percentile in previous year	0.115*	-0.0108
	(0.06)	(0.03)
0-10th percentile in previous year	0.0917*	0.0425
	(0.05)	(0.03)
Control mean	0.11	0.03
Observations	1138	1138

And we *do* see increased pressure to keep students out of P7

	PSLE data— exam sitters		EMIS data—enrollment		
	(1)	(2)	(3)	(4)	(5)
	All years	2015 and 2016	Std 4-6	Std 7	Std7/Std6
90-100th percentile in previous year	1.676*	-0.0168	0.900	-0.0957	-0.00851
	(0.91)	(0.66)	(1.79)	(0.80)	(0.01)
80-90th percentile in previous year	0.965	0.154	1.663	0.359	-0.00438
	(0.65)	(0.42)	(1.52)	(0.54)	(0.01)
10-20th percentile in previous year	-1.846***	-1.068**	1.929	-0.479	-0.00804
	(0.63)	(0.42)	(1.33)	(0.48)	(0.01)
0-10th percentile in previous year	-2.039***	-1.676***	-0.773	-1.646**	-0.0280**
	(0.76)	(0.59)	(1.78)	(0.74)	(0.01)
Diff-diff	Yes	No	No	No	No
Control lagged exam score	Yes	Yes	Yes	Yes	Yes
Fixed effects	Yes	Yes	Yes	Yes	No
Control mean					
Observations	77731	31847	31651	31651	15828
R-squared	0.147	0.113	0.086	0.101	0.127

This mechanism explains a substantial share of a national trend
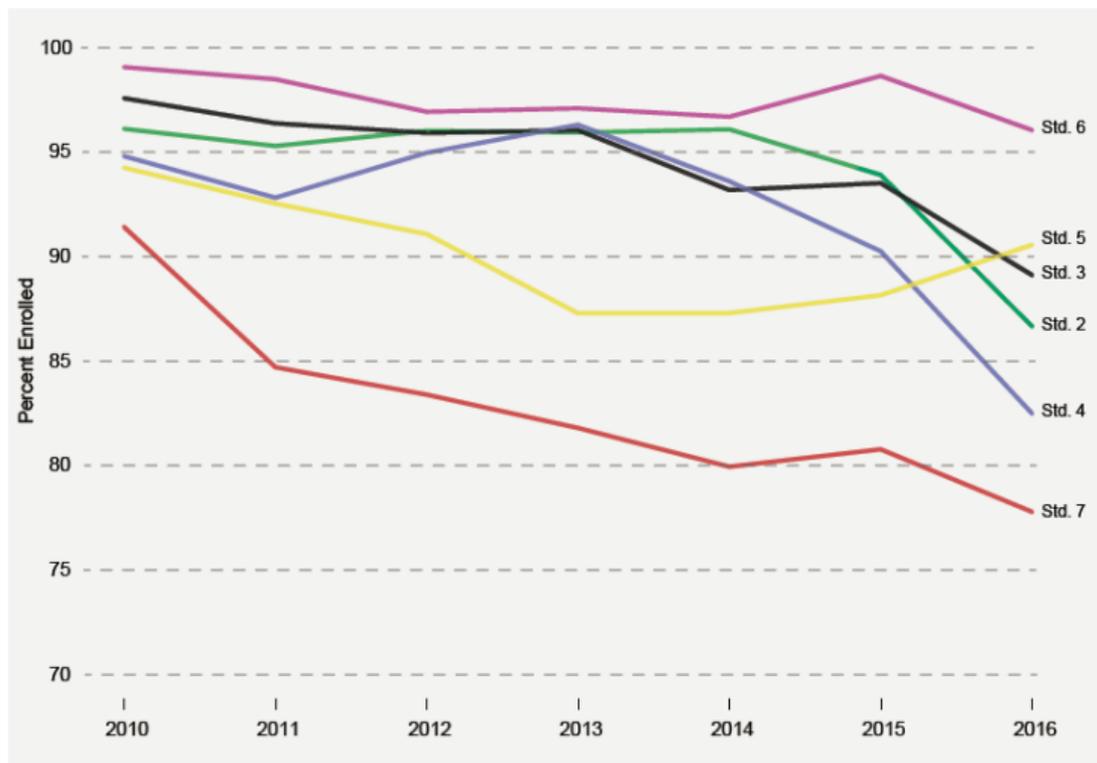
But by contrast with a sorting story, impacts on top schools are *stronger* when estimated with Ward-level averages

	(1) Marks	(2) Exam sitters
90-100th percentile in previous year	-1.479	3.857**
	(2.12)	(1.73)
80-90th percentile in previous year	-1.174	0.228
	(1.77)	(1.61)
10-20th percentile in previous year	1.241	-0.755
	(1.32)	(1.50)
0-10th percentile in previous year	3.510**	-1.852
	(1.67)	(1.49)
Observations	78936	78936
R^2	0.835	0.369

4. Discussion

Discussion

Public rankings of school quality seemed to have operated in ways not originally emphasized—creating pressure based on relative position within districts.

This did create pressure at the tails, resulting in some learning gains.

But accompanied by substantial suppression of P7 progression in low-performing students, and without evidence of increases in proximate learning inputs.

We do not see evidence that these gains were driven by zero-sum mechanisms *across* schools, and if anything some evidence of a 'halo effect' for wards with high-performing schools.

Accountability and school performance: Evidence from Big Results Now in Tanzania

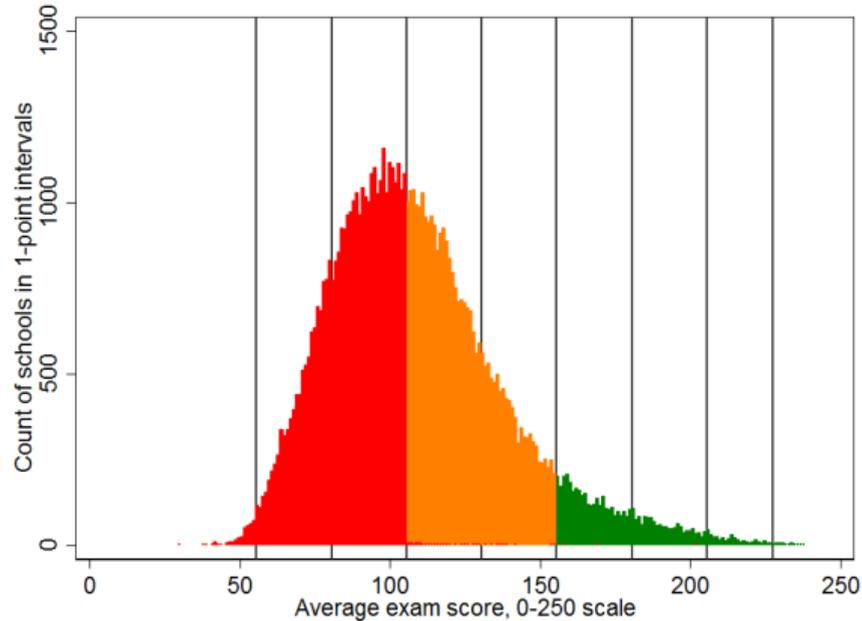Jacobus Cilliers, Isaac Mbiti, and Andrew Zeitlin

RISE Conference
June 2018

References I

5. Mechanisms that weren't

Mechanisms that weren't, pt 1
National ranking distribution under BRN

Mechanisms that weren't, pt 2
Test-score gains as performance metric