Local governance and the quality of learning resources in public schools in Africa

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Education in Africa: Where do we stand?

- ▶ Substantial increase in education expenditure in Africa over the MDG and EA

- ▶ Yet, poor quality of education (worsen in many sub-Saharan countries); (Galiani and Perez-Truglia (2014)).

- ▶ How to improve the quality of education?

- ▶ Better school inputs, good quality of teachers and lesser teacher absenteeism engine for quality of school learning in developing countries (Glewwe et al(2014), Duflo et al (2012); Muralidharan and Sundaraman(2011)).

Do we need more investments in education?

▶ Ineffective investments with bad governance and lack of capacity to plan, to manage and to execute.

▶ Importance of good governance at the local government level too:

  ▶ *Set of formal institutions legally established to deliver a set of specified public services and goods (education, health..) to relatively small geographic jurisdictions.*

▶ Bad governed localities decrease learning outcome:

  ▶ Students living in municipalities with detected missing federal education funds records lower learning performance and higher dropout and failure rates (Ferraz et al.(2012)).

▶ Yet in Africa, local governments perceived as weak institutions that rarely perform well and are unresponsive (Bratton (2012))

Contribution

▶ This paper investigates the extent to which corrupt activities and lack of effectiveness and responsiveness by local government officials affect the likelihood that local inhabitants experience poor learning resources in their local public schools.

▶ Distinction between education resources for enrolment and drop out rates **(facilities, fees)** and education resources for learning quality **(textbooks; teacher absenteeism)**.

▶ Measures of quality of local governance at the regional level. Subjective indicators based on the perception of local citizens of their local government councilors.

▶ Individual level analysis and cross-region analysis with instrumental variables

Related literature

1. **Governance and education**

   ▶ Bad governance may deviate public investments (e.g., resources on education) to more profitable rent-seeking activities (Mauro (1998); Keefer and Knack (2007)).

   ▶ Casting doubt on the effectiveness of the investments

   ▶ Corruption creates discrimination in access to education and school fee payment (Emran et al(2013); Choe et al(2013)).

   ▶ Missing funds deteriorate learning outcome in Brazil (Ferraz et al.(2012))

2. **Local governance and development in Africa**

   ▶ Well governed localities: better quality of public service delivery (Deininger and Mpuga (2005) Uganda); Reduce the incidence of conflict in sub-Saharan Africa ((Wig and Tollefsen (2016)).

   ▶ Perceived as weak institutions with limited functions and unresponsive (Bratton (2012)).

   ▶ Local context matters in Ethiopia (Jilke(2013)). More transparency and greater access to political decision making information increase the perceived accountability of local officials.

Data

▶ Afrobarometer: series of nationally representative surveys on the attitudes of citizens towards democracy, market, civil society, and other aspects of development in Africa.

▶ 30 SSA and 3 North African countries, combining round 3 (2005-2006), and round 5 (2011-2013)

▶ **Measuring education resource quality**

  ▶ *Have you ever encountered the following challenges in your local public schools over the last twelve months:*

  ▶ (1) Expensive school fees; (2) Lack of textbooks or other supplies; (3) Poor teaching quality; (4) Teacher absenteeism; (5) Overcrowded classrooms; and poor (6) conditions of facilities

▶ For each of the items: $Z=1$ if yes and 0 otherwise.

School input challenges in local public schools

	Category	Nb obs	Percentage
Too expensive	Yes	23,831	46.06
	No	27,907	53.94
	Total	51,738	100
Lack of textbooks	Yes	28,956	57.55
or other supplies	No	21,362	42.45
	Total	50,318	100
Poor teaching	Yes	25,737	52.23
	No	23,542	47.77
	Total	49,279	100
Teacher absenteeism	Yes	26,976	54.58
	No	22,447	45.42
	Total	49,423	100
Overcrowded classrooms	Yes	30,272	60.73
	No	19,576	39.27
	Total	49,848	100
Poor facilities	Yes	23,455	47.04
	No	26,411	52.96
	Total	49,866	100

Measuring local governance quality at the region level

1. *How many of your local government councilors do you think are involved on corruption?*

2. *Do you approve or disapprove of the way your local government councilors have performed their jobs over the last twelve months?*

3. *How much of the time do you think that your local government councilors try their best to listen to what people like you have to say?*

▶ **Corruption** (proportion of at least few of them)

▶ **Ineffectiveness** (proportion of not performing well)

▶ **Responsiveness** (proportion of at least some)

Measures of local governance quality

	Corruption	Ineffectiveness	Responsiveness
Full Sample (Round5 and Round 3)			
Nb regions	645	644	645
Mean	82.9	46.0	54.9
Std. Dev.	16.5	21.6	23.7
Min	11.5	0	0
Max	100	100	100
Round 5			
Nb regions	443	442	443
Mean	85.1	46.7	48.3
Std. Dev.	15.5	21.2	23.5
Min	11.54	0	0
Max	100	100	100
Round 3			
Nb regions	202	202	202
Mean	78.3	44.7	69.4
Std. Dev.	17.5	22.4	16.8
Min	27.8	0	18.9
Max	100	95.2	100

Empirical Strategy

1. Multilevel analysis: The probability to experience the school challenge Zj

$$\text{Prob}(Zj_{\text{irct}} = 1, \omega_{\text{irct}}) = \frac{1}{1 + exp(-\omega_{\text{irct}})}$$

Level 1: $\quad \omega_{\text{irct}} = \quad \beta_{0rc} + \beta_1 \text{localgovernance}_{\text{rct}} + \beta_2 X_{\text{irc}} + \beta_3 W_{\text{ct}} + t + \epsilon_{\text{irc}}, \quad \varepsilon_{irc} \sim N$

Level 2: $\quad \beta_{0rc} = \quad\quad\quad\quad\quad \beta_{00c} + u_{rc}, \quad\quad u_{rc} \sim N(0, \delta^2), \quad\quad \varepsilon_{irc} \perp u_{rc},$

Level 3: $\quad \beta_{0c} = \quad\quad\quad\quad \beta_{00} + u_c, \quad\quad u_c \sim N(0, \gamma^2), \quad\quad \varepsilon_{irc} \perp u_c, \quad\quad u_{rc} \perp u_c,$

2. Cross-region analysis with instrumental variables

$$q_{\text{jrct}} = \alpha_0 + \alpha_1 \text{localgovernance}_{\text{rct}} + \gamma_r + t + \epsilon_{\text{rt}}$$

- ▶ q_{jrt}: the proportion of people from region r and country c who experience issue j at t
- ▶ Instruments: Average local governance in the other regions of the country; Distance to the median values (1/0)

Individual and country characteristics

- ▶ Individual socio-economic characteristics (gender, education, age, location (rural vs urban), asset ownership, etc..)

- ▶ Country characteristics (government expenditure on education, measures of quality of governance at the country level).

- ▶ WDI; Worldwide measures of governance

Local Corruption and learning inputs in Africa

	(1) Exp	(2) Text	(3) Teach	(4) Abs	(5) Class	(6) Facil
Corruption	1.732***	1.629***	2.098***	1.584***	1.832***	1.857***
	(0.154)	(0.147)	(0.156)	(0.152)	(0.154)	(0.101)
C.Corruption	-0.860***	-0.554***	-1.080***	-0.580***	-0.294***	-0.686***
	(0.0875)	(0.0847)	(0.0931)	(0.0871)	(0.0835)	(0.0923)
Educ/GDP	-0.304***	-0.262***	-0.311***	-0.211***	-0.199***	-0.280***
	(0.0183)	(0.0182)	(0.0195)	(0.0183)	(0.0181)	(0.0194)
round (5)	-0.133***	-0.0666**	-0.0479	0.0280	-0.133***	1.130***
	(0.0308)	(0.0310)	(0.0321)	(0.0315)	(0.0323)	(0.0295)
Constant	-0.365	0.110	-0.569**	-0.330*	-0.0205	-1.354***
	(0.235)	(0.199)	(0.235)	(0.193)	(0.190)	(0.191)
Obs	45,772	44,639	43,668	43,825	44,219	44,254
Regions	415	415	415	415	415	415
Countries	32	32	32	32	32	32
AIC	57074.58	56041.18	54547.99	55087.76	52691.93	53176.19
BIC	57135.7	56102.13	54608.78	55148.57	52752.81	53228.38

Local Government effectiveness and school inputs in Africa

	(1) Exp	(2) Text	(3) Teach	(4) Abs	(5) Class	(6) Facil
Ineffectiveness	0.455***	0.814***	0.799***	0.591***	0.944***	0.897***
	(0.140)	(0.136)	(0.0825)	(0.0817)	(0.146)	(0.154)
C.Goveff	-1.357***	-1.040***	-1.314***	-0.456***	-0.805***	-1.959***
	(0.141)	(0.137)	(0.132)	(0.113)	(0.123)	(0.180)
Educ/GDP	-0.300***	-0.253***	-0.280***	-0.206***	-0.185***	-0.310***
	(0.0186)	(0.0187)	(0.0183)	(0.0170)	(0.0183)	(0.0207)
round (5)	-0.0415	0.0218	0.0545**	0.160***	-0.0299	1.240***
	(0.0279)	(0.0280)	(0.0277)	(0.0268)	(0.0294)	(0.0308)
Constant	0.421*	0.657***	0.380*	0.643***	0.617***	-0.946***
	(0.224)	(0.183)	(0.210)	(0.155)	(0.166)	(0.269)
Obs	45,772	44,639	43,668	43,825	44,219	44,254
Regions	415	415	415	415	415	415
Countries	32	32	32	32	32	32
AIC	57146.63	56075.76	56038.31	56741.8	52745.84	52002.43
BIC	57207.75	56136.71	56090.41	56793.93	52806.72	52063.31

Local Government responsiveness and school inputs in Africa

	(1)	(2)	(3)	(4)	(5)	(6)
	Exp	Text	Teach	Abs	Class	Facil
Responsiveness	-0.0821	0.0334	0.120	0.0649	-0.379***	-0.457***
	(0.117)	(0.116)	(0.0741)	(0.0733)	(0.125)	(0.132)
Goveff	-1.406***	-1.122***	-1.393***	-0.505***	-0.855***	-2.115***
	(0.141)	(0.140)	(0.132)	(0.115)	(0.128)	(0.182)
Educ/GDP	-0.306***	-0.261***	-0.283***	-0.209***	-0.194***	-0.326***
	(0.0186)	(0.0188)	(0.0183)	(0.0171)	(0.0185)	(0.0207)
round (5)	-0.0395	0.0575*	0.0977***	0.190***	-0.0462	1.199***
	(0.0327)	(0.0326)	(0.0296)	(0.0288)	(0.0340)	(0.0363)
Constant	0.669***	0.975***	0.612***	0.837***	1.271***	-0.276
	(0.237)	(0.198)	(0.224)	(0.167)	(0.179)	(0.296)
Obs	45,772	44,639	43,668	43,825	44,219	44,254
Regions	415	415	415	415	415	415
Countries	32	32	32	32	32	32
AIC	57156.73	56111.99	56129.79	56793.3	52778.02	52023.67
BIC	57217.85	56172.94	56181.89	56845.42	52838.89	52084.55

Cross-regional analysis: IV Second step results

	(1) Exp	(2) Text	(3) Teach	(4) Abs	(5) Exp	(6) Text	(7) Teach	(8) Abs
Corruption	0.253*** (0.0574)	0.313*** (0.0561)	0.471*** (0.0535)	0.388*** (0.0532)				
Ineffectiveness					0.153*** (0.0409)	0.125*** (0.0401)	0.218*** (0.0389)	0.198*** (0.0383)
round (5)	-0.184*** (0.0168)	-0.231*** (0.0164)	-0.223*** (0.0156)	-0.205*** (0.0155)	-0.170*** (0.0166)	-0.211*** (0.0162)	-0.194*** (0.0157)	-0.182*** (0.0155)
Constant	0.259*** (0.047)	0.319*** (0.0458)	0.135*** (0.0437)	0.216*** (0.0434)	0.388*** (0.0229)	0.508*** (0.0224)	0.407*** (0.0218)	0.431*** (0.0214)
Test of endogeneity								
Durbin-statistics	0.1556	4.949	8.112	4.397	5.575	6.271	4.958	6.349
Durbin-test P-Value	0.69	0.026	0.004	0.036	0.018	0.012	0.026	0.012
Wu-Hausman statistics	1.546	4.957	8.164	4.399	5.588	6.293	4.966	6.372
Wu-Hausman-test P-value	0.6943	0.026	0.004	0.036	0.018	0.012	0.026	0.012
Tests of overidentifying restrictions								
Sargan-statistics	0.977	3.526	8.341	6.583	2.134	0.879	1.264	0.53
Sargan P-value	0.323	0.06	0.004	0.01	0.14	0.35	0.26	0.47
Basmann-statistics	0.973	3.524	8.399	6.61	2.128	0.875	1.258	0.528
Basmann P-value	0.324	0.06	0.004	0.01	0.14	0.35	0.26	0.47
Observations	643	643	643	643	642	642	642	642
R-squared	0.17	0.236	0.264	0.232	0.145	0.209	0.211	0.19

Cross-regional analysis: IV Second step results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Exp	Text	Teach	Abs	Exp	Text	Teach	Abs
Corruption	0.416***	0.600***	0.749***	0.552***	0.416*	0.600***	0.749***	0.552***
	(0.0816)	(0.0830)	(0.0875)	(0.0787)	(0.227)	(0.182)	(0.210)	(0.173)
Ineffectiveness	0.372***	0.467***	0.236***	0.326***	0.372***	0.467***	0.236**	0.326***
	(0.0611)	(0.0621)	(0.0655)	(0.0589)	(0.124)	(0.114)	(0.101)	(0.0922)
round (5)	-0.190***	-0.243***	-0.235***	-0.229***	-0.190***	-0.243***	-0.235***	-0.229***
	(0.0110)	(0.0112)	(0.0118)	(0.0106)	(0.0313)	(0.0266)	(0.0402)	(0.0354)
Constant	0.0353	-0.256**	-0.258**	-0.124	0.0353	-0.256*	-0.258	-0.124
	(0.102)	(0.103)	(0.109)	(0.0981)	(0.167)	(0.137)	(0.165)	(0.118)
Region dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country clusters	No	No	No	No	Yes	Yes	Yes	Yes
Observations	642	642	642	642	642	642	642	642
R-squared	0.839	0.840	0.811	0.839	0.839	0.840	0.811	0.839

▶ One point increase in the measure of local-corruption increases the proportion of people experiencing lack of textbooks by 0.6, quality of teacher by 0.7 and teacher absenteeism by 0.5.

▶ The values are 0.5, 0.2 and 0.3 for one point increase in the local government ineffectiveness.

Concluding remarks

▶ Success of many SDGs need better quality of education (healthier population, greater productivity, more equality).

▶ Good governance (national and local levels) for efficient investment in education

▶ Local governments play a role in providing public service delivery (education, health) in their local jurisdictions

▶ Alarming statistics from the Afrobarometer reveal both lack of decent learning resources and weak local governance in Africa.

▶ In this paper we investigated the extent to which corrupt behaviors, lack of effectiveness and responsiveness within local government officials may affect the likelihood that the local inhabitant experience bad quality of education resource in their local public schools in Africa.

▶ Corruption and effectiveness matter, regardless on the type of education resources (quantitative or qualitative)

▶ Limitation: no data on learning scores. Local governance affects learning score (Brazil). Need further investigation for Africa.

- **Thank you very much for your attention!!!!**

Cross-regional analysis: IV

Table: IV estimations: first-step results

	(1)	(2)
Dependent variable	*Local − corruption*	*Local − effectiveness*
Average-Localcorruption	1.008***	
	(0.0326)	
Distance to median corruption	0.159***	
	(0.00755)	
Average-Localeffectiveness		0.937***
		(0.0262)
Distance to median ineffectiveness		0.229***
		(0.00849)
round.5	0.00719	0.0397***
	(0.00831)	(0.00917)
Constant	-0.0816***	-0.122***
	(0.0271)	(0.0156)
Observations	645	644
R-squared	0.673	0.753
F-statistics	621.575	968.159