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THE VICIOUS CIRCLE OF POVERTY, POOR PUBLIC SERVICE PROVISION, AND STATE LEGITIMACY: A VIEW FROM THE GROUND IN SUDAN

by

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The vicious circle of poverty, poor public service provision, and state legitimacy: A view from the ground in Sudan*

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Abstract

Using data on the quality of service delivery in Sudan, we show that poverty is a significant correlate of public services access and that those without access are significantly less likely to trust government institutions tasked with service delivery and participate politically. Inequality in access further erodes trust and participation – leading to a vicious circle from bad services to lack of provider accountability. Our results are consistent with recent macroeconomic models of a vicious circle between poverty and state legitimacy. We add to this by documenting that people's views about the state depend on how the state treats them.

Keywords: Vicious circle, poverty, public service provision, state legitimacy

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1 Introduction

Public spending on social services such as education and health care is generally considered a central redistributive or anti-poverty policy instrument in developing countries. Failures in service delivery are a key reason that people fall into poverty (for example through ill health), and lack of access to reasonable basic services constrains poor people's ability to transition out of poverty (for example through education). Many developing countries, however, continue to suffer from unsatisfactory and often dysfunctional delivery of vital public services, and the poor, who often lack the ability to seek out alternative providers and services, are often the biggest losers (World Bank, 2004; Kremer, Muralidharan, Chaudhury, Hammer and Rogers, 2005; Chaudhury, Hammer, Muralidharan and Rogers, 2006; Bold, Gauthier, Svensson and Wane, 2010).

The recent political economy literature on institutions for growth views low and ineffective spending on service delivery sectors as the outcome of purposeful decisions by policymakers (Acemoglu and Robinson, 2012; Besley and Persson, 2011; Collier, 2009). Specifically, Besley and Persson (2011) identify the strength of common interest in society and the structure of political institutions as the underlying determinants for policy decisions in sectors like education and health, while Acemoglu and Robinson (2012) discuss how non-inclusive institutions tend to create poverty and generate negative feedback loops that help ensure the endurance of the equilibrium. Thus, poor public service provision may not only increase the risk of falling into poverty and reduce the ability to transition out of it, but may create a vicious circle where poor public service provision results in the state's legitimacy being questioned and a general distrust in the political system, including reduced political participation. Politicians respond accordingly: they will focus less attention on the politically inactive and thus shift efforts and resources away from public provision of social services for those in most need (Strömberg, 2004; Husted and Kenny, 1997; Lott and Kenny, 1999; Fujiwara, 2011). When the state's legitimacy is questioned, it is usually easier for the government to turn to repression than to the long-run strategy of building trust through improved performance and service provision (Acemoglu and Robinson, 2012)

In this paper, we investigate these channels using data from a unique survey of a representative

sample of 2,376 households in Sudan. We show that the poor are more than twice as likely to suffer complete lack of basic services (education, health, electricity, water, and sanitation) relative to the less-poor. Furthermore we show that while poverty is more widespread in rural areas than in urban areas, the rural-urban divide plays little role in accounting for the observed relationship between poverty and poor public service access. While there is significant spatial correlation between income poverty and poor public service access, the difference between the poor and less poor remains large even within the 18 Sudanese states.

We then investigate whether, as the recent political economy literature on state capacity and development suggests, poor access to public service affects the trust and legitimacy in state institutions. We find that households with poor access are significantly and quantitatively less likely to report that they have trust in both central state institution, such as the parliament, the judiciary, the armed forces, and the federal government, and local state institution, such as the local government, the local public hospital, the local public school. However, poor social service access does not significantly influence trust in non-state institutions, like the local imam and the tribal chief. Thus, while households are significantly more likely to distrust central and government institutions in charge of public service provision, they are not more distrustful in general; i.e. they have not less trust in actors that have likely little influence over service provision. Importantly we identify two channels through which poor service delivery influences views about the legitimacy and trust of public institutions: First, households experiencing poor public service outcomes are more likely to distrust the formal public institutions. Second, households in states with widespread inequalities are more likely to distrust the formal public institutions.

Finally, we show that poor access matters for political participation and association to political parties, consistent with the view that poor public service access leads to a general distrust in the political system and as a consequence reduced political participation. Importantly, we show that being poor in itself does not have these effects. If anything, the poor are slightly more inclined to associate themselves with political parties rather than their tribe and in states with widespread poverty, households are more inclined to be willing to express their views through elections. The

channel by which trust in state institutions and political participation are connected appears to be poor service delivery not poverty.

Our results are consistent with recent macroeconomic models of a vicious circle between poverty and state legitimacy through low investment in public services. We add to this literature by documenting that people's views about the state are a function of how the state treats them: when the state does not provide basic public services, trust in government is eroded. Importantly, we find evidence that the link from lack of access to services to lack of political participation works through trust, which is endogenous in our model.

The rest of the paper is organized as follows. Section 2 briefly describes the setting – Sudan is an authoritarian country considered as one of the most fragile and weakest countries of the world. Section 3 briefly discusses the data we exploit in the paper – data derived from a 2013 household survey conducted by DFID Sudan with unique (for Sudan) household level data on access to public services and households' perceptions about the political environment and their trust in various state and non-state institutions. Section 4 presents the key findings and section 5 summarizes the key insights.

2 Background

The Republic of Sudan has only existed in its current state since 2011, following the independence of South Sudan. Prior to this, as the largest country in Africa, the Sudan had a long and complex history of instability with a succession of civil wars, war in the Darfur region, and, more recently, conflict in South Kordofan and the Blue Nile. The secession of the South in 2011, and the conflict in South Sudan, have further exasperated much of this instability, particularly along the borders.

While Sudan is classified by the World Bank as a lower middle-income country (World Bank, 2012), it ranks in the bottom (171st out of 186 countries) in the 2013 Human Development Index (UNDP, 2014).[1] The Brookings Institution's *Index of State Weakness* (Brookings Institution,

[1]The assessment of Sudan as a lower middle-income country masks the large inequality within Sudan, with relative prosperity of Khartoum, while the remaining parts of Sudan are very poor.

2008); i.e. an index derived by aggregating eight indicators capturing the effectiveness and legitimacy of the state in the security, political, economic, and social spheres, ranks Sudan as one of the weakest states in the developing world (6th out of 141 countries) with only Somalia, Afghanistan, Democratic Republic of Congo, Iraq and Burundi ranked lower. Likewise, the Polity IV project's *State Fragility Index* for all countries in 2009 (Center for Systematic Peace, 2009) ranks Sudan as one of the most fragile countries.

Sudan is a federal state with 18 states. Despite a number of decentralization reforms, however, the central authority, and in particular the president, has retained its dominance over all major sources of power.

3 Data

There is little publicly available household based data from Sudan. The most recent nationwide survey available is a contested census completed in 2008. While the World Bank (WDI) reports data on a few service delivery outcomes, like student-teacher ratios, their accuracy is unclear as data collected by government agencies are often questionable due to political influence. In addition, these data are only made publicly available at the state level.[2]

The data used here comes from household surveys conducted by DFID Sudan in July 2013. In total, information was collected from 2,376 households using a stratified random sample design.[3] Unlike other sources of data in Sudan, the DFID Sudan data provides individual data on households' (self-) reported access to a core set of five public services (education, health, electricity, water, and sanitation), combined with (self-reported) data on various economic and socioeconomic household characteristics. The DFID Sudan data also provides information on households's perceptions about the political environment and their trusts in various state and non-state institutions.

[2]Note that the exact source of the data reported by the World Bank is unclear. For example, for the student-teacher ratio the source is Federal Ministry of General Education data and expert opinion of the World Bank Sudan office.

[3]Details on the design are available from Crowther et al. (2014).

4 Results

Table 1 reports summary statistics of the sample. On average, every third household surveyed was estimated to live on an income below the poverty line of USD 1.07 per day.[4] There is great variation across states in estimated poverty, with the headcount ratio at the state level varying from 2% to 75%.

Access to public services was collected for five services (education, health, electricity, water, and sanitation). For each service, the respondent was asked to assess, using a four grade scale (completely inaccessible, infrequent access possible, frequent access possible, completely accessible) whether that service was accessible. We create a binary indicator variable for having access to service j, a_j, and code access ($a_{ij} = 1$) if respondent i answered frequent access possible or completely accessible, and 0 otherwise. The variable *access* reported in table 1 is the sum of the five binary access indicators. The respondent was also asked to assess the quality of the service on a five grade scale (extremely poor quality, poor quality, adequate quality, good quality, and excellent quality). Similar to the access measures, we create binary indicator variable for service j being of decent quality (q_j) and accordingly code quality ($q_{ij} = 1$) if respondent i answered adequate, good, or excellent quality of the service, and 0 otherwise. The variable *quality* reported in table 1 is the sum of the five binary quality indicators. Finally we combine a and q and define quality adjusted access (aq) where $aq_i = \sum_{j=1}^{5} a_{ij} \times q_{ij}$.

The binary variable *no access* is equal to 1 for individual i if $\sum_{j=1}^{5} a_{ij} = 0$, and 0 otherwise, while the binary variable *no quality adjusted access* is equal to 1 for individual i if $\sum_{j=1}^{5} a_{ij} \times q_{ij} = 0$, and 0 otherwise.[5]

In the full sample, 13 percent of the households surveyed report no access to any of the five basic public services and 33 percent report no access to decent quality services. The variation across states is again large, with only 1 percent of the respondents reporting no quality adjusted

[4]The headcount ratio is calculated based on self-reported data on monthly household income (reported in categories, we use the mid-points to derive household income) and reported income supplemented from the earnings of family members living abroad. Total income is then defined in per-capita terms and the headcount ratio measures the share of households below the poverty line.

[5]The socioeconomic characteristics are defined in the notes to table 1.

access in the best performing state and 80 percent of the respondents reporting no quality adjusted access in the worse performing state.

Table 2 breaks down the findings according to living in rural or urban areas, and whether the household is below (poor) or above (relatively less-poor) the estimated poverty line. The headcount ratio is 14 percentage points higher in rural than in urban areas. Access to no services or access to no decent services are 5.6 and 9.2 percentage points higher in rural areas compared to urban areas. Comparing poor and relatively less-poor, the poor are more than twice as likely to report no access to any public services and a striking 40% of the poor report no access to quality adjusted services.

Table 3 reports the estimates of a linear specification relating poverty status to no access; i.e. the estimate of β in equation (1)

$$y = \beta Poor + \gamma X + \varepsilon \tag{1}$$

where the vector X of covariates is listed in panel C, table 1.

In the full sample, column 1, poor households are significantly and quantitatively (9.7 percentage points) more likely to suffer from no access. We find similar effects in the sub-sample of urban households (column 2) and the sample of rural households (column 3). Thus, although both the extent of poverty and the extent of service provision are lower in rural areas, the strong correlation between poverty and low (no) access is not driven by an urban-rural divide. As illustrated in figure 1, there is significant spatial correlation between income poverty and poor public service access. However, the effect of poverty on poor access remains significant, albeit somewhat smaller in magnitude.

Table 4 reports the estimates of equation (1) with no quality adjusted access as dependent variable. The results remain intact. The poor are significantly more likely to suffer from a lack of decent public services. The point estimate implies an 8.1 percentage points higher risk of no access. The results remain intact when splitting the sample between urban (column 2) and rural (column 3) households. They also hold when controlling for state-specific fixed effects (column

4).

The results so far point to a strong correlation between poverty and lack of access to public services. Importantly, this is not just a rural-urban divide with poor access concentrated in rural areas. Everywhere in Sudan, those who are poorer report a lower supply of public services and a lower supply of decent public services.

Tables 5-7 investigate whether poor access to public services affects the trust and legitimacy in state institutions as the recent political economy literature on state capacity and development suggests.

The three outcome variables, *trust central state institutions*, *trust local state institutions*, *trust non-state institutions*, are based on questions where the respondent was asked about the extent to which he/she has trust in institution k using a four grade scale (a lot of trust, some trust, little trust, or no trust). For each institution we create a binary indicator variable for trusting institution k, t_k, and code having trust ($t_{ik} = 1$) if respondent i answered a lot of trust or some trust, and 0 otherwise. The variable *trust state institutions* is the sum of the five binary indicators for having trust in the parliament, in the judiciary, in the armed forces, and in the federal government, and local state institution. The variable *trust local institutions* is the sum of the three binary indicators for having trust in the local government, in the local public hospital, and in the local public school. Finally, the variable *trust non-state institutions* is the sum of the two binary indicators for having trust in the local imam and in the tribal chief. We normalize each summary measure by the number of indicators used in its construction, so each variable in table 5 is derived as $\sum_{k=1}^{K} t_{ik}/K$.

In table 6, panel A, we split the sample into three sub-groups: Households with no access to public services $\left(\sum_j a_{ij} = 0\right)$, households with some access $\left(0 < \sum_j a_{ij} < 5\right)$, and households with good access $\left(\sum_j a_{ij} = 5\right)$. For households with good access to public services trust in institutions is uniformly high at an average of 70 percent across all three types of institutions (central state, local state and non-state) and the difference between trust in state institutions and non-state institutions is 8 percentage points (70% trust central and local state institutions versus 78% who trust non-state institutions). The pattern is very different for those without access to public ser-

vices. First, trust in institutions is generally lower for these households (only half trust central and local state institutions and two thirds trust non-state institutions). Second, the difference in trust between state and non-state institutions is much more pronounced with nearly 20 percentage points separating state and non-state institutions.

In panel B we instead split the sample according to quality adjusted access, with no quality adjusted access defined as $\sum_j q_{ij}a_{ij} = 0$, households with some quality adjusted access defined as individuals with $0 < \sum_j q_{ij}a_{ij} < 5$, and households with good quality adjusted access define as individuals with $\sum_j q_{ij}a_{ij} = 5$. With this decomposition, the difference in trust in formal state institutions between those that have good access and those that have none becomes even more striking: More than 80 percent of those reporting good quality adjusted access have trust in all three types of institutions and trust is uniformly high for all categories of institutions. Those with no quality adjusted access are 30 percentage points more likely to distrust state institutions. For non-state institutions, however, the difference in access to quality service does not seem to play an important role. Trust in these institutions is only 13 percentage points lower for people with no quality adjusted access to public services.

Panel C looks at an additional channel through which poor public service provision might influence households' beliefs about state legitimacy. Here we split the sample according to state means in the inequality of access by comparing states with above median (in the full sample) share of households lacking access (states with relatively higher inequality) with states with below median (in the full sample) share of households lacking access (states with relatively lower inequality). If households not only care about their own access but also have aversion against inequality, as for example the recent literature in behavioral economics suggests, poor access in the state, even holding own access constant, may translate into lower trust in state institutions.[6] The results in panel C suggest that is indeed the case. In states with a relatively higher share of households with no access to public services, the trust in government institutions is 17 percentage points lower (55% who trust state institutions versus 72% who trust non-state institutions). In states with a relatively

[6] See for example Advances in Behavioral Economics (2011).

lower share of households with no access to public services, this difference in trust is smaller at 14 percentage points (65% who trust state institutions versus 79% who trust local institutions).

In summary, the results suggest that poor access to public services is generally associated with lower trust in institutions, and that people differentiate between those institutions that are involved in service delivery and those that are not. When service delivery is poor, mistrust is particularly high for the former, but not the latter.

As the results in panel C, table 6, are unconditional; i.e. we cannot separate out the direct effects of having no access from the indirect effect from aversion against inequality in access, we now turn to a multivariate analysis, where we regress trust in institutions on own and state-level average access to public services. That is, we estimate equation (2)

$$Trust = \beta_0 + \beta_1 No\_access + \beta_1 No\_access\_state + \varepsilon \quad (2)$$

for three versions of the trust variable: *trust central state institutions*, *trust local state institutions*, and *trust non-state institutions*. The results are reported in Table 7.

The results in Table 7 confirm the unconditional analysis. Even conditional on the average lack of access in the state, households with no access to public services are 6.5 percentage points less likely to report that they trust central institutions and 7.5 percentage points less likely to report they have trust in local state institutions. These effects are both large and significant. Trust in non-state institutions is not significantly different between those with no access and those with at least some access. Similar results hold for the second channel by which poor access to services affects trust in institutions. Conditional on own access, a one standard deviation increase in the share of households without access in the state corresponds to a 6.0 percentage points fall in the share of households reporting they have trust in central state. Going from the state with the best average access to the worst average access, the point estimate in column 1, table 7, implies a more than 20 percentage points fall in the share of households reporting they have trust in central state institutions. The findings are similar, albeit somewhat smaller in magnitude, for trust in local state

institutions. Holding own access constant, and comparing the state with the best average access with the state with the worst average access, the point estimate in column 2, implies a 9 percentage points fall in the share of households reporting they have trust in local state institutions. There is no significant relationship between lack of access at the state level and trust in local non-state institutions.

The results in tables 6-7 suggest that poor public service access is associated with lower trust in government institutions, both at the central and local level. Is poor public service provision also associated with reduced political participation? If so, is there evidence that the mechanism from poor public service provision to reduced political participation goes through the state's legitimacy being questioned and a general distrust in the formal institutions? We turn to these questions in Tables 8 and 9.

The survey contains two indicators for political participation. The first indicator records whether a respondent would intend to vote if a general election was held tomorrow.[7] If the respondent intends to vote, the variable 'voting' in Table 8 is coded as 1, and zero otherwise. Second, the respondents were asked whether they identify more closely with a political party or more closely with their tribe. If they feel more closely to a party, we code the variable *party vs. tribe* as 1, and zero otherwise.

Table 8 presents summary statistics for the relationship between access to services and the two measures of political participation. Those without access to public services and without access to public services of adequate quality are less likely to intend to vote and less likely to affiliate with a party rather than their tribe. Moreover, this relationship is also preserved at the state level: households in states with lower than average access to public services are less likely to want to vote and are more likely to identify with tribes than households in states with higher than average access to public services.

We investigate these relationships further in a multivariate analysis where we regress political participation on own and state-level average access to public services. Specifically, we estimate 3

[7] To our knowledge there are no reliable official data on voting in Sudan. The formally reported partition rate in elections is highly suspect.

both with 'intend to vote' and 'party rather than tribe' as dependent variable

$$Political\ participation = \beta_0 + \beta_1 No\_access + \beta_1 No\_access\_state + \varepsilon \quad (3)$$

The results are reported in columns 1 and 3 in table 9. Households suffering from no public service access are significantly less likely to report they would vote if a general election was to be held and less likely to think of themselves as closer to one of the political parties relative to their tribe. Inequality in access (at the state level) is also significantly associated with less willingness to vote and less association with the political parties relative the tribes.

In columns 2 and 4 we make an attempt to investigate the channel from poor public service provision to reduced political participation. Specifically we estimate the following 2SLS model

$$Trust = \beta_0 + \beta_1 No\_access + \beta_1 No\_access\_state + \varepsilon_t \quad (4)$$

$$Political\ participation = \gamma_0 + \gamma_1 Trust + \varepsilon_p \quad (5)$$

That is, we link *no access* and *no access (state)* to *trust* (in *central state institutions*) and then use only that variation in trust that is predicted by access to public services to explain political participation. Thus we can interpret γ_1 as measuring how that portion of trust that is affected by public service access affects political participation. Alternatively, γ_1 measures how access to public services affects political participation through its effect on the beliefs about the legitimacy of and trust in state institutions. Moreover, if poor access, at the individual and state level, only affects political participation through its effect on trust in government institutions, we can interpret γ_1 as a causal parameter.

The results of estimating the structural equation (5) are reported in columns 2 (for *voting*) and 4 (for *party vs. tribe*). That component of trust in central state institutions, which is predicted by access to public services has a quantitatively large effect on both measures of political participa-

tion. Going from trust in all government institutions to no trust implies a 40.5 percentage points reduction in the likelihood of voting and a 82.1 percentage points reduction in the likelihood of affiliating with political parties rather than tribe. The F-tests of the excluded instruments also suggest that the instruments are strong, and while the identifying assumption could be questioned, it is encouraging that the test of the overidentifying restrictions (Hansen's J statistic) cannot be rejected.

While Table 7 and 9 strongly suggest that mistrust of government institutions and lack of political participation is related to poor access to public services, an alternative explanation for the results is that poor access is proxying for income poverty; i.e. it is poverty and not lack of access to services that drives both lower trust in state institutions and a lower likelihood of political participation. We examine (and reject) this hypothesis in Table 10. In Table 10, we regress each of the three trust and two political participation measures first only on income poverty and then on both income poverty and the no access to public services measure.

Being poor is not associated with lower trust in any of the three types of institutions or with lower political participation (columns 1, 3, 5, 7,and 9). However, poor access to public services are significantly and negatively correlated with both trust in central and local state institutions and political participation, even when controlling for own poverty and the head-count ratio in the state variable. The income measures are insignificant when controlling for lack of access to public services in all but one specification, but here the sign goes in the opposite direction: higher poverty at the state level is actually associated with a stronger willingness to vote. While our analysis has shown that the poor have significantly worse access to public services and those with worse access distrust government institutions more, Table 10 suggests that it is not poverty in itself that makes people distrust government. Rather lack of trust in government is a direct effect of poor service delivery – at any income level. This is important because it suggests that the vicious circle we have identified – from poor service delivery to lack of state legitimacy and political participation, leading to even lower incentives to invest in service delivery to the poor – could easily be turned into a virtuous circle if government made a concerted effort to improve public services.

5 Conclusion

In this paper we have used micro data on access to and quality of public services collected at the household level to investigate the link between poor access to public services and state legitimacy and political participation. Our results are broadly consistent with recent macroeconomic models of a vicious circle between poverty and state legitimacy through low investment in public services. The magnitudes we find are also large. The poor are twice as likely to be without access to public services and more than 40% of them have no access to decent public services. There is a strong correlation between lack of access and mistrust in government institutions that appears to work both through a direct channel (if a respondent does not have access to public services, she is less likely to trust government institutions) and through an indirect channel (if a respondent lives in a state with below average access to public services, she is less likely to trust government institutions – irrespective of whether her own access is good or not.)

Unlike the recent macro models (such as Besley and Persson, 2011), in which common interest and state legitimacy is an exogenous variable, we show clearly that people's views about the state are a function of how the state treats them: when the state does not provide basic public services, trust in government is eroded. Importantly, we find evidence that the link from lack of access to services to lack of political participation works through trust, which is endogenous in our model. The effects are also quantitatively large, as evidenced by the instrumental variable analysis. Finally, we show evidence that even though poverty and lack of public services are highly correlated, it is not poverty per se that leads to a lack of trust in government and political apathy.Those who are poor are more likely to be disadvantaged when it comes to service delivery, and that in turn leads them to mistrust government and abstain from political activity.

On the upside, our results suggest that the government can do much to turn this vicious circle into a virtuous circle: it can strengthen its legitimacy by improving basic services to the poor, which could lead to more political participation, which in turn gives more incentives for good service delivery. Moreover, improving basic services to the poor may in principle be simpler than addressing poverty itself, which is potentially a much more entrenched problem.

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Table 1: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
A: Income					
Poor	2376	0.327	0.469	0	1
Headcount ratio (by state)	2376	0.327	0.197	0.020	0.747
B: Public service provision					
Access	2245	2.964	1.708	0	5
Quality	2175	2.463	1.896	0	5
Quality adj. access	2102	1.940	1.813	0	5
No access	2245	0.127	0.333	0	1
No quality adj. access	2102	0.333	0.472	0	1
No access (state)	2376	0.129	0.105	0	0.347
No quality adj. access (by state)	2376	0.335	0.233	0.007	0.796
C: Socioeconomic characteristics					
Low education	2369	0.252	0.435	0	1
Some education	2369	0.366	0.482	0	1
Urban	2376	0.465	0.499	0	1
Family size	2376	4.704	2.829	1	24
Age	2376	35.83	12.93	18	97

Notes: Variables in panels A and B are defined in section 4. Low education is no education or at the most primary education. Some education is intermediate education or secondary education. Urban is a binary indicator for the household residing in an urban area. Family size is number of family members in the household. Age is age of the respondent.

Table 2: Summary statistics: Urban vs rural and poor vs non-poor

Variable	Urban	Rural	Poor	Non-Poor
Poor	0.254	0.390	-	-
No access	0.097	0.153	0.204	0.091
No quality adj. access	0.285	0.377	0.405	0.301

Notes: Mean outcomes by sub-group. See main text for definitions of the variables.

Table 3: No public service access

Variable	(i)	(ii)	(iii)	(iv)
	No access			
Poor	0.097***	0.096***	0.087***	0.056***
	(0.019)	(0.029)	(0.027)	(0.019)
Low education	0.090***	0.042***	0.106***	0.067***
	(0.020)	(0.027)	(0.028)	(0.020)
Some education	0.041***	0.035*	0.035	0.042***
	(0.015)	(0.021)	(0.022)	(0.015)
Family size	0.001	-0.005	0.005	-0.001
	(0.003)	(0.004)	(0.004)	(0.004)
Age (log)	-0.057***	-0.017	-0.094***	-0.032
	(0.020)	(0.026)	(0.030)	(0.019)
Constant	0.256***	0.135	0.383***	0.195***
	(0.073)	(0.096)	(0.107)	(0.070)
R^2	0.04	0.02	0.04	0.11
N	2,238	1,043	1,195	2,238
Sample	All	Urban	Rural	All
State fixed effects	No	No	No	Yes

Notes: See main text and table 1 for definitions of the variables. Columns (1) and (4) full sample. Column (2) urban households. Column (3) rural households. Robust standard errors in parenthesis. * $p<0.10$; ** $p<0.05$; *** $p<0.01$.

Table 4: No public service access (quality adjusted)

Variable	(i)	(ii)	(iii)	(iv)
	No quality adjusted access			
Poor	0.081***	0.059	0.085**	0.075***
	(0.026)	(0.038)	(0.037)	(0.024)
Low education	0.141***	0.029	0.199***	0.096***
	(0.028)	(0.040)	(0.039)	(0.026)
Some education	0.085***	0.079**	0.080***	0.064***
	(0.023)	(0.034)	(0.034)	(0.021)
Family size	0.001	0.003	-0.002	-0.001
	(0.004)	(0.006)	(0.006)	(0.004)
Age (log)	-0.084***	-0.040	-0.129***	-0.043
	(0.031)	(0.047)	(0.043)	(0.027)
Constant	0.532***	0.366**	0.717***	0.420***
	(0.111)	(0.166)	(0.152)	(0.095)
R^2	0.03	0.01	0.04	0.26
N	2,098	998	1,100	2,098
Sample	All	Urban	Rural	All
State fixed effects	No	No	No	Yes

Notes: See main text and table 1 for definitions of the variables. Columns (1) and (4) full sample. Column (2) urban households. Column (3) rural households. Robust standard errors in parenthesis. * $p<0.10$; ** $p<0.05$; *** $p<0.01$.

Table 5: Summary statistics: Trust and political participation

Variable	Mean	Std. Dev.	Min	Max
Trust central state institutions	0.601	0.362	0	1
Trust local state institutions	0.585	0.376	0	1
Trust non-state institutions	0.749	0.325	0	1
Voting	0.701	0.458	0	1
Party vs. tribe	0.678	0.467	0	1

Notes: Mean outcomes. See main text for definitions of the variables.

Table 6: State legitimacy: Summary statistics

Variable	Trust central state institutions	Trust local state institutions	Trust non-state institutions
Panel A			
No access	0.507	0.463	0.667
Some access	0.617	0.603	0.764
Good access	0.703	0.699	0.788
Panel B			
No quality adj. access	0.521	0.523	0.729
Some quality adj. access	0.651	0.627	0.764
Good quality adj. access	0.835	0.833	0.852
Panel C			
Above median share lacking access (state)	0.551	0.552	0.718
Below median share lacking access (state)	0.665	0.625	0.790

Notes: Mean outcomes. See main text for definitions of the variables.

Table 7: State legitimacy and poor access

	(i) Trust central state institutions	(ii) Trust local state institutions	(iii) Trust non-state institutions
No access	-0.065***	-0.075***	-0.021
	(0.022)	(0.022)	(0.020)
No access (state mean)	-0.257***	-0.114***	-0.054
	(0.045)	(0.041)	(0.037)
Constant	0.713***	0.655***	0.778**
	(0.014)	(0.014)	(0.012)
R^2	0.05	0.02	0.01
N	1,741	1,934	1,773

Notes: See main text for definitions of the variables. Robust standard errors in parenthesis.
*p<0.10; ** p<0.05; *** p<0.01.

Table 8: Political participation: Summary statistics

Variable	Voting	Party vs. tribe
No access	0.658	0.614
Some access	0.711	0.686
Good access	0.703	0.731
No quality adj. access	0.661	0.595
Some quality adj. access	0.728	0.713
Good quality adj. access	0.776	0.792
Above median share lacking access (state)	0.665	0.636
Below median share lacking access (state)	0.747	0.732

Notes: Mean outcomes. See main text for definitions of the variables.

Table 9: Political participation and poor access

	(i) Voting	(ii) Voting	(iii) Party vs. tribe	(iv) Party vs. tribe
No access	-0.043*		-0.085***	
	(0.025)		(0.026)	
No access (state mean)	-0.096*		-0.133***	
	(0.050)		(0.050)	
Trust central state		0.405***		0.821***
institutions		(0.127)		(0.177)
Constant	0.752***	0.475***	0.746***	0.160
	(0.017)	(.078)	(0.017)	(0.111)
F test of excluded instruments		40.9		39.8
		(0.00)		(0.00)
Hansen's J statistic		0.460		0.314
		(0.50)		(0.58)
R^2	0.01		0.02	
N	2,047	1706	2,102	1741

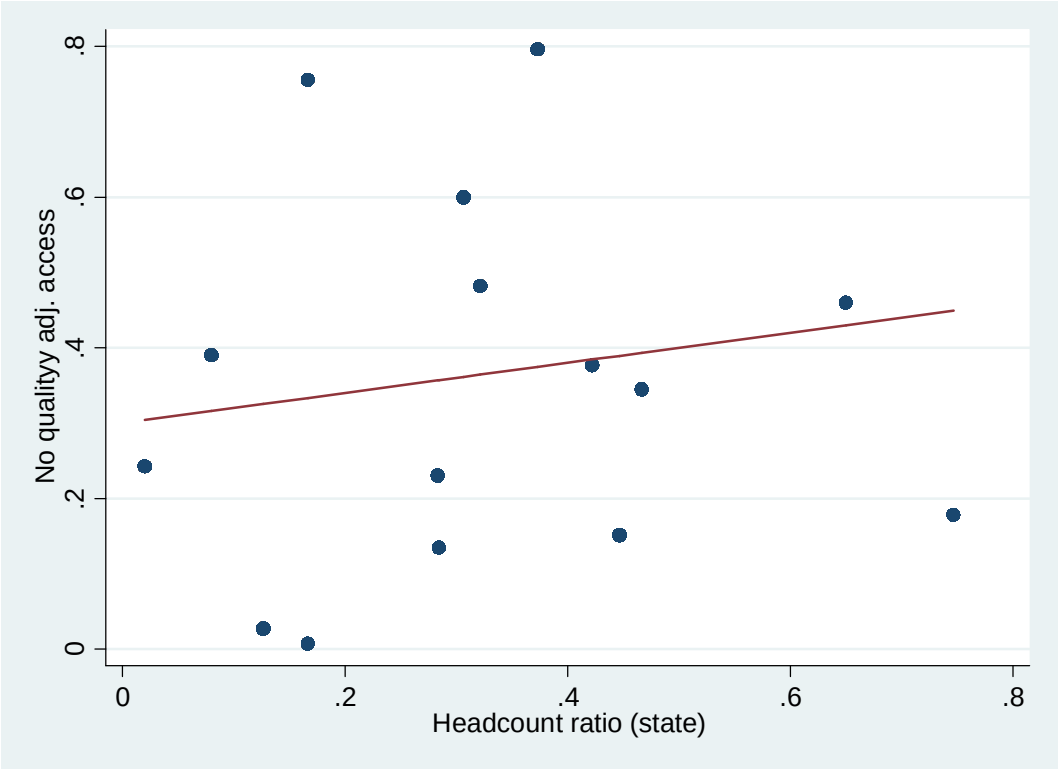
Notes: See main text for definitions of the variables. Robust standard errors in parenthesis. * $p<0.10$; ** $p<0.05$; *** $p<0.01$. Columns (i) and (2) OLS regressions. Columns (ii) and (iv), second stage 2SLS regression with no access and no access (state means) as excluded variables. F-test of excluded instruments with p-values in parenthesis. Hansen J statistic ($\chi^2(1)$) with p-values in parenthesis.

Table 10: Poverty, state legitimacy and political participation

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
	Trust state institutions		Trust local institutions		Trust non-state institutions		Voting		Party vs. tribe	
Poor	0.002	0.009	-0.012	-0.007	-0.015	-0.012	-0.025	-0.032	0.040	0.041
	(0.019)	(0.200)	(0.019)	(0.020)	(0.017)	(0.018)	(0.022)	(0.023)	(0.022)	(0.024)
Headcount ratio (state)	-0.054	0.008	-0.092*	-0.085	-0.010	-0.052	0.279**	0.273***	-0.005	-0.037
	(0.046)	(0.050)	(0.044)	(0.048)	(0.042)	(0.046)	(0.055)	(0.061)	(0.051)	(0.058)
No access		-0.066***		-0.075***		-0.020		-0.039*		-0.089***
		(0.022)		(0.022)		(0.020)		(0.025)		(0.026)
No access (state mean)		-0.258***		-0.104**		-0.047		-0.131***		-0.130***
		(0.045)		(0.041)		(0.037)		(0.050)		(0.051)
Constant	0.617***	0.709***	0.618***	0.681	0.757***	0.795***	0.618***	0.686***	0.667***	0.746***
	(0.016)	(0.018)	(0.015)	(0.019)	(0.014)	(0.016)	(0.019)	(0.023)	(0.018)	(0.022)
R^2	0.00	0.05	0.00	0.02	0.00	0.01	0.01	0.02	0.00	0.02
N	1,912	1,741	2,139	1,934	1,957	1,773	2,286	2,047	2,376	2,102

Notes: See main text for definitions of the variables. Robust standard errors in parenthesis. * $p<0.10$; ** $p<0.05$; *** $p<0.01$.

Figure 1: Correlation between poverty and poor access at the state level



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