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Working Paper

Corruption and Access to Socio-Economic Services in Africa

CESifo Working Paper, No. 8882

Provided in Cooperation with:
Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

Suggested Citation: Freytag, Andreas; Riaz, Muhammad Faraz (2021) : Corruption and Access to Socio-Economic Services in Africa, CESifo Working Paper, No. 8882, Center for Economic Studies and Ifo Institute (CESifo), Munich

This Version is available at:
https://hdl.handle.net/10419/232479

CESifo WORKING PAPERS

8882
2021

February 2021

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CESifo

Impressum:

CESifo Working Papers
ISSN 2364-1428 (electronic version)
Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH
The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute
Poschingerstr. 5, 81679 Munich, Germany
Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de
Editor: Clemens Fuest
https://www.cesifo.org/en/wp
An electronic version of the paper may be downloaded
· from the SSRN website: www.SSRN.com
· from the RePEc website: www.RePEc.org
· from the CESifo website: https://www.cesifo.org/en/wp

CESifo *Working Paper No. 8882*

Corruption and Access to Socio-Economic Services in Africa

Abstract

Corruption is one of the world's most widespread political problems. It can be found on international, national and sub-national level. Access to education and other socio-economic services is of utmost importance for all humans. It is still not exclusively based on merit, but often rather unfairly distributed and allocated depending on corrupt local bureaucrats. We utilize a micro level measure of corruption based on the personal experiences of individuals, which realistically represents the linkage between individuals and public office holders. For the empirical analysis, we utilized the Afrobarometer survey of 36 African countries that contains information of more than 50,000 citizens. Corruption is found being negatively correlated with the access to water, education, health and paved roads, while positively associated with access to sewage system and having no significant association with access to electricity grid. The findings reveal that in order to expand the access to basic socioeconomic services, governments need to control corruption in public offices on a daily basis.

JEL Codes: H100, K400, O100, O500, P400.

Keywords: development, corruption, local services.

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February 2021

Introduction

Corruption is one of the world's most widespread political problems. It can be found on international, national and sub-national level; and it is mostly an impediment for growth and development, both on the macro and micro level. In March 2019 for instance, the world was reminded of the fact that access to socioeconomic services such as education is still not exclusively based on merit, but often rather unfairly distributed and allocated. It became obvious that prominent Americans bribed executives at prestigious American universities (Ivy League) to guarantee admission for their children (The Economist 2019). As the United States is one of the least corrupt societies, it seems quite probable that this behavior is no exception to a broader pattern, not only with respect to other countries but also concerning other services like health services, electricity and water. Since corruption is particularly high on average in Africa, it is interesting to study the effects of corruption there.

In the mainstream literature corruption is usually defined as abusing the public power for private gains (Mauro, 1995, Kaufmann et al., 2000; Svensson, 2005, Paunov, 2016).[1] The distinction is made between grand corruption and petty corruption, the first concept describing the degree of corruption within the elite of a country. Petty corruption describes the degree of corruption on the level of daily transactions, such as bribing police officers to get away without a speeding ticket or an official in a hospital to get faster access to a certain health service.

Unlike the macro-level indices of corruption which are mostly based on the perceptions of experts with no micro level implications (Fisman and Svensson, 2007), we rather use a measure based on the personal experiences of interviewees. This measure more realistically represents the linkage between individuals and public office holders. By using survey data of more than 50,000 citizens of 36 African countries, we investigate whether pertaining corruption defined as bribes paid to officials, i.e. petty corruption, is harming access to socioeconomic services, in particular access to health service, electricity, sewage, clean water, education and paved roads.

[1] A second definition refers to the asymmetrically distributed information between an agent and her/his public or private principal, which the agent exploits with the willing or unwilling support of a third party (Paldam 2002). As we focus on mostly public services, we work with the mainstream definition.

The remainder of the paper is organized as follows. In Section 2, we develop a theoretical framework, based on the empirical literature on the effects of corruption. Section 3 discusses the data and methodology of the study. In Section 4, we present results and robustness test. Section 5 concludes.

1. Theoretical considerations

The literature offers two competing hypotheses about the effects of corruption on economic welfare and its components including economic growth, entrepreneurship and innovation (Mo, 2001; Anokhin and Schulze, 2009). There are situations when corrupt deals may in fact enhance welfare or cure injustices. This is the greasing-the-wheel or efficient-corruption hypothesis, claiming that corruption facilitates beneficial transactions between private actors and helps overcoming governance problems (Leff, 1964; Huntington, 1968). Meon and Weill (2010) can show that only under very poor governance conditions (poor institutions), corruption may grease the wheel. Looking at the overwhelming majority of the literature, there is an almost unequivocal rejection of the greasing-the-wheel hypothesis (e.g. Meon and Sekkat, 2005).

That said, in most developing countries with a slightly better institutional setting, corruption fails to help overcoming remaining weaknesses in the governance structure. In principle this is in line with the understanding in both the general public and the academic community that corruption is negatively associated with economic welfare and distributional justice. This is normally characterized as the sands-in-the-wheel hypothesis.[2] In his survey, Aidt (2019) provides broad support for this hypothesis and shows the negative economic effects of corruption in general. This evidence holds regardless of whether petty or grand corruption is analyzed. For Africa, this result is backed by d'Agostino, Dunne and Pieroni (2016) who examine the effects of corruption on growth. They use an endogenous growth model and show that the interaction of corruption and military spending is particularly harmful for growth.

[2] This hypothesis is further split into a number of sub-hypothesis, such as the helping-hand hypothesis, the social-interactions hypothesis and the grabbing-hand hypothesis (Aidt 2019), depending on the governance structure in the country. Since our sample consist of a variety of countries in Africa with very different governance structures, we do not apply this fine distinction.

We build on this evidence on the macro level to develop a hypothesis about the channels through which corruption negatively affects welfare and distribution. One channel is the quality of (or access to) public socioeconomic services, such as access to school, a health clinic, the electricity grid, piped water, sewage system and paved roads. This is an important field, as socioeconomic services are crucial for wellbeing and individual development.[3] Khoza (2007) defines socio-economic rights as the right to adequate housing, food, health care, education, social security and water. Mubangizi and Sewpersadh (2017) term these rights as basic necessities of life and socio-economic rights, which we call as socioeconomic services. According to the sand-in-the-wheel hypothesis both quality of and access to these services are declining with higher corruption. We will exactly follow this channel and analyze the effect of corruption on access to socioeconomic services on the micro level.

There is some literature dealing with the relation of public services and corruption. To start with access to education, Heynemann et al. (2008) first conduct a survey in six former Soviet Republics that illustrates corruption in education varies positively with the demand for the very subject. Based on this, they secondly show for 68 countries that higher corruption reduces the potential income of graduates. Duerrenberg and Warning (2018) show for 88 developing countries that corruption decreases the average years of schooling. In high corruption countries, students then resort to private schooling more often than in low corruption countries. Rumyantseva (2005) points out theoretically that access to higher education in corrupt countries demands corrupt behavior by students (or parents respectively). By the same token, it means that access to higher education in corrupt societies is very difficult. Truex (2011) shows the reverse causality for Nepal: the higher people are educated, the less they value corrupt behavior. This is in line with Paldam's (2002) observation of seesaw dynamics in corruption. There is a feedback process, which is very difficult to break.

Such a feedback process is also observed by Davis (2003) who uses interviews with about 1,400 civil servants in the water and sewage sector in South Asia and shows that decreasing corruption can foster the accountability of civil servants as well as the work morals. Lewis

[3] These services are often regarded as human rights, for instance in the 1948 Universal Declaration of Human Rights (UDHR) and the 1966 International Covenant on Economic, Social and Cultural Rights (ICESCR).

(2006) argues that the delivery of health service is negatively affected by institutional shortcomings, among them corruption. Finally, Kenny (2006 and 2009) indicates that corruption is also negatively affecting the provision and maintenance of infrastructure. He makes clear that the problem in this industry is petty corruption and suggests a number of countervailing measures. Sassi and Ben Ali (2017) test a sample of 47 African countries and demonstrate that corruption can be successfully combatted by access to information and communication technologies, in particular when the rule of law is maintained.

These effects have considerable impact on the vulnerable and disadvantaged groups (ICHRP, 2009), because it lessens the spending on health, education and other socioeconomic services (Akcay, 2006; Gebeye, 2012; Peters, 2015). Ngugi (2010) argues that the government`s revenue collection declines due to corruption so that it trims down government's capacity of financing basic services which undermines the probability that citizens are provided with adequate living standards. Bolton (2007) notices that the volume of public procurement gives rise to the potential for corruption, and as a result the public funds are diverted into private pockets at the expense of delivery of services (Mubangizi and Sewpersadh, 2017); this again is in line with d'Agostino, Dunne and Pieroni (2016).

Therefore, it makes sense to analyze the relation between corruption and access to socioeconomic services in Sub-Saharan Africa, which is still characterized by both a relatively high degree of corruption and by relatively limited access to socioeconomic services such as access to electricity, water, sewage, education, healthcare and paved roads (as a proxy for infrastructure).

2. Data and Methodology

Dependent variable(s)

We test the relationship between corruption and access to basic socioeconomic services using the 6thround of *Afrobarometer* survey. The 6thround of *Afrobarometer* survey contains individual level data from 36 African countries. The data were collected in 2014 and 2015 at individual level using face to face interviews with persons aged 18 and above. In a second step,

the data treated with a multistage stratified random sampling design to produce a representative sample set for each country (Isbell, 2017). Normally, the sample size in Afrobarometer for most of the countries is 1,200 adult individuals, but 2400 for highly fractionalized countries (Justesen and Bjornskov, 2014).[4]

Our dependent variable is the "socioeconomic services"; which we construct as access to individual services respectively and as a composite index of all six services in question. Afrobarometer provides information about most of the socioeconomic services mentioned above, and we use this information. The Afrobarometer round 6 questionnaire contains information about the primary sampling unit (PSU) or enumeration area (EA). Does it have access to school, health clinic, electricity grid, piped water and the sewage system? It is also asked whether or not the roads at the start of PSU/EA were paved at the time of survey. All these questions cover the major dimensions of socioeconomic services. So, we have six dependent variables in dichotomous form. We also use the sum of all available socioeconomic services as dependent variable (**Comp_xs**). Naturally this variable ranges from 0 to 6 where a value of 6 means that all of the 6 socioeconomic services are provided in the region. These variables are listed in Table1 along with their statistical summary.

[4] Countries with a sample of 2,400 individuals in the Afrobarometer round 6 are Zimbabwe, South Africa, Tanzania, Uganda, Nigeria, Mozambique, Malawi, Kenya and Ghana.

Table 1: Descriptive statistics of dependent variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Comp_xs	50359	3.560456	1.801024	0	6
Electricity	50359	0.643917	0.478845	0	1
Water	50359	0.59604	0.490694	0	1
Sewage	50359	0.302905	0.459519	0	1
Education	50359	0.873627	0.332272	0	1
Health clinic	50359	0.596477	0.490609	0	1
Paved_roads	50359	0.547489	0.497745	0	1

Measure of corruption

In the mainstream literature corruption is usually defined as abusing the public power for private gains (Mauro, 1995, Kaufmann et al., 2000; Rose-Ackerman, 2006; Svensson, 2005, Paunov, 2016). We stick to this definition, since the negative effect of the overall level of corruption on the access to socioeconomic services in a particular region has to be interpreted against the background of the fact that in most of countries the provision of e.g. water and housing is being done by the state, for instance in Africa (Mubangizi and Sewpersadh, 2017). We use the term "Public officials" to denote the administrative staff in government agencies and also the street level bureaucrats like teachers and police. Therefore, we do not measure corruption strictly at administrative level but in a broader sense. As the survey contains information mostly on bribery we measure only this type of corruption (Knack, 2007).

Unlike the macro-level indices of corruption, which are mostly based on the perceptions of the experts with no micro level implications (Fisman and Svensson, 2007), we rather use a measure based on the personal experiences of interviewees. Thus, it seems more realistically represent the linkage between individuals and public office holders. Our measure is the respective answer to the Afrobarometer round 6 questionnaire's questions number 55B, 55 D, 55F, 55H, 55J, 55L. The exact wording of these questions is as follows:

- *55B)In the last 12 months how often, if ever, did you have to pay a bribe, give a gift, or do a favour for a teacher or school official in order to get the services you needed from the schools?*
- *55D) how often, if ever, did you have to pay a bribe, give a gift, or do a favour for a health worker or clinic or hospital staff in order to get the medical care you needed?*
- *55F) how often, if ever, did you have to pay a bribe, give a gift, or do a favour for a government official in order to get the document you needed?*
- *55H) how often, if ever, did you have to pay a bribe, give a gift, or do a favour for a government official in order to get the services you needed?*
- *55J) how often, if ever, did you have to pay a bribe, give a gift, or do a favour for a police officer in order to get the assistance you needed, or to avoid a problem like passing a checkpoint or avoiding a fine or arrest?*
- *55L) how often, if ever, did you have to pay a bribe, give a gift, or do a favour for a judge or court official in order to get the assistance you needed from the courts?*

Similar questions are also used by Hunt (2006), Knack (2007), Mocan (2008) to measure corruption. These questions capture what Knack (2007, p. 256) labels "administrative corruption" or "bureaucratic corruption". Therefore, the information available in Afrobaroameter does not capture all the types of corruption; like bribes paid to the representatives of private sector or local chiefs, large scale bribery paid to politician in exchange of heavy favors. The data do not allow to measure the distribution of welfare cost of corruption as well (Justesen and Bjornskov, 2014). This is not a problem, since we only measure the frequency of corrupt activities individuals have to take in order to get access to public socioeconomic services.

To answer the questions regarding bribery experiences, respondents could choose an answer from the categories: "Never", "No contact", "Once or twice", "A few times", "Often" and "Don't know". We combine the first two categories and code them as "0", and merge the second, third and fourth categories and code it as "1", if the interviewee has had paid bribery at least once in

a particular public office. This could alternatively be coded as 1,2, and 3 respectively (like Justesen and Bjornskov, 2014), but we are of the view that it is hard to distinguish between "a few times" and "Often" and this could lead to spurious ordinal ranking. Finally, we drop the observations with the answer "Don't know" because it is not clear whether a bribe was paid or not.

This procedure leaves us have 6 dichotomous variables, where "0" means the interviewee has never paid bribery in the 12 months period before survey in respective public office and "1" means otherwise. We then sum up all the 6 questions regarding the corruption experience (55B, 55 D, 55F, 55H, 55J, 55L), which produces a variable ranging from "0" to "6", where "0" means that the interviewee has never paid a bribe to get any of the mentioned public services and "6" shows that the interviewee paid bribery in all of the public offices to avail respective public services. We sum up all the questions to build a proxy presenting the overall experience of the individuals with public offices.

The results of the estimation may suffer from potential endogeneity because the respondents answer all these questions at the same time when their access to socioeconomic services is assessed. Therefore, to avoid endogeneity, we take the provincial average of the summed variable. Thereby, we rule out the possibility that the dependent variable can influence the corruption variable at the same time, because the corruption variable is averaged at a larger geographical level (province) as compared to dependent variable (PSU/EA), we call this variable '**Bribe_avg**'. Such aggregative proxies for corruption are used in literature (Ayyagari et al., 2014, Nguyen et al., 2016, Paunov, 2016) for exact this reason.

Control variables

We include a number of individual level variables which may potentially influence the reliability of the results. Like our variable for corruption, we take the province level average of the control variables to reduce the risk of endogeneity as much as possible, and at the same time this creates uniformity in the level of aggregation for all regressors. To avoid the situation that we estimate only the differences in the access to socioeconomic services due to differences in the levels of development of the PSUs/EAs, we control if the PSU is located in an urban region. We

code this variable “1” if the PSU is in an urban region and “0” otherwise; we name this dummy as ‘**Urban**’.

We include important individual level controls like the age (Q1), gender (Q101) and the assets of the respondent. These variables measure the need for the socioeconomic services under discussion. ‘**Age**’ is a continuous variable measured in years. ‘**Gender**’ is a dummy variable with 1 for female and 0 for male. The variable ‘**Assets**’ is computed by taking the sum of four dummy variables i.e., Q91A, Q91B, Q91C, and Q91D. Q91A takes the value of 1 if the respondent owns a radio, and 0 otherwise. Q91B takes the value of 1 if the respondent owns a TV set, and 0 otherwise. Q91C takes the value of 1 if the respondent owns a motorcycle, and 0 otherwise. Q91D takes the value of 1 if the respondent owns a mobile phone, and 0 otherwise. So the variable ‘Assets’ ranges from 0 to 4. This variable captures the differences in the socioeconomic status across respondents.

We also control for the average level of education of the regions (Q 97), measured as the percentage of persons at provincial level with at least secondary school education and call it ‘**Edu_avg**’. We further control for the percentage of persons at provincial level engaged in mid-level (e.g., teacher, nurse, mid-level government officer) or upper level (e.g., banker/finance, doctor, lawyer, engineer, accountant, professor, senior level government officer) professions (Q 96A) and name it ‘**high_med_prof**’. Thus, this we control for the level of overall awareness and overall strength of the communities to affectively present their problems in public offices which may affect their access to socioeconomic services.

Regions may systematically differ from each other because of the proactive behavior of their residents and this may affect the access to the socio-economic services in these regions. We capture such individual level characteristics and aggregate them by taking averages at provincial level to get an overall picture of the region. The first of these variables (Q13) simply counts the percentage of persons in the region who are interested in general public affairs. The respondents were asked *“How interested would you say you are in public affairs?”,* and the respondents could choose on a scale of “0” to “3”, where “0” means *not at all interested* and 3 means *very interested.* We code the interested people as “1” and “0” otherwise, and label this variable ‘**Public_interest**’. Furthermore, to account if the respondents practically take interest

in public affairs, we include another variable (20A) coded as "1" if the person attended at least one community meeting during the last year and "0" otherwise. We calculate the average of this variable at provincial level and call it '**Comm_meeting**'. Finally, to capture the activeness of the community we include average percentage number of persons at provincial level who met a local council or to discuss important problems or to give the council or their views **(Q24A)**; this we label as '**contact_councillor**'. In addition, we include a variable **(Q23A)** showing the level of political participation of the people; this variable is denoted as '**Pol_rally**'. We code this variable as "1" if the person attended any political rally during the recent most general election campaigns and "0" otherwise. Then, we take the provincial level average of this variable to assess the level of political participation at regional level.

Finally, we control for the average percentage number of persons at provincial level who think that corrupt officials go unpunished **(Q 51C)**. This variable captures the general perception of people about the rule of law and is denoted as '**Official_unpunished**'. We expect that the regions with better rule of law conditions would have better access to socioeconomic services. We also assume a positive correlation of the other political interests and activities with access to public services. Areas with high level of political participation may have more access to political leaders, thus can affectively get their problem reached at policy tables. Therefore, we expect that the areas with more political participation should have better access to socioeconomic services.

The descriptive statistics of all control variables are reported in Table2**.**

Table 2: Descriptive statistics of independent variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Assets	50359	2.189559	1.211864	0	4
Age	50359	37.3822	14.57312	18	105
Gender	50359	.5033261	.4999939	0	1
Bribe_avg	50359	0.397742	0.480849	0	4.416667
Pol_rally	50359	0.361533	0.16344	0	0.87324
Public_interest	50359	0.56022	0.129973	0	1
High_med_prof	50359	0.078301	0.057593	0	0.5
Edu_avg	50359	0.152971	0.111939	0	0.625
Comm_meeting	50359	0.530143	0.190411	0	1
Urban	50359	0.413412	0.49245	0	1
Official_unpunished	50359	0.586349	0.168034	0.125	1
Contact_councillor	50359	0.218662	0.125123	0	0.875

Estimation strategy/econometric strategy/ results estimation

The data consist of individual level responses from 36 African countries. Therefore, to avoid any possible estimation bias due to systematic differences in countries and regions, we control for country and regional fixed effects in our estimations. Such an estimation process captures the effects of the factors common to individuals in the same country or region which eliminates the possibility of omitted variable bias (Justesen and Bjornskov, 2014). Here, by region we mean 5 sub-African regions that are West Africa, East Africa, Southern Africa, North Africa, and Central Africa. Furthermore, the fixed effects model allows for consistent estimation in the presence of any type of correlation between the fixed effects and the regressors (Wooldridge, 2002, p. 266). Here the first choice could be an OLS estimation procedure with fixed effects mentioned above. However, our dependent variables are dichotomous in nature. This makes the linear probability model (OLS) an inferior choice in our case, because in the linear probability model, in contrast with the standard probability theory, sometimes the estimated probability is found above 1 or below 0. Therefore, we use binary Probit model for the estimations because the dependent variable in all the equations is in dichotomous form, except in one case (where composite index of socioeconomic services is dependent variable) where we use Tobit model. The Probit model

uses a non-linear estimator and follows normal distribution. The Probit estimator is designed in such a way that estimated probability values remain between 0 and 1. The Probit model uses an inverse normal link function, which is $f(\mu_y) = \phi^{-1}(P)$ .After cleaning for the non-responses we have 50,359observations for estimations.

To check the effect of corruption on the access to socioeconomic services, we run binomial Probit regression for 6 basic socioeconomic services including the control variables.

3. Results and discussion

Main Results

The results of our baseline model estimations are reported in Table 3. First, we report a Tobit regression with the sum of all available socioeconomic services as dependent variable (Comp_xs). The results show that overall corruption has a negative impact on the access to socioeconomic services. In addition, the value of Pseudo R^2 shows that the model explains a significant portion of total variations in dependent variables.

Table 3: Tobit model results with the composite index of socioeconomic services

Dep. Var :Comp_xs	Coef.	Std. Err.	t-value	P>t
Bribe_avg	-0.0666422	0.0224006	-2.98	0.003
Assets	0.2035579	0.0064534	31.54	0
Age	-0.0006743	0.0004675	-1.44	0.149
Gender	0.0826915	0.013564	6.1	0
Poll_rally	-0.4371461	0.0829259	-5.27	0
Public_interest	0.8355677	0.0740031	11.29	0
High_med_prof	-0.1524808	0.1785134	-0.85	0.393
Edu_avg	1.634019	0.1326852	12.32	0
Comm._meeting	-0.8717423	0.0742345	-11.74	0
Urban	2.027643	0.0159914	126.8	0
Official_unpunished	-0.3884227	0.0625582	-6.21	0
Contact_councillor	0.3794148	0.0917775	4.13	0
_cons	2.347057	0.0786327	29.85	0

sigma	1.440671	0.0052217
Country F.E	Yes	
Regional F.E	Yes	
N	50359	
Pseudo R^2	0.20	

However, we are also interested in the effect of corruption on individual services. Table 4 shows that corruption is significantly associated with the access to most of the socioeconomic services except for electricity. Particularly the results show that corruption is negatively associated with the access to piped water, education, health and paved roads; while has a positive influence on the probability that the PSU has access to sewage system.

Table 4: Probit models' results.

	Electricity	**Water**	**Sewage**	**Education**	**Health clinic**	**Paved_Road**
Bribe_avg	-0.006	-0.122***	0.192***	-0.157***	-0.159***	-0.103***
Assets	0.247***	0.149***	0.143***	0.063***	0.090***	0.091***
Age	-0.001	0.000	-0.002**	0.000	0.000	0.000
Gender	0.103***	0.055***	0.052**	0.033*	0.038**	0.043**
Poll_rally	-0.628***	-0.535***	-0.714***	0.725***	0.500***	-0.572***
Public_interest	0.316***	0.310***	0.385***	0.478***	0.384***	1.327***
High_med_prof	0.439	0.112	2.210***	-1.595***	-1.047***	0.361*
Edu_avg	2.097***	1.804***	0.062	1.066***	0.133	1.144***
Comm_meeting	-0.327***	-0.269***	-1.045***	-0.363***	-0.380***	-0.151*
Urban	1.656***	1.344***	1.671***	0.286***	0.661***	0.952***
Official_unpunished	0.219**	-0.301***	-0.004	-0.149*	-0.526***	0.054
Contact_councillor	-0.711***	-0.731***	0.123	0.630***	0.673***	0.429***
Constant	-0.918***	-0.355***	-1.812***	1.733***	0.154*	-1.888***
N	**47970**	**47970**	**50359**	**50359**	**50359**	**49159**
PS R2	**0.4785**	**0.3532**	**0.4739**	**0.1297**	**0.1438**	**0.3214**
Country F.E	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Regional F.E	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

In general, our results confirm the basic hypothesis, namely that corruption on the regional or local level is a barrier for accessing to public socioeconomic services. We can show the negative effect of overall level of corruption in the region on the access to water, education, health and paved roads may be caused by the fact that in most of African countries the provision of water and housing is organized by a rather weak state. After all, corruption matters. Indeed, in the case of sewage, there is a positive correlation between corruption and access of PSU the system. This seems unexpected, but not completely surprising because of three reasons. First, most of the sewage system projects in developing countries are done close to general elections for show-off purposes in political campaigns. Second, our variable for access to sewage system measures mainly the presence of the sewage system but not its quality. Therefore, it may be a misleading indicator. Third, the result may also suggest the validity of the greasing-the-wheels-hypothesis, as sewage is of utmost importance, so people do a lot to get access.

Regarding the control variables, we find that owning assets and being female are positively associated with the provision of socioeconomic services. The age of the respondents is not significantly correlated with the provision of any of the socioeconomic services except sewage services. Overall, the results of individual controls suggest that the need and affordability positively affect the provision of socioeconomic services.

The regions with high level of political participation have more access to education and health facilities, while they lack in all other types of socioeconomic services. The reason behind such results could be the high demand from the voters for health and education facilities which postpones the remaining socioeconomic services. Alternatively, it can be said that the regions with low political participation have better access to most of the socioeconomic services, which could be a reason of their low level of political participation. Then we find that an increase in the area's average percentage of people taking interest in public matters positively affects its probability of having access to all types of socioeconomic services. This finding indicates that the regions with higher percentage of citizens taking interest in public matters may have better awareness of pursuing their problems at relevant public offices. This somehow shows that a better governance structure in a given region can promote the access to basic socioeconomic services. This finding is partially complemented by the fact that regions with higher percentage

of the people who met the local councilor during the past 12 months to discuss some community problems are found to have higher probabilities of access to the facilities of education, health and paved roads. However, the same variable is found being negatively associated with the access to electricity grid and piped water. The results also reveal that the regions where a higher percentage of the people attended community meetings are less likely to have access to all of the socioeconomic services. It explains that just attending the meetings is not enough.

Regions with higher concentration of people with secondary school certificate are likely to have access to all of the socioeconomic services except for sewage. We also find that higher concentration of the people engaged in medium- and high-level professions is positively associated with the access to all socioeconomic services except education and health where it is negatively correlated. This may indicate that better educated people spend more money on the education of their children and send them to private school.

The percentage of people in a region thinking that corrupt officials go unpunished negatively affects the region's access to water and health facilities, but positively affects the access to electricity, and has no effect on the remaining socioeconomic services. The positive on electricity access is surprising which may possibly a result of 'Agenda 2063', adopted just a few years back. Finally, we find that the urban regions have more chances of having access to all socioeconomic services.

Robustness check

To summarize, we find an ambiguous result with respect to the controls but a rather clear negative relationship between corruption on the local level and the provision of public socioeconomic services. To validate this result, we follow the argument that coding all of the 6 corruption related questions as binary variable may cause significant loss of information. So, to check if our results are affected by this fact, following Justesen and Bjornskov (2014) we take the corruption variable as continuous variable.

To answer the 6 corruption related questions (explained in section 3.2), the respondent could answer "Never", "No contact", "Once or twice", "a few times", "Often", we combine the first

two categories and code them "0" and the remaining three categories are coded as 1,2,3 respectively. We then sum up all the 6 questions regarding corruption experience (55B, 55 D, 55F, 55H, 55J, 55L), which produces a variable ranging from "0" to "18", where "0" means that the interviewee has never paid any amount of bribery to get any of the mentioned public services and "18" shows that the interviewee paid bribery in all of the mentioned public offices to avail respective public services very often. Finally, we take the regional (provincial) average of the summed variable. Then we reproduce our results taking this variable (**Bribe_cont**) as a proxy for corruption.

The results are reported in Table 5. The results are perfectly robust, which shows that our initial results are reliable enough to interpret. The relationship between corruption and provision of electricity is the only different result when corruption is taken as 'Bribe_cont'. The sign of coefficient is negative and insignificant when corruption is measured by 'Bribe_avg' and it turns to be significant when corruption is measured by 'Bribe_cont'.

Table 5: Probit models' results with bribery as a continuous variable

	Electricity	Water	Sewage	Education	Health clinic	Paved_Road
Bribe_cont	-0.0369**	-0.0780***	0.0748***	-0.0850***	-0.101***	-0.0633***
Assets	0.247***	0.149***	0.143***	0.0630***	0.0901***	0.0914***
Age	-0.00076	0.000213	-0.00162**	-7E-06	-0.00021	0.000425
Gender	0.103***	0.0547***	0.0519**	0.0328*	0.0383**	0.0427**
Poll_rally	-0.612***	-0.522***	-0.720***	0.739***	0.521***	-0.561***
Public_interest	0.301***	0.299***	0.409***	0.469***	0.375***	1.317***
High_med_prof	0.443	0.119	2.207***	-1.596***	-1.051***	0.365*
Edu_avg	2.134***	1.803***	0.077	1.051***	0.128	1.136***
Comm._meeting	-0.351***	-0.278***	-1.071***	-0.366***	-0.389***	-0.151*
Urban	1.657***	1.345***	1.671***	0.285***	0.661***	0.952***
Official_unpunished	0.215**	-0.304***	-0.015	-0.152*	-0.529***	0.0503
Contact_councillor	-0.646***	-0.723***	0.174	0.614***	0.672***	0.422***
Constant	-0.898***	-0.347***	-1.787***	1.735***	0.160*	-1.883***
N	47970	47970	50359	50359	50359	49159
PS R2	**0.4786**	**0.3533**	**0.4735**	**0.1298**	**0.1442**	**0.3215**

Country F.E	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Regional F.E	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

4. Conclusion

A significant body of literature has documented the impact of corruption on various economic indicators such as national income, investment, innovations, trade and entrepreneurship. Only a few studies relate the corruption to basic socioeconomic services on the local level. We try to fill this gap by providing empirical evidence on how corruption affects the access to basic socioeconomic services. Using the 6^{th} wave of Afrobaromemter survey; we test whether corruption on the local level has an impact on the provision of socioeconomic services.

We take the access of the PSU/EA to the electricity grid, piped water, sewage system, school, health clinic and paved roads as the basic socioeconomic services. Then we regress it on the corruption variable, based on the personal experiences of interviewees and more realistically representing the linkage between individuals and public office holders. Our measure is based on the provincial level percentage average of corruption incidences faced by the individuals. The results show that overall corruption has detrimental effects on access to socioeconomic services. Corruption is found being negatively correlated with the access to water, education, health and paved roads, while positively associated with access to sewage system and having no significant association with access to electricity grid.

The findings reveal that in order to expand the access to basic socioeconomic services, governments need to control corruption in public offices on a daily basis. Governments can use these results as another motivation to monitor these offices strictly. A second result of the study is that taking interest in public matters also positively influences the access to basic socioeconomic services. Thus, governments can increase public awareness e.g. with according campaigns.

It is important to mention here that the results are based on cross sectional data and do not necessarily imply causal inferences. Therefore, they should be interpreted with caution. That

said, these results are encouraging. Research on corruption on the local level should be extended, as it promises some interesting insights into governance problems and ways to overcome them.

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