

TRAINING FOR BUREAUCRATS IMPROVES TRANSPARENCY IN PUBLIC PROCUREMENT AMONG UGANDAN DISTRICT GOVERNMENTS

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Abstract. Governments are usually the largest purchaser of goods and services in an economy, which creates significant opportunities for corruption. We study whether training procurement officials in fifty Ugandan districts to publish procurement actions in an online public portal, as is legally required, increased compliance. Within the districts receiving training, we randomized whether or not the procurement officials received information in advance about the potential to earn a public award for adherence to these transparency standards. This design allows us to assess the relative impact of capacity building and awards on compliance with transparency standards. The training increased the number and value of procurement actions uploaded by several times, while information about eligibility for an award only marginally boosted adherence with the transparency standards. These results suggest that motivation problems may be overemphasized in the fight against corruption, but that building technical capacity can make significant headway in the fight against corruption when anti-corruption efforts require new skills and effort.

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Introduction

Public procurement accounts for a large portion of economic activity worldwide. Much of this public spending is managed by specialized procurement departments that are embedded within government units. Bureaucrats manage the procurement process and approve spending after seeking bids for goods and services from private sector providers. Bureaucrats are typically poorly compensated relative to the amount of resources that they control, however, and there is increasing recognition that irregularities, kick backs, and other types of corruption in public procurement are a major drain on public resources (OECD, 2014). Besides reducing corruption, improving the quality of procurement processes can prevent cost overruns, the delivery of poor quality of goods and services, and delays (Lewis-Faupel et al., 2016).

When diagnosing corruption and mismanagement in public procurement, the motivations and incentives of bureaucrats are often blamed. Standard accounts of financial mismanagement in the public sector emphasize underpaid bureaucrats who have strong incentives to maximize the expected value of their total remuneration from legal and illegal channels (Becker and Stigler, 1974). When the probability of detection and prosecution are lower, there is a greater incentive to engage in corrupt activity that increases total remuneration. Overcoming problems of corruption and public financial mismanagement have mostly been pursued either through improving monitoring to detect corruption (Molina et al., 2017) or prosecuting and penalizing corruption more harshly (Van Aaken et al., 2010). Both of these approaches can be difficult in settings where there are no “principled principals” motivated to stamp out corruption (Persson et al., 2013).

In this study, we test alternative approaches that are meant to boost practices that contribute to good financial management, rather than directly combating corruption. First, many bureaucrats may lack the capacity to act in ways that are aligned with standards of public financial management that aim to prevent corruption. Under this model, it is not the lack of motivation, but a lack of skills or resources that limit the number and types of anti-corruption actions, such as pursuing appropriate accounting practices. If this is the case, then providing training and knowledge should have a large effect on the ways that bureaucrats engage in managing public spending.

Second, it may be that bureaucrats lack motivation to implement anti-corruption guardrails since they do not receive additional compensation for doing so and because punishment is not meted out on those officials who fail to meet standards. Awards could be leveraged to raise the profile of certain types of actions, by calling them out to receive social or professional praise. Awards can also give bureaucrats an important career credential that they can use to secure favorable rotations, raises, or other professional benefits.

Testing ways to motivate procurement officers in settings where remuneration is limited can shed light on the potential for capacity and motivational approaches to building anti-corruption guardrails in settings with resource limitations. We show that training bureaucrats to adhere to procurement standards has a large, positive effect on compliance. However, when procurement officers are offered the chance to earn awards in a national ceremony, they are only marginally more likely to comply with standards to publish their actions online. This study thus provides an empirical example showing that capacity constraints are more important than a lack of motivation when it comes to anti-corruption activity in the public sector.

Specifically, we designed and implemented a randomized trial with 50 district governments in Uganda. District governments handle approximately 10% of total public spending in Uganda and are primarily responsible for frontline services like roads, schools, local health facilities, water, and sanitation. In this paper, we investigate whether the chance to earn an award in a national ceremony resulted in greater compliance with rules about transparency in procurement. For all 50 districts enrolled in the study, we provided in-person training and ongoing remote technical support on their mandated use of an national portal for publicizing procurement actions. In 25 districts randomly assigned to treatment, we offered the chance to earn an award in a national ceremony both for the best performing and the most-improved district governments. Procurement officers in these districts were regularly reminded of this opportunity as part of ongoing technical support provided by the project over several months. While not randomized, the 50 districts that were part of the experimental sample all received technical training on why and how to fulfill transparency requirements for public procurement. We analyze whether trained districts increased their adherence to transparency rules beyond

all other districts in Uganda that did not receive training.

The prospective offer of the potential to earn an award in a national ceremony marginally increased compliance across a range of transparency requirements that are required under the law. We estimate that the treatment resulted on average in 35 more items uploaded and 1.7 billion shillings more reporting to the procurement portal per district, though these estimates are noisy and cannot rule out a null effect. When using a logarithmic transformation of the outcome to address outliers in the number of items uploaded, we find that there is between a one to three fold increase in the number and value of uploads in many of the categories when offered an award, though again the results are only distinguishable from the null in some categories. We also analyze differences in transparency between districts that did and did not receive training and technical support as part of the program. There is an even larger effect of training than the award treatment, with districts that received training showing between a 10 and 18-fold increase in the number and value of items uploaded, as compared to district governments that did not receive training. These results are highly statistically significant.

This study makes several contributions to understanding bureaucratic performance. While challenges with bureaucratic performance have often been considered a result of motivation and institutional design, more recent research is questioning whether performance problems are caused by a lack of resources relative to responsibility in many settings ([Dasgupta and Kapur, 2020](#)). According to this theory, in areas where politicians do not have clear responsibilities for outcomes or do not benefit from high levels of bureaucratic performance, it is more likely that administrative offices receive fewer resources relative to their mandates. In the area of anti-corruption, it may be especially useful for district officials to hide the details of procurement actions, as it helps them allocate government contracts strategically to meet their political goals. Thus, we might expect there to be an under-investment in the professional skills that bureaucrats need to curb corruption. We show that targeted training can fill these kinds of gaps by providing local bureaucrats with the skills that they need to address corruption risks in public procurement.

This study provides some of the first available evidence about the effects of capacity building programs in particular. While practiced all over the world, we have little to no evidence about whether

these programs result in better governance outcomes, with some notable exceptions ([Alpizar et al., 2019](#)). One concern about capacity building in general is that knowledge or expertise is not the limiting factor for determining public outcomes, but rather it is motivation embedded in the institutional environment of bureaucrats. Capacity building often does not change the material nature of bureaucrats' work environment, which means that it may fail to fundamentally alter the core drivers of poor public service delivery. We show that training helps to close performance gaps, which suggests that motivations are often overemphasized.

This study also provides new evidence about strategies that can motivate bureaucrats within resource-limited government departments. While social status and prestige drive behavior in many domains, testing interventions that boost professional and social status in the bureaucracy has received relatively little attention. This study shows motivational interventions can be complementary to providing bureaucrats more tools and skills to complete their jobs effectively, though these results are more uncertain. One advantage of this type of using awards is the limited resources required across a range of settings.

In terms of policy, improving transparency in public procurement has the potential to improve political oversight of public spending. [Raffler \(2022\)](#) shows that making information about the decisions and performance of bureaucrats accessible can create conditions for more effective oversight by local politicians, at least where politicians are from the opposite party of the dominant regime. This study shows that capacity building is able to significantly boost the rate of compliance with national rules about transparency in procurement. The interventions studied here directly led to billions of shillings worth of additional disclosures about how procurement is carried out in district governments.

Motivation, Resources, and Skills for Controlling Corruption

Capacity building programs are pursued around the world with the idea that public agencies and their employees have performance problems because of a lack of skills and resources. Capacity building programs increase the potential to act in accordance with official mandates ([Williams, 2021](#)). This is hardly the dominant view of bureaucratic dysfunction, particularly when it comes to corruption.

One line of research highlights how bureaucrats can have incentives to enrich themselves rather than provide public service, and so the challenge is to design institutions that improve oversight to deter mismanagement and corruption (Brierley, 2020; Raffler, 2022). Another line of work highlights how the structure of remuneration gives rise to incentives for bureaucrats to engage in corruption (Van Rijckeghem and Weder, 2001). Since corruption is about misusing public office, it is natural to focus on the incentive problems at its origin.

But admiring the problem does not necessarily give rise to solutions: putting in place actions, procedures, and expectations that make corruption less valuable to the potential perpetrator often requires action by bureaucrats who are adjacent to but not direct participants in corrupt practices. Examples include reporting corrupt acts, accounting for public budgets properly, and providing transparency in procurement. These actions take effort and diligent implementation. The response to corruption is therefore likely to be based in large part on making sure that these actions are carried out, which requires both capacity and motivation in the bureaucrats who are charged with implementing buffering actions against corruption. This gives rise to the potential to raise the capacity of bureaucrats and motivate them to carry out procedures designed to make corruption by others less desirable.

Indeed, a growing body of research questions whether incentive problems are at the heart of bureaucratic performance issues. Dasgupta and Kapur (2020), for instance, challenge the notion that incentive problems are responsible for bureaucratic under-performance in India, instead highlighting how most local officials are significantly under-resourced relative to their formal responsibilities. In this alternative perspective, the most important aspect of building state capacity to carry out public mandates is ensuring that bureaucrats have the skills, resources, and finances that are necessary to meet their formal responsibilities. This is where capacity building programs enter the scene, both as related to bureaucratic performance in general and anti-corruption work in particular.

Capacity building that provides information, skills, or new resources might overcome key constraints in many circumstances. They are common in public financial management (Fritz et al., 2011), environmental management (Robins, 2008), and public health (DeCorby-Watson et al., 2018), among other areas. They are also routinely applied to non-profit organizations (Despard, 2016), communities

(Alpízar et al., 2019; Torres-Rojo et al., 2019), and firms (Cusolito et al., 2023). In all cases, capacity building programs focus on the potential for actions, rather than directly focusing on the motivation to act (Williams, 2021). Capacity building programs are relatively innocuous in that they do not directly address institutional design and therefore can be implemented without contentious reforms.

Despite the prevalence of capacity building as a strategy to improve the performance of governments and other types of organizations, the evidence about this type of approach is surprisingly thin. For example, a recent meta-analysis of capacity building efforts related to public health noted the limited number of outcomes measured and a variety of methodological problems associated with existing evaluations (DeCorby-Watson et al., 2018). While there have been some recent experimental evaluations of capacity building efforts for non-profits, communities and firms (Despard, 2016; Alpízar et al., 2019; Torres-Rojo et al., 2019; Cusolito et al., 2023), there is very little evidence about such efforts in the public sector. There is a critical need to develop better evidence in this area, since capacity building is both common and addresses the root causes of performance issues in the public sector identified in recent scholarship (Dasgupta and Kapur, 2020).

Yet, just because a government official has the capacity and resources to act does not mean that they will. Both capacity and motivation are necessary ingredients for performance. In the absence of an ability to take on wholesale institutional reforms or alter the remuneration structure for bureaucrats, some efforts have been made to motivate bureaucrats to act in ways that ensure high levels of performance. Research shows that selecting and fostering public service motivation and other moral attitudes can have positive impacts on the performance of the public sector (Tukamuhabwa, 2012; Ntayi et al., 2013; Gans-Morse et al., 2022).

Awards may help to build and reinforce the motivation to excel in public service, as they have the potential to provide a significant resource for career progression. The potential for career progression and a perception that bureaucracies have meritocratic advancement policies are related to anti-corruption actions by bureaucrats, such as reporting on corruption within their units (Cooper, 2022). Credentials are often crucial to advancement in the civil service, since returns to effort are not easily observable and advancement is more regimented (DiPrete, 2013). In addition, awards may focus

efforts in task environments that are complex and attention is limited. All of these mechanisms are complementary and not necessarily mutually exclusive. For these reasons, there has been a growing interest in the use of awards to improve the performance of the public sector ([Hartley and Downe, 2007](#); [Frey and Gallus, 2017](#); [Federman, 2020](#)).

For actions that require concerted effort to complete and carry out well, capacity and motivation should complement each other. A bureaucrat who is able to discharge all of their responsibilities, but lacks the motivation to do so will perform poorly. Similarly, a bureaucrat who has the motivation to discharge their duties, but does not have the skills and resources that are necessary to do so will not be able to perform well. This suggests that the capacity building approach is best applied to areas of bureaucratic performance that are clearly constrained by a lack of resources or skills. It also suggests that finding ways to motivate new types of actions can be an important complement to capacity building interventions. These considerations motivate our research design, which combines a capacity building intervention and a prospective awards scheme to motivate application of the new capacities.

Research Design

Setting

Uganda is a dominant party regime characterized by some amount of free and fair political competition at the local level. It is also perceived as one of the most corrupt governments in the world by independent observers and investors ([Transparency International, 2022](#)). The Inspector General of Uganda, which is in principle an independent watchdog for government expenditures, regularly finds significant irregularities in public spending at the district government level ([Buntaine et al., 2018](#)). This is important for the performance of the public sector generally, since the district government is responsible for procuring and managing many frontline public services.

Since 1995, when administration of public funds was decentralized to district governments, districts became responsible for many frontline public services. As part of the constitutional reforms that year, unconditional, conditional, and equalization grants from the central government were established as the main ways that district governments receive funding ([Green, 2018](#)). Most district

governments have limited ability to raise significant revenue directly. The little revenue collected has to be sent to the consolidated account and depends on the national government to transfer funds to them through the Ministry of Local Governments. In total, district local governments are responsible for handling approximately 10% of public spending in the country, including spending on services that directly impact the well-being of citizens, such as schools, local roads, frontline health clinics, and water provision services (Ggoobi and Lukwago, 2019). Thus, the management of public resources by these governments has direct and immediate implications for the well-being of most citizens.

Much of the spending by district governments is done through procurement of external vendors and services. Each financial year, district governments throughout Uganda create a procurement plan that lists items that they expect to put out for tender. This initial plan serves as an organizing document for handling public procurement in the upcoming financial year. Sometimes, the funds required to complete the procurement are not transferred in a timely way, which creates deviations from the planned procurement timeline. Regardless of these deviations, procurement represent a major source of public spending at the district level.

There are specialist procurement officers assigned to each district government who manage the procurement process. These officers are charged with making sure that public procurement is done according to national standards, which include several transparency requirements. With the launch of the Government Procurement Portal in 2015, procurement officers are required to post their annual procurement plans along with other updates as procurement proceeds. In particular, there are four stages in the procurement process that correspond with disclosure requirements. First, all items that are planned for public procurement must be uploaded along with an estimate of the planned amount. Second, when the procurement is approved for collecting bids, a notice of tendering should be posted, which in principle alerts a diversity of parties about the availability of a competition. Then, once the bids for a given tender are received and evaluated, the procuring entity should post a notice of the best evaluated bidder that includes the value of the bid and the evaluation criteria applied to that procurement. Finally, once a contract for providing the goods or services is signed, the procurement officer is supposed to post notice of the award.

These steps are formally required for every procuring entity, including district governments, based on guidelines issued by the PPDA in 2020. But rates of compliance with these requirements is low, with just 42 districts out of 134 uploading procurement plans as required during the fiscal year starting with 2021. Rates of compliance with uploading best evaluated bidder and award notices are considerably lower than the initial upload of procurement plans.

There are several reasons why procurement officers may not be complying with requirements to post procurement actions. First, transparency in procurement is associated with lower ability to extract rents, as posting notices of best evaluated bidders or award contracts opens governments to informed scrutiny. Given that corruption is a major problem in district governments (Buntaine et al., 2018), this type of scrutiny may decrease the ability of officials to extract rents from their positions.

Second, there may be capacity issues that involve both training and computing resources. Interacting with online systems requires special skills and abilities, which take time and effort to obtain. It may be that increasing the ability of officials to meet their mandates through training will increase transparency around procurement.

Finally, it may be the case that time and motivation are limited. If transparency does not match the normative values of individual procurement officials or offer a pathway to career advancement, then it may simply not be a priority given many competing demands. In addition to responsibility for uploading the results of procurement actions, officers have to actually manage the procurement process, file paper-based procurement reports, and track expenditures, oftentimes on different systems. These other activities could be crowding out compliance with guidelines about transparency in procurement using the online procurement portal.

Capacity building and recognition treatments

This study involves non-randomized and randomized treatments. For the non-randomized training treatment, we selected 50 districts for inclusion in the capacity building program related to the use of the GPP in partnership with Transparency International Uganda (TIU). We selected these districts based on TIU's network of existing contacts with district officials, plus outreach to new districts that were

prioritized for future programming and engagement. Because much of the outreach was completed by telephone, video conference and WhatsApp messages during a period of the COVID-19 pandemic that included strict lock downs, it was considered most feasible to include a non-randomized set of districts in the study. Each district that enrolled in the capacity building program was invited to send procurement officers to an initial half-day training in-person or online, with a small per diem payment provided to the participants. The training covered how to use all parts of the government procurement portal (GPP) and upload the procurement information required by law. The training was conducted with the PPDA, which oversees use of the government procurement portal. After completion of the initial trainings, staff at TIU sent weekly messages reminding the officers about the procurement portal and offering regular technical assistance when needed. All districts selected into the non-randomized training treatment received the same level of support and same content of training. The districts not enrolled in the capacity building program did not receive any contact or support as part of the study.

For the randomized treatment, we assigned staff from 25 of the trained districts (out of 50 selected into the non-randomized capacity building intervention) to be informed about the potential to win a national prize for uploading information to the Government Procurement Portal consistent with the training program. We provided this information both as part of an initial outreach message following the common district training and as part of ongoing training and support messages to district procurement officers in the treatment group. Procurement officers in these districts were regularly reminded via text messages and phone calls that they would be eligible to receive an award in a national ceremony if they uploaded information to the GPP. Staff at TIU informed them that awards would be given for both the best performers and for the most improved performers from among all districts (the precise number of awards was not decided or disclosed in advance). The purpose of communicating two types of awards was to ensure that the awards could potentially motivate all districts and avoid a commonly observed backfire effect among non-top performers observed in other schemes ([Ashraf et al., 2014](#)). Our partners at TIU also formed districts into WhatsApp groups divided by treatment status to provide ongoing encouragement and support, while avoiding spillover of information about the potential for awards across the treatment groups. Staff from the districts not assigned to treatment

received no information at any point about the potential to earn a national award, though in reality they were eligible for the awards after the fact.

Outcomes

The primary outcome of this study is the use of the Uganda Government Procurement Portal by district governments. Each district government is required to upload information to the portal in four areas, all of which are publicly visible (see <https://gpp.ppda.go.ug/>). As described in the previous section, the four areas are procurement plans, tenders, best evaluated bidder notices, and award contracts. We examine the number and volume of uploads in each of these areas and the combined total in all areas.

For a primary analysis we look at outcomes in financial year 2019-2020, 2020–2021 and 2021–2022. This time period includes one pre-treatment year, one year during implementation of the training and recognition treatments, and one year after completion of the trainings for the district procurement officers. For the experimental analysis we look at both the number and value of items uploaded to the procurement portal by districts where procurement staff were trained and offered the opportunity to receive recognition, as compared to the districts where there was only training but not an award scheme.

We make use of data obtained by cooperating with the Public Procurement and Disposal of Assets Authority to access the full set of uploaded items, which includes time stamps of each uploaded action by the district governments.¹ Because it is possible for procurement officers to upload items later for procurement actions that started during previous financial years, we take advantage of these time stamps to count the total number and value of items uploaded during each financial year regardless of the financial year when the procurement was started as our primary outcome. We did not anticipate access to these timestamps when launching the experiment, so this choice enhances precision as compared to using only the financial year at the start of each procurement action as outlined in our pre-analysis plan.

¹The same data are available on a public portal at <https://gpp.ppda.go.ug/>. However, the publicly available data do not include time stamps and must be gained from an export from the internal PPDA system.

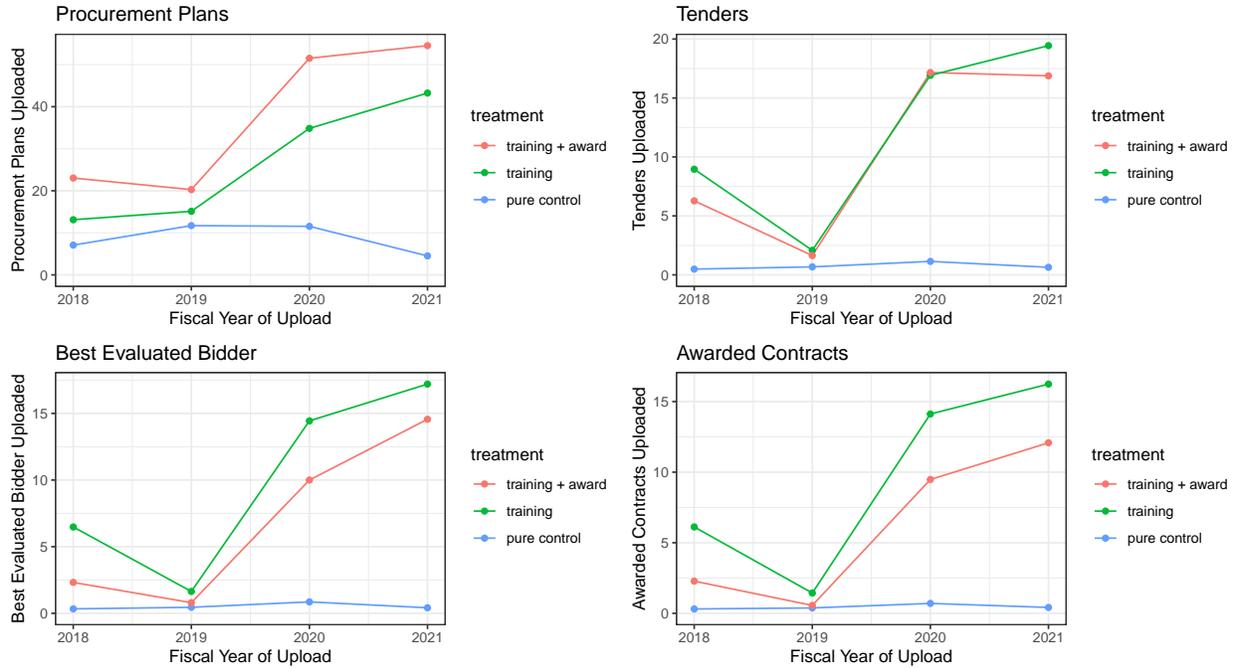


Figure 1: Average number of each type of item uploaded by district procurement officers in each treatment arm by fiscal year of upload.

The descriptive data show that use of the GPP has generally increased since 2016 on average, with some variation across different years and outcomes (Figures 1 and 2). We can see that both of the experimental groups that had access to the non-randomized capacity building intervention have had higher use of the GPP throughout both the pre-treatment and post-treatment periods. At the analysis stage, this should bias estimates of program effects downward, since districts starting from a higher baseline have a lower absolute chance to improve their disclosure practices further.

Analysis

For the experimental results on the impact of offering awards on upload behaviors reported in the main manuscript, we adapt the pre-specified empirical strategy and estimate the following for counts and value of items uploaded to the procurement portal:

$$Y_{j,t=1} = \alpha_j + \tau D_j + \beta_1 Y_{j,t=-1} + \beta_2 X_j + \epsilon_j$$

Where Y_j is the outcome of interest (number or value of uploads), τ is the sample average treat-

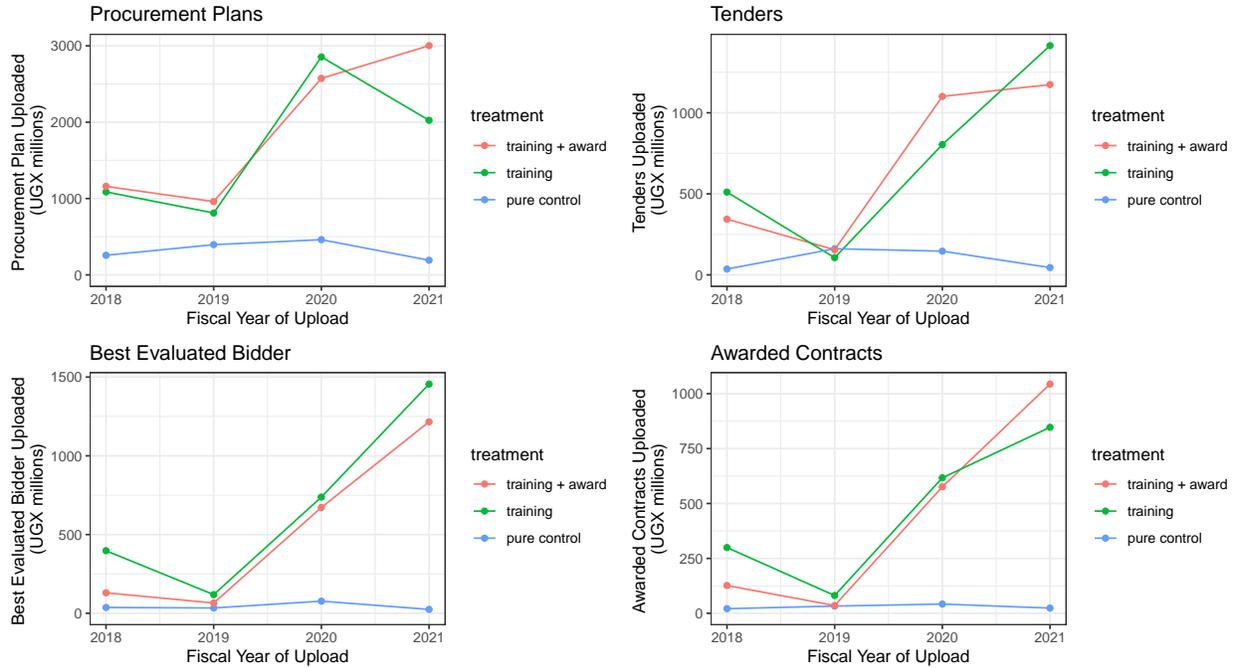


Figure 2: Average value of each type of item uploaded by district procurement officers in each treatment arm by fiscal year of upload.

ment effect, D_j is an indicator of the treatment assigned at the district level, β is a vector of parameter estimates for district-level covariates, which include the outcome lagged by two years and the total approved procurement budget in the post-treatment year, and ϵ_j is the error term. It is worth noting here that we choose to lag the outcome by two years instead of a single year to avoid any possibility of post-treatment bias caused by the announcement of the program before the completion of the baseline year, which is different from our pre-analysis plan.

Summary of Research Design

Figures 3 summarizes the research design and sample sizes for each outcome.

Results

Treatment effect of offering awards among the trained districts

The main pre-registered analysis investigates whether informing district procurement officers about the chance to win an award in a national ceremony for uploading items to the GPP in advance in-

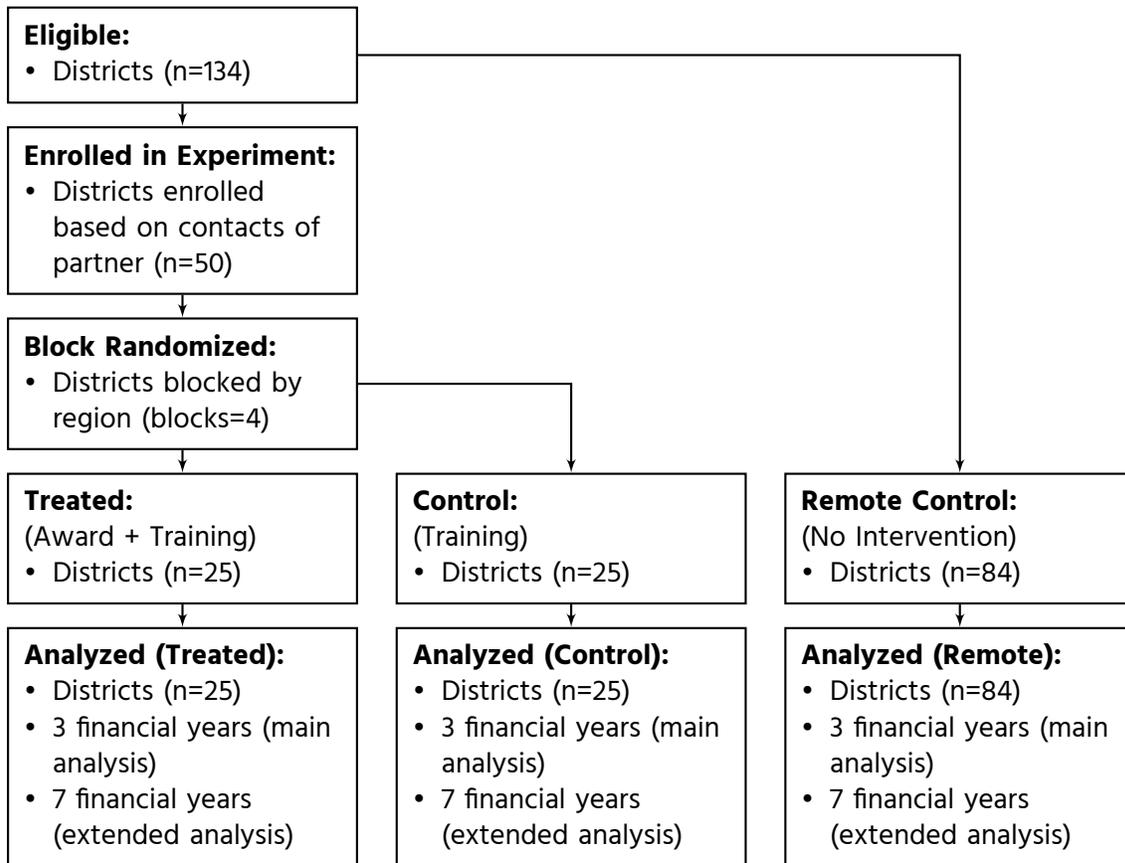


Figure 3: **CONSORT diagram tracking the study design.**

increases the number and value of items uploaded. The main theory behind this treatment is that offering an award has the potential to set norms about appropriate practice and might serve as a valuable credential that would induce more effort. As displayed in Table 1, we are not able to rule out that the treatment caused no effect on the number of items uploaded to the portal, with exception perhaps of best evaluated bidder notices. Likewise when examining the treatment effect of eligibility for awards on the total value of items uploaded in Table 2, there is marginal evidence that the treatment increased the value of procurement plans and awarded contracts uploaded, but it is not possible to rule out a null effect in other areas. Overall, there is marginal evidence that notice of eligibility for an award increased compliance, but the estimates are noisy because of high degrees of variability in the different outcomes.

	Procurement Plans (1)	Tenders (2)	Best Bidder (3)	Awarded Contracts (4)	All Items (5)
Training + Award	15.0 [-14.2; 44.2]	5.05 [-4.06; 14.2]	6.37* [-1.12; 13.9]	4.92 [-1.42; 11.3]	34.5 [-12.8; 81.7]
Observations	50	50	50	50	50
Controls	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.35	0.31	0.34	0.42	0.33

Signif. Codes: ***: 0.01, **: 0.05, *: 0.1. 95% confidence intervals displayed in brackets. The outcome is the number of items uploaded in each category.

Table 1: Treatment effect of eligibility for an award on number of items uploaded

	Procurement Plans (1)	Tenders (2)	Best Bidder (3)	Awarded Contracts (4)	All Items (5)
Training + Award	1,352* [-99; 2,803]	78 [-854; 1,010]	-308 [-1,153; 536]	471** [6; 936]	1,724 [-1,197; 4,646]
Observations	50	50	50	50	50
Controls	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.3	0.03	-0.03	0.2	0.2

Signif. Codes: ***: 0.01, **: 0.05, *: 0.1. 95% confidence intervals displayed in brackets. The outcome is the value of items uploaded in each category in millions of Ugandan shillings.

Table 2: Treatment effect of eligibility for an award on value of items uploaded

To address the fact that both the number of items uploaded and the value of items uploaded are highly skewed with a great deal of variance over time, we add an exploratory analysis that takes a logarithmic transformation of both outcomes. As displayed in Tables 3 and 4, the results are broadly similar. There is marginal evidence that treatment increased the number of awarded contracts, and the value of most items uploaded to the procurement portal. Taken together, these results indicate that offering awards to professional bureaucrats can marginally boost effort after they have received training on a task they are charged to undertake.

	Procurement Plans (1)	Tenders (2)	Best Bidder (3)	Awarded Contracts (4)	All Items (5)
Training + Award	1.14 [-0.30; 2.59]	1.15 [-0.26; 2.55]	1.09 [-0.24; 2.42]	1.12* [-0.18; 2.42]	1.26 [-0.37; 2.89]
Observations	50	50	50	50	50
Controls	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.14	0.09	0.14	0.14	0.11

Signif. Codes: ***: 0.01, **: 0.05, *: 0.1. 95% confidence intervals displayed in brackets. The outcome is the number of items uploaded in each category with a logarithmic transformation, after adding 0.1 to account for zero values.

Table 3: Treatment effect of eligibility for an award on logarithm of the number of items uploaded

	Procurement Plans (1)	Tenders (2)	Best Bidder (3)	Awarded Contracts (4)	All Items (5)
Training + Award	2.07** [0.19; 3.95]	1.73* [-0.25; 3.72]	1.41 [-0.47; 3.28]	1.54* [-0.28; 3.36]	1.90* [-0.17; 3.98]
Observations	50	50	50	50	50
Controls	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.10	0.05	0.12	0.11	0.08

Signif. Codes: ***: 0.01, **: 0.05, *: 0.1. 95% confidence intervals displayed in brackets. The outcome is the value of items uploaded in each category in millions of Ugandan shillings with a logarithmic transformation, after adding 1 to account for zero values.

Table 4: Treatment effect of eligibility for an award on logarithm of the value of items uploaded

Treatment effect of the capacity building trainings

Next we investigate the effects of capacity building on the number and value of items uploaded, comparing them to the group of districts that did not receive any contact as part of the study. While the districts were selected into the training program based on the preexisting contacts of our partner organization, as displayed in Figures 1 and 2, districts where officials received training had higher levels of activity at baseline. This means that they have less room to improve their practices, which should in principle bias estimates of program effects downward. Like the analysis on the effects of the awards program, we control for the baseline amount of upload activity in the fiscal year starting in 2019 to adjust for different baseline propensities to comply with the PPDA requirements.

As displayed in Table 5, the effects of the capacity building intervention are both very large substantively and allow us to rule out a zero effect both for the number of items and the value of items uploaded. In substantive terms, both of the training arms increased the amount of disclosure performed by the district governments by orders of magnitude. On average this resulted in billions of shillings of additional disclosures across the upload categories in the GPP. Consistent with the results on the effect of awards displayed above, the difference between the trained district officials that were and were not informed about awards is much smaller than the difference between the trained and the untrained districts. This result indicates that offering training to district governments of how to meet official guidelines regarding the disclosure of procurement actions had the greatest impact, with eligibility for an award marginally complementing that effort.

Dependent Variables: Model:	# Items (1)	# Items (log) (2)	Total Value (3)	Total Value (log) (4)
Variables				
(Intercept)	-0.48 (3.87)	-1.05*** (0.31)	-257.2 (159.6)	0.16* (0.09)
Training	86.68*** (29.22)	3.34*** (0.66)	5,028.1*** (1,422.9)	4.44*** (0.86)
Training + Award	87.13*** (19.23)	4.50*** (0.56)	5,636.6*** (998.4)	6.19*** (0.73)
Fit statistics				
Observations	134	134	134	134
Controls	Yes	Yes	Yes	Yes
Adjusted R ²	0.30018	0.64547	0.45443	0.65484

Clustered (district_short) standard-errors in parentheses
Signif. Codes: ***: 0.01, **: 0.05, *: 0.1

Table 5: Effect of training treatments on uploaded items and values

Discussion and Conclusions

Training bureaucrats to complete their legal mandates increases compliance with transparency requirements, while offering awards for doing so only caused marginal improvements in compliance rates. In terms of relative effects, the provision of training and capacity building had a much larger effect on upload instances and values, increasing these effects relative to baseline by orders of magnitude. This result confirms that capacity, rather than motivation was a binding constraint on bureaucratic achievement of national mandates to disclosure procurement actions.

This study thus yields formative evidence about the effects of capacity building. Although capacity building programs are common worldwide across many sectors, there is little evidence available about the effects of such programs, particularly as applied to the public sector. By comparing districts that received training to those that did not receive the training, we show the targeted capacity building programs are critically important for the performance of officials. This outcome corroborates emerging work that argues that many times the problem of under-performance by government officials is not so much a function of poor motivation, but rather a lack of skills and resources ([Dasgupta and Kapur](#),

2020).

This main result has important lessons for controlling corruption. The actions of bystanders to corruption are more important for providing guardrails. Building a public sector that operates with integrity is as much about officials properly accounting for public budgets, operating open procurement practices, and ensuring the public has the means to scrutinize government decisions. All of these actions take effort, resources, skills, and time. This study has demonstrated that these types of supportive actions are limited by capacity constraints rather than a lack of motivation on the part of officials. The implication of these results is that more effort needs to go into making sure that the parts of government that take proactive efforts to provide guardrails against corruption have the proper skills and resources to carry out their mandates.

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