DO INFORMATION FRICTIONS AND CORRUPTION PERCEPTIONS KILL COMPETITION? A FIELD EXPERIMENT ON PUBLIC PROCUREMENT IN UGANDA

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Abstract. We study whether information frictions and corruption perceptions deter firms from doing business with the government. We conduct two firm-level randomized controlled trials in collaboration with Uganda's public procurement and anti-corruption agency. The first provides firms with timely information on tenders. The second shares audit results and other firms' perceptions about public entities. We find that information on tender opportunities alone does not increase participation in procurement. However, addressing misperceptions about public sector integrity increases bids and contracts won. Our findings highlight the limits of transparency reforms that ignore firms' perceptions about government corruption and inefficiency.

Keywords: corruption, public procurement, information frictions, firms, RCT, Uganda

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1. Introduction

Public procurement—described by the World Bank as "an essential element of the poverty reduction focus" (World Bank, 2014)—accounts for roughly 14.5 percent of GDP in low-income countries, making it the largest channel of government investment and a central tool for promoting private sector development (Ferraz et al., 2015).[1] Yet in many developing economies, procurement systems are widely viewed as inefficient, opaque, and vulnerable to corruption (Bosio et al., 2022). These issues not only reduce the effectiveness of government spending but may also discourage firms from participating in procurement markets, limiting competition and raising costs. In response, governments and international organizations have promoted e-procurement reforms aimed at increasing transparency, curbing corruption, and attracting more bidders.

This paper examines two barriers to firm participation in procurement markets: information frictions and perceptions of corruption. First, in contexts with limited state capacity, firms may struggle to access timely and comprehensive information about tenders, especially where no centralized system exists to disseminate notices. Second, firms often lack credible information about the degree of corruption and inefficiency (henceforth, *integrity*, following Bosio et al., 2022) of the public entities managing the contracts. In an environment broadly perceived as corrupt and inefficient, these frictions can discourage participation even when formal procurement opportunities are available.

We address these issues through two nationwide randomized controlled trials (RCTs) conducted in partnership with the Public Procurement and Disposal of Public Assets Authority (PPDA), Uganda's national procurement regulator and anti-corruption agency. The first experiment evaluates whether directly providing firms with tender information increases participation. The second assesses the effects of supplying firms with multiple sources of information about the integrity of different public entities. Both interventions were implemented in parallel with Uganda's plans to develop an e-procurement system.

We begin with a descriptive overview of the Ugandan procurement market. Using administrative contract-level data from PPDA, we show that competition is limited, with many firms entering the market only once. Small, young, and rural firms are especially unlikely to engage with the government. New firm-level surveys reveal that two concerns dominate firms' accounts of procurement frictions: lack of timely, accessible information on tenders and widespread perceptions of corruption.

Our first RCT (*Experiment #1*) directly addresses the first friction. Uganda, like most African countries, lacks a centralized e-procurement portal, leaving firms to piece

[1]Public procurement is large in developed countries as well, accounting, for example, for 29.1% of total expenditures and 11.9% of GDP among OECD countries.

together tender opportunities from scattered advertisements in newspapers, websites, and informal networks. To approximate the availability of such a portal, we launched the "Transparency Project." From October 2019 to July 2021, an organization of field research associates collected all tender notices from public entities across the country and delivered personalized biweekly newsletters via email, SMS, and WhatsApp to a random subset of 3,045 firms that had expressed interest in government contracts.[2]

The intervention substantially improved firms' access to tender information: treated firms regularly consulted the newsletters and reported fewer concerns about transparency at endline. Yet better information alone did not translate into higher participation. Over two years, treated firms did not submit more bids, win more contracts, or even take intermediate steps toward participation (such as consulting the details of the contract documentation at the public entity's premises, or buying the bidding documents). A supplementary nudge—reimbursing document costs and providing detailed bidding instructions—which was given to a subset of the treated firms also failed to shift participation.[3]

Despite removing a widely cited barrier, firms did not increase their engagement in procurement, suggesting that transparency about opportunities alone is insufficient. This null result is important: transparency reforms are the centerpiece of procurement policy worldwide, and firms often describe lack of information as a key obstacle. Taken together with our descriptive evidence that concerns about corruption loom even larger than information gaps, this points to integrity perceptions as a potentially more binding constraint, which we target in our second experiment.

Our second RCT (*Experiment #2*) examined whether firms' perceptions of the integrity of public entities shape their willingness to participate in procurement.[4] This experiment, conducted with a new sample of 524 firms interested in doing business with the government, had two components.

First, because firms frequently report integrity concerns but survey responses may not reflect actual behavior, we first implemented an incentivized tender-rating experiment, inspired by Kessler et al. (2019). Firms were asked to evaluate interest in bidding for a series of hypothetical but realistic tender notices with randomized attributes. This design elicited revealed willingness to bid under real incentives, since firms' ratings determined the characteristics of the actual tenders they subsequently received as part of the

[2]During the project period, our team maintained a Transparency Project website with contact information and details about the initiative's independence and non-profit nature.

[3]This nudge had the double objective of alleviating possible monetary and knowledge constraints.

[4]Our definition of integrity includes both active waste, which is the result of corruption of procurement officers, and passive waste, which is the result of lack of effort by public officials resulting in inefficient procurement processes (Bandiera et al., 2009).

Transparency Project. This experiment allows us to isolate whether perceptions of public entities' integrity matter, while holding fixed other tender features that may shape firms' decisions.

Second, we implemented the main intervention: providing structured information about the integrity of public entities. Treated firms received well-organized physical reports drawn from one of two sources. One report aggregated "market perceptions" of integrity from surveys of more than 2,000 firms with knowledge of public entities. The other summarized audit-based assessments from PPDA, which has evaluated entities on efficiency and corruption dimensions for over a decade. The goal was to allow firms to update their priors and form more accurate perceptions. All firms—treated and control—also received the Transparency Project's biweekly tender newsletters, ensuring that lack of information on opportunities was not a relevant barrier.

The results are threefold. First, perceptions of integrity matter: in the incentivized tender-rating experiment, firms with more negative beliefs about a public entity's integrity expressed significantly less interest in bidding for tenders managed by that entity, even after holding constant contract size, administrative burden, and other tender characteristics. Second, firms' priors deviated substantially from both the survey-based and audit-based information. In particular, many firms held overly pessimistic views of certain entities, suggesting scope for updating. Third, receiving integrity reports increased firms' procurement activity: treated firms bid more frequently and won more contracts over the subsequent seven months. The intervention was particularly effective at increasing the number of bids that translate into contract awards. The effects were concentrated on entities rated highest in integrity and were strongest among firms whose initial perceptions had been most pessimistic. Moreover, we find suggestive evidence that peer-based information (coming from the market perceptions report) was more effective than government audit data, suggesting greater trust in market participants relative to an anti-corruption agency.

Taken together, our findings highlight the limits of transparency reforms that focus narrowly on information provision without addressing firms' perceptions of corruption and inefficiency. In response to our results, PPDA adopted several measures to strengthen private sector trust in public entities. These included developing a communications strategy and outreach program to business associations to signal integrity, as well as promoting a whistleblower mechanism to report corruption and reinforce confidence in the procurement system.

Our paper contributes to several strands of literature. First, our field experiment directly speaks to a recent and growing literature on public procurement in developing countries. In their overview of procurement laws and practices across 187 countries,

Bosio et al. (2022) underline the relationship between state capacity and regulations in driving the quality of public procurement. Studies in this literature have focused on specific aspects of capacity and regulation, including e-procurement (Lewis-Faupel et al., 2016), government audits (Gerardino et al., 2024), bureaucratic quality (Best et al., 2023), and procurement officers' incentives (Bandiera et al., 2021).[5] Our study is a nation-wide RCT on public procurement in Uganda, which allows us to isolate the role of information frictions and corruption perceptions as potential barriers to increasing competition in the broad market for government contracts.[6] On the one hand, our transparency experiment shows no effect from increasing information about the availability of tenders—a key component of all e-procurement reforms. On the other hand, a novel contribution of our study is to highlight the role of perceptions about government corruption and inefficiency as a key barrier preventing higher competition: in contexts ridden by corruption, firms might refrain from doing business with certain government entities if they lack reliable information about their integrity. In this sense, we relate to work on the public disclosure of anti-corruption audits (Ferraz and Finan, 2008, 2011; Bobonis et al., 2016; Zamboni and Litschig, 2018; Arias et al., 2022), and on the (nearly universally positive) effects of transparency on procurement outcomes in advanced economies (Coviello and Mariniello, 2014; Carril et al., 2022; Duguay et al., 2023).

More broadly, we connect to the literature on how corruption and government interference affect private sector development.[7] Our emphasis on "corruption perceptions" is closely linked to the seminal work in Indonesia by Olken (2007, 2009). While most of the work focuses on the (universally negative) consequences of corruption, our study adds a wrinkle to the argument. We highlight how widespread perceptions that government entities are corrupt might lead to a limited pool of firms participating in public procurement. This—on top of potential corruption in the selection of firms being awarded the

[5]For a broader review of recent work on state capacity and development, see Finan et al. (2017) and Besley et al. (2022). Related work focused specifically on public procurement includes Bandiera et al. (2009); Decarolis et al. (2016); Coviello et al. (2018); Decarolis et al. (2020); Szucs (2024). A review of field experiments about institutions is provided by Callen et al. (2024).

[6]See Kang and Miller (2022) for an analysis of limited competition in the U.S. federal procurement market.

[7]Examples of studies on the role of corruption for firm and economic growth include Mauro (1995); Bliss and Tella (1997); Kaufmann and Wei (1999); Svensson (2003); Fisman and Svensson (2007); Olken and Barron (2009); Olken and Pande (2012); Cole and Tran (2011); Sequeira and Djankov (2014); Bai et al. (2017); Colonnelli and Prem (2022); Decarolis et al. (2025); Sánchez de la Sierra et al. (2024); Fenizia and Saggio (2024). See Shleifer and Vishny (1993); Svensson (2005); Hanna et al. (2011); Olken and Pande (2012); Banerjee et al. (2013); Rose-Ackerman and Palifka (2016); Fisman and Golden (2017) for reviews and discussions of the literature on corruption.

contract—may have damaging welfare consequences if it results in a *negative selection* of firms willing to do business with the government in the first place.[8]

Finally, our paper speaks to the literature on firm growth in developing countries, and specifically to recent work looking at the constraints that prevent the emergence of larger, high-growth firms (Bloom et al., 2013; Banerjee and Duflo, 2014; McKenzie, 2017).[9] Most closely related are studies focusing on the role of information frictions in market access, and specifically RCTs such as Atkin et al. (2017) on randomizing access to foreign markets for rug producers in Egypt and Hjort et al. (2020) on teaching firms in Liberia how "to sell" to large buyers, including governments.[10] We place direct emphasis on firm-government interactions, which remain largely overlooked despite the government being typically the largest national customer in all low-income countries. We further provide some of the first empirical evidence of how perceptions of corruptions may *exclude* firms from specific markets, thus speaking to a related and large literature on the distortionary effects of political connections (Fisman, 2001; Khwaja and Mian, 2005; Faccio, 2006; Schoenherr, 2019).

The remainder of the paper is structured as follows. Section 2 provides background on Uganda's procurement market and describes our data sources. Section 3 presents the design and results of the RCT on improving access to information about procurement opportunities. Section 4 examines the RCT on perceptions of the integrity of public entities. Section 5 concludes.

2. Context and Data

In this section, we first briefly describe a few important features of the public procurement market in Uganda (Section 2.1). We then outline the various data sources we use to identify and characterize firms and public entities operating in the market (Section 2.2). Next, in Section 2.3, we list the various firm-level surveys we conducted for our two RCTs, on which we will expand later in the paper. Finally, we provide some descriptive facts motivating our experimental designs (Section 2.4).

2.1. **Public Procurement in Uganda.**

The government is the single largest potential "customer" for private firms in Uganda. According to the Ministry of Finance, public procurement accounts for nearly 30% of GDP.[11]

[8]Our effects on perceptions about the government echo the findings in Colonnelli et al. (2024), who show that firms in China shy away from doing business with government investors because of fear of political interference.

[9]See Woodruff (2018); McKenzie et al. (2021); Verhoogen (2023) for recent reviews of related work.

[10]See also Jensen and Miller (2018) and Aker et al. (2020) for recent studies on information frictions in market access within low-income countries.

[11]See The National Public Sector Procurement Policy (last accessed September 2025).

Procurement is highly decentralized. Tenders are initiated by individual "Procuring and Disposing Entities" (PDEs), which include both local and central government bodies such as municipal governments, ministries, hospitals, schools, and specialized agencies (e.g., the Uganda National Roads Authority, the National Water and Sewerage Corporation). Each PDE has its own procurement staff.

The system is regulated by the Public Procurement and Disposal of Public Assets Authority (PPDA), an autonomous agency established in 2003 that functions as an "accountability institution." All PDEs are legally required to comply with PPDA regulations and to implement its policy guidance.[12] PPDA is our main partner in this study and provided access to administrative data.

The procurement cycle begins at the start of each fiscal year (July 1–June 30), when PDEs publish a procurement plan listing the tenders they expect to advertise. For each tender, officials must choose a procurement method. Small contracts (typically below USD 2,500) or those dealing with emergencies may be awarded through discretionary procedures, but most contracts use competitive methods.

Among competitive tenders, three categories exist. Requests for proposals invite a small pre-selected set of firms (usually at least three) to submit bids, and accounted for 3.6% of total contract value in f.y. 2018–2019. Restricted bidding, which applies strict eligibility requirements but is open to all qualifying firms, represented 2.4%. The dominant method is open bidding, available to all firms, which covered roughly 90% of total contract value in the same year. Non-competitive methods such as direct procurement and microprocurement accounted for the small remaining share.

For open bidding contracts, PDEs must publish a tender notice describing the characteristics and value of the contract and the bidding procedures. Regulations require publication in at least one widely circulated newspaper and stipulate a minimum period for submission. PDEs are encouraged, though not required, to use additional channels such as radio, the internet, or notice boards at their premises. We return to these issues in Section 3.

2.2. **Administrative Data Sources.** Data availability is a major constraint in studying public procurement in low-income countries. This challenge motivates e-procurement reforms worldwide, which often include capacity-building programs to collect and maintain centralized procurement datasets and ensure they are accessible to market participants.

[12]PPDA conducts regular training of officials and audits of PDEs. While it does not have prosecutorial powers, it cooperates with the Inspector General of Government to prosecute firms and individuals found guilty of procurement-specific irregularities. See Colonnelli et al. (2018) and Hoekman et al. (2022) for further details.

Uganda faces similar challenges: the decentralized procurement system requires coordination across hundreds of PDEs to compile complete and reliable data.

In collaboration with PPDA, we collected, cleaned, and standardized several confidential datasets on public procurement activity.[13] While the resulting data do not cover every contract, firm, and PDE, they allow us to: (i) identify a large set of firms interested in or already doing business with the government; (ii) construct performance measures for a substantial share of PDEs; and (iii) provide some of the first descriptive evidence on a public procurement market in Africa.

We now briefly describe the main datasets used in our study.[14] First, since early pilots and focus groups indicated that many firms with no prior procurement experience were strongly reluctant to engage with the government, we aimed to identify firms "interested in public procurement." This formed the pool for our RCT samples. We identify interested firms primarily through the *Registry of Providers* (ROP), a formal list maintained by PPDA of firms that have expressed interest in public procurement and passed a basic screening (e.g., tax verification, contact validation). A second source is the set of firms that *pre-qualified* for at least one PDE.[15]

Second, to measure PDE performance for our second RCT (Section 4), we obtained, digitized, and standardized all audit reports drafted by PPDA. These audits, similar to other anti-corruption evaluations worldwide (e.g., Ferraz and Finan (2008) for Brazil), sample a subset of a PDE's contracts and assess compliance with regulations on the selection of providers and execution of awarded contracts. Audit selection is quasi-random: the largest PDEs (e.g., Uganda National Roads Authority) are audited nearly every year, while the majority of PDEs are randomly selected. Our dataset includes all 22,321 audits conducted by PPDA from 2007 to 2019, covering 262 PDEs.

Finally, we use contract-level data from the *Government Procurement Portal* (GPP), PPDA's official database for tracking PDE procurement activity. The GPP records include information on the identity of the firms bidding for and winning the contract, contract values and dates, the type of goods or services procured, selection methods, and other contract characteristics. Coverage is imperfect: the data is self-reported by PDEs, and compliance is limited, especially among local PDEs outside Kampala, which often

[13]This effort involved digitizing thousands of paper records from individual PDEs and other agencies, as well as cleaning and structuring unorganized information.

[14]Most datasets were collected at the start of the 2018–2019 fiscal year, and some were updated periodically through the end of our RCTs.

[15]Firms pay a fee and submit documents to enter a PDE's pre-qualified list. Requirements vary by PDE, and firms typically must re-qualify after a few years. Pre-qualification increases the likelihood of being notified for restricted bidding or requests for proposals.

submit only monthly or quarterly paper reports with more limited information (for instance, they contain information only on the identity of the firm winning the contract, not on the firms that submitted unsuccessful bids). In collaboration with PPDA, we digitized these paper procurement records to supplement the GPP.

Linking PDE- and firm-level identifiers across datasets allows us to track PDEs and firms over time. In total, 13,860 firms appear in at least one dataset, and 398 PDEs were active during the period covered.

2.3. **Firm-Level Surveys.** Our main analysis relies on firm-level survey data. We conducted baseline and endline surveys for both RCTs—Experiment #1 on information frictions and Experiment #2 on perceptions of integrity—as well as three intermediate surveys for Experiment #1. The survey timeline is shown in Figure 1, Panel A, while Panel B illustrates the wide geographical distribution of sampled firms.

Baseline and endline surveys were administered by enumerators from the Independent Evaluation and Research Cell (IERC) of BRAC Uganda, who received training on procurement from both our team and PPDA staff. To avoid biased responses arising from respondents' possible fear of government oversight, enumerators did not make any explicit reference to PPDA during interviews.

2.3.1. *Experiment #1 Surveys.* The sample for Experiment #1 was drawn from the ROP and PDE pre-qualification lists (see Section 2.2). Our starting sample consisted of 3,632 firms for which we had contact information. We obtain 3,045 completed baseline surveys, corresponding to an effective response rate of 84%.[16] Surveys were conducted between April and August 2019 and lasted 75–90 minutes on average. Enumerators were instructed to interview either one of the firm's owners or managers, or the employee within the firm in charge of public procurement.[17] In the introduction to the survey, respondents were told that the goal of the study was "to understand the barriers that prevent firms like yours from participating more actively in public procurement."

The baseline survey was administered in person at firms' premises. It included three main modules. First, we collected a wide set of firm characteristics (sector, age, size, assets, liabilities, revenues, costs, profits, and wages). Second, we elicited detailed information on procurement participation, including bids submitted and contracts won over the previous three fiscal years. This was crucial given the incomplete nature of the administrative data on public procurement activity. Third, we measured firms' knowledge

[16]The remaining 587 firms declined to be interviewed or provided insufficient information.
[17]The respondent was the owner in 68% of cases, a manager in 30% of cases, and another employee in 2% of cases.

of procurement regulations, perceived barriers to participation, and the sources used to acquire information about the public procurement market.

Table 1 (Panel A) summarizes baseline characteristics for the 3,045 firms in the baseline sample. The sample is broadly representative of the three macro-sectors of construction, supplies, and services. The median firm is relatively young (7 years), of medium size (12 workers), and reported submitting 3 bids in the prior year, winning 1 contract.

The endline survey was conducted in person between August and December 2021, focusing on procurement participation and firm growth. We successfully re-interviewed 2,114 firms (69% of the baseline sample).

We also conducted three shorter phone surveys with Experiment #1 firms. The first, in February 2020 (N=2,674), primarily monitored the correct implementation of the intervention. The second, in June 2020 (N=2,338), focused on assessing the effects of Covid-19 on firms and on the procurement market more broadly. The third, in September 2020 (N=2,366), was most directly relevant to our study: in addition to measuring short-run outcomes about one year after the start of the experiment, it elicited firms' perceptions of PDEs. Specifically, respondents listed PDEs they were familiar with—through past interactions, media, or networks—and evaluated them on performance, corruption, transparency, and competition. As we discuss in more detail in Section 4, these perception data were later used to construct the information treatment in Experiment #2.

2.3.2. *Experiment #2 Surveys.* The sample for Experiment #2 was constructed analogously, drawing from the ROP and pre-qualification lists but excluding firms already surveyed in Experiment #1. Since this experiment focuses on measuring and varying perceptions about specific PDEs, we screened firms during mobilization in December 2020 to ensure sufficient engagement with procurement: of 1,465 contacted firms, we restricted attention to 783 that reported both bidding in the previous fiscal year and plans to continue participating, and had reliable email access. Our baseline survey took place between February and April 2021, and included the 524 firms that could be contacted and agreed to participate.

The baseline survey was conducted in person and had three components.[18] First, we collected firm characteristics and procurement histories, following the Experiment #1 baseline structure. Second, we elicited perceptions of PDE integrity using the same measures as in the third intermediate survey of Experiment #1. Third, we conducted an incentivized field experiment (adapted from Kessler et al. (2019)) in which firms rated hypothetical tenders. We explain the details of this experiment in Section 4.1.

[18]The information treatment—the delivery of integrity reports—was implemented at the very end of the baseline survey.

Table 1 (Panel B) reports baseline characteristics of the 524 firms. They are broadly representative of the three macro-sectors and have a median size of 11 employees.

The endline survey took place between November and December 2021, about seven months after treatment delivery, with 445 of 524 firms (85%) re-interviewed.

2.3.3. *Attrition in Follow-up Surveys.* Attrition rates were non-trivial in both experiments: approximately 30 percent of firms in Experiment #1 and 15 percent in Experiment #2 could not be re-contacted by the end of the intervention period.[19] Appendix Table A.1 indicate unbalanced attrition, with treated firms more likely to respond to both the midline and endline surveys in both Experiment #1 (columns 1-4) and less likely to respond at endline in Experiment #2 (column 5). We address concerns that differential attrition may bias the results in two ways. First, we check whether treatment and control firms are balanced with respect to attrition in both experiments. Appendix Table A.2 shows that there is balance across observable characteristics between treated and control firms in the non-attrited sample of Experiment #1, composed of 2,114 firms. A joint orthogonality test does not reject the null that attrition did not significantly impact the balance of characteristics between treatment and control (see the p-values of the F-stats reported at the bottom of Appendix Table A.2). Similarly, Appendix Table A.3 shows balance on observable characteristics between treated and control firms in the non-attrited sample of Experiment #2. Second, we address differential attrition introducing Lee Bounds as robustness when presenting results in Sections 3 and 4.

2.4. **Descriptive Analysis.** In this section, we combine administrative data and our original surveys to provide a series of descriptive facts about public procurement in Uganda that motivate our interventions.

2.4.1. *Firms' Participation in the Procurement Market is Low.* A first important fact is that the public procurement market is characterized by a low level of competition. Panel A of Figure 2 shows the distribution of the number of bids per contract in the administrative data, focusing on competitive contracts. The median contract receives only two bids, with 45 percent of contracts attracting just one bid and 83 percent of contracts receiving three or fewer bids.

Panel B of Figure 2 describes participation among the 13,860 firms that appear in either the ROP or in the pre-qualification lists during the three fiscal years before the start of our experiment (2016–2017 to 2018–2019). Despite the fact that their inclusion

[19]These rates are broadly comparable to those reported in similar firm-level studies. For instance, Atkin et al. (2017) document a 28 percent attrition rate among exporting firms in Egypt by the final survey, while Hjort et al. (2020) were able to re-interview only about 52 percent of firms at the second endline of their procurement training program in Liberia.

in these databases already signals a relatively high level of interest in doing business with the government, most firms are inactive in practice. Linking this sample to the GPP procurement dataset, we find that 68.5 percent never submitted a bid in the preceding three years. A further 8.8 percent submitted only one bid, while just 7.1 percent submitted five or more bids. Contract awards are even more concentrated: 77.5 percent of firms never won a single contract over this period. Restricting attention to open bidding contracts—the bulk of procurement activity by value—the patterns are very similar: 68 percent of firms never submitted a bid and 75 percent never won one.

The 3,045 firms in our Experiment #1 sample are somewhat more active, but their overall degree of participation is still low.[20] When asked about their preferred degree of involvement, however, nearly all firms (96 percent) expressed a desire to expand the share of their business derived from public procurement contracts.

2.4.2. *Small, Young, Rural Firms Engage Less in Procurement.* Panel C of Figure 2 explores which types of firms are most disadvantaged. Using data from the baseline survey of Experiment #1, we regress the number of bids submitted in 2017–2018 on firm characteristics and sector fixed effects.[21] Rural, small, and young firms are systematically less likely to bid. Relative to firms based in Kampala, those outside the capital submitted 16.3 percent fewer bids. Similarly, firms established in the past four years submitted 28 percent fewer bids compared to older firms, while those with fewer than five employees also submitted 28 percent fewer bids compared to larger firms. Organizational capacity within firms matters as well: firms without a person dedicated to preparing bidding documents submitted 8 percent fewer bids, and those without anyone responsible for searching tender opportunities submitted 23 percent fewer.

2.4.3. *Perceptions of Corruption and Lack of Information on Tenders are Relevant Barriers.* Survey evidence further clarifies the main obstacles to greater participation in public procurement. In the baseline of Experiment #1, we asked respondents to rate a series of potential barriers on a scale from one to five. Figure 3 shows that concerns about corruption dominate. 75 percent of firms assign high importance (at least three on the one to five scale) to the perception that the procurement system is rigged, while 69 percent cite lack of personal connections to public officials or politicians as a major barrier. When asked directly about the prevalence of corruption, the median respondent estimated that

[20]Appendix Figure A.1 shows participation in fiscal year 2017–2018 among the 3,045 firms in Experiment #1. 22 percent submitted no bids at all, 62 percent submitted fewer than three bids, and the firm at the 75th percentile of the distribution submitted only five bids. Contract awards are even more skewed: 35 percent of firms won no contract, 20 percent won only one, and just 9 percent won five or more.

[21]Each coefficient is normalized by the mean number of bids in the subsample of firms for which the indicator is equal to zero.

60 percent of firms make unofficial payments to officials and that a similar share of officials solicit them. The intervention in Experiment #2 will focus on addressing precisely this type of barrier.

Lack of information on procurement opportunities also emerges as a significant challenge. Almost half of firms rate the absence of timely and complete information as a major impediment. Our intervention in Experiment #1 was designed to address this constraint by ensuring that business owners received clear and comprehensive information about tender opportunities.

A substantial number of firms also report that insufficient financial capacity limits their ability to compete for large contracts. By contrast, fewer firms consider lack of knowledge of required documentation, unfamiliarity with contract award criteria, or insufficient technical qualifications to be binding constraints.

3. Experiment #1: Increasing Information About Procurement Opportunities

The goal of our first experiment is to investigate whether decreasing information frictions about available procurement opportunities increases firms' participation in the public procurement market.

3.1. The "Transparency Project".

Uganda does not have a centralized online system to advertise tender notices, and the dominant means of dissemination is through newspapers. Regulations require that bid notices for open bidding be published "in at least one newspaper of wide national circulation" (PPDA Regulation 42(1) of 2014). Although notices should also be displayed at PDE offices and on the PPDA website (PPDA Regulation 42(2) of 2014), our team's review confirmed that few tenders are actually posted online. Consistent with this, most firms in our baseline survey identified newspapers as their main source of information about tenders (see Appendix Figure A.2).

This reliance on newspapers makes it difficult for firms to obtain comprehensive and timely information. A firm seeking to monitor all opportunities would in practice need to purchase every daily newspaper in Uganda and carefully search for tender notices, which are often hidden in secondary sections and sometimes published very close to the bidding deadline. The median firm in our sample reported learning about opportunities only seven days before the deadline. Many firms therefore report relying on personal connections with other firms and officials to identify opportunities, a strategy that risks excluding less well-connected firms and may understate the number of opportunities available.

Our intervention sought to approximate the benefits of a centralized nationwide e-procurement portal, allowing firms to receive timely and comprehensive information on

tenders. As part of the *Transparency Project*, from October 2019 to July 2021, a large field team collected daily information on all new tender notices advertised by PDEs. Sources included every newspaper in circulation, both in print and online, as well as PDE and PPDA websites. This information was then sent to a treatment group of 1,525 out of 3,045 firms via bi-weekly newsletters delivered by email, WhatsApp, or SMS, depending on each firm's preference. See Appendix Figure A.3 for an example of our newsletters and Appendix Section B for the text we use to introduce the intervention to treated firms.

Because most firms are specialized in a given product or service, newsletters were personalized so that each firm only received tenders relevant to its operations. The matching was based on an algorithm developed for the Transparency Project. Each tender was classified into one or more of 25 sectors (Appendix Table A.4), and a firm received a tender notice if at least one tender sector overlapped with the firm's self-reported sectors of activity.[22] Firms could be assigned to one or more sectors and could update their preferences at any time via an online form linked in every message. The algorithm was intentionally conservative: whenever in doubt about relevance, we erred on the side of inclusion and shared the information with the firm. Tenders were forwarded to all firms independently of the location of the PDE to maximize firm's access to available tenders.

In addition to active tender notices, the newsletters included further information to minimize transparency gaps about the existence of tender opportunities. First, our team collected procurement plans published by PDEs at the start of each fiscal year, which outline a tentative timeline of the tenders they expect to issue (see Section 2.1). These plans are rarely made publicly available, so we obtained them in collaboration with PPDA and sent them to treated firms at the beginning of the fiscal year via our newsletter. Second, we shared with treated firms calls for pre-qualification, which are regularly posted online or on newspapers by PDEs. These calls indicate instructions for firms to become prequalified with a given PDE, which increases the likelihood of being notified for restricted bidding or requests for proposals.

Over the 26 months of intervention, the team identified 4,139 tender notices potentially relevant to at least one firm, averaging 159 per month. The vast majority (95.6 percent) came from newspapers, confirming their central role as a source of information. The median treated firm received 621 tender notices over the course of the intervention. In essence, the treatment replicated the transparency component of e-procurement reforms

[22]Tender notices were drawn from both English-language outlets (e.g., New Vision, Daily Monitor, The East African) and local-language outlets (e.g., Bukedde, Kampala Sun, Oromuri); non-English notices were translated into English by our research team before being forwarded, so all firms received tender information in a common language regardless of the original publication.

implemented in many countries, granting firms continuous access to information about all relevant procurement opportunities.

3.1.1. *Strengthening the Treatment for a Subset of Firms.* Information frictions could be especially binding for firms that are relatively new to the procurement market and not yet well established. These firms might face other frictions, such as financial constraints or basic knowledge of steps to bid for a government contract (Hjort et al., 2020). In order to help reduce these constraints, we strengthened the intervention for half of the treatment group. In addition to receiving newsletters, 760 of the 1,525 treated firms were offered a one-time reimbursement for purchasing bidding documents (which typically cost around USD 50) and were provided with a step-by-step explanation of how to participate in a tender. Reimbursements were limited to tenders involving PDEs with which firms had not recently done business. The explanatory material drew from PPDA's official guidance and emphasized how to inspect a contract and how to proceed after acquiring the bidding documents in order to submit a bid.

3.1.2. *Stratification and Balance.* Random assignment of firms to treatment was stratified by location (Kampala versus the rest of the country), sector (construction, supplies, or services), and firm size (above-median versus below-median number of employees at baseline). Balance checks presented in Appendix Table A.5 confirm that baseline characteristics are balanced across treatment and control groups.[23]

3.2. **The Intervention Increases Information about Tenders.** The intervention successfully reduced information frictions. We establish this in three ways. First, using engagement data from our email provider, we show in Figure 4 that, in any given month, about half of firms opened at least one newsletter and about 20 percent clicked on at least one tender link, with little decline over time. By the end of the experiment, roughly 90 percent of treated firms had opened at least one newsletter and 70 percent had clicked on a link, indicating sustained and broad engagement. Since the tracking system may undercount interactions, actual engagement is likely even higher.[24]

Second, data from our endline survey reinforce this picture: the average satisfaction rating with the newsletters was 7.2 out of 10, with three-quarters of firms rating the service at 6 or above. About 75 percent described the newsletters as a very important source of information, and 63 percent reported opening them several times per month.

[23]Appendix Table A.6 shows balance also for the strengthened treatment arm. See the Supplementary Appendix for a definition of all the baseline variables.

[24]According to the data provider, while there is no possibility for false positive, there is a false negative rate of up to 50%.

Third, we estimate the treatment effect on firm's information about tenders. While it is not possible to measure the actual information awareness of each firm over time, we provide suggestive evidence based on general questions regarding firm's self-reported information in our endline surveys. To do so, we estimate the following equation:

$$y_{i1} = \alpha + \beta T_i + \gamma y_{i0} + s_i + X_i'\delta + \varepsilon_i, \tag{3.1}$$

where y_{i1} is the outcome of interest for firm i measured at endline, y_{i0} is its value measured at baseline, T_i is an indicator equal to one if firm i is assigned to receive our bi-weekly newsletter, s_i are strata fixed effects, and X_i' is a set of controls selected using the post double selection (PDS) lasso procedure (Belloni et al., 2014). We apply this procedure after detecting differential attrition between treated and control firms in the midline and endline surveys, as we discuss in Section 3.3.3. The PDS lasso procedure is more robust to possible bias caused by characteristics that could predict likelihood of responding at endline as well as outcomes (McKenzie, 2025). Under these circumstances, selecting the most relevant baseline covariates with complete data provides the most effective way to mitigate such imbalances.[25] All specifications use robust standard errors.

Column 1 of Table 2, Panel A, shows that treated firms reported that lack of information was a less serious obstacle to bidding. Consistent with our newsletter service reducing the need to rely on the frequent consultation of newspapers, column 2 of the table shows that treated firms rated newspapers as a less important source of tender information than firms in the control group.[26]

3.3. **The Intervention Does Not Increase Participation in Procurement.**

3.3.1. *Effects on Bids and Contracts Won.* Despite these large effects on information, we do not find significant increases in procurement participation. These null results hold whether participation is measured in levels, as indicators for any activity, or using alternative specifications such as instrumental variables.

To assess the impact of increasing firms' information about available tender opportunities on their participation in the procurement market, we estimate equation 3.1 using as dependent variables the number of bids submitted and the number of procurement contracts won.[27] We measured these outcomes at two different points in time after the

[25]The set of potential controls include all variables in Appendix Table A.2, except the three outcome variables at the end of Panel B, namely *Importance of newspaper ads*, *Total bids*, and *Total contracts*. These are all the baseline characteristics that present no missing values for the firms successfully reached at endline. The OLS estimation we show in Appendix Table A.7 does not include any control besides strata fixed effects.

[26]Note that in the specifications in column 1 and 2 we lose 10 and 7 firms, respectively, due to a small number of respondents not answering these survey questions.

[27]To account for outliers, we winsorize both variables at the 99% level.

beginning of the intervention. In the midline survey conducted approximately one year after the beginning of the intervention, we measured the firm's procurement activity in the preceding six months. In our endline survey, we measure the firm's procurement activity over the last fiscal year.

Despite the significant "first stage" on information, neither at midline (columns 3 and 4 of Table 2, Panel A) nor at endline (columns 5 and 6) did treated firms submit more bids or win more contracts than control firms.[28] Appendix Tables A.8 and A.9 additionally study the effect of the experiment on indicators for submitting any bid, at least 1 bid, 3 or 5 (respectively, winning any contract, at least 1 contract, 3 or 5). The treatment effects are small and not distinguishable from zero.[29]

3.3.2. *Intermediate Actions.* We investigated whether firms may have been discouraged at intermediate stages of the bidding process. Midline and endline surveys included a number of additional questions that can be used to test this hypothesis. In our midline survey, we asked firms about the number of tenders for which they decided to inspect the bidding documents in the previous six months. The "inspection" is considered the key first step in the bidding process.[30] Furthermore, in our endline survey, we asked firms for how many contracts the firm bought the bidding documents, which is the final key preliminary step to prepare a bid for a specific tender. Results in columns 1–3 of Table 2, Panel B, show no significant treatment effects on these outcomes. In addition, columns 4 and 5 show that treated firms did not decide to pre-qualify with more PDEs, as measured either at midline or endline. We conclude that treated firms, despite being more informed about tender opportunities, were not more likely to take any action with the goal of bidding for more procurement contracts.

3.3.3. *Additional Financial and Knowledge Nudges Do Not Matter.* An additional potential reason behind the lack of treatment effects is that increasing information about tender opportunities is not enough for firms that lack previous experience on the functioning of the process to bid for a tender or for firms who might be constrained financially to buy

[28]In unreported results, our findings are similar when employing an IV specification in which treatment assignment status is used as an instrument for having clicked on at least one tender in the newsletter. Results from a simple OLS regression are shown in Appendix Table A.7. While consistent with the PDS lasso estimation, the coefficients on OLS are slightly more negative. This suggests that firms that attrited may differ in unobservables correlated with both treatment and outcome. We discuss issues arising from differential attrition in more details in Section 3.3.3.

[29]Finally, in Appendix Figure A.4 we show that the distribution of bids and contracts won both at baseline and at endline does not differ by treatment status.

[30]Given the limited space available, tender notices published on newspapers contain only the main details of the tender. PDEs provide a time window in which firms can inspect the full contract documentation and requirements to submit a bid at the PDE's premises.

bidding documents. Our strengthened information treatment is aimed at testing for this possibility.

As shown in Appendix Tables A.10 and A.11, the additional intervention led firms to inspect more bidding documents at midline. However, it did not result in a significant increase in procurement participation. In fact, firms that received this strengthened treatment were, if anything, less likely to submit bids or win contracts at endline. These patterns may reflect a discouragement effect: after unsuccessful attempts to expand procurement activity, firms may have scaled back their efforts in response to perceived barriers to successful procurement participation.

We test the robustness of our results to attrition computing Lee Bounds (Lee, 2009) for our main outcomes of interest: total bids and contracts won. Panel C of Appendix Table A.8 and A.9 summarizes this analysis. While the bounds are large, even the upper bound is smaller than zero, assuaging the concern that attrition is responsible for the failure to detect a positive effect of our intervention. Importantly, the lower bound occurs if the firms more active in procurement are more likely to attrit in the control group (de Mel et al., 2008). However, using baseline bids submitted in the fiscal year before the experiment, we find that the firms that bid the most are *less likely* to attrit in the control group. This suggests that our treatment effect is closer to the estimated upper bound, which is small and not distinguishable from zero.

Taken together, the results of Experiment #1 show that lack of information about tenders (and simple financial and knowledge frictions) are not the binding constraints. Figure 3 helps interpret this: although many firms complained about lack of information, even more emphasized connections and integrity concerns as the primary barriers. The null results in Experiment #1 are thus consistent with these integrity perceptions being central.

4. Experiment #2: Changing Firms' Perceptions of PDE Integrity

The evidence from Experiment #1 showed that greater transparency about tenders, even when combined with financial and educational support, did not increase participation—a central objective of policy makers and international organizations worldwide. At the same time, descriptive survey evidence from Section 2.4 highlighted that firms consistently view corruption and the integrity of public entities as central obstacles. In a context as opaque as government–firm relationships, where diffuse priors about widespread corruption and inefficiency are common, such uncertainty may discourage firms from participating at all.

To examine the role of these perceptions more directly, we designed a second experiment with two components. First (Section 4.1), we implemented an incentivized tender-rating exercise, inspired by Kessler et al. (2019), to move beyond self-reports and elicit revealed willingness to bid under real incentives. By randomizing tender attributes, this design allows us to compare the importance of integrity concerns with other features that may shape procurement decisions. Second (Sections 4.2 and 4.3), we constructed a dataset combining market-wide perceptions and government audit scores, which underpins an information intervention that provides firms with structured integrity reports. Together, these two components allow us to assess the relevance of integrity perceptions and to test whether correcting overly negative beliefs can increase participation in procurement.

4.1. **Identifying Firms' Preferences for Procurement Contracts: An Incentivized Tender Rating Experiment.** We implemented an incentivized, non-deceptive tender-rating experiment, inspired by the incentivized resume rating (IRR) paradigm in the labor literature (Kessler et al., 2019).[31]

Firms evaluated ten hypothetical but realistic tender notices in their own sector, with randomized attributes, under the real incentive that their ratings determined the procurement opportunities they would subsequently receive through the Transparency Project. Their evaluations were then used to train a simple machine learning algorithm that matched each firm with predicted "best fit" contracts. This setup allows us to quantify how firms' integrity perceptions and other tender attributes influence revealed interest in procurement opportunities.

As noted in Section 2.3, 524 firms active in public procurement participated in this experiment.

4.1.1. *Measuring Perceptions.* To measure perceptions, before respondents' evaluation of the tenders, we asked them to provide a list of PDEs they were familiar with. Then, for each listed PDE, we told them to think about all the contracts advertised by the PDE during a typical year, and we elicited their belief about the percentage of those contracts satisfying a specific condition. Specifically, we elicit firm's beliefs about the percentage of a PDE's contracts: (i) that are carried out according to the procurement plan submitted at the beginning of each fiscal year (*timely procurement process*); (ii) that are completed in time, once initiated (*timely completion*); (iii) in which the firm is paid in time (*timely payment*); (iv) in which the PDE explained to losing bidders the reasons for not being selected (*feedback*); (v) that are won by providers that have a personal connection with

[31]In the IRR design, respondents evaluate hypothetical but realistic resumes in an incentive-compatible setting, recovering unbiased preferences without deception, as in resume-audit studies (Bertrand and Mullainathan, 2004). For procurement, Tukiainen et al. (2024) use conjoint survey experiments to elicit officials' preferences in Finland.

public officials (*personal connections*); (vi) in which the winning firm had to give a "gift" to public officials in exchange for the contract (*corruption*); (vii) that receive a bid from at least three interested providers (*competition*); and finally, (viii) we ask the firm (on a scale from 0 to 100) how much the PDE complies with the rules and regulations that should be followed by law when engaging in public procurement (*compliance score*).[32]

In addition, we also asked whether the firm had ever bid for, or won, a contract advertised by the PDE in the past, and whether the firm knew any official working at the PDE.

4.1.2. *Creating Hypothetical Tenders.* To ensure realism, we constructed tenders that closely mimic actual notices in local newspapers and government websites. Their structure and content drew on qualitative insights (e.g., text style, contract titles) and quantitative data (e.g., distribution of contract values, deadlines) from our Transparency Project database of over 2,000 tenders collected between July and December 2019.[33]

We randomized 11 characteristics across tenders, including the PDE identity, contract value, funding source, deadline, and administrative requirements. Appendix Table A.12 describes the randomized characteristics, their values and probabilities.[34]

4.1.3. *Evaluating Tenders.* At the start, firms were shown an animated video explaining how their ratings would be used to customize tender newsletters. Enumerators presented the video in person on tablets to ensure clarity of incentives.

A challenge with IRR-style experiments is ensuring respondents view each evaluation item as relevant. During piloting, respondents emphasized that they screen adverts in newspapers or websites using the title of the tender. They review the details of the tender only if the title indicates that the tender matches their precise business activity. We therefore introduced a "qualify/disqualify" step: firms were shown the title of the tender and they could skip tenders outside their business scope.

Each firm ultimately rated 10 tenders: 6 linked to PDEs they were familiar with (and for which we had elicited perceptions) and 4 from other PDEs or large private buyers, included to enhance realism.

For each tender, firms were asked "If you see this tender notice from this entity, how interested would you be in bidding for this contract?" and rated their interest in bidding on a 1–10 scale.[35] This *Interest* measure is our primary dependent variable. We also construct a second measure (*Likelihood*), measuring the perceived likelihood of winning,

[32]See Appendix C for full question wording.
[33]To reinforce realism, we used 32 templates inspired by real newspaper adverts.
[34]Our team manually checked all randomly generated tenders for consistency.
[35]We indicated that 1–2 means "little interest," 3–4 "some interest," 5–6 "high interest," 7–8 "very high interest," and 9–10 "perfect match."

on a similar 1-10 scale. Specifically, for each tender, we asked "Assume that you have submitted a bid for this contract. How likely do you think it is that you win?"

4.1.4. *Results.* We estimate the following baseline specification at the firm–tender level:

$$y_{ip} = \alpha_p + \Gamma_{ip}^{'}\beta + X_i^{'}\delta + Z_p^{'}\eta + \varepsilon_{ip}, \tag{4.1}$$

where y_{ip} is *Interest* or *Likelihood* for firm i and tender p. The matrix Γ_{ip} captures i's perceptions of the PDE in tender p. It also includes a dummy equal to one if the firm has ever bid for a contract advertised by the PDE in the past, a dummy equal to one if the firm has ever won a contract with the PDE in the past, and a dummy equal to one if the firm knows officials working at the PDE. The matrix X_i includes a dummy equal to one if the firm is active in Kampala, a dummy equal to one if the firm is active in the construction sector, and their interactions.[36] The matrix Z_p includes randomized tender characteristics, fixed effects for the order in which the hypothetical tender was shown to the respondent, and PDE fixed effects, so that we are comparing differences in perceptions for the same PDE across different firms.[37] Standard errors are clustered at the firm level.

Figure 5 shows that firms' interest in public tenders is strongly influenced by both their perceptions and prior experiences with PDEs (blue coefficients) and by observable tender characteristics (green coefficients).[38] Among perception-related factors, the most influential drivers are beliefs that the PDE avoids corruption, fosters competition, and has timely procurement processes. Among tender characteristics, feedback promised to bidders stands out as particularly important, while tenders funded by the government (as opposed to international donors) are associated with significantly lower levels of interest.[39]

The effects are sizable: a one standard deviation decrease in perceived corruption raises *Interest* by 0.07 standard deviations, while higher perceived competition raises it by 0.15. These effects are greater or equal to the effect of having previously won a contract with the PDE (0.10). Thus, perceptions about corruption and competition matter even more than direct positive winning experiences with the PDE. The effects of these integrity-related variables are also larger than nearly all other tender characteristics.

[36]These correspond to the strata fixed effects used in the same sample for the information intervention part of the experiment, as discussed next in Section 4.2.
[37]For each tender characteristic, we construct an indicator variable as described in Appendix Table A.12.
[38]All coefficients are standardized in order to make their magnitude comparable across different variables.
[39]Appendix Figure A.5 shows that results for *Likelihood* to win a tender follow similar patterns. For example, respondents think they are much less likely to win a contract they bid for when the contract award is determined by a PDE that is seen as highly corrupt.

The key advantage of our approach is that we can control for a wide set of characteristics of the tender, which could be systematically related to beliefs.[40] This makes this design particularly well-suited to identify the relative importance of different potential barriers to participation in public procurement. However, firms' perceptions are clearly not randomly assigned across PDEs, which motivates the need for our Experiment #2, which we discuss next after a deeper analysis of firms' perceptions of public entities.

4.2. **Distribution of Firms' Perceptions Relative to the Wisdom of the Crowd and to Government Audits.** Although firms generally view procurement as corrupt, they vary in how they rate different PDEs. We use two benchmarks to quantify this variation.

First, we construct PDE-specific "market perception scores" by averaging firms' ratings from the Experiment #1 midline survey on six dimensions: *timely completion*, *timely payment*, *feedback*, *personal connections*, *corruption*, and *compliance score*. We re-scale these scores to be between 0 and 1. Appendix Figure A.6, Panel A, shows wide variation across PDEs for each of these indicators. For example, the corruption score at the 25th percentile PDE is 0.46, compared to 0.57 at the 75th percentile.

Second, we use PPDA audits from 2014–2019 (see Section 2.2), which score PDEs on four indicators: *timely completion*, *timely payment*, *compliance score*, and *timely procurement process*. These "audit scores" also display substantial variation across PDEs (Appendix Figure A.6, Panel B).[41]

To measure firm-level deviations from these scores, we compute:

$$score_{ip}^{k} = \bar{x}_{p}^{k} - x_{ip}^{k},$$

where $\bar{x}_{p}^{k}$ is the market perception or audit score for PDE p on dimension k, and x_{ip}^{k} is firm i's perception (also expressed on a 0-1 scale). The deviations range from -1 to 1, and larger deviations from 0 indicate greater misperceptions towards PDE p by firm i relative to the score along dimension k.[42] For example, a deviation of 0.3 for the compliance index for firm i and entity p means that firm i believes that the share of contracts characterized by poor compliance for entity p is 30 percentage points higher than what observed in the market perceptions or in the audit score.

[40]For example, PDEs that usually publish tenders characterized by greater administrative requirements might be perceived as more corrupt. However, firms might be less likely to bid for those tenders because of the greater administrative burden rather than because of beliefs that the PDE is corrupt.

[41]PPDA assigned a score from 0 to 100 on each indicator. As for the "market perceptions scores," we converted these scores on a 0-1 scale.

[42]Some dimensions exist only in one dataset: *timely procurement* appears only in the audits, while *feedback*, *personal connections*, and *corruption* appear only in the market perceptions.

Figure 6 shows the distributions of these deviations. Misperceptions are common and large, relative to both market perceptions and audit scores: 49% of firm–PDE pairs are more than 30 percentage points "off" the market consensus for corruption (i.e., relative to the "wisdom of the crowd"). In other words, 49% of firms are either significantly "overoptimistic" or significantly "overpessimistic" on the level of corruption of the PDE. As another example, 38% are similarly off relative to audit scores for timely payment.

4.3. **Changing (Mis)Perceptions.** Motivated by this variation, Experiment #2 provided firms with information designed to correct misperceptions. In particular, firms are frequently overly *pessimistic* about PDE integrity relative to both market averages and audit findings. The goal of this information treatment is to increase the amount of information on which a firm can rely in order to form beliefs about the integrity of specific PDEs.

4.3.1. *Experimental Design.* We created user-friendly physical reports summarizing PDE scores across dimensions of integrity, one based on market perceptions and one on audits.[43] For the audit scores, our reports condensed lengthy, unstructured documents compiled by PPDA into simple comparative tables. Examples of introductory explanations and report templates appear in Appendix Figures A.7 and A.8.

We randomly assigned the 524 firms to three groups. All eventually received both reports, but timing varied: (i) the market perceptions report at baseline and the audit report at endline ($N = 171$), (ii) the reverse ordering ($N = 169$), or (iii) both reports only at endline (control, $N = 184$). We are interested in whether receiving hard information about the integrity of PDEs at baseline affects procurement activity during the course of the next seven months (i.e. when the endline is conducted). Assignment was stratified by sector (construction, supplies, services) and location (Kampala vs. rest of country). Appendix Table A.13 shows baseline balance.[44] All firms also continued receiving bi-weekly newsletters with tender opportunities, which ensured that information about available tender opportunities was not a meaningful friction for the firms in this study.

We estimate treatment effects on bids and contracts won using an equation similar to 3.1 (which we used for Experiment #1):

$$y_{i1} = \alpha + \beta T_i + \gamma y_{i0} + s_i + X_i^{'}\delta + \varepsilon_i, \tag{4.2}$$

[43]The number of PDEs appearing in the market perceptions report (i.e., mentioned by the sample of firms interviewed to generate this report) and in the audit scores report (i.e., audited by PPDA) are 264 and 204, respectively.

[44]See Appendix Table B.2 in Appendix D for a definition of all the baseline variables.

and separately identify effects by report type with:

$$y_{i1} = \alpha + \beta_1 T_i^{MP} + \beta_2 T_i^{A} + \gamma y_{i0} + s_i + X_i^{'}\delta + \varepsilon_i, \tag{4.3}$$

where y_{i1} is the outcome of interest for firm i measured at endline (top-winsorized at the 99% level), T_i is an indicator equal to one if firm i receives one of the reports, while T_i^{MP} and T_i^{A} are indicators equal to one if firm i receives the *market perceptions* or the *audits* report, respectively. We control for y_{i0}, i.e., the outcome measured at baseline, for strata fixed effects s_i, and for a set of controls $X_i^{'}$ selected using the PDS lasso procedure.

4.3.2. *Impact on Overall Procurement Participation.* Columns 1 and 3 of Table 3 show that, over the seven months following receipt of the report, treated firms submit 20% more bids—although the estimated coefficient is marginally statistically insignificant—and win 37.6% more contracts. These results indicate that the intervention is particularly effective at increasing the number of bids that translate into contract awards. Column 5 further quantifies this effect by examining the treatment effect on the ratio of contracts won to total bids submitted, restricting the sample to firms that submitted at least one bid during the period. Treated firms exhibit an 18% higher probability of winning a contract relative to firms in the control group.

Effects are concentrated in the market perceptions treatment: firms receiving this report win 50% more contracts and their bids have a 22% higher winning probability relative to controls. In contrast, audits had little effect, suggesting that firms place more trust in peer-based perceptions than in government audits. Even if we cannot reject that the two coefficients are equal, this is consistent with a general mistrust of government entities (in this case, of the primary anti-corruption body) among firms doing business with the government.[45]

Lee bounds (Appendix Table A.14, Panel C) confirm positive treatment effects even under conservative assumptions on patterns of attrition. The lower bound is likely to occur if the least active firms attrit in the treatment group (de Mel et al., 2008). Attrition was somewhat higher among treated firms with more bids measured at baseline, suggesting our estimates are closer to the upper Lee bound.

4.3.3. *Effects Are Driven by Beliefs' Updating.* In this section, we show that the positive treatment effect on contracts won is driven by an increased procurement activity directed towards PDEs that are revealed by the report to be of higher integrity than what firms initially perceived. To do this, we construct an $N \times J$ matrix where each entry represents a firm–PDE pair, linking the N firms in our sample to the J PDEs covered in the

[45]Appendix Table A.14, Panel B, shows that results are similar if we estimate a simple OLS regression instead of using the PDS lasso procedure.

report. Focusing primarily on the market perceptions report, we estimate the following specification:

(4.4)
$$y_{ij1} = \alpha_i + \gamma_j + \beta_1 T_i \times Mentioned_{ij} \times TOP_j + \beta_2 T_i \times Mentioned_{ij} + \beta_3 T_i \times TOP_j + \\ + \beta_4 Mentioned_{ij} \times TOP_j + \beta_5 Mentioned_{ij} + s_i + \varepsilon_i,$$

where y_{ij1} is the outcome (bids or contracts won) for firm i and PDE j. T_i indicates whether firm i received the report, $Mentioned_{ij}$ equals one if firm i reported familiarity with PDE j at baseline, and TOP_j equals one if PDE j was ranked among the top decile in integrity in the report. These "top" PDEs appeared prominently on the front page of the report and should be most salient to firms. We include firm fixed effects (α_i), to control for a firm's overall procurement participation, and PDE fixed effects (γ_j), to absorb PDE-specific unobservables driving participation with specific PDEs.[46] Standard errors are double clustered by firm and by PDE. If the report leads firms to update their priors about PDE integrity, we expect effects concentrated among familiar PDEs identified as high-integrity.

Table 4, columns 1 and 3, confirms this prediction. Treated firms bid significantly more and won more contracts with PDEs they were familiar with and that appeared in the top decile of the market perceptions report. The magnitudes are large: relative to controls, treated firms more than tripled their bids and contracts won with these PDEs. By contrast, effects are precisely estimated zeros for PDEs familiar to firms but outside the top decile or for high-integrity PDEs unfamiliar to firms at baseline. These results suggest that the treatment worked by highlighting high-integrity PDEs about which firms already held some beliefs.[47]

Theoretically, these effects could reflect confirmation or correction of priors. Confirmation would imply that firms with already positive beliefs increased engagement when the report validated those views. Correction would imply that firms with negative priors increased engagement when the report contradicted them. To distinguish these mechanisms, we re-estimate a version of equation 4.4 replacing $Mentioned_{ij}$ with indicators for whether a firm's prior about a PDE was pessimistic, optimistic, or aligned with market perceptions. To do so, for each PDE and for each firm, we compute the firm's average rating of the PDE across all dimensions of integrity. We then calculate the deviation of

[46]The sample includes all PDEs (212 out of the 264 in the market perceptions report) for which at least one firm in the group receiving the market perceptions report or in the control group had either bidding activity or familiarity at baseline.

[47]Consistent with the limited effects of the audits report overall, we detect no meaningful heterogeneity in the same analysis for that treatment, as shown in Appendix Table A.15.

this average from the average across the ratings of the PDE in the market perceptions report. By construction, these deviations range from -1 to 1. We define firms as "pessimists" about a PDE if the deviation is between -1 and -0.05, as "optimists" about a PDE if the deviation is between 0.05 and 1, and "about right" about a PDE if the deviation is between -0.05 and 0.05.[48]

Results, reported in columns 2 and 4 of Table 4, show that the treatment effect is driven by pessimists.[49] For these firm–PDE pairs, the number of bids increased by about 0.8 from a baseline of 0.241, and contracts won rose from zero to 0.7 per firm–PDE pair over the seven months of our intervention. There is no effect on contracts won among optimistic firms, while the effect on bids is noisily estimated and much smaller in magnitude relative to the mean of the dependent variable. These results suggest that the market perceptions report was effective because it corrected overly negative beliefs about PDE integrity, rather than merely confirming existing optimism.

5. Conclusion

This paper examines how transparency frictions and corruption perceptions affect firm participation in public procurement. Identifying the causal role of these factors is challenging: information, perceptions, and outcomes are typically jointly determined. For example, firms less engaged in procurement may also invest less in acquiring information about tenders or public entities. Moreover, e-procurement reforms usually arrive as policy bundles, combining transparency with other changes. Finally, rich micro-data on both information and perceptions alongside firm behavior are rare, especially in low-income settings.

To overcome these challenges, we implemented two nationwide information interventions in Uganda. The first reduced frictions in access to procurement opportunities by approximating a centralized tender portal. The second aimed to correct firms' perceptions of the integrity of public entities.

We find that greater transparency about tender opportunities made firms more informed but did not increase their willingness to do business with the government. The fact that neither this intervention nor a strengthened treatment with simple financial and educational support increased participation indicates that reducing these commonly cited barriers is insufficient to foster competition in public procurement. By contrast, providing

[48]Following these definitions, 44 percent of firm-PDE pairs are coded as "pessimists", 46 percent of firm-PDE pairs are coded as "optimists", and 10 percent of firm-PDE pairs are coded as "about right." The pre-analysis-plan for Experiment #2 specified heterogeneity by PDE quality as measured in the integrity report. The heterogeneity by firms' prior beliefs about PDE quality was not pre-specified.

[49]Appendix Table A.16 reports a full version of the table showing coefficients for all additional interaction terms.

credible information about the integrity of specific public entities significantly increased both bidding and contracting, consistent with firms' own emphasis on corruption and integrity concerns. The evidence suggests that firms responded by revising overly pessimistic priors about these entities. In environments characterized by low transparency and widespread perceptions of corruption, inaccurate beliefs about government integrity may thus act as a critical barrier to firm participation in public procurement (Olken, 2009; Bursztyn and Yang, 2022).

These results, already shared with policy-makers in Uganda, have direct implications for ongoing procurement reforms in developing countries. While e-procurement platforms typically emphasize transparency about tender opportunities, our findings suggest that such reforms may have limited impact on competition unless paired with broader efforts to improve firms' perceptions of government integrity.

Naturally, our conclusions are based on the Ugandan context, where negative perceptions of public entities appear pervasive and reliable information scarce. While we believe the results speak to similar settings, especially across Africa, further research on transparency reforms in other procurement markets is essential. Moreover, our finding that firms avoid government contracts due to mistrust of entity integrity points to potential adverse consequences for the quality of public service delivery. While this is beyond the scope of our paper, exploring how negative selection into firm–government relationships affects service provision is an important avenue for future work.

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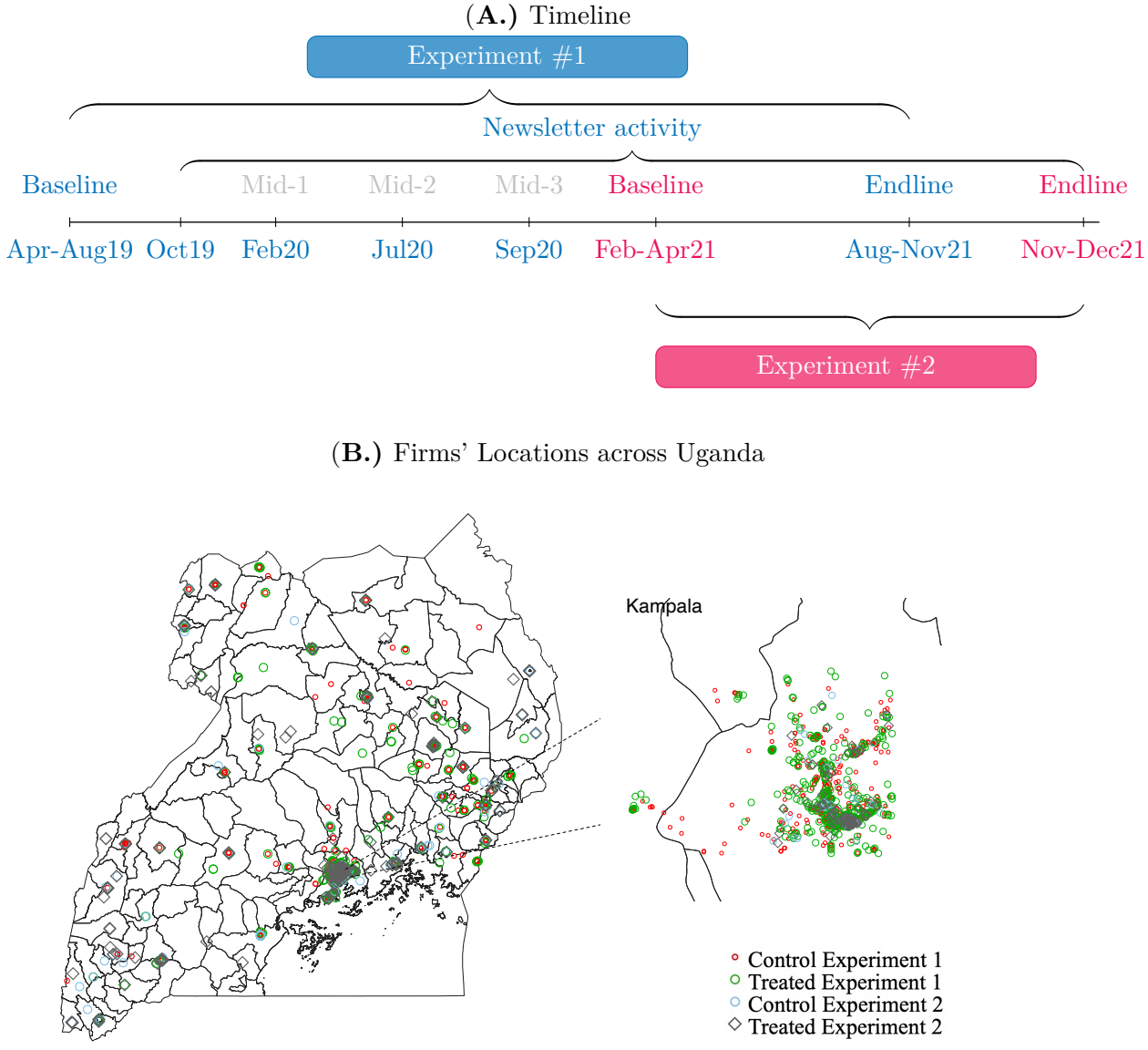
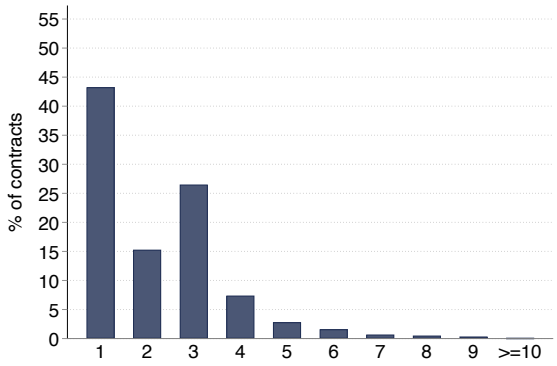
FIGURE 1. Survey Timeline and Firms' Location

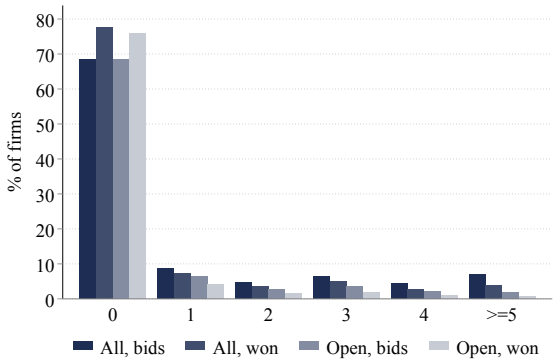


Notes: Panel A shows the timeline of the project's activities. We started the baseline data collection of Experiment #1 in April 2019 and carried out three more data collections in February 2020 (Midline 1), July 2020 (Midline 2), and September 2020 (Midline 3). Between August and November 2021, we carried out the endline data collection for Experiment #1. The newsletter activity took place between October 2019 and December 2021. The baseline data collection of Experiment #2 began in February 2021 and lasted until April 2021. The endline took place in November and December 2021. Panel B shows the map of the location of the firms that took part in our two experiments. Each dot represents a firm participating either in Experiment #1 (control firms are in red and treated firms are in green) or in Experiment #2 (control firms are in light blue and treated firms are in gray).

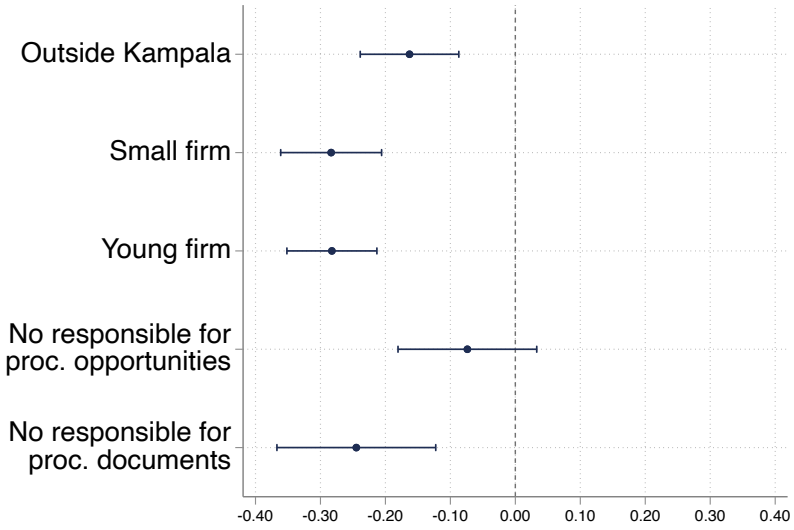
FIGURE 2. Competition in the Public Procurement Market in Uganda



(**A.**) Bids per contract



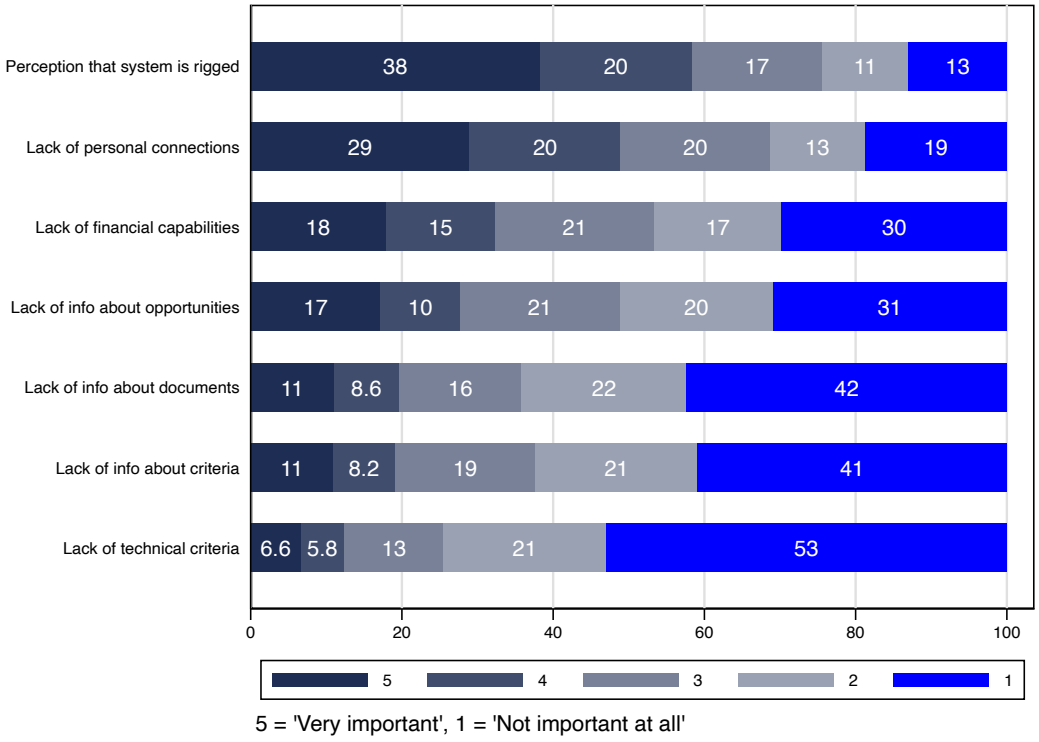
(**B.**) Bids and contracts won



(**C.**) Who bids less?

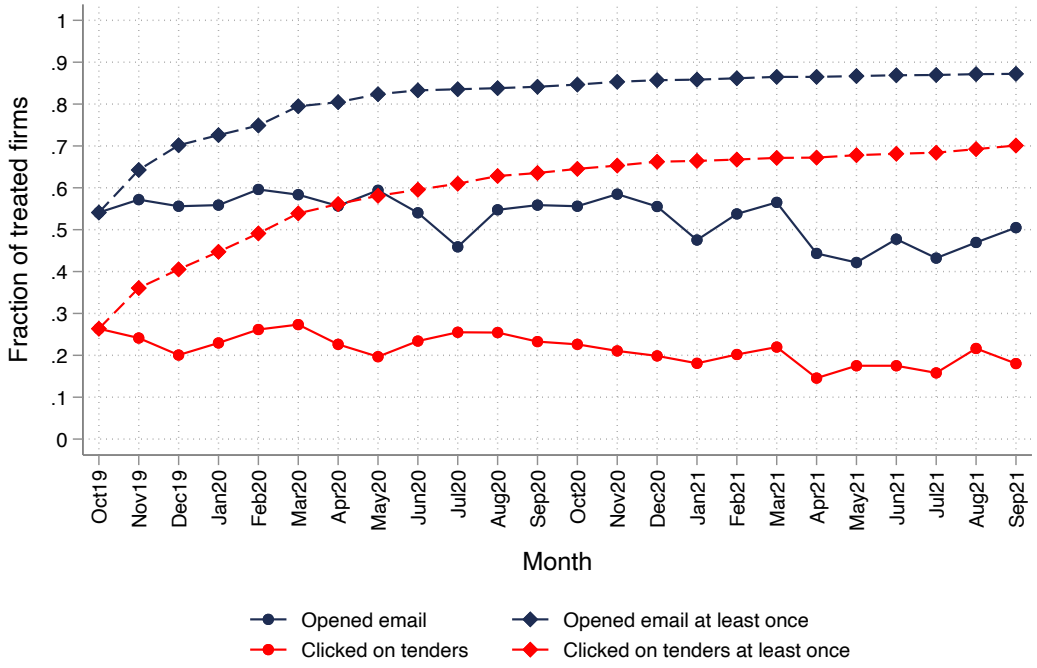
Notes: Panel A shows the distribution of the number of bids per contract in the administrative data, focusing on competitive contracts. Panel B shows the distribution of firms by number of bids submitted and contracts won during the 3 fiscal years prior to the experiment, that is 2016/2017, 2017/2018 and 2018/2019. The sample of firms includes all those that appear in either the ROP or the pre-qualification lists that we collected in the fiscal year before the start of our experiment (i.e., 2018/2019). Bars labeled with *All* include all contracts, while bars labeled with *Open* include open bidding contracts. Panel C reports the coefficients and 95% confidence intervals from a firm-level regression, using data from the baseline survey of Experiment #1. The dependent variable is the number of bids submitted in the 2017–2018 fiscal year. *Outside Kampala* is a dummy equal to 1 if the firm's headquarters are located outside the city of Kampala. *Small firm* is a dummy equal to 1 if the firm has fewer than five employees. *Young firm* is a dummy equal to 1 if the firm was established less than five years prior to the baseline year. *No responsible for proc. opportunities* and *No responsible for proc. documents* are dummies equal to 1 if the firm has no employee responsible for searching for public procurement opportunities or for preparing bid documents, respectively. Coefficients are normalized by the value of the dependent variable when the value of the indicator equals 0.

FIGURE 3. Barriers to Firms' Participation in Public Procurement



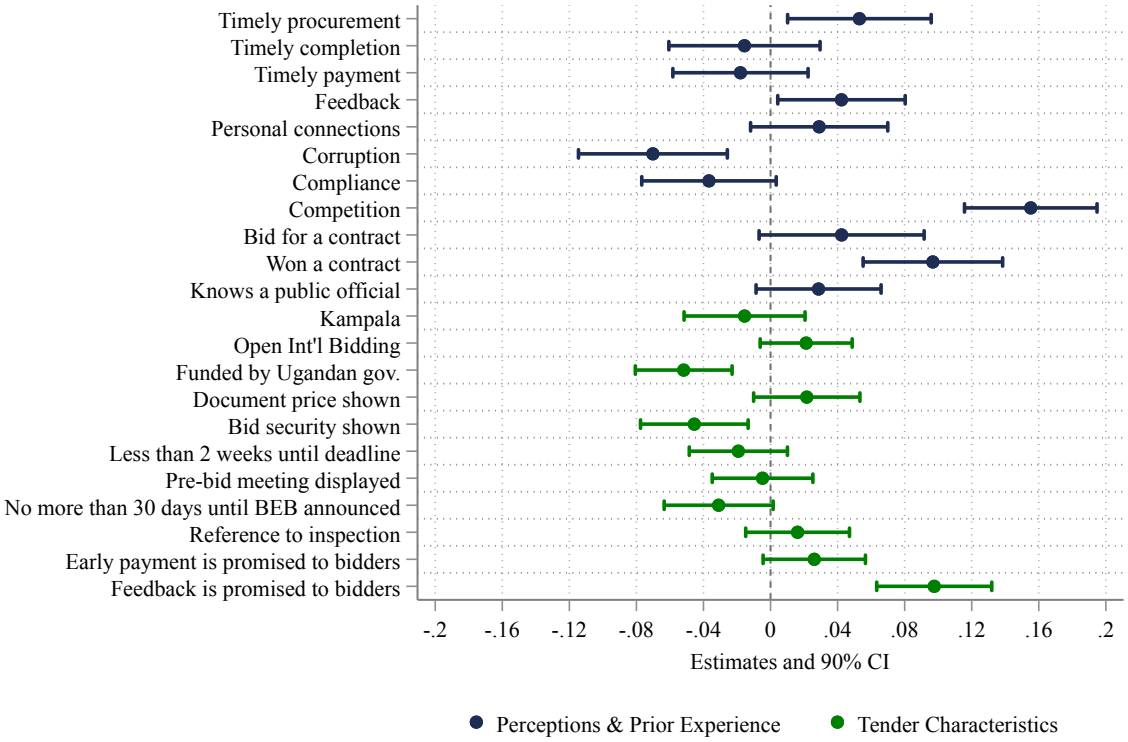
Notes: This figure shows the percentage of respondents by type of answers to the following question: *"How important are the following factors in explaining why your business is not bidding for or winning more public procurement contracts?"* in the baseline survey of Experiment #1. The factors were: "Perception that the system is rigged discourages you from participating more actively in procurement," "Lack of personal connections to public officials or politicians," "The firm lacks adequate financial capabilities to be successful in the public procurement market," "Lack of adequate and timely information about available opportunities," "Lack of adequate information about documents to be submitted for bidding (which documentation to submit or how to compile it)," "Lack of adequate knowledge of the criteria to assign a contract," "The firm lacks adequate technical qualifications to be successful in the public procurement market." Respondents were asked to score each of the factors on a scale between 1 and 5, where 1 means "Not important at all" (light blue) and 5 means "Very important" (dark blue).

FIGURE 4. Number of Firms Opening and Clicking on Newsletter Emails



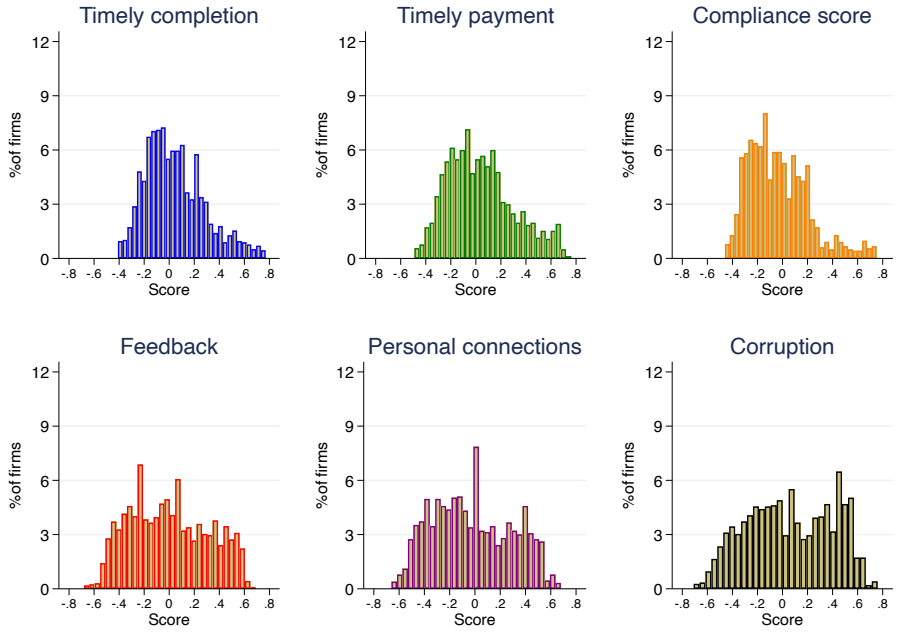
Notes: This figure plots the fraction of firms in the treatment group of Experiment #1 that opened at least one email (blue) and that clicked on at least one tender link (red). The circles (continuous lines) indicate the fraction of firms doing so in a given month, while the diamonds (dashed lines) indicate the cumulative fraction over time.

FIGURE 5. Identifying Drivers of Firms' Interest in Public Tenders



Notes: The figure presents the standardized coefficients from Equation 4.1, together with their 90 percent confidence intervals. The blue coefficients show the estimated effects of firms' perceptions and experiences with PDEs—the terms captured by Γ_{ip}. The green coefficients show the tender characteristics captured by Z_p in Equation 4.1. The outcome variable is the firm's *Interest* in a tender, measured on a 1–10 scale. The estimation includes order and PDE fixed effects. See Section 4.1 for additional details.

FIGURE 6. Deviations of Firms' Perceptions from Market Perceptions and Audits Reports



(**A.**) Distribution of Scores from Market Perceptions Reports

(**B.**) Distribution of Scores from Audits Reports

Notes: Panel A plots the distributions of the deviations of firms' perceptions regarding each public entity from the scores reported in the market perceptions report. Panel B plots the distributions of the deviations of firms' perceptions regarding each public entity from the scores reported in the audit report. Each sub-panel shows deviations along one dimension of PDE integrity. Deviations are normalized to be between 0 and 1. See Section 4.2 for details. The further away the distribution is from 0, the larger the dispersion of beliefs regarding public entities' performance.

TABLE 1. Baseline Firm Characteristics

Variable	N	Mean	Median	SD	p10	p90
Panel A: Experiment #1						
Sector: Construction	3,045	0.284	0.000	0.451	0	1
Sector: Supplies	3,045	0.301	0.000	0.459	0	1
Sector: Services	3,045	0.415	0.000	0.493	0	1
HQ in Kampala	3,045	0.591	1.000	0.492	0	1
Firm age	3,045	9.293	7.000	7.361	3	19
Female owner	3,045	0.193	0.000	0.395	0	1
Total employees	3,045	25.885	12.000	103.357	3	47
PP contracts bidded for	3,045	4.638	3.000	10.682	0	10
PP contracts won	3,045	2.352	1.000	5.740	0	5
Panel B: Experiment #2						
Sector: Construction	524	0.424	0.000	0.495	0	1
Sector: Supplies	524	0.630	1.000	0.483	0	1
Sector: Services	524	0.531	1.000	0.500	0	1
HQ in Kampala	524	0.427	0.000	0.495	0	1
Firm age	522	10.013	8.000	7.351	3	19
Female owner	524	0.160	0.000	0.367	0	1
Total employees	524	20.885	11.000	34.412	3	41
PP contracts bidded for	524	5.872	3.000	10.391	0	12
PP contracts won	524	2.308	1.000	4.178	0	5

Notes: Panel A reports summary statistics on baseline individual characteristics of the 3,045 firms in the sample for Experiment #1. Panel B reports summary statistics on baseline individual characteristics of the 524 firms in the sample for Experiment #2. *Sector: Construction*, *Sector: Supplies*, and *Sector: Services* are dummies equal to 1 if the core business of the firm falls under one of these categories. *HQ in Kampala* is a dummy equal to 1 if the headquarter of the firm is located in the city of Kampala. *Firm age* is the number of years since the firm was created. *Female owner* is a dummy equal to 1 if the owner of the business is a woman. *Total employees* is the sum of permanent and temporary employees currently employed in the firm. *PP contracts bidded* and *PP contracts won* are the total number of tenders the firm won and bid for, respectively, in the fiscal year preceding the experiment.

TABLE 2. Experiment #1: Transparency about Tender Opportunities Does Not Affect Participation

Panel A: Main outcomes

	Endline		Midline		Endline	
	(1)	(2)	(3)	(4)	(5)	(6)
	Lack of info	*Newspapers*	*Bids*	*Won*	*Bids*	*Won*
Information treat	-0.114*	-0.125**	0.111	0.033	-0.359	-0.191
	(0.064)	(0.052)	(0.173)	(0.052)	(0.256)	(0.122)
	[0.074]	[0.017]	[0.521]	[0.524]	[0.160]	[0.117]
Firms	2104	2107	2357	2355	2114	2114
Mean DV Control	2.357	4.241	2.541	0.561	4.070	1.743

Panel B: Intermediate actions

	Midline	Endline	Endline	Midline	Endline
	(1)	(2)	(3)	(4)	(5)
	Inspections	*Inspections*	*Bought doc.*	*Prequalif.*	*Prequalif.*
Information treat	0.074	0.108	-0.452	-0.020	0.022
	(0.077)	(0.740)	(0.342)	(0.030)	(0.064)
	[0.341]	[0.884]	[0.187]	[0.493]	[0.728]
Firms	2670	2114	2114	2670	2114
Mean DV Control	0.816	7.755	4.464	0.391	0.757

Notes: This table shows coefficients, robust standard errors (in parentheses), and p-values (in square brackets) from estimating Equation 3.1. *Information treat* is an indicator equal to 1 if the firm is assigned to the group receiving information about tender opportunities. In Panel A the dependent variables are: continuous variable from one to five reporting firms' answers to the question "How important is lack of information on available procurement opportunities in explaining lack of bidding in your firm, on a scale from one to five?" (column 1); continuous variable from one to five reporting firms' answer to the question "How important are newspapers as a source of information on tenders, on a scale from one to five?" (column 2); number of bids submitted between March and September 2020 (column 3); number of contracts won between March and September 2020 (column 4); number of bids submitted between October 2020 and November 2021 (column 5); number of contracts won between October 2020 and November 2021 (column 6). Number of bids and contracts won are top 1% winsorized. In Panel B the dependent variables are: total number of contracts inspected between March and September 2020 (column 1) and between October 2020 and November 2021 (column 2); number of contracts for which the firm has bought any bidding document between October 2020 and November 2021 (column 3); total number of pre-qualifications made between March and September 2020 (column 4); total number of pre-qualifications made between October 2020 and November 2021 (column 5). Controls in both panels include 12 strata fixed effects, the value of the dependent variable measured at baseline, and a set of controls measured at baseline and selected using a post-double selection lasso procedure out of those for which there were no missing among the firms that participated in the endline survey. ***, **, *, indicate significance at the 1%, 5%, and 10% levels, respectively.

TABLE 3. Experiment #2: Correcting Misperceptions Increases Firm Participation and Success

	Total bids		*Contracts won*		*Contracts/Bids*	
	(1)	(2)	(3)	(4)	(5)	(6)
Integrity Information	0.441		0.335**		0.073*	
	(0.309)		(0.169)		(0.044)	
	[0.154]		[0.048]		[0.098]	
Market Perceptions		0.571		0.447**		0.088*
		(0.390)		(0.219)		(0.052)
		[0.143]		[0.041]		[0.089]
Audits Scores		0.307		0.221		0.058
		(0.378)		(0.200)		(0.052)
		[0.417]		[0.269]		[0.262]
Firms	445	445	445	445	330	330
Mean DV Control	2.579	2.579	1.024	1.024	0.408	0.408
H_0: Market Perc. = Audits		0.560		0.364		0.577

Notes: This table shows coefficients, robust standard errors (in parentheses) and p-values (in square brackets) from estimating Equation 4.2 (columns 1 and 3), and Equation 4.3 (columns 2 and 4); *Integrity Information* is an indicator for being assigned to either one of the treatment arms; *Market Perceptions* and *Audits Scores* are indicators for being assigned to receiving either the market perceptions report or the audits report. The dependent variables are: total number of bids between May 2021 and November 2021 (columns 1 and 2); total contracts won between May 2021 and November 2021 (columns 3 and 4); the ratio of total contracts won to the total number of bids between May 2021 and November 2021 (columns 5 and 6). Controls include 4 strata fixed effects, the value of the dependent variable measured at baseline, and a set of controls measured at baseline and selected using a post-double selection lasso procedure out of those for which there were no missing among the firms that participated in the endline survey. ***, **, *, indicate significance at the 1%, 5%, and 10% levels, respectively.

TABLE 4. Experiment #2: Effects Concentrated in High-Integrity PDEs with Negative Firm Perceptions

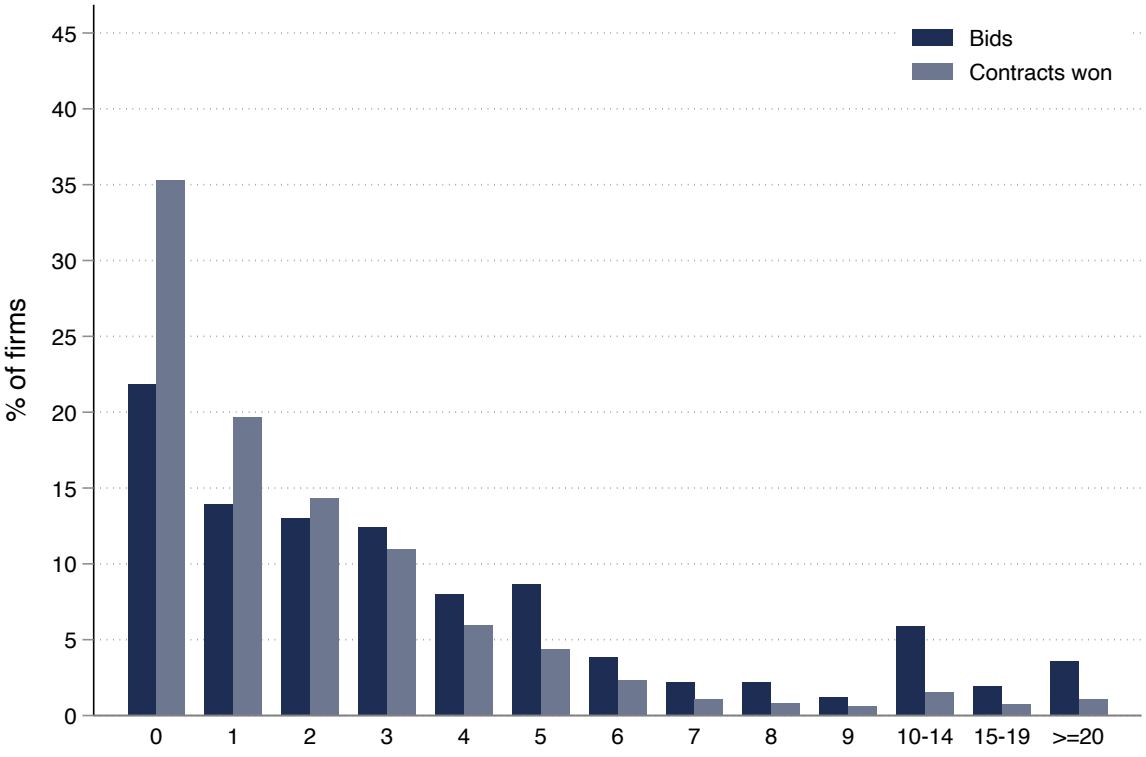
	Total bids		*Contracts won*	
	(1)	(2)	(3)	(4)
Treated × Mentioned × Top	0.823***		0.314**	
	(0.286)		(0.141)	
	[0.004]		[0.027]	
Treated × Mentioned	-0.015		0.024	
	(0.068)		(0.041)	
	[0.823]		[0.563]	
Treated × Top	-0.002	-0.001	-0.002	-0.001
	(0.002)	(0.002)	(0.001)	(0.001)
	[0.214]	[0.565]	[0.100]	[0.310]
Treated × Optimist × Top		0.888		-0.263
		(0.685)		(0.407)
		[0.196]		[0.519]
Treated × Pessimist × Top		0.822**		0.674***
		(0.414)		(0.172)
		[0.048]		[0.000]
Treated × About Right × Top		0.127		-0.239
		(0.297)		(0.187)
		[0.669]		[0.202]
Observations	64872	64872	64872	64872
N. firms	306	306	306	306
N. PDEs	212	212	212	212
Mean DV Control and top mentioned	0.327		0.143	
Mean DV Control and top among optimists		0.600		0.500
Mean DV Control and top among pessimists		0.241		0.000

Notes: This table shows coefficients, standard errors (in parentheses), and p-values (in square brackets) from estimating Equation 4.4. The unit of observation is a firm-PDE pair. *Treated* is an indicator equal to 1 if the firm received the market perceptions report, *Mentioned* is an indicator equal to 1 if the firm had mentioned the name of the PDE at baseline, and *Top* is an indicator equal to 1 if the PDE is in the top decile of the integrity distribution of the PDEs. *Optimist* is an indicator equal to 1 if the firm is optimistic about the integrity of the PDE; *Pessimist* is an indicator equal to 1 if the firm is pessimistic about the integrity of the PDE; *About Right* is a dummy equal to 1 if the firm is about right about the integrity of the PDE. The dependent variables are: a firm's total bids with the PDE (columns 1 and 3) and contracts won by the firm from the PDE (columns 2 and 4). Controls include 4 strata fixed effects, firm fixed effects, and PDE fixed effects. Standard errors are double clustered by firm and PDE. ***, **, *, indicate significance at the 1%, 5%, and 10% levels, respectively.

ONLINE APPENDIX

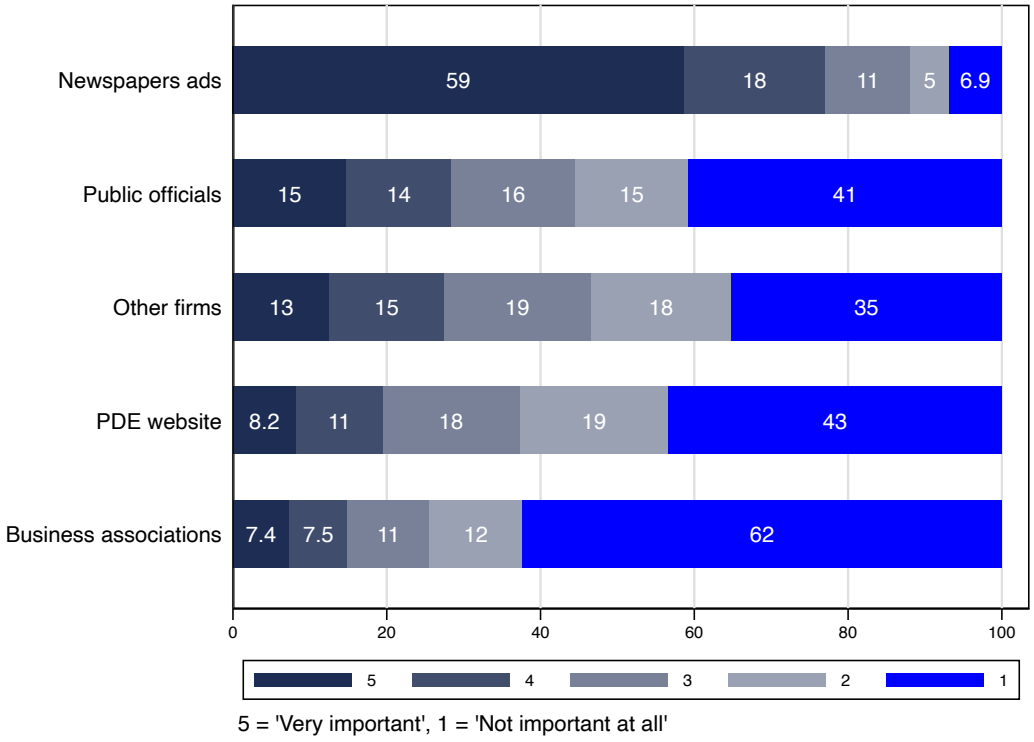
Appendix A. Figures and Tables

Figure A.1. Bids and Contracts Won, FY 17/18



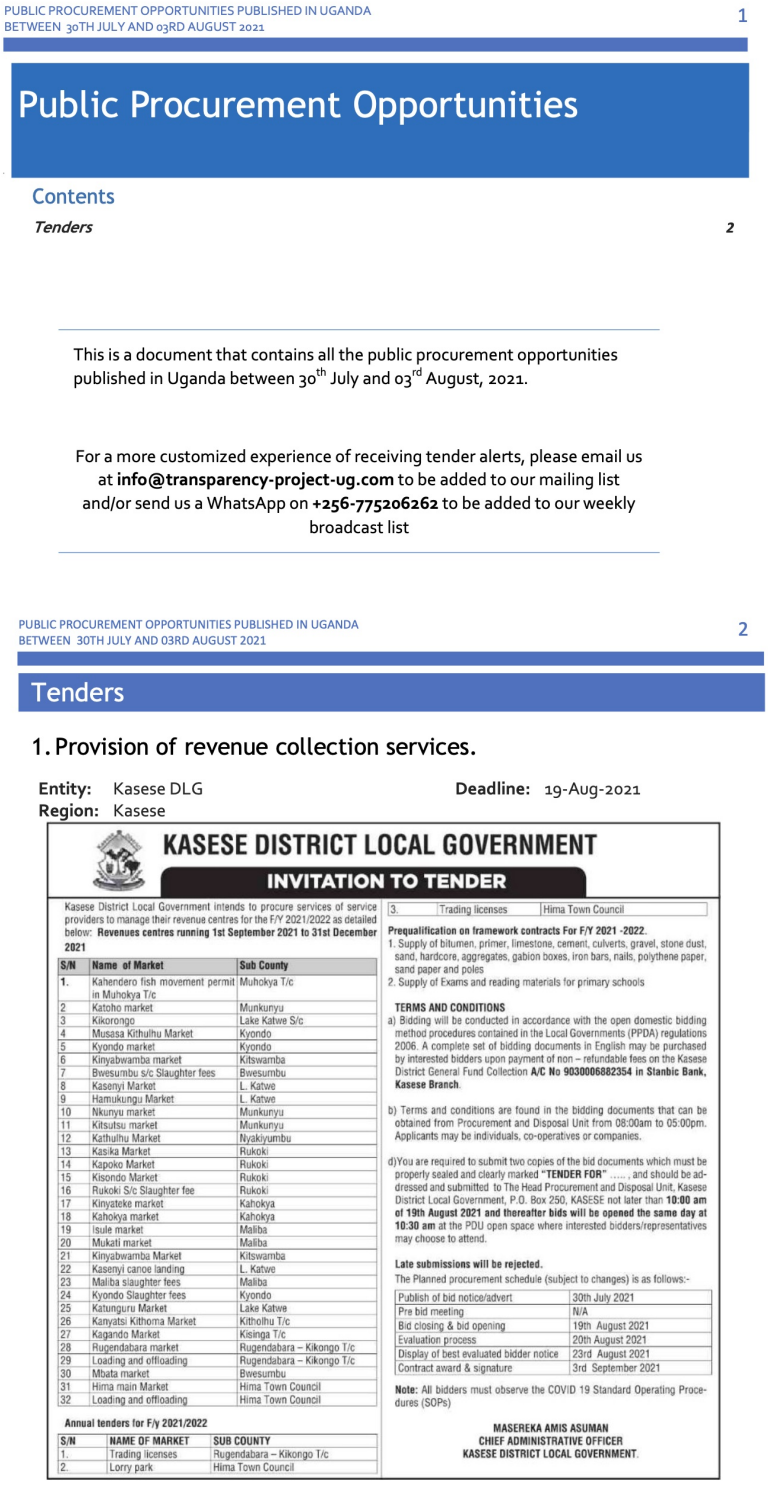
Notes: This figure shows the distribution of firms by number of bids submitted and contracts won during the fiscal year prior to the experiment, that is 2017/2018. The source for this figure is the baseline survey in Experiment #1.

FIGURE A.2. Sources of Information about Procurement Opportunities



Notes: This figure reports the percentage of respondents by type of answers to the following question: *How important is this source to obtain information about available public procurement opportunities?*, collected during the baseline survey of Experiment #1. Respondents were asked to score each source of information on the y-axis on a scale between 1 and 5, where 1 means "Not important at all" (light blue) and 5 means "Very important" (dark blue).

FIGURE A.3. Newsletter



PUBLIC PROCUREMENT OPPORTUNITIES PUBLISHED IN UGANDA
BETWEEN 30TH JULY AND 03RD AUGUST 2021 1

Public Procurement Opportunities

Contents

Tenders 2

This is a document that contains all the public procurement opportunities published in Uganda between 30th July and 03rd August, 2021.

For a more customized experience of receiving tender alerts, please email us at **info@transparency-project-ug.com** to be added to our mailing list and/or send us a WhatsApp on **+256-775206262** to be added to our weekly broadcast list

PUBLIC PROCUREMENT OPPORTUNITIES PUBLISHED IN UGANDA
BETWEEN 30TH JULY AND 03RD AUGUST 2021 2

Tenders

1. Provision of revenue collection services.

Entity: Kasese DLG **Deadline:** 19-Aug-2021
Region: Kasese

KASESE DISTRICT LOCAL GOVERNMENT

INVITATION TO TENDER

Kasese District Local Government intends to procure services of service providers to manage their revenue centres for the F/Y 2021/2022 as detailed below: **Revenues centres running 1st September 2021 to 31st December 2021**

S/N	Name of Market	Sub County
1.	Kahendero fish movement permit in Muhokya T/c	Muhokya T/c
2	Katoho market	Munkunyu
3	Kikorongo	Lake Katwe S/c
4	Musasa Kithulhu Market	Kyondo
5	Kyondo market	Kyondo
6	Kinyabwamba market	Kitswamba
7	Bwesumbu s/c Slaughter fees	Bwesumbu
8	Kasenyi Market	L. Katwe
9	Hamukungu Market	L. Katwe
10	Nkunyu market	Munkunyu
11	Kitsutsu market	Munkunyu
12	Kathulhu Market	Nyakiyumbu
13	Kasika Market	Rukoki
14	Kapoko Market	Rukoki
15	Kisondo Market	Rukoki
16	Rukoki S/c Slaughter fee	Rukoki
17	Kinyateke market	Kahokya
18	Kahokya market	Kahokya
19	Isule market	Maliba
20	Mukati market	Maliba
21	Kinyabwamba Market	Kitswamba
22	Kasenyi canoe landing	L. Katwe
23	Maliba slaughter fees	Maliba
24	Kyondo Slaughter fees	Kyondo
25	Katunguru Market	Lake Katwe
26	Kanyatsi Kithoma Market	Kitholhu T/c
27	Kagando Market	Kisinga T/c
28	Rugendabara market	Rugendabara – Kikongo T/c
29	Loading and offloading	Rugendabara – Kikongo T/c
30	Mbata market	Bwesumbu
31	Hima main Market	Hima Town Council
32	Loading and offloading	Hima Town Council

Annual tenders for F/y 2021/2022

S/N	NAME OF MARKET	SUB COUNTY
1.	Trading licenses	Rugendabara – Kikongo T/c
2.	Lorry park	Hima Town Council
3.	Trading licenses	Hima Town Council

Prequalification on framework contracts For F/Y 2021 -2022.

1. Supply of bitumen, primer, limestone, cement, culverts, gravel, stone dust, sand, hardcore, aggregates, gabion boxes, iron bars, nails, polythene paper, sand paper and poles
2. Supply of Exams and reading materials for primary schools

TERMS AND CONDITIONS

a) Bidding will be conducted in accordance with the open domestic bidding method procedures contained in the Local Governments (PPDA) regulations 2006. A complete set of bidding documents in English may be purchased by interested bidders upon payment of non – refundable fees on the Kasese District General Fund Collection **A/C No 9030006882354 in Stanbic Bank, Kasese Branch.**

b) Terms and conditions are found in the bidding documents that can be obtained from Procurement and Disposal Unit from 08:00am to 05:00pm. Applicants may be individuals, co-operatives or companies.

d) You are required to submit two copies of the bid documents which must be properly sealed and clearly marked **"TENDER FOR"** ….., and should be addressed and submitted to The Head Procurement and Disposal Unit, Kasese District Local Government, P.O. Box 250, KASESE not later than **10:00 am of 19th August 2021 and thereafter bids will be opened the same day at 10:30 am** at the PDU open space where interested bidders/representatives may choose to attend.

Late submissions will be rejected.

The Planned procurement schedule (subject to changes) is as follows:-

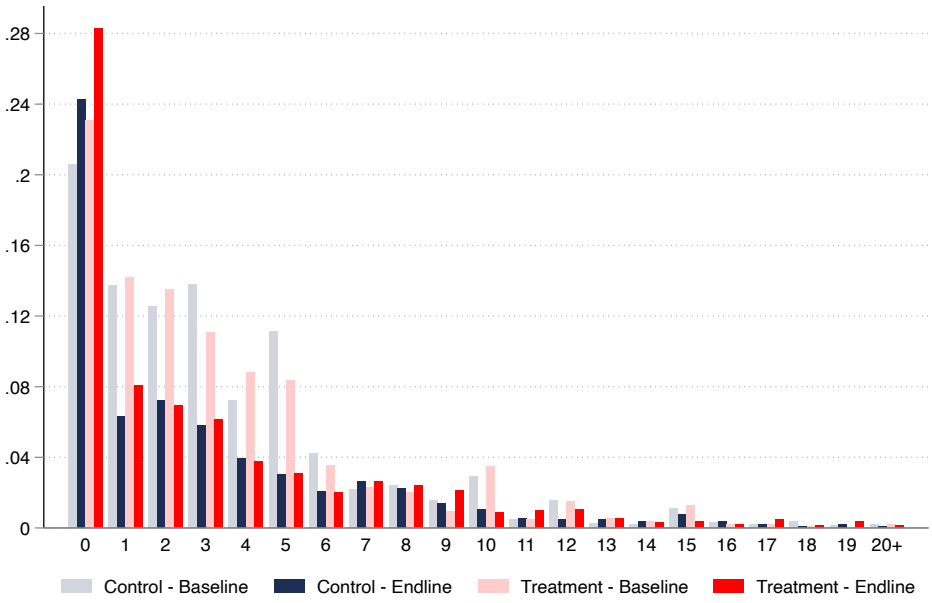
Publish of bid notice/advert	30th July 2021
Pre bid meeting	N/A
Bid closing & bid opening	19th August 2021
Evaluation process	20th August 2021
Display of best evaluated bidder notice	23rd August 2021
Contract award & signature	3rd September 2021

Note: All bidders must observe the COVID 19 Standard Operating Procedures (SOPs)

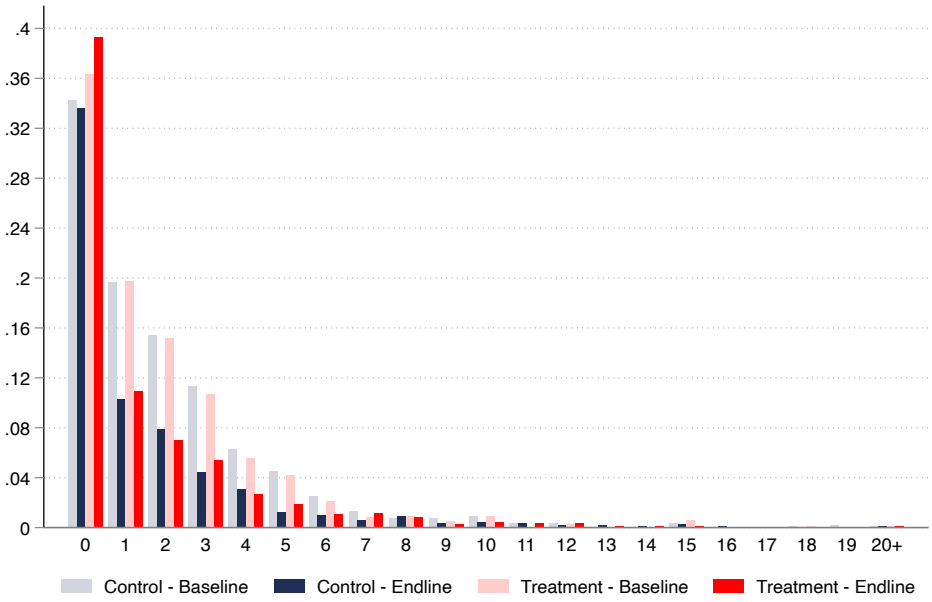
MASEREKA AMIS ASUMAN
CHIEF ADMINISTRATIVE OFFICER
KASESE DISTRICT LOCAL GOVERNMENT.

Notes: The biweekly newsletter received by treated firms in Experiment #1. The first panel reports the introduction to the content, the second panel reports an example of tender.

FIGURE A.4. Experiment #1: Distribution of Bids and Contracts at Baseline and Endline



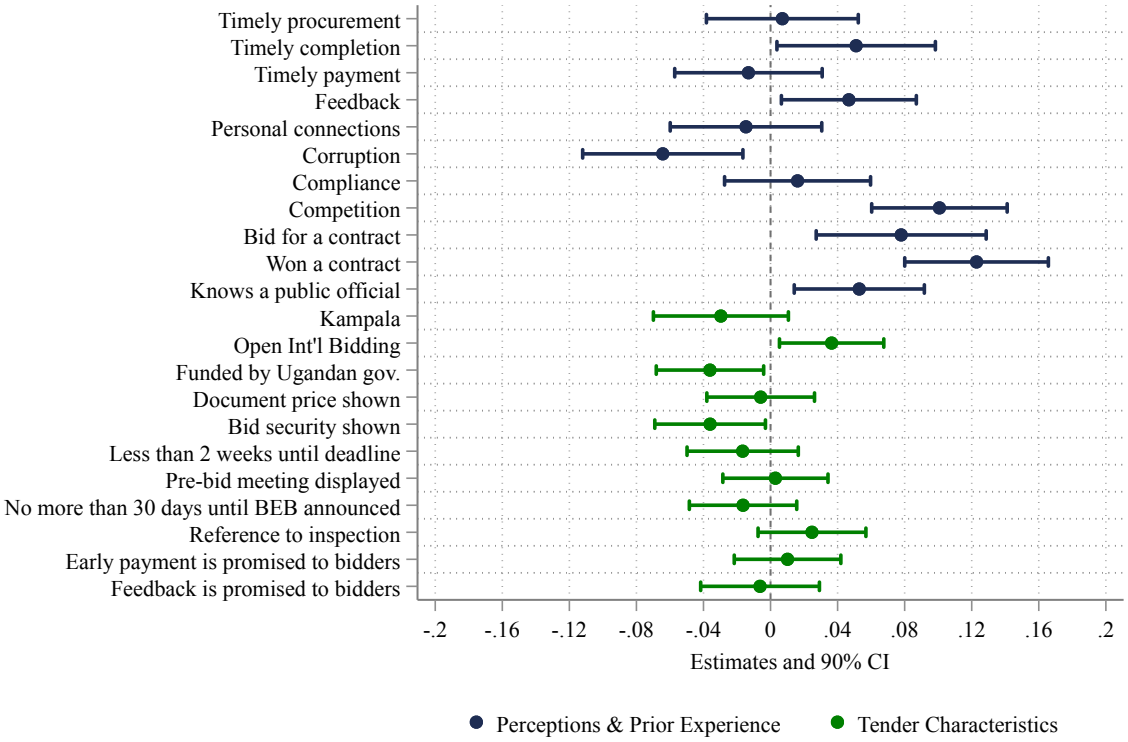
(**A.**) Bids



(**B.**) Contracts Won

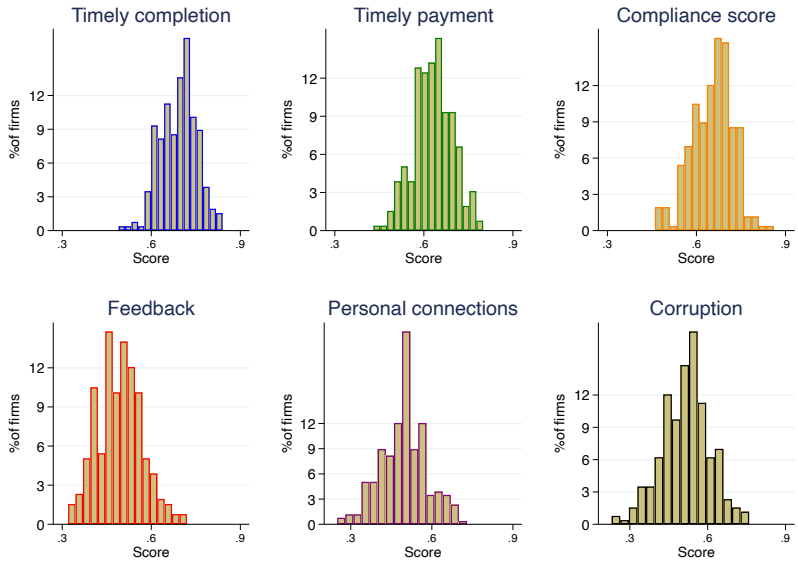
Notes: Panel A shows the distribution of bids both at baseline and at endline by treatment status, for firms in Experiment #1. Panel B shows the distribution of contracts won both at baseline and at endline by treatment status, for firms in Experiment #1. Lighter shaded bars correspond to baseline shares, while darker shaded bars correspond to endline shares.

FIGURE A.5. Drivers of Firms' Perceived Likelihood to Win a Tender

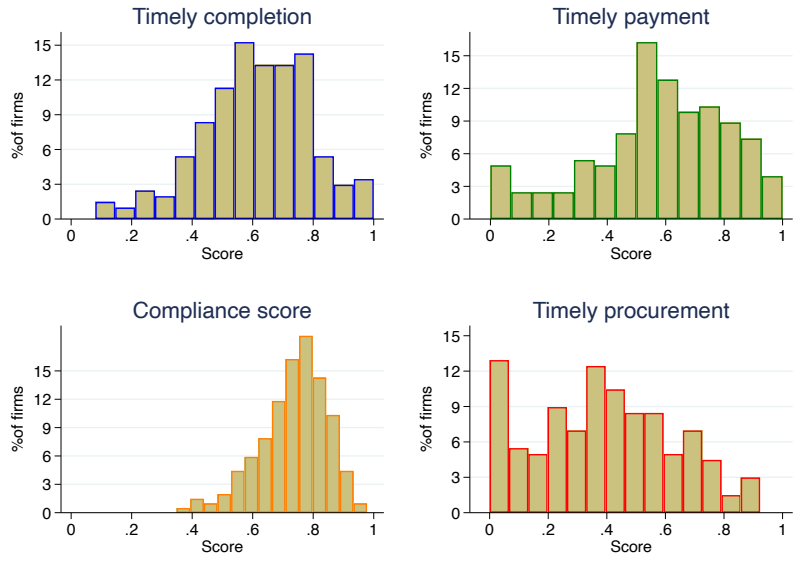


Notes: The figure presents the standardized coefficients from Equation 4.1, together with their 90 percent confidence intervals. The blue coefficients show the estimated effects of firms' perceptions and experiences with PDEs—the terms captured by Γ_{ip}. The green coefficients show the tender characteristics captured by Z_p in Equation 4.1. The outcome variable is the firm's perceived *Likelihood* to win a contract, measured on a 1–10 scale. The estimation includes order and PDE fixed effects. See Section 4.1 for additional details.

FIGURE A.6. Distribution of Scores from Market Perceptions and Audits Reports



(**A.**) Distribution of Scores from Market Perceptions Reports



(**B.**) Distribution of Scores from Audits Reports

Notes: Panel A plots the distribution of scores that PDEs obtained from the perceptions reports. The scores are constructed using data from the third midline survey in Experiment #1. Panel B plots the distribution of scores that PDEs obtained from the audit reports conducted by PPDA between 2014 and 2019. See Section 4.2 for additional details.

TABLE A.1. Probability of Attrition by Survey Round and Treatment Assignment

	Experiment 1				Experiment 2
	(1)	(2)	(3)	(4)	(5)
	Midline 1	Midline 2	Midline 3	Endline	Endline
Panel A: Pooled Treatments					
Treated	-0.006**	-0.010***	-0.014***	-0.013***	0.061**
	(0.003)	(0.003)	(0.003)	(0.004)	(0.031)
Panel B: Separate Treatments					
Treatment 1	-0.006**	-0.008**	-0.010**	-0.012**	0.058
	(0.003)	(0.004)	(0.004)	(0.005)	(0.037)
Treatment 2	-0.005*	-0.012***	-0.018***	-0.015***	0.064*
	(0.003)	(0.004)	(0.004)	(0.005)	(0.037)
Control Mean	0.138	0.251	0.260	0.339	0.109
Firms	3045	3045	3045	3045	524

Notes: Panel A shows coefficients and robust standard errors (in parenthesis) from the following regression: $Attrited_i = \alpha + \beta Treat_i + X_i^{'} + \varepsilon_i$ where $Attrited_i$ is a dummy equal to 1 if firm i did not participate in the survey wave indicated in the column title. $Treat_i$ equals 1 if the firm is assigned to the treatment arm, $X_i^{'}$ is a matrix of strata fixed effects. Panel B shows coefficients and robust standard errors (in parenthesis) from a similar regression, with $Treat_i$ replaced by $Treat_i^1$ and $Treat_i^2$: in Experiment #1 $Treat_i^1$ indicates the simple information treatment while $Treat_i^2$ indicates the information treatment plus the additional nudge; in Experiment #2 $Treat_i^1$ indicates the treatment arm that received the market perceptions report while $Treat_i^2$ indicates the treatment arm that received the audits report. ***, **, *, indicate significance at the 1%, 5%, and 10% levels respectively.

TABLE A.2. Experiment #1: Balance on Baseline Covariates by Attrition Status

	Non-attrited				Attrited			
Variable	T	C	Diff.	ND	T	C	Diff.	ND
Panel A: Individual and firm characteristics								
Female owner	0.184	0.181	0.001	0.005	0.209	0.223	-0.006	-0.024
Age	39.939	39.749	0.237	0.014	40.389	39.775	0.504	0.047
Graduated from University	0.610	0.619	-0.017	-0.012	0.596	0.635	-0.021	-0.056
Owner	0.685	0.664	0.019	0.033	0.695	0.701	-0.008	-0.010
Manager	0.289	0.313	-0.021	-0.037	0.286	0.278	0.011	0.013
Years spent in this firm	7.799	7.735	0.080	0.008	7.558	6.895	0.590	0.084
Total employees	24.060	30.969	-6.636	-0.042	23.954	21.454	2.386	0.023
Owner owns other firms	0.338	0.372	-0.030	-0.050	0.373	0.367	-0.001	0.008
Firm age	9.589	9.717	-0.102	-0.012	8.849	8.188	0.647	0.069
HQ in Kampala	0.597	0.564	-0.000	0.047	0.575	0.643	0.000	-0.099
Share of revenue from public procurement	33.652	35.730	-1.707	-0.047	29.178	29.423	-0.628	-0.006
Has responsible for proc. opportunities	0.761	0.806	-0.043**	-0.077	0.755	0.722	0.030	0.052
Has responsible for proc. documents	0.842	0.871	-0.027*	-0.057	0.846	0.825	0.020	0.040
Num. production sites	1.526	1.604	-0.063	-0.014	2.853	1.508	1.386	0.045
Share of output outsourced	8.271	8.699	-0.523	-0.018	8.070	8.304	-0.040	-0.010
Has access to internet	0.846	0.844	-0.002	0.004	0.796	0.823	-0.019	-0.050
Has system to track inventory	0.820	0.843	-0.020	-0.044	0.844	0.781	0.061**	0.115
Has system to track contracts	0.854	0.856	0.001	-0.004	0.849	0.796	0.046*	0.097
Has system to track suppliers	0.795	0.793	0.006	0.004	0.791	0.730	0.056**	0.101
Keep business records	0.975	0.975	0.001	-0.002	0.957	0.959	-0.004	-0.009
Has a reward system	0.683	0.696	-0.007	-0.018	0.642	0.649	-0.006	-0.010
Has a training system	0.742	0.765	-0.020	-0.038	0.702	0.670	0.037	0.049
Expected ease to access loans in 3 yrs time	1.964	1.991	-0.027	-0.022	2.000	2.033	-0.029	-0.027
Joint orthog. test: T=C			0.555	.			0.204	.

Notes: This table continues on the next page.

TABLE A.2, CONT'D. Experiment #1: Balance on Baseline Covariates by Attrition Status

	Non-attrited				Attrited			
Variable	T	C	Diff.	ND	T	C	Diff.	ND
Panel B: Procurement activity								
Want to increase participation in PP	0.962	0.962	0.001	-0.000	0.964	0.953	0.010	0.009
Num. PDEs won contracts from, last 3 FYs	2.032	2.088	-0.038	-0.044	1.596	1.664	-0.076	-0.056
Total contracts won, last 3 FYs	5.655	5.420	0.295	0.189	3.784	3.678	0.040	0.088
Num. PDEs bidded to, last 3 FYs	2.597	2.722	-0.110	-0.101	2.226	2.412	-0.217	-0.154
Ever visited PDE to inspect bid documents	0.769	0.786	-0.012	-0.014	0.726	0.763	-0.047*	-0.031
I never won a contract	0.200	0.173	0.023	0.022	0.274	0.280	-0.001	-0.005
A delay never happened	0.099	0.118	-0.020	-0.016	0.111	0.105	0.008	0.005
A delay in less than 50% times	0.317	0.332	-0.012	-0.012	0.296	0.297	-0.006	-0.001
A delay in more than 50% times	0.383	0.376	0.008	0.006	0.320	0.318	-0.001	0.001
Knows how pre-qualif. w/ entity works	0.922	0.920	0.003	0.002	0.875	0.903	-0.030	-0.023
Interest in PDEs, but not pre-qualif.	0.806	0.837	-0.031*	-0.025	0.827	0.798	0.020	0.024
Knows entity procurement plan	0.688	0.700	-0.010	-0.009	0.688	0.672	0.008	0.013
Importance of newspaper ads	4.536	4.560	-0.025	-0.020	4.442	4.402	0.039	0.034
Freq. checking newspaper ads	6.275	6.226	0.038	0.040	6.091	5.994	0.109	0.081
Get info from gov. regulations	0.665	0.678	-0.010	-0.010	0.671	0.668	0.000	0.002
Get info from business assoc.	0.340	0.388	-0.043**	-0.039	0.399	0.377	0.021	0.019
Get info from other firms	0.444	0.485	-0.035	-0.033	0.495	0.443	0.043	0.044
Get info from online	0.016	0.016	-0.000	0.000	0.017	0.019	-0.002	-0.002
Get info from media	0.039	0.045	-0.005	-0.005	0.029	0.031	-0.004	-0.002
Get info from newspapers	0.083	0.076	0.006	0.006	0.082	0.062	0.020	0.016
Get info from personal contacts	0.027	0.031	-0.005	-0.003	0.031	0.043	-0.014	-0.010
Get info from PPDA	0.010	0.005	0.005	0.004	0.014	0.012	0.003	0.002
Get info from PDEs	0.029	0.020	0.009	0.007	0.036	0.019	0.016	0.014
Importance of lack of info re: opportunities	2.597	2.615	-0.013	-0.015	2.666	2.689	-0.051	-0.019
Importance of lack of info re: documents	2.239	2.228	0.019	0.009	2.272	2.249	-0.013	0.019
Importance of lack of info re: criteria	2.257	2.237	0.029	0.016	2.332	2.299	0.007	0.027
Importance of lack of technical qualif.	1.914	1.851	0.070	0.051	2.007	1.969	0.028	0.032
Importance of financial constraints	2.696	2.730	-0.027	-0.028	2.825	2.775	0.032	0.041
Importance of lack of personal connections	3.256	3.229	0.021	0.022	3.337	3.375	-0.050	-0.032
System is rigged [scale 1-5]	3.563	3.587	-0.025	-0.020	3.671	3.600	0.040	0.059
Corruption in selection of winners in PP	3.914	3.936	-0.022	-0.018	3.933	3.911	-0.003	0.018
Personal connections necessary to win in PP	3.629	3.678	-0.046	-0.039	3.728	3.746	-0.025	-0.014
Importance of newspaper ads	4.536	4.560	-0.025	-0.020	4.442	4.402	0.039	0.034
Total bids at baseline	4.472	4.390	0.079	0.067	3.628	3.595	0.055	0.028
Total contracts at baseline	2.333	2.301	0.048	0.025	1.769	1.778	-0.010	-0.008
Joint orthog. test: T=C			0.656	.			0.856	.

Notes: This table reports balance checks among treated and control firms in Experiment #1 separately for non-attrited firms at endline and attrited firms at endline. Columns T and C indicate the mean for each characteristic among treated and control respectively. Column *Diff.* is the coefficient β from the following regression, specified for each group of attritors and non-attritors: $y_{i0} = \alpha + \beta Treated_i + X_i^{'} + \varepsilon_i$, where $Treated_i$ is a dummy equal to 1 if the firm belongs to any of the two treatment arms and $X_i^{'}$ is a matrix for strata fixed effects. Column *ND* is the normalized difference between treatment and control means. We define attrited a firm who is not willing to respond to, or could not be contacted for, our endline survey two years after the experiment. ***, **, *, indicate significance at the 1%, 5%, and 10% levels respectively. The source of this data is the baseline survey of Experiment #1.

TABLE A.3. Experiment #2: Balance on Baseline Covariates by Attrition Status

	Non-attrited				Attrited			
Variable	T	C	Diff.	ND	T	C	Diff.	ND
Female owner	0.160	0.177	-0.018	-0.031	0.102	0.200	-0.092	-0.192
Years spent in this firm	9.029	8.947	0.057	0.010	9.954	11.400	-2.091	-0.133
Graduated from University	0.594	0.573	0.018	0.030	0.593	0.600	-0.062	-0.010
Total employees	19.836	23.798	-3.823	-0.074	17.659	21.250	-7.189	-0.091
Active contracts, last 12 months	2.900	2.424	0.477	0.078	2.593	4.850	-2.126	-0.302
Share of revenue from public procurement	37.930	35.562	2.439	0.053	38.856	36.550	1.569	0.052
PP contracts bidded for, last 12 months	6.125	5.322	0.806	0.057	6.458	5.100	0.851	0.114
PP contracts won, last 12 months	2.231	2.221	0.016	0.002	2.768	2.750	0.271	0.003
Info on bus. from other firms	3.114	2.939	0.181	0.086	2.763	3.200	-0.280	-0.198
Info on bus. from gov. agencies	2.719	2.754	-0.025	-0.017	2.593	2.750	0.027	-0.073
Info on bus. from tradit. media	3.480	3.348	0.132	0.069	3.508	3.450	-0.069	0.029
Info on bus. from internet	3.146	3.073	0.065	0.034	3.119	3.750	-0.624	-0.286
Info on bus. from consultancy	2.374	2.268	0.110	0.054	2.627	2.800	-0.106	-0.076
Info on bus. from bus. assoc.	2.488	2.616	-0.128	-0.061	2.373	2.950	-0.441	-0.280
Info on bus. from special. web.	2.335	2.317	0.020	0.009	2.136	3.400	-0.975***	-0.575
Num. PDEs mentioned and bidded for	3.335	3.604	-0.269	-0.091	3.695	3.700	0.008	-0.002
Bid for both reports is the same	0.459	0.445	0.011	0.020	0.441	0.350	0.060	0.130
Bid for firm perception is higher	0.235	0.280	-0.044	-0.074	0.254	0.250	0.050	0.007
Bid for audits is higher	0.306	0.274	0.034	0.049	0.305	0.400	-0.110	-0.139
Joint orthog. test: T=C			0.475	.			0.269	.
Sample sizes	281	164			59	20		

Notes: This table reports balance checks among treated and control firms in Experiment #2 separately for non-attrited firms at endline and attrited firms at endline. Columns T and C indicate the mean for each characteristic among treated and control respectively. Column *Diff.* is the coefficient β from the following regression, specified for each group of attritors and non-attritors: $y_{i0} = \alpha + \beta Treated_i + X_i^{'} + \varepsilon_i$, where $Treated_i$ is a dummy equal to 1 if the firm belongs to any of the two treatment arms and $X_i^{'}$ is a matrix for strata fixed effects. Column *ND* is the normalized difference between treatment and control means. We define attrited a firm who is not willing to respond to, or could not be contacted for, our endline survey.***, **, *, indicate significance at the 1%, 5%, and 10% levels respectively. The source of this data is the baseline survey of Experiment #2.

TABLE A.4. Description of Sectors for the Matching Algorithm

Sector	Description
Agriculture	Agribusinesses, agricultural inputs and outputs, seedlings, agricultural tools, poultry feeds, abattoirs, crop husbandry, animal drugs, crop protection, agro chemicals, animals and their products, animal shelters, beekeeping, entomology, fisheries, fertilizers, agro forestry, irrigation, agro processing, grain milling, farm advisory services.
Automobiles	Cars, ambulances, bicycles, buses, trucks, caterpillars, aircrafts, boats, car rentals, repairs and servicing of automotives, auto parts, car importation, tracking, washing, car shades.
Building & Construction	Construction of buildings, bridges, roads, boreholes, drainage systems, latrines, radio masts, parking and office spaces, architectural and concrete work, excavation, demolition, brick laying, renovation, painting, fencing, geological survey, landscaping, mapping, physical planning, construction materials, civil engineering consultancy, plumbing, real estate.
Catering & Events	Accommodation, catering, conference facilities, audio visual equipment, entertainment, decoration, photography, videography, tents hire, events planning, interpretation services, funeral management.
Cleaning & Fumigation	Car washing, compound maintenance, fumigation, pest control, waste treatment, cleaning and supply of cleaning materials.
Consultancy, Research & Education	Advisory, tax consultation, inspections, physical planning, education, market research, capacity building, training, human resources, hiring, supervision, monitoring & evaluation, environmental assessment.
Finance & Legal	Accounting, bookkeeping, auditing, accreditation, risk management, advocacy, auctioneering, business management, insurance, mobile banking, logistics, loans, taxes, valuations, debt and rent collection, court orders, legal consultations.
Revenue Collection	Revenue, rent, tax and debt collection, auctioneering.
Food & Kitchen	Beverages, food stuffs, food processing, baking, groceries, kitchenware, liquor, firewood, charcoal, cook stoves and ovens.
Fuel	Petrol, oils, lubricants, gas, petroleum products, mining.
Furniture	Chairs, desks, fittings, furnishings, blinds, carpentry, joinery, maintenance and repair, timber, glass products, interior and exterior designs.
Hardware, Plumbing & Mechanical Works	Metal fabrication, hardware, harvesters, industrial, electrical and medical equipment and machinery, elevators, calibrating equipment, welding, mechanical works, plumbing, power line construction.
IT & Electronics	IT services, electronics and accessories (computers, printers, etc.), programming, software development, installation and licensing, telecommunications, networking, cyber security, tracking devices, web design and hosting.
Medicine & Science	Medical and lab equipment, biomedical, chemicals, reagents, diagnostics, drugs, pharmaceuticals, health and wellness, ambulance services, veterinary, medical insurance, hospital supplies.
Stationery & Office Consumables	Stationery, office materials (toner, cartridges, etc.), packaging, scholastic materials.
Power & Electrical	Electrical works and appliances, energy saving items, solar systems, generators, transformers, thermo power, power line construction.
Printing, Branding & Promotional Materials	Printing, publishing, editorial, photocopying, book binding, design and production of branded items, staff ID cards.
Public Relations, Media & Advertising	Publications, art and design, signage, branding, business cards, brochures, banners, engraving, graphic design, web design, embroidery, secretarial services, advertising, mass communication, marketing, promotions, photography, videography, documentaries.
Reading Materials	Books, educational materials, textbooks, newspapers, magazines.
Safety & Security	Security services, training, systems and equipment (CCTV, body scans, etc.), protective wear, firefighting equipment, electronic security, private security.
Textile & Clothing	Uniforms, company wear, protective wear, safety shoes, ceremonial wear, textiles (bedding, carpets, curtains, helmets, etc.).
Travel, Accommodation, Leisure & Wellbeing	Accommodation, leisure, hotel services, hospitality, conference facilities, air ticketing, car renting, wellbeing, tours, travel, touristic activities.
Transportation of Goods	Clearing and forwarding, postage, delivery, fleet management, courier and freight services, importation, exporting, shipping, loading and offloading.
Waste Disposal	Garbage collection, recycling, cleaning and waste treatment, emptying of pit latrines and cesspools, mobile toilets, bio waste management, dry cleaning.
Water & Sanitation	Boreholes, wells, water pumps and tanks, gravity flow schemes, water purifier systems, drainage systems, irrigation systems, latrines, toilets.

TABLE A.5. Experiment #1: Balance at Baseline

	Treatment		Control		
Variable	Mean	SD	Mean	SD	Diff.
Panel A: Individual and firm characteristics					
Female owner	0.191	0.393	0.195	0.397	-0.005
Age	40.062	9.444	39.758	9.514	0.304
Graduated from University	0.607	0.489	0.624	0.484	-0.018
Owner	0.688	0.464	0.676	0.468	0.012
Manager	0.289	0.453	0.301	0.459	-0.013
Years spent in this firm	7.733	5.738	7.451	5.826	0.284
Total employees	24.031	63.915	27.745	131.536	-3.749
Owner owns other firms	0.348	0.476	0.370	0.483	-0.023
Firm age	9.387	7.259	9.199	7.462	0.190
HQ in Kampala	0.591	0.492	0.591	0.492	0.000
Share of revenue from public procurement	32.431	31.605	33.593	31.539	-1.166
Has responsible for proc. opportunities	0.759	0.428	0.778	0.416	-0.018
Has responsible for proc. documents	0.843	0.364	0.855	0.352	-0.012
Num. production sites	1.888	15.513	1.571	4.874	0.317
Share of output outsourced	8.216	16.801	8.565	17.273	-0.350
Has access to internet	0.832	0.374	0.837	0.370	-0.005
Has system to track inventory	0.826	0.379	0.822	0.383	0.005
Has system to track contracts	0.852	0.355	0.836	0.371	0.017
Has system to track suppliers	0.794	0.404	0.772	0.420	0.022
Keep business records	0.970	0.171	0.970	0.171	0.000
Has a reward system	0.672	0.470	0.680	0.467	-0.007
Has a training system	0.731	0.444	0.733	0.443	-0.002
Expected ease to access loans in 3 yrs time	1.974	0.870	2.005	0.869	-0.031

Notes: This table continues on the next page.

TABLE A.5, CONT'D. Experiment #1: Balance at Baseline

	Treatment		Control		
Variable	Mean	SD	Mean	SD	Diff.
Panel B: Procurement activity					
Want to increase participation in PP	0.963	0.190	0.959	0.198	0.003
Num. PDEs won contracts from, last 3 FYs	1.913	2.013	1.944	2.156	-0.030
Total contracts won, last 3 FYs	5.144	11.018	4.830	10.199	0.315
Num. PDEs bidded to, last 3 FYs	2.496	2.569	2.617	2.764	-0.121
Ever visited PDE to inspect bid documents	0.757	0.429	0.778	0.416	-0.021
I never won a contract	0.220	0.415	0.209	0.407	0.011
A delay never happened	0.102	0.303	0.114	0.318	-0.012
A delay in less than 50% times	0.311	0.463	0.320	0.467	-0.009
A delay in more than 50% times	0.366	0.482	0.357	0.479	0.009
Knows how pre-qualif. w/ entity works	0.910	0.287	0.914	0.280	-0.005
Interest in PDEs, but not pre-qualif.	0.812	0.391	0.824	0.381	-0.012
Knows entity procurement plan	0.688	0.464	0.690	0.463	-0.002
Importance of newspaper ads	4.510	0.899	4.507	0.889	0.004
Freq. checking newspaper ads	6.225	1.247	6.147	1.280	0.078*
Get info from gov. regulations	0.667	0.471	0.674	0.469	-0.007
Get info from business assoc.	0.356	0.479	0.384	0.487	-0.028
Get info from other firms	0.458	0.498	0.470	0.499	-0.013
Get info from online	0.016	0.127	0.017	0.130	-0.001
Get info from media	0.036	0.187	0.040	0.196	-0.004
Get info from newspapers	0.083	0.275	0.071	0.257	0.012
Get info from personal contacts	0.028	0.166	0.035	0.184	-0.007
Get info from PPDA	0.011	0.105	0.007	0.085	0.004
Get info from PDEs	0.031	0.173	0.020	0.139	0.011*
Importance of lack of info re: opportunities	2.616	1.435	2.640	1.461	-0.024
Importance of lack of info re: documents	2.248	1.375	2.235	1.356	0.013
Importance of lack of info re: criteria	2.277	1.369	2.258	1.338	0.019
Importance of lack of technical qualif.	1.940	1.242	1.891	1.191	0.049
Importance of financial constraints	2.731	1.472	2.745	1.461	-0.014
Importance of lack of personal connections	3.278	1.477	3.278	1.460	-0.000
System is rigged [scale 1-5]	3.592	1.413	3.591	1.427	0.001
Corruption in selection of winners in PP	3.919	1.233	3.928	1.217	-0.008
Personal connections necessary to win in PP	3.656	1.360	3.701	1.360	-0.044
Importance of newspaper ads	4.510	0.899	4.507	0.889	0.004
Total bids at baseline	4.242	6.058	4.120	5.376	0.122
Total contracts at baseline	2.179	3.398	2.124	2.906	0.055

Notes: This table reports balance checks among treated (N = 1,525) and control (N = 1,520) firms in Experiment #1. The first and second columns report the mean and standard deviation in the Treatment group (pooling T1 - Information only, and T2 - Information + nudge). The third and fourth columns report the mean and standard deviation in the Control group. The fifth column reports the coefficient β from the following specification $y_{i0} = \alpha + \beta Treated_i + X_i^{'} + \varepsilon_i$, where $Treated_i$ is a dummy equal to 1 if the firm belongs to any of the two treatment arms and $X_i^{'}$ is a matrix for strata fixed effects. ***, **, *, indicate significance at the 1%, 5%, and 10% levels respectively. The source of this data is the baseline survey of Experiment #1.

TABLE A.6. Experiment #1: Balance at Baseline (Separate Treatments)

	Treat. 1		Treat. 2		Control				
Variable	Mean	SD	Mean	SD	Mean	SD	T1-C	T2-C	T1-T2
Panel A: Individual and firm characteristics									
Female owner	0.183	0.387	0.199	0.399	0.195	0.397	-0.012	0.003	-0.016
Age	39.748	9.400	40.378	9.484	39.758	9.514	-0.006	0.615	-0.621
Graduated from University	0.604	0.489	0.609	0.488	0.624	0.484	-0.021	-0.015	-0.006
Owner	0.699	0.459	0.676	0.468	0.676	0.468	0.023	-0.000	0.023
Manager	0.276	0.447	0.301	0.459	0.301	0.459	-0.026	0.000	-0.026
Years spent in this firm	7.465	5.391	8.003	6.059	7.451	5.826	0.016	0.553**	-0.537*
Total employees	26.108	76.860	21.940	47.407	27.745	131.536	-1.681	-5.830	4.150
Owner owns other firms	0.346	0.476	0.349	0.477	0.370	0.483	-0.024	-0.022	-0.002
Firm age	9.142	6.827	9.634	7.667	9.199	7.462	-0.058	0.441	-0.499
HQ in Kampala	0.592	0.492	0.589	0.492	0.591	0.492	0.000	-0.000	-0.000
Share of revenue from public procurement	32.999	31.417	31.861	31.804	33.593	31.539	-0.593	-1.744	1.151
Has responsible for proc. opportunities	0.762	0.426	0.757	0.429	0.778	0.416	-0.016	-0.021	0.005
Has responsible for proc. documents	0.843	0.364	0.843	0.364	0.855	0.352	-0.012	-0.012	-0.000
Num. production sites	2.444	21.875	1.329	0.952	1.571	4.874	0.869	-0.239*	1.108
Share of output outsourced	7.987	16.405	8.446	17.198	8.565	17.273	-0.582	-0.116	-0.466
Has access to internet	0.842	0.365	0.822	0.382	0.837	0.370	0.005	-0.014	0.019
Has system to track inventory	0.821	0.384	0.832	0.374	0.822	0.383	-0.001	0.010	-0.011
Has system to track contracts	0.837	0.370	0.868	0.338	0.836	0.371	0.001	0.033**	-0.032*
Has system to track suppliers	0.792	0.406	0.796	0.403	0.772	0.420	0.020	0.025	-0.004
Keep business records	0.974	0.160	0.966	0.182	0.970	0.171	0.004	-0.004	0.008
Has a reward system	0.690	0.463	0.654	0.476	0.680	0.467	0.011	-0.025	0.036
Has a training system	0.745	0.436	0.717	0.451	0.733	0.443	0.012	-0.016	0.028
Expected ease to access loans in 3 yrs time	1.962	0.873	1.986	0.867	2.005	0.869	-0.043	-0.020	-0.023

Notes: This table continues on the next page.

TABLE A.6, CONT'D. Experiment #1: Balance at Baseline (Separate Treatments)

	Treat. 1		Treat. 2		Control				
Variable	Mean	SD	Mean	SD	Mean	SD	T1-C	T2-C	T1-T2
Panel B: Procurement activity									
Want to increase participation in PP	0.969	0.174	0.957	0.204	0.959	0.198	0.009	-0.003	0.012
Num. PDEs won contracts from, last 3 FYs	1.922	2.093	1.905	1.930	1.944	2.156	-0.023	-0.038	0.015
Total contracts won, last 3 FYs	5.178	10.993	5.111	11.051	4.830	10.199	0.348	0.283	0.065
Num. PDEs bidded to, last 3 FYs	2.458	2.585	2.534	2.555	2.617	2.764	-0.160	-0.082	-0.078
Ever visited PDE to inspect bid documents	0.759	0.428	0.755	0.430	0.778	0.416	-0.019	-0.023	0.004
I never won a contract	0.204	0.403	0.237	0.425	0.209	0.407	-0.005	0.028	-0.033
A delay never happened	0.110	0.313	0.095	0.293	0.114	0.318	-0.004	-0.019	0.015
A delay in less than 50% times	0.322	0.467	0.301	0.459	0.320	0.467	0.001	-0.019	0.020
A delay in more than 50% times	0.365	0.482	0.367	0.482	0.357	0.479	0.008	0.011	-0.002
Knows how pre-qualif. w/ entity works	0.905	0.294	0.914	0.280	0.914	0.280	-0.010	0.000	-0.010
Interest in PDEs, but not pre-qualif.	0.795	0.404	0.829	0.377	0.824	0.381	-0.029*	0.005	-0.034*
Knows entity procurement plan	0.668	0.471	0.708	0.455	0.690	0.463	-0.022	0.018	-0.040*
Importance of newspaper ads	4.503	0.905	4.517	0.893	4.507	0.889	-0.004	0.011	-0.015
Freq. checking newspaper ads	6.233	1.185	6.217	1.307	6.147	1.280	0.085	0.070	0.014
Get info from gov. regulations	0.667	0.472	0.667	0.472	0.674	0.469	-0.008	-0.007	-0.001
Get info from business assoc.	0.350	0.477	0.362	0.481	0.384	0.487	-0.034	-0.022	-0.011
Get info from other firms	0.467	0.499	0.449	0.498	0.470	0.499	-0.003	-0.022	0.018
Get info from online	0.016	0.124	0.017	0.130	0.017	0.130	-0.001	-0.000	-0.001
Get info from media	0.033	0.178	0.039	0.195	0.040	0.196	-0.007	-0.001	-0.007
Get info from newspapers	0.078	0.269	0.087	0.282	0.071	0.257	0.007	0.016	-0.009
Get info from personal contacts	0.021	0.143	0.036	0.185	0.035	0.184	-0.014**	0.001	-0.015*
Get info from PPDA	0.013	0.114	0.009	0.096	0.007	0.085	0.006	0.002	0.004
Get info from PDEs	0.031	0.174	0.030	0.171	0.020	0.139	0.012	0.011	0.001
Importance of lack of info re: opportunities	2.593	1.444	2.638	1.426	2.640	1.461	-0.046	-0.002	-0.044
Importance of lack of info re: documents	2.251	1.379	2.245	1.371	2.235	1.356	0.017	0.010	0.007
Importance of lack of info re: criteria	2.315	1.390	2.239	1.348	2.258	1.338	0.058	-0.019	0.077
Importance of lack of technical qualif.	1.976	1.298	1.903	1.183	1.891	1.191	0.086	0.011	0.075
Importance of financial constraints	2.762	1.507	2.700	1.437	2.745	1.461	0.017	-0.046	0.064
Importance of lack of personal connections	3.237	1.485	3.320	1.470	3.278	1.460	-0.041	0.041	-0.082
System is rigged [scale 1-5]	3.566	1.443	3.618	1.383	3.591	1.427	-0.025	0.027	-0.052
Corruption in selection of winners in PP	3.852	1.287	3.987	1.173	3.928	1.217	-0.075	0.059	-0.134**
Personal connections necessary to win in PP	3.656	1.346	3.657	1.375	3.701	1.360	-0.044	-0.044	0.000
Importance of newspaper ads	4.503	0.905	4.517	0.893	4.507	0.889	-0.004	0.011	-0.015
Total bids at baseline	4.282	6.159	4.202	5.959	4.120	5.376	0.160	0.084	0.075
Total contracts at baseline	2.231	3.439	2.127	3.357	2.124	2.906	0.106	0.004	0.102

Notes: This table reports balance checks among firms in Experiment #1. The first and second columns report the mean and standard deviation in Treatment 1 (Information only, N=765). The third and fourth columns report the mean and standard deviation in Treatment 2 (Information + nudge, N=760). The fifth and sixth columns report the mean and standard deviation in the Control group. The seventh and eighth columns report coefficients β_1 and β_2, respectively, from the following specification $y_{i0} = \alpha + \beta_1 T1_i + \beta_2 T2_i + X_i^{'} + \varepsilon_i$, where $T1_i$ ($T2_i$) is a dummy equal to 1 if the firm belongs to Treatment 1 (Treatment 2), and $X_i^{'}$ is a matrix for strata fixed effects. The ninth column reports the difference between β_1 and β_2. ***, **, *, indicate significance at the 1%, 5%, and 10% levels respectively. The source of this data is the baseline survey of Experiment #1.

TABLE A.7. Experiment #1: OLS estimates without controls

Panel A: Main outcomes

	Endline		Midline		Endline	
	(1)	(2)	(3)	(4)	(5)	(6)
	Lack of info	*Newspapers*	*Bids*	*Won*	*Bids*	*Won*
Information treat	-0.114*	-0.124**	0.096	0.031	-0.468*	-0.212*
	(0.064)	(0.052)	(0.173)	(0.052)	(0.259)	(0.123)
	[0.072]	[0.018]	[0.580]	[0.551]	[0.071]	[0.084]
Firms	2104	2107	2357	2355	2114	2114
Mean DV	2.357	4.241	2.541	0.561	4.070	1.743

Panel B: Intermediate actions

	Midline	Endline	Endline	Midline	Endline
	(1)	(2)	(3)	(4)	(5)
	Inspections	*Inspections*	*Bought doc.*	*Prequalif.*	*Prequalif.*
Information treat	0.068	-0.021	-0.560	-0.022	0.015
	(0.078)	(0.742)	(0.353)	(0.030)	(0.065)
	[0.384]	[0.978]	[0.112]	[0.462]	[0.815]
Firms	2670	2114	2114	2670	2114
Mean DV Control	0.816	7.755	4.464	0.391	0.757

Notes: This table shows coefficients, robust standard errors (in parentheses), and p-values (in square brackets) from estimating Equation 3.1 using simple OLS. *Information treat* is an indicator equal to 1 if the firm is assigned to the group receiving information about tender opportunities. In Panel A the dependent variables are: continuous variable from one to five reporting firms' answers to the question "How important is lack of information on available procurement opportunities in explaining lack of bidding in your firm, on a scale from one to five?" (column 1); continuous variable from one to five reporting firms' answer to the question "How important are newspapers as a source of information on tenders, on a scale from one to five?" (column 2); number of bids submitted between March and September 2020 (column 3); number of contracts won between March and September 2020 (column 4); number of bids submitted between October 2020 and November 2021 (column 5); number of contracts won between October 2020 and November 2021 (column 6). Number of bids and contracts won are top 1% winsorized. In Panel B the dependent variables are: total number of contracts inspected between March and September 2020 (column 1) and between October 2020 and November 2021 (column 2); number of contracts for which the firm has bought any bidding document between October 2020 and November 2021 (column 3); total number of pre-qualifications made between March and September 2020 (column 4); total number of pre-qualifications made between October 2020 and November 2021 (column 5). Controls in both panels include 12 strata fixed effects and the value of the dependent variable measured at baseline. ***, **, *, indicate significance at the 1%, 5%, and 10% levels, respectively.

TABLE A.8. Experiment #1: Robustness to Attrition, Total Bids at Endline

Panel A: PDS Lasso

	(1) > 0	(2) > 1	(3) > 3	(4) > 5	(5) *Total*
Information treat	-0.007	-0.024	-0.015	-0.005	-0.359
	(0.020)	(0.021)	(0.020)	(0.018)	(0.256)
	[0.741]	[0.247]	[0.440]	[0.768]	[0.160]
Firms	2114	2114	2114	2114	2114
Mean DV Control	0.633	0.537	0.340	0.235	4.070

Panel B: OLS

	(1) > 0	(2) > 1	(3) > 3	(4) > 5	(5) *Total*
Information treat	-0.012	-0.030	-0.019	-0.009	-0.468*
	(0.021)	(0.021)	(0.020)	(0.018)	(0.259)
	[0.563]	[0.160]	[0.338]	[0.600]	[0.071]
Firms	2114	2114	2114	2114	2114
Mean DV Control	0.633	0.537	0.340	0.235	4.070

Panel C: Lee Bounds

	(1) > 0	(2) > 1	(3) > 3	(4) > 5	(5) *Total*
Lower	-0.060**	-0.087***	-0.088***	-0.086***	-1.855***
	(0.024)	(0.026)	(0.028)	(0.028)	(0.302)
	[0.014]	[0.001]	[0.002]	[0.002]	[0.000]
Upper	0.040	0.013	0.012	0.014	-0.077
	(0.027)	(0.026)	(0.023)	(0.020)	(0.295)
	[0.150]	[0.619]	[0.610]	[0.484]	[0.795]
Firms	2114	2114	2114	2114	2114
Mean DV Control	0.633	0.537	0.340	0.235	4.070

Notes: This table shows coefficients, standard errors (in parentheses), and p-values (in square brackets) from estimating various specifications of Equation 3.1. Panel A reports results from a post-double selection lasso specification. Panel B shows OLS estimates including the same set of covariates as in Panel A. Panel C shows Lee bounds estimates of the treatment effect accounting for potential attrition bias. The dependent variables in columns 1 through 4 correspond to indicators equal to 1 if a firm has submitted more than 0, 1, 3, or 5 bids between October 2020 and November 2021, respectively. Column 5 is the number of bids submitted by firms between October 2020 and November 2021, winsorized at the top 1%. *Information treat* is an indicator equal to 1 if a firm was assigned to the information treatment (pooling T1 - Information only, and T2 - Information + nudge). ***, **, *, indicate significance at the 1%, 5%, and 10% levels respectively.

TABLE A.9. Experiment #1: Robustness to Attrition, Contracts Won at Endline

Panel A: PDS Lasso

	(1) > 0	(2) > 1	(3) > 3	(4) > 5	(5) *Total*
Information treat	-0.019	-0.020	-0.009	-0.006	-0.191
	(0.021)	(0.020)	(0.015)	(0.011)	(0.122)
	[0.374]	[0.316]	[0.557]	[0.583]	[0.117]
Firms	2114	2114	2114	2114	2114
Mean DV Control	0.492	0.335	0.148	0.083	1.743

Panel B: OLS

	(1) > 0	(2) > 1	(3) > 3	(4) > 5	(5) *Total*
Information treat	-0.022	-0.019	-0.009	-0.008	-0.212*
	(0.021)	(0.020)	(0.015)	(0.012)	(0.123)
	[0.306]	[0.348]	[0.554]	[0.488]	[0.084]
Firms	2114	2114	2114	2114	2114
Mean DV Control	0.492	0.335	0.148	0.083	1.743

Panel C: Lee Bounds

	(1) > 0	(2) > 1	(3) > 3	(4) > 5	(5) *Total*
Lower	-0.086***	-0.095***	-0.096***	-0.083***	-0.900***
	(0.027)	(0.028)	(0.028)	(0.009)	(0.151)
	[0.001]	[0.001]	[0.001]	[0.000]	[0.000]
Upper	0.014	0.005	0.003	-0.000	-0.045
	(0.026)	(0.023)	(0.016)	(0.012)	(0.140)
	[0.582]	[0.832]	[0.832]	[0.983]	[0.745]
Firms	2114	2114	2114	2114	2114
Mean DV Control	0.492	0.335	0.148	0.083	1.743

Notes: This table shows coefficients, standard errors (in parentheses), and p-values (in square brackets) from estimating various specifications of Equation 3.1. Panel A reports results from a post-double selection lasso specification. Panel B shows OLS estimates including the same set of covariates as in Panel A. Panel C shows Lee bounds estimates of the treatment effect accounting for potential attrition bias. The dependent variables in columns 1 through 4 correspond to indicators equal to 1 if a firm has won more than 0, 1, 3, or 5 contracts between October 2020 and November 2021, respectively. Column 5 is the number of contracts won by firms between October 2020 and November 2021, winsorized at the top 1%. *Information treat* is an indicator equal to 1 if a firm was assigned to the information treatment (pooling T1 - Information only, and T2 - Information + nudge). ***, **, *, indicate significance at the 1%, 5%, and 10% levels respectively.

TABLE A.10. Experiment #1: Separate Treatments, PDS Lasso

Panel A: Main outcomes

	Endline		Midline		Endline	
	(1)	(2)	(3)	(4)	(5)	(6)
	Lack of info	*Newspapers*	*Bids*	*Won*	*Bids*	*Won*
Information treat	-0.145*	-0.157**	0.452**	0.110	-0.232	-0.087
	(0.077)	(0.064)	(0.222)	(0.067)	(0.318)	(0.152)
	[0.059]	[0.015]	[0.042]	[0.102]	[0.466]	[0.566]
Info. treat + Nudge	-0.083	-0.093	-0.223	-0.041	-0.491*	-0.293**
	(0.077)	(0.064)	(0.193)	(0.060)	(0.290)	(0.137)
	[0.285]	[0.146]	[0.248]	[0.491]	[0.091]	[0.033]
Firms	2104	2107	2357	2355	2114	2114
Mean DV Control	2.357	4.241	2.541	0.561	4.070	1.743
H_0: Info=Info+Nudge	0.471	0.394	0.003	0.039	0.431	0.189

Panel B: Intermediate actions

	Midline	Endline	Endline	Midline	Endline
	(1)	(2)	(3)	(4)	(5)
	Inspections	*Inspections*	*Bought doc.*	*Prequalif.*	*Prequalif.*
Information treat	-0.054	0.491	-0.374	-0.050	0.013
	(0.085)	(0.986)	(0.403)	(0.035)	(0.079)
	[0.520]	[0.618]	[0.353]	[0.157]	[0.869]
Info. treat + Nudge	0.204*	-0.269	-0.528	0.010	0.032
	(0.107)	(0.881)	(0.379)	(0.037)	(0.077)
	[0.057]	[0.760]	[0.163]	[0.788]	[0.683]
Firms	2670	2114	2114	2670	2114
Mean DV Control	0.816	7.755	4.464	0.391	0.757
H_0: Info=Info+Nudge	0.025	0.505	0.685	0.142	0.834

Notes: This table shows coefficients, robust standard errors (in parentheses), and p-values (in square brackets) from estimating a variant of Equation 3.1, where the treatment indicator is replaced by two indicators: *Information treat* is an indicator equal to 1 if the firm is assigned to receive the newsletter, and *Info. treat + Nudge* is an indicator for being assigned to receive the newsletter and the nudge to inspect bidding documents. In Panel A the dependent variables are: continuous variable from one to five reporting firms' answers to the question "How important is lack of information on available procurement opportunities in explaining lack of bidding in your firm, on a scale from one to five?" (column 1); continuous variable from one to five reporting firms' answer to the question "How important are newspapers as a source of information on tenders, on a scale from one to five?" (column 2); number of bids submitted between March and September 2020 (column 3); number of contracts won between March and September 2020 (column 4); number of bids submitted between October 2020 and November 2021 (column 5); number of contracts won between October 2020 and November 2021 (column 6). Number of bids and contracts won are top 1% winsorized. In Panel B the dependent variables are: total number of contracts inspected between March and September 2020 (column 1) and between October 2020 and November 2021 (column 2); number of contracts for which the firm has bought any bidding document between October 2020 and November 2021 (column 3); total number of pre-qualifications made between March and September 2020 (column 4); total number of pre-qualifications made between October 2020 and November 2021 (column 5). Controls in both panels include 12 strata fixed effects, the value of the dependent variable measured at baseline, and a set of controls measured at baseline and selected using a post-double selection lasso procedure out of those for which there were no missing among the firms that participated in the endline survey. ***, **, *, indicate significance at the 1%, 5%, and 10% levels, respectively.

TABLE A.11. Experiment #1: Separate Treatments, OLS

Panel A: Main outcomes

	Endline		Midline		Endline	
	(1)	(2)	(3)	(4)	(5)	(6)
	Lack of info	*Newspapers*	*Bids*	*Won*	*Bids*	*Won*
Information treat	-0.146*	-0.157**	0.451**	0.110	-0.321	-0.105
	(0.077)	(0.064)	(0.223)	(0.067)	(0.319)	(0.153)
	[0.057]	[0.015]	[0.043]	[0.101]	[0.315]	[0.491]
Info. treat + Nudge	-0.083	-0.092	-0.249	-0.046	-0.611**	-0.317**
	(0.077)	(0.064)	(0.193)	(0.060)	(0.295)	(0.138)
	[0.282]	[0.152]	[0.197]	[0.444]	[0.038]	[0.022]
Firms	2104	2107	2357	2355	2114	2114
Mean DV Control	2.357	4.241	2.541	0.561	4.070	1.743
H_0: Info=Info+Nudge	0.465	0.382	0.002	0.034	0.381	0.180

Panel B: Intermediate actions

	Midline	Endline	Endline	Midline	Endline
	(1)	(2)	(3)	(4)	(5)
	Inspections	*Inspections*	*Bought doc.*	*Prequalif.*	*Prequalif.*
Information treat	-0.055	0.321	-0.489	-0.050	0.010
	(0.086)	(0.979)	(0.411)	(0.036)	(0.080)
	[0.520]	[0.743]	[0.234]	[0.161]	[0.897]
Info. treat + Nudge	0.193*	-0.357	-0.631	0.006	0.020
	(0.108)	(0.898)	(0.392)	(0.037)	(0.078)
	[0.074]	[0.691]	[0.108]	[0.866]	[0.797]
Firms	2670	2114	2114	2670	2114
Mean DV Control	0.816	7.755	4.464	0.391	0.757
H_0: Info=Info+Nudge	0.033	0.556	0.712	0.172	0.913

Notes: This table shows coefficients, robust standard errors (in parentheses), and p-values (in square brackets) from estimating a variant of Equation 3.1, using a simple OLS estimation, where the treatment indicator is replaced by two indicators: *Information treat* is an indicator equal to 1 if the firm is assigned to receive the newsletter, and *Info. treat + Nudge* is an indicator for being assigned to receive the newsletter and the nudge to inspect bidding documents. In Panel A the dependent variables are: continuous variable from one to five reporting firms' answers to the question "How important is lack of information on available procurement opportunities in explaining lack of bidding in your firm, on a scale from one to five?" (column 1); continuous variable from one to five reporting firms' answer to the question "How important are newspapers as a source of information on tenders, on a scale from one to five?" (column 2); number of bids submitted between March and September 2020 (column 3); number of contracts won between March and September 2020 (column 4); number of bids submitted between October 2020 and November 2021 (column 5); number of contracts won between October 2020 and November 2021 (column 6). Number of bids and contracts won are top 1% winsorized. In Panel B the dependent variables are: total number of contracts inspected between March and September 2020 (column 1) and between October 2020 and November 2021 (column 2); number of contracts for which the firm has bought any bidding document between October 2020 and November 2021 (column 3); total number of pre-qualifications made between March and September 2020 (column 4); total number of pre-qualifications made between October 2020 and November 2021 (column 5). Controls in both panels include 12 strata fixed effects and the value of the dependent variable measured at baseline. ***, **, *, indicate significance at the 1%, 5%, and 10% levels, respectively.

TABLE A.12. Description of Hypothetical Tenders Components

Variable	**Definition of Variable**	**Options**
Kampala (15%)	= 1 if the contract takes place in Kampala	There are 158 different locations for the contracts advertised.
Open International Bidding (1%)	= 1 if the bidding method is open internat'l (option 3)	1. Open bidding 2. Open domestic bidding 3. Open international bidding
Funded by Ugandan gov'nt (88%)	= 1 if contract funded by government (option 2)	1. Government of Uganda 2. Government of the Republic of Uganda 3. Central Government of Uganda 4. African Development Bank (AfDB) 5. European Union 6. Federal Republic of Germany 7. World Bank 8. International Monetary Fund 9. International Development Association (IDA) 10. Primary Health Care (PHC) 11. USAID
Document price shown (85%)	= 1 if the tender shows bid document price	Bid document price ranges from 3,000UGX to 500,000UGX
Bid security shown (30%)	= 1 if the tender shows bid security amount	Bid security cost ranges from 90,000UGX to 7,000,000,000UGX
Less than 2 weeks until deadline (3%)	= 1 if the tender's deadline is less than two weeks from publication	Tender deadline between 4 and 89 days from publication
Pre-bid meeting displayed (33%)	= 1 if the tender shows pre-bid meeting date	Distance to pre-bid meeting ranges from 1 to 36 days from publication
Up to 30 days until BEB announced (15%)	= 1 if the date for announcing the BEB is less than 30 days from the deadline	Distance to best evaluated bidder (BEB) notice ranges from 10 to 207 days
Reference to inspection (50%)	= 1 if the tender references to possibility to inspect the documentation	Message inviting bidders to inspect the bidding documents: "Bidding documents shall be issued at [PDE name]"; "Bidding documents shall be issued and inspected at [PDE name]"
Early payment is promised to bidders 30%)	= 1 if the tender promises early payments	Message assuring providers that they will receive their payment immediately after the delivery of the goods or services procured: "Payments to the company will be made immediately upon delivery of the goods"
Feedback is promised to bidders (30%)	= 1 if the tender promises feedback	Message assuring providers that unsuccesful bidders will receive an explanation for not being selected: "The entity will provide comprehensive feedback to both successful and unsuccessful bidders about the evaluation process"; "Comprehensive feedback will be provided to all bidders"

Notes: This table shows the options for each characteristic in the hypothetical tender rating exercise. For each option, we construct the indicator variable listed in the column *Variable* and described in column *Definition of Variable* which is used as covariate in the estimation of Equation 4.1.

TABLE A.13. Experiment #2: Balance at Baseline

	Treatment		Control		
Variable	Mean	SD	Mean	SD	Diff.
Female owner	0.150	0.358	0.179	0.385	-0.030
Years spent in this firm	9.189	5.943	9.214	6.219	-0.051
Graduated from University	0.594	0.492	0.576	0.496	0.000
Total employees	19.458	28.747	23.521	42.926	-4.072
Active contracts, last 12 months	2.847	4.816	2.688	3.960	0.159
Share of revenue from public procurement	38.091	31.332	35.670	31.975	2.264
PP contracts bidded for, last 12 months	6.182	11.688	5.298	7.419	0.724
PP contracts won, last 12 months	2.324	4.552	2.279	3.393	0.030
Info on bus. from other firms	3.053	1.456	2.967	1.437	0.121
Info on bus. from gov. agencies	2.697	1.437	2.754	1.497	-0.024
Info on bus. from tradit. media	3.485	1.364	3.359	1.368	0.123
Info on bus. from internet	3.141	1.518	3.147	1.552	-0.021
Info on bus. from consultancy	2.418	1.438	2.326	1.411	0.105
Info on bus. from bus. assoc.	2.468	1.456	2.653	1.521	-0.164
Info on bus. from special. web.	2.300	1.365	2.435	1.488	-0.121
Num. PDEs mentioned and bidded for	3.397	2.086	3.614	2.101	-0.242
Bid for both reports is the same	0.456	0.499	0.435	0.497	0.016
Bid for firm perception is higher	0.238	0.427	0.277	0.449	-0.036
Bid for audits is higher	0.306	0.461	0.288	0.454	0.020

Notes: This table reports balance checks among treated (N = 340) and control (N = 184) firms in Experiment #2. The first and second columns report mean and standard deviation in the Treatment group (pooling T1 - Market Perceptions, and T2 - Audits). The third and fourth columns report mean and standard deviation in the Control group. The fifth column reports the coefficient β from the following specification $y_{i0} = \alpha + \beta Treated_i + X_i^{'} + \varepsilon_i$, where $Treated_i$ is a dummy equal to 1 if the firm belongs to any of the two treatment arms and $X_i^{'}$ is a matrix for strata fixed effects. ***, **, *, indicate significance at the 1%, 5%, and 10% levels respectively. The source of this data is the baseline survey of Experiment #2.

TABLE A.14. Experiment #2: Robustness to Attrition

Panel A: PDS Lasso

	Total bids		*Contracts won*	
	(1)	(2)	(3)	(4)
Integrity Information	0.454		0.342**	
	(0.316)		(0.170)	
	[0.151]		[0.045]	
Market Perceptions		0.566		0.453**
		(0.392)		(0.219)
		[0.149]		[0.038]
Audits Reports		0.339		0.228
		(0.390)		(0.203)
		[0.385]		[0.263]

Panel B: OLS

	Total bids		*Contracts won*	
	(1)	(2)	(3)	(4)
Integrity Information	0.385		0.371**	
	(0.319)		(0.174)	
	[0.228]		[0.034]	
Market Perceptions		0.502		0.495**
		(0.406)		(0.228)
		[0.217]		[0.030]
Audits Reports		0.266		0.244
		(0.389)		(0.204)
		[0.494]		[0.234]
Firms	445	445	445	445
Mean DV Control	2.579	2.579	1.024	1.024

Panel C: Lee Bounds

	Total bids			*Contracts won*		
	(1) Int. Info	(2) Mkt. Perc.	(3) Audits	(4) Int. Info	(5) Mkt. Perc.	(6) Audits
Lower	0.190	0.309	0.068	0.301	0.429*	0.170
	(0.348)	(0.431)	(0.426)	(0.186)	(0.237)	(0.220)
	[0.585]	[0.473]	[0.873]	[0.106]	[0.071]	[0.438]
Upper	0.969***	1.051**	0.885**	0.701***	0.812***	0.587***
	(0.350)	(0.444)	(0.441)	(0.179)	(0.237)	(0.220)
	[0.006]	[0.018]	[0.045]	[0.000]	[0.001]	[0.008]
Firms	445	306	303	445	306	303
Mean DV Control	2.579	2.579	2.579	1.024	1.024	1.024

Notes: This table shows coefficients, standard errors (in parentheses) and p-values (in square brackets) from estimating Equation 4.2 (columns 1 and 3 of panel A and B; columns 1 and 4 of panel C), and Equation 4.3 (columns 2 and 4 of panels A, B; columns 2, 3, 5, and 6 of panel C); *Integrity Information* is an indicator for being assigned to either one of the treatment arms; *Market Perceptions* and *Audits Scores* are indicators for being assigned to receiving either the market perceptions report or the audits reports. Panel A reports results from a post-double selection lasso specification. Panel B shows OLS estimates of the treatment effect, controlling for strata fixed effects. Panel C shows Lee bounds estimates of the treatment effect accounting for potential attrition bias. The dependent variables are: total number of bid, constructed summing all the bids reported at endline, that is between May 2021 and November 2021 (columns 1 and 2 of panel A and B; columns 1, 2, and 3 of panel C); total contracts won, constructed summing the total number of bids won at endline (columns 3 and 4 of panels A and B; columns 4, 5, and 6 of panel C). Number of bids and contracts won are top 1% winsorized. ***, **, *, indicate significance at the 1%, 5%, and 10% levels, respectively.

TABLE A.15. Experiment #2: Does Addressing Misperceptions Matter? Heterogeneity by Familiarity with the PDE and Integrity of the PDE, Audits Report

	Total bids	*Contracts won*
	(1)	(2)
Audits × Mentioned × Top	-0.077	-0.069
	(0.147)	(0.115)
	[0.599]	[0.547]
Audits × Mentioned	0.028	0.045
	(0.076)	(0.044)
	[0.718]	[0.306]
Audits × Top	0.001	-0.000
	(0.002)	(0.001)
	[0.713]	[0.741]
Observations	50601	50601
N. firms	303	303
N. PDEs	167	167
Mean DV Control and top mentioned	0.578	0.312

Notes: This table shows coefficients, standard errors (in parentheses), and p-values (in square brackets) from estimating Equation 4.4. The unit of observation is a firm-PDE pair. *Treated* is an indicator equal to 1 if the firm received the audits report, *Mentioned* is an indicator equal to 1 if the firm had mentioned the name of the PDE at baseline, and *Top* is an indicator equal to 1 if the PDE is in the top decile of the integrity distribution of the PDEs. The dependent variables are: a firm's total bids with the PDE (column 1) and contracts won by the firm from the PDE (column 2). Controls include 4 strata fixed effects, firm fixed effects, and PDE fixed effects. Standard errors are double clustered by firm and PDE. ***, **, *, indicate significance at the 1%, 5%, and 10% levels respectively.

TABLE A.16. Experiment #2: Effects are Concentrated Among Familiar High-Integrity PDEs, Coefficients on Other Covariates

	Total bids		*Contracts won*	
	(1)	(2)	(3)	(4)
Treated × Mentioned × Top	0.823***		0.314**	
	(0.286)		(0.141)	
	[0.004]		[0.027]	
Treated × Mentioned	-0.015		0.024	
	(0.068)		(0.041)	
	[0.823]		[0.563]	
Treated × Top	-0.002	-0.001	-0.002	-0.001
	(0.002)	(0.002)	(0.001)	(0.001)
	[0.214]	[0.565]	[0.100]	[0.310]
Treated × Optimist × Top		0.888		-0.263
		(0.685)		(0.407)
		[0.196]		[0.519]
Treated × Pessimist × Top		0.822**		0.674***
		(0.414)		(0.172)
		[0.048]		[0.000]
Treated × About Right × Top		0.127		-0.239
		(0.297)		(0.187)
		[0.669]		[0.202]
Treated × Optimist		0.122		-0.003
		(0.147)		(0.094)
		[0.409]		[0.973]
Treated × Pessimist		-0.014		0.021
		(0.093)		(0.039)
		[0.878]		[0.584]
Treated × About Right		-0.241		0.042
		(0.152)		(0.111)
		[0.115]		[0.707]
Observations	64872	64872	64872	64872
N. firms	306	306	306	306
N. PDEs	212	212	212	212
Mean DV Control and top mentioned	0.327		0.143	
Mean DV Control and top among optimists		0.600		0.500
Mean DV Control and top among pessimists		0.241		0.000

Notes: This table shows coefficients, standard errors (in parentheses), and p-values (in square brackets) from estimating Equation 4.4. The unit of observation is a firm-PDE pair. *Treated* is an indicator equal to 1 if the firm received the market perceptions report, *Mentioned* is an indicator equal to 1 if the firm had mentioned the name of the PDE at baseline, and *Top* is an indicator equal to 1 if the PDE is in the top decile of the integrity distribution of the PDEs. *Optimist* is an indicator equal to 1 if the firm is optimistic about the integrity of the PDE; *Pessimist* is an indicator equal to 1 if the firm is pessimistic about the integrity of the PDE; *About Right* is a dummy equal to 1 if the firm is about right about the integrity of the PDE. The dependent variables are: a firm's total bids with the PDE (columns 1 and 3) and contracts won by the firm from the PDE (columns 2 and 4). Controls include 4 strata fixed effects, firm fixed effects, and PDE fixed effects. Standard errors are double clustered by firm and PDE. ***, **, *, indicate significance at the 1%, 5%, and 10% levels, respectively.

Appendix B. Experiment #1: Introductory text

Dear Respondent, We would like to thank you for your participation in our survey on public procurement, that was carried out between April and August of 2019. As you may recall, our study aims to understand the barriers that prevent firms like yours from participating more actively in public procurement and how to increase transparency in the public procurement sector. We are happy to share with you the preliminary findings of our study. You can access the report via this link. We will follow up in the following months with an updated report with additional findings. We also want to share with you two pieces of information about public procurement opportunities.

1. Alerts on the latest public procurement opportunities available. Every Tuesday and Thursday you will receive via e-mail, WhatsApp or SMS a list of the latest opportunities (tender notices, calls for pre-qualification and framework contracts) that are published by ministries, hospitals, local authorities and any other entities that conduct public procurement in Uganda.

   If you would like to receive these tenders through WhatsApp, please add the phone number XXXXXXXXXX to your contact list and send us a message. If you use WhatsApp Web or you are reading this document from your phone, you can also click on this link to send us a message. If you want to receive the tenders through e-mail please send us your address to info@transparency-project-ug.com.
2. The procurement plans of the different Procurement and Disposing Entities (PDEs) in Uganda. As you may be aware, these plans describe the list of contracts that an entity expects to engage in for the coming fiscal year, and therefore we think that these present useful information for firms like yours to plan ahead what contracts you would like to bid for in the coming fiscal year. We will share the procurement plans when the entities make them available. Moreover, we are in contact with these entities, and we will share with you updates that are made to these plans throughout the year.

We would like to thank you again for your participation in our survey and in our research project. Sincerely, The Transparency Project research team [1]

[1]If you would like to change your phone contact to one that is more suitable for us or share with us your e-mail address you can contact us at info@transparency-project-ug.com, or at XXXXXXXXXX We obtained your contact as part of the survey "Information Frictions in Government-Firm Relationships", a nation-wide survey conducted in Uganda between April and August of 2019. If you do not recall participating in this survey or you would like to stop receiving these messages, contact us either through phone or mail. This study is conducted by researchers at The University of Chicago Booth School of Business, at Northwestern University Kellogg School of Management, and at the Institute for International Economic Studies, working in collaboration with the Independent Evaluation and Research Cell (IERC) of BRAC Uganda. It has been approved by the Mildmay Uganda Research and Ethics Committee and

Appendix C. Experiment #2: Elicitation of perceptions of PDEs

[1] At the start of a fiscal year, public entities publish their procurement plan, where they estimate the time they will spend in the procurement process for each contract (that is, the process of publishing the contract, evaluating the bids and selecting a provider). In a typical year, what do you think is the percentage of contracts where **this procurement process is carried out on time**, according to the plan?

[2] Think about all the procurement contracts planned by a public entity in a typical year. What do you think is the percentage of these contracts that are **completed in time**, according to the initial plan?

[3] Think about the contracts that a public entity signs in a typical year. What do you think is the percentage of contracts in which **providers are paid in time, as established in the contract?**

[4] In a typical year, what do you think is the percentage of contracts in which **the public entity explained to each bidder the reasons for not being selected?**

[5] In a typical year, what do you think is the percentage of contracts that are **won by providers that have a personal connection with public officials?**

[6] In a typical year, what do you think is the percentage of contracts in which **the winning firm had to give a gift, a counterfavour or some extra money to public officials?**

[7] On a scale from 0 to 100, how much do you think each of these public entities **comply with the rules and regulations** that should be followed by law when engaging in public procurement? (where 0 means "they do not comply with any rule" and 100 means "they comply with all the rules and regulations.")

[8] When a public entity needs to procure a good or service it will invite providers to present their bid. If they are following an open bidding method, they will publish a tender notice in newspapers and websites inviting all firms to present their bids. On the other hand, if they are not following an open bidding method, they will only invite specific providers to present their bids. The entity will receive a certain number of bids for the contract, one from each bidder who is interested in providing the good or service. In a typical year, what do you think is the percentage of contracts **that receive more than two (2) bids?** That is, the percentage of contracts that receive bids from more than two (2) providers.

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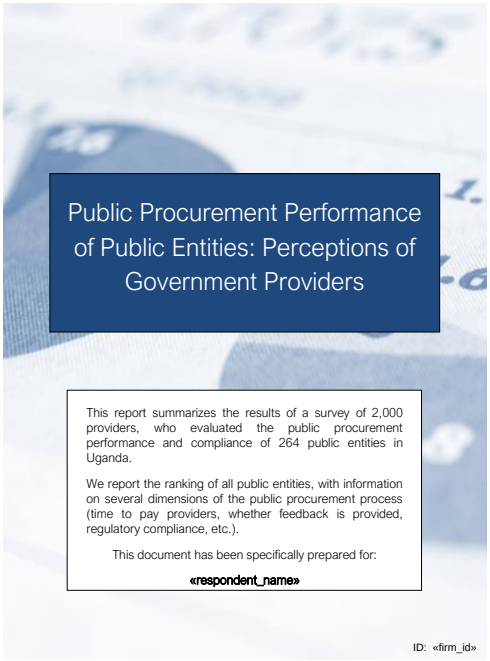
the University of Chicago Institutional Review Board (IRB). If you have any questions regarding your rights as a participant, you may direct your questions to any of these institutions.

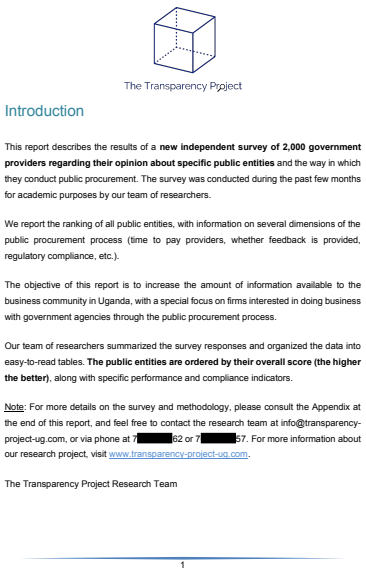
Appendix D. Market Perceptions and Audits Reports: Examples

In this section we report the first pages of the market perceptions and the audit reports, which we use in Experiment 2 with the goal of addressing firms' perceptions about government entities. Each report is customized, and we print the firm's name in the covers under a short summary of the purpose of the report. We proceed by carefully explain how the report was constructed and highlight the details of the scoring and ranking system.

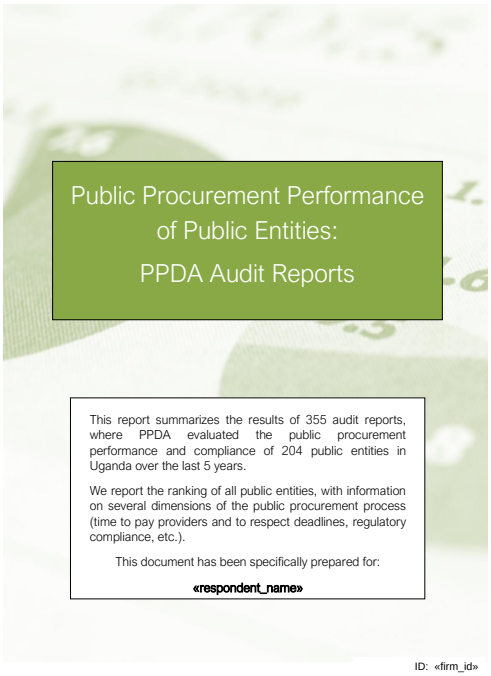
FIGURE A.7. Screenshots from Reports: Intro Pages



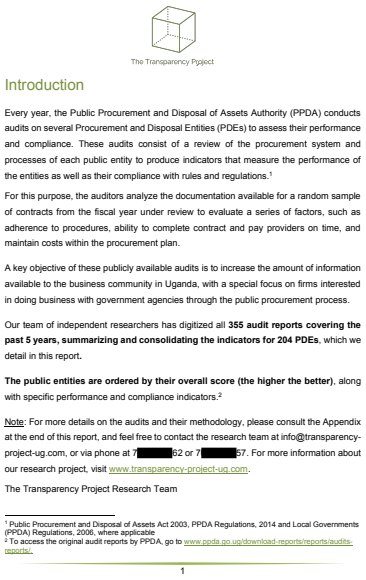
(**A.**) Market Perceptions: First Page



(**B.**) Market Perceptions: Second Page



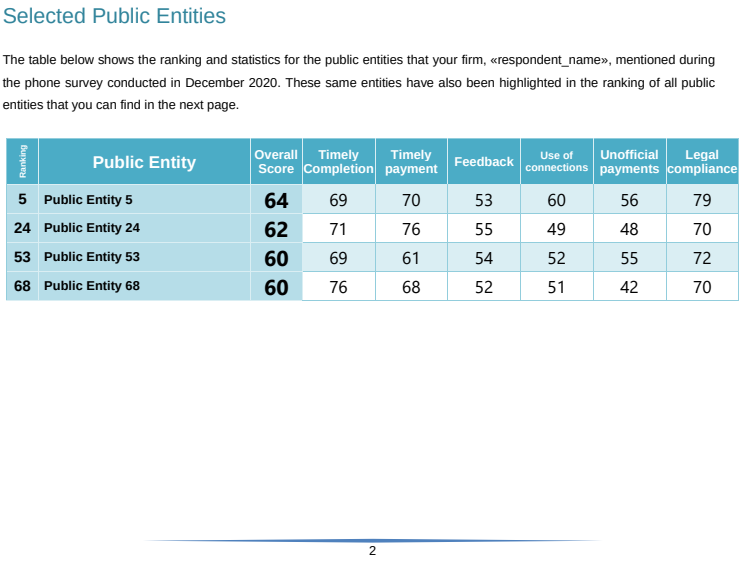
(**C.**) Audits Report: First Page



(**D.**) Audits Report: Second Page

Notes: This figure shows the first two pages of the Market Perceptions Report (Panel A and B) and of the Audits Report (Panel C and D).

FIGURE A.8. Screenshots from Reports: Example PDE Lists



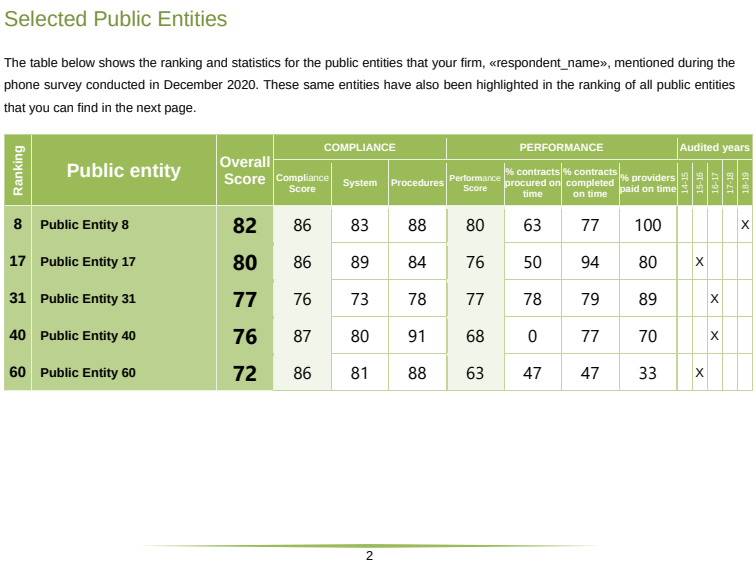
Selected Public Entities

The table below shows the ranking and statistics for the public entities that your firm, «respondent_name», mentioned during the phone survey conducted in December 2020. These same entities have also been highlighted in the ranking of all public entities that you can find in the next page.

Ranking	Public Entity	Overall Score	Timely Completion	Timely payment	Feedback	Use of connections	Unofficial payments	Legal compliance
5	Public Entity 5	64	69	70	53	60	56	79
24	Public Entity 24	62	71	76	55	49	48	70
53	Public Entity 53	60	69	61	54	52	55	72
68	Public Entity 68	60	76	68	52	51	42	70

2

(**A.**) PDE list from Market Perceptions Report



Selected Public Entities

The table below shows the ranking and statistics for the public entities that your firm, «respondent_name», mentioned during the phone survey conducted in December 2020. These same entities have also been highlighted in the ranking of all public entities that you can find in the next page.

Ranking	Public entity	Overall Score	COMPLIANCE			PERFORMANCE				Audited years				
			Compliance Score	System	Procedures	Performance Score	% contracts procured on time	% contracts completed on time	% providers paid on time	14-15	15-16	16-17	17-18	18-19
8	Public Entity 8	82	86	83	88	80	63	77	100					x
17	Public Entity 17	80	86	89	84	76	50	94	80		x			
31	Public Entity 31	77	76	73	78	77	78	79	89			x		
40	Public Entity 40	76	87	80	91	68	0	77	70			x		
60	Public Entity 60	72	86	81	88	63	47	47	33		x			

2

(**B.**) PDE list from Audits Report

Notes: This figure shows a screenshot from the PDE lists shared with firms. Panel A shows the first entries of the table from the Market Perceptions Report. Panel B shows the table from the Audits Report.

SUPPLEMENTARY APPENDIX: Definition of Baseline Variables

TABLE B.1. Experiment #1: Definition of Baseline Characteristics

Variable	Description	Category
Panel A: Individual and firm characteristics		
Female owner	Respondent is a female	Dummy
Age	Respondent's age	Continuous
University graduate	Respondent has a university degree	Dummy
Owner	Respondent is the owner	Dummy
Manager	Respondent is a manager	Dummy
Years in firm	Years the respondent has spent in this firm	Continuous
Total employees	Number of employees the firm has at baseline	Continuous
Owns other firms	Whether the respondent also owns other firms	Dummy
Firm age	Age of the firm at baseline	Continuous
HQ in Kampala	Firm's headquarters are in Kampala	Dummy
Share of revenues from procurement	Share of revenues from public procurement (0–100)	Continuous
Responsible for procurement opportunities	Firm has a designated person for procurement opportunities	Dummy
Responsible for procurement documents	Firm has a designated person for procurement documents	Dummy
Number of production sites	How many production sites the firm has	Continuous
Share of output outsourced	Share of output outsourced by the firm (0–100)	Continuous
Internet access	Firm has access to internet	Dummy
Tracks inventory	Firm has a system to track inventory	Dummy
Tracks contracts	Firm has a system to track procurement contracts	Dummy
Tracks suppliers	Firm has a system to track suppliers	Dummy
Keeps business records	Firm tracks business transactions	Dummy
Reward system	Firm has a reward system for employees	Dummy
Training system	Firm has a training system for employees	Dummy
Expected ease of accessing loans in 3 years	1 = easier than today, 2 = same as today, 3 = more difficult	Categorical

Notes: This table continues on the next page.

TABLE B.1, CONT'D. Experiment #1: Definition of Baseline Characteristics

Variable	Description	Category
Panel B: Procurement activity		
Want to increase participation in PP	Respondent wants to increase participation in public procurement	Dummy
Num. PDEs won contracts from, last 3 FYs	Number of procuring entities from which contracts were won in last 3 years	Continuous
Total contracts won, last 3 FYs	Total contracts won in the last three fiscal years	Continuous
Num. PDEs bidded to, last 3 FYs	Number of procuring entities bid to in last 3 years	Continuous
Ever visited PDE to inspect bid documents	Respondent has ever visited a procuring entity to inspect bid documents	Dummy
I never won a contract	Respondent reports never winning a contract	Dummy
A delay never happened	Respondent reports no payment delays in a procurement contract	Dummy
A delay in less than 50% times	Respondent experienced payment delays in less than 50% of contracts won	Dummy
A delay in more than 50% times	Respondent experienced payment delays in more than 50% of contracts won	Dummy
Knows how pre-qualif. w/ entity works	Respondent knows how pre-qualification with an entity works	Dummy
Interest in PDEs, but not pre-qualif.	Respondent is interested in PDEs but not pre-qualified	Dummy
Importance of lack of info re: opportunities	Perceived importance of lacking information about opportunities (scale 1–5)	Dummy
Importance of lack of info re: documents	Perceived importance of lacking information about bid documents (scale 1–5)	Categorical
Importance of lack of info re: criteria	Perceived importance of lacking information about selection criteria (scale 1–5)	Categorical
Importance of lack of technical qualif.	Perceived importance of insufficient technical qualifications (scale 1–5)	Categorical
Importance of financial constraints	Perceived importance of financial constraints (scale 1–5)	Categorical
Importance of lack of personal connections	Perceived importance of lacking personal connections (scale 1–5)	Categorical
System is rigged [scale 1–5]	Perception that the system is rigged	Categorical
Corruption in selection of winners in PP	Perceived corruption in selection of winners in procurement	Categorical
Personal connections necessary to win in PP	Perceived importance of personal connections to win procurement (scale 1–5)	Categorical
Importance of newspaper ads	Perceived importance of newspaper advertisements (scale 1–5)	Categorical
Freq. checking newspaper ads	Frequency of checking newspaper advertisements	Categorical
Knows entity procurement plan	Respondent knows the entity's procurement plan	Dummy
Get info from gov. regulations	Respondent gets procurement information from government regulations	Dummy
Get info from business assoc.	Respondent gets procurement information from business associations	Dummy
Get info from other firms	Respondent gets procurement information from other firms	Dummy
Get info from online	Respondent gets procurement information from online sources	Dummy
Get info from media	Respondent gets procurement information from media	Dummy
Get info from newspapers	Respondent gets procurement information from newspapers	Dummy
Get info from personal contacts	Respondent gets procurement information from personal contacts	Dummy
Get info from PPDA	Respondent gets procurement information from PPDA	Dummy
Get info from PDEs	Respondent gets procurement information from procuring entities (PDEs)	Dummy
Total bids at baseline	Total number of bids submitted at baseline	Continuous
Total contracts at baseline	Total number of contracts won at baseline	Continuous

Notes: The first column indicates the variable name, as shown in Tables A.5, A.6 and A.2. The second column describes the variable. The third column indicates whether the variable is a dummy, categorical, or continuous.

TABLE B.2. Experiment #2: Definition of Baseline Characteristics

Variable	Description	Category
Female owner	Respondent is a female	Dummy
Years spent in this firm	Number of years the respondent has worked in the firm	Continuous
Graduated from University	Respondent has a university degree	Dummy
Total employees	Total number of employees in the firm	Continuous
Active contracts, last 12 months	Number of active contracts in the last 12 months	Continuous
Share of revenue from public procurement	Share of firm's revenue coming from public procurement (0–100)	Continuous
PP contracts bidded for, last 12 months	Number of public procurement contracts bid for in the last 12 months	Continuous
PP contracts won, last 12 months	Number of public procurement contracts won in the last 12 months	Continuous
Info on bus. from other firms	Respondent typically seeks business advice from other firms	Dummy
Info on bus. from gov. agencies	Respondent typically seeks business advice from government agencies	Dummy
Info on bus. from tradit. media	Respondent typically seeks business advice from traditional media (e.g., TV, radio, newspapers)	Dummy
Info on bus. from internet	Respondent typically seeks business advice from the internet	Dummy
Info on bus. from consultancy	Respondent typically seeks business advice from consultancies	Dummy
Info on bus. from bus. assoc.	Respondent typically seeks business advice from business associations	Dummy
Info on bus. from special. web	Respondent typically seeks business advice from specialized websites	Dummy
Num. PDEs mentioned and bidded for	Number of procuring entities mentioned and bid for	Continuous
Bid for both reports is the same	Indicates whether bids for two reports are the same	Dummy
Bid for firm perception is higher	Indicates whether bid for firm perception is higher	Dummy
Bid for audits is higher	Indicates whether bid for audits is higher	Dummy

Notes: The first column indicates the variable name, as shown in Tables A.13 and A.3. The second column describes the variable. The third column indicates whether the variable is a dummy, categorical, or continuous.