Petty corruption, administrative burden, and information: experimental evidence from Burkina Faso

Quentin Stoeffler*, Bordeaux School of Economics

Anne Hilger, World Bank

Marouchka Viola, Toulouse School of Economics

Abstract

Petty corruption when facing low-level public officials is a common feature of the lives of many in developing countries. Individuals might pay bribes because of the asymmetry of information between public officials and public service users. This research tests whether providing information on the costs and processes of daily administrative services through a smartphone App reduces the need for bribes and the economic cost of bureaucratic transactions. The App was randomly provided to approximately 1,200 interested individuals in Burkina Faso. We measure whether the intervention improves experiences with administrative processes and influences experiences of bribery among beneficiaries. To our knowledge, this study constitutes the first randomized evaluation of an intervention aiming at addressing petty corruption. We estimate a precise null-effect of the intervention on all our pre-specified outcomes, such as the amount or likelihood to pay bribes, the duration of the administrative process, or the number of visits to the administration. These results hold for various specifications and different categories of individuals. The findings suggest that barriers related to information are not the main drivers of bribery payment, and that interventions addressing other constraints are more likely to effectively alleviate the administrative burden and petty corruption.

Keywords: Corruption; Bureaucracy; Digital interventions; Information; Randomized control trial; Burkina Faso

JEL codes: O1; D73; D8; C93; H83

* Corresponding author: quentin.stoeffler@u-bordeaux.fr

1. Introduction

Corruption is harmful. It creates political, social, and economic distortions harming the public good.[1] Widespread, its economic magnitude is important, especially in low-income countries and in Sub-Saharan Africa (Svensson, 2005). Yet, corruption is persistent and self-reinforcing, making it difficult to alleviate (Mishra, 2006; Stephenson, 2020; Baez-Camargo et al., 2020; Ajzenman, 2021). To date, there is scare evidence of interventions that address corruption successfully (Svensson, 2005, Olken & Pande, 2007; Zaum et al., 2012; Fisman & Golden, 2017; Stahl et al, 2017). In addition, relatively little is known about the micro-level determinants of corruption, especially when it comes to petty corruption.

Petty corruption is a pervasive type of corruption that individuals encounter when they interact with low-level civil servants (Chêne, 2019; Nieto-Morales et al., 2024).[2] It usually corresponds to demands of bribes (money, gifts, loans, services, favors, etc.) for the provision of goods and services that citizens are legally entitled to, such as getting a passport or a driver's license. In many low-income settings, interactions with low-level public officials are plagued with requests for such illegal payments. Petty corruption operates as an additional tax constraining access to public services through costly, time-consuming, and inefficient processes and ultimately discourages individuals from using them (Kaufmann et al., 2008). Importantly, it also affects trust in government, as interactions with low-level officials are often the only contact that individuals have with the state (Mauro, 1995; Gupta, 2012). While non-poor individuals are also affected, the consequences are greater for the poor (Gupta, 2012). They pay a higher share of their income in bribes (Kaufmann et al., 2008; Hunt & Laszlo, 2012) and encounter bribery more frequently, especially in Sub-Saharan Africa (Justesen & Bjørnskov, 2014; Peiffer & Rose, 2018). The roots of bribery are complex, ranging from persistent social norms (Paldam, 2001; Baez-Camargo et al., 2020) to the low levels of income of government employees (Van Rijckeghem & Weder, 2001),

[1] Among others, correction affects negatively economics growth (Mauro, 1995; Méon & Sekkat, 2005), foreign direct investments (Wei, 2000), public investments (Del Monte & Papagni, 2001), firm growth (Fisman & Svensson, 2007) and public debt (Cooray et al., 2017). It also has adverse impacts on government spending in education and on schooling outcomes (Mauro, 1998; Reinikka & Svensson, 2004), inequality and poverty (Gupta et al, 2002; Gyimah-Brempong, 2002), political participation (Anderson & Tverdova, 2003; Clausen et al., 2011; Chong et al., 2015) and health (Holmberg & Rothstein, 2011). See Bardhan (1997) for a seminal discussion, and Fisman & Golden (2017) for a recent review and a discussion of anti-corruption interventions.

[2] Transparency International defines petty corruption as "everyday abuse of entrusted power by low- and mid-level public officials in their interactions with ordinary citizens, who often are trying to access basic goods or services in places like hospitals, schools, police departments and other agencies" (www.transparency.org/en/corruptionary/petty-corruption).

and information asymmetry between government officials and citizens (Zaum et al., 2012). There is a clear connection between the bureaucratic process, which exerts power over citizens, and the opportunity for (and occurrence of) corruption (Leff, 1964; Bardhan, 1997; Gupta, 2012; Justesen & Bjørnskov, 2014; Herd & Moynihan, 2025). Transparency International (2017) estimates that globally, one citizen out of four had paid a bribe in the last year.

This article aims at assessing the impact of an original anti-bribery intervention, which consists in providing information on administrative processes through a smartphone App. The App was designed to address petty corruption by allowing citizens to easily obtain accurate and relevant information on various administrative tasks, such as the location of the relevant administrative agency, legal fees, and required documents needed for the act. Through a randomized evaluation, we test whether information can successfully empower citizens and decrease bribery payments to public officials. We also ask whether the App intervention decreases the cost of interacting with the administration (time, direct costs, perceived difficulty etc.). Indeed, lack of transparency (because of complex or vague instructions) or hardly accessible information may limit one's ability to complete an administrative task. In addition to assessing whether the App benefits individuals directly, we also investigate whether there are spillovers to people's network in terms of occurrence and amount of bribery and administrative burden reduction.[3] We investigate this issue in the context of Burkina Faso, where petty corruption is commonplace.[4]

Information collected at baseline (November 2020) highlights the potential of the App. Among the 2,476 participants of the study, 62% have carried out at least one administrative procedure in the last 12 months (for themselves or a member of their household) and 37% have helped someone in their wider network to do so. In total, 74% of the sample have interacted with the administration in the past year and 21% reported bribe payments to government officials (by themselves or the individuals supported); the average amount paid was CFA11,207 for those who paid a bribe.[5]

[3] As revealed by our qualitative fieldwork, the first source of knowledge about administrative processes is usually one's network (see Appendix C). Thus, the App may be used to support peers in completing administrative tasks. Some scholars have suggested network-based interventions for alleviating petty corruption, given the role of behavioral factors and social norms in generating and reinforcing corruption (Baez-Camargo et al., 2020).

[4] In 2019, 16% of public service users in the country declared paying a bribe in the previous 12 months (Pring & Vrushi, 2019).

[5] About USD 22 or approximatively 50% of average monthly consumption (according to EHCVM 2018–19).

To measure the effect of the intervention, we randomly provided access to the App to half the pool of interested participants.[6] Follow-up information was collected 12 months later, giving treated participants the opportunity to interact with the App for almost a year. During each survey round, we recorded every administrative task performed by participants, either on their own behalf or to support someone else in their network. For each task, we collected information regarding bribery payments, time it took to obtain a record, direct and indirect costs, and various other aspects of the administrative process. By comparing individuals from the treatment and the control group at endline, we assess whether the App reduces bribe payments and improves experiences of administrative processes for the beneficiary and their network.

Our results show a precisely estimated null impact of the intervention. Across all our econometric specifications, the effect of the treatment is consistently not significant. These results provide little support for the hypothesis that the intervention had an impact on App recipients. Even focusing on App users, even those who interacted with the administration since receiving the App, we do not find a significant effect of the intervention. Finally, testing heterogeneity among users based on characteristics such as language proficiency, internet access, or gender showed no meaningful variation in the intervention's impact across different groups. These findings suggest that providing information in this form is insufficient to address petty corruption's root causes.

Our study contributes to the literature on corruption and, more specifically, on the link between information provision and petty corruption. From a principal-agent perspective, politicians or bureaucrats possess more information than citizens, creating opportunities for corruption. Curbing this asymmetry of information should reduce corruption by increasing accountability and transparency.[7] Two potential mechanisms may explain this relationship (Winters et al., 2012). Increased information may first, favor the discovery of corrupt practices (monitoring) and second, enable the individual to more effectively respond to corrupt acts (punishment). Several studies in Brazil, India and other settings investigate this issue, focusing mostly on political corruption and voting behaviors/electoral outcomes (Ferraz & Finan, 2008; Vicente, 2013; Banerjee et al., 2014; Chong et al., 2014) or politicians' behaviors (Ferraz & Finan, 2011; Avis et al., 2018; Zamboni & Litschig, 2018; Banerjee et al., 2020). Some studies have also focused on bureaucrats' behavioral

[6] The study has been pre-registered under the AEA RCT Registry; RCT ID: AEARCTR-0006543; https://www.socialscienceregistry.org/trials/6543.

[7] See for instance the corruption-reducing effects of a free press (Freil et al., 2007), of public disclosure laws (Djankov et al., 2010), and of the internet (Goel et al., 2011).

change (Olken, 2007; Peisakhin, 2012). In comparison, petty corruption from a citizen's point of view remains under-studied.[8] To our knowledge, this article is the first randomized evaluation of an anti-bribery intervention aimed at addressing petty corruption.

This study also contributes to the general literature on administrative procedures. The costs of citizens' interactions with the state depend on the costs of accessing information (learning how to access services, eligibility criteria, etc.), the psychological toll (stress of dealing with administrative processes and government officials), and compliance costs (providing proof of documentation, completing forms, coping with discretionary demands) (Moynihan et al., 2015; see also Madsen et al., 2022, or Moynihan & Herd, 2023). The administrative burden affects low-income groups disproportionately, and has important consequences in their ability to access social safety nets (Herd & Moynihan, 2025). In addition, administrative burden and petty corruption are self-reinforcing, as complex administrative procedures increase the opportunity and motivation for requesting and paying petty bribes (Nieto-Morales et al., 2024). This administrative burden ultimately affects citizens' success in accessing services and their perceptions of government. Some studies have investigated how government communication affects citizens' experience of the administrative burden and public program take-up (Finkelstein & Notowidigdo, 2019; Lopoo et al., 2020). However, little is known about how to reduce the administrative burden successfully in general, and how information dissemination may ease administrative tasks and favor their completion in particular, especially in developing countries.

Finally, we contribute to the literature on the effects of mobile Apps, and ICTs more generally, on development outcomes. ICTs have been presented as promising tools to address traditional market failures, and consequently development issues, in low and middle-income countries. By providing access to information, markets, finance, or services at low-cost, they may improve financial inclusion (Mbiti & Weil, 2015; Ahmad et al., 2020); rural and agricultural development (George et al., 2011; Ogutu et al., 2014); or health outcomes (Qiang et al., 2011). Whether they can address corruption and the administrative burden in low-income countries remains an open question (Chêne, 2019).[9]

[8] Several lab experiments have also studied anti-corruption interventions, but evidence from field experiments is limited (Mugellini et al., 2021).

[9] Several ICT tools have been promoted as a potentially effective tool for addressing corruption. In India, a crowdsourcing platform ("I paid a bribe") has been employed for reporting corruption cases, and replicated in other countries. The mechanism at play is different from the information-based intervention that we study. Besides, to our

There are several limitations to this study, particularly in terms of external validity. Indeed, the evaluation sample was drawn from a pool potentially interested candidates recruited through different channels (e.g., through a Facebook forum or campus visits). As a result, our sample consists largely of young individuals in urban centers who use a smartphone and are interested in the fight against corruption. It is not representative of Burkina Faso's general population. Results may not generalize if the intervention was to be scaled up or implemented in another setting.

The rest of the article is structured as follows. Section 2 presents the context and the research design. In section 3, we describe the data and provide descriptive statistics. Section 4 outlines our empirical strategy and section 5 shows the results. Section 6 concludes.

2. An App against petty corruption

2.1 Context

Efforts to combat corruption are relatively recent worldwide. Indeed, the "grease the wheels" hypothesis was commonly accepted until the mid-1960s, stating that corruption may help circumvent inefficient bureaucracy and regulations, (see Leff, 1964; Leys, 1965; Bardhan, 1997; Aidt, 2003). This trend reversed in the late 1990s with the multiplication of legislations and policies among international organizations and high-income country governments to curb corruption.[10] These efforts, however, have largely focused on high-level corruption. More recently, the fight against corruption was addressed as part of SDG 16.5, which includes as an indicator the proportion of individuals who paid bribes to public officials. Based on the SDG progress data (from a household survey collected by UNODC in 140 countries), 22.3% of individuals paid a bribe to a public official in low-income countries in 2019 (ECOSOC, 2020).

In Burkina Faso, bribery is an everyday experience. According to the latest Global Corruption Barometer for Africa, in 2019, 28% of the respondents from Burkina Faso thought corruption had increased in the previous 12 months and 27% thought that most or all local government officials are corrupt (Pring & Vrushi, 2019). Among respondents, 44% also declared that their government

knowledge, the impact of ICT-based solutions for addressing corruption has not been measured yet (see for instance Kukutschka, 2016 or Mugellini et al., 2021).

[10] See for instance the *Inter-American Convention against Corruption* (1996), the European Union's *Convention on the Fight against Corruption* (1997), or James D. Wolfensohn's speech at the 1996 Annual Meetings of the World Bank.

is doing a bad job of tackling corruption but 62% believed that ordinary citizens can make a difference in the fight against corruption. In addition, 16% of public service users paid a bribe in the previous 12 months. These observations inspired the design of a mobile phone application to mobilize civil society and give citizens the tools to promote transparency in common areas of public life, thereby alleviating petty corruption.

2.2 The intervention: an App-based 'pocket lawyer'

The intervention studied in this paper consists in providing beneficiaries with a free smartphone App designed to help them with administrative tasks in Burkina Faso. The App functions as a 'pocket lawyer' and provides information on several administrative processes, such as obtaining a national identity card or a driving license. The information provided includes the location of the relevant administration where a given administrative process needs to be conducted, the required documents or paperwork, the duration required for the administrative process, and the monetary cost of the process (legal fees). Appendix A provides a comprehensive list of the services provided by the App, and illustrates the interface of the App. The App is meant to increase transparency in citizens' dealings with low-level public officials, reducing the cost of the administrative burden and addressing petty corruption.

The App is available for Android smartphones, which is the most commonly used operating system in Burkina Faso, with an interface initially available in French.[11] It was piloted in 2019, when the App was provided to 465 participants as part of a proof of concept study.[12] Feedback was collected from the App developer and participants through a qualitative study led by the research team in the fall of 2020 to understand their perceptions of the App and improve its functioning. More information on the pilot and on the qualitative study can be found in Appendix C. Following these preliminary studies, the App's pilot version and implementation were revised prior to the beginning of this study to make the App more accessible. The App's interface was made available in local languages in addition to French and made fully operable through interactive voice

[11] The App is provided by the Burkinabe start-up ONE, which developed and distributed it, with funding from the World Bank. he App was developed as part of a broader anti-corruption initiative (3LC) through citizen engagement. ONE is considering its scale-up by providing the App for free on the Google Play Store upon completion of the study.

[12] These pilot participants were excluded from the present quantitative study. They are not part of the treatment or control groups. Basic data was collected from pilot participants and used for power calculations for this study.

responses, making it accessible to those who are less literate. The App developer provided technical support to users in installing the App and conducted a social marketing campaign to stimulate its usage among treated participants. In addition, phone credit was provided to study participants with the aim of covering costs related to the download (500 CFA or 1 USD approximatively).

The intervention is based on the provision of information, which may address bribery in several ways: (i) because beneficiaries know the exact financial cost of obtaining a document, they may avoid *faux frais* (illegitimate or inflated fee requests); (ii) by having the exact information on the process easily available, users may not feel the need to offer bribes to facilitate the administrative task; (iii) for the same reason, users may not have to rely on costly intermediaries – one channel through which bribes are oftentimes paid; (iv) empowered by their knowledge, users may be able to resist or negotiate bribery requests better.[13] In addition, the App is thought to reduce the resources spent on administrative procedures (e.g., travel costs), the time spent on procedures (travel time, but also waiting time), and to reduce stress related to administrative procedures.

The App is entirely based on official information; however, in practice, this information was difficult to access for ordinary citizens.[14] The App's interface in local languages and through interactive voice responses means that information publicly available on government's websites, in administrative offices, and official documents could become accessible to those who are unable to read or unable to understand French (French remains the official language of the country).

2.3 Research design

Our research design consists of a randomized evaluation of the intervention provided to participants, based on data collected pre- and post-intervention, following a pre-analysis plan and

[13] Bribe payment is often a negotiated process, in which information, self-confidence, and the ability to control the narrative often play an important role (see for instance Gupta, 2012).

[14] None of the information available in the App was cross-posted in the Facebook forum or used for any other anti-corruption campaign. Thus, the App was a convenient way of accessing publicly available information. Control participants could have accessed official government websites to learn which documents and fees are required for what services. However, this of course represents a significant effort for individuals, which the App aims at alleviating. Qualitative fieldwork reveals that people's knowledge about administrative knowledge usually comes from word of mouth, based on other people's experience (see Appendix C). In practice, accessing official information through government websites appears very difficult for common citizens, if not impossible.

a blinding strategy.[15] Potentially interested candidates were recruited by one of the following sources: i) users of a Facebook forum which had been animated by the App developer, ONE, on the topic of corruption in Burkina Faso; ii) other Facebook users that came across ONE's posts; iii) past participants of anti-corruption trainings that ONE had conducted among university students; and iv) additional outreach to students in universities. All interested participants were informed that they would enter a study and be allocated either to the treatment group (receiving the App now) or to the control group (allowed to download the App upon conclusion of the study).

Interested participants recruited through these four channels constitute an initial pool of applicants of approximatively 3,000 individuals spread across all the 45 provinces of Burkina Faso.[16] Among these, 2,476 accepted to answer the baseline survey (see section 3), after which half of them were randomly allocated to the treatment group by the research team. The treatment group received a link to download the App, technical support from ONE in doing so, and the small phone credit to cover the cost of the download. The other half constituted the control group, which did not receive any intervention. For the duration of the study, the App could only be access through a personalized link and linked to each participant's phone number (so that there exists only one account per person). The App was not available on the Google App store. Treated participants could share the information they accessed through the App with anybody, including neighbors, friends, and family, but not access to the App itself. [17]

As such, the intervention follows a classic two arm, individually randomized design, with one treatment arm and one control arm. Randomization was conducted by the authors using a computer, at the individual level from the 2,476 individuals who answered the baseline survey. This resulted in 1,238 individuals being allocated to the treatment group and 1,238 to the control group. There are no clusters. Randomization was conducted after the baseline survey had been completed, so that treatment status remained unknown at baseline to all participants and to the intervention and research teams.

[15] For this study, we followed a blinding strategy and produced a result-blind version of the article, in order to prevent any publication bias in the production and presentation of the results. We accessed the data and produced the analysis only after publishing the result-blind version of the article on the AEA RCT registry: https://www.socialscienceregistry.org/trials/6543.

[16] This resulted from the online recruitment means employed. However, almost half of the sample (47%) is found in Ouagadougou, the capital and largest city.

[17] Participants could in theory share information with non-participants. However, given the scale of the intervention, contact between participants and non-participants is generally unlikely, and positive spillover effects not expected. Such spillover effects would constitute an attenuation effect (see section 4).

We use data from the pilot test of the App (see section 3 and Appendix C) to calculate power for this individually randomized trial based on the time spent to obtain a birth certificate and the likelihood of paying bribes. Our power calculations show that the sample recruited would be sufficient for identifying a relatively small, meaningful minimum detectable effect[18].

3 Data

This data was collected via phone surveys conducted pre- and post-intervention. The following subsections describe the data collection process, variable construction, and descriptive statistics.

3.1 Data collection

The baseline was collected by phone by a local survey firm in November 2020. Endline data was collected 12 months later in November 2021 by the same survey firm and team of enumerators.[19] The survey collected information on the socio-demographic background of the participant, connectivity (e.g., frequency of using the internet and network coverage at the participant's home), perception of the public administration and corruption in Burkina Faso, and a roster of administrative tasks for the respondent or household members (the full questionnaire is available in Appendix B).

For the roster of administrative tasks, participants were asked which administrative task(s) they had undertaken in the last 12 months.[20] Everyday administrative tasks include items such as obtaining a birth certificate, enrolling a child in elementary school, or obtaining a national identity card. For each administrative task mentioned by the participant, a series of follow-up questions then ensued. These included questions on the duration and success of the process, how often and

[18] The power calculations were conducted using the sampsi command in Stata, for a power of 0.8, with one round of baseline data, a relatively low correlation between baseline and follow-up variables (0.3), and α of 0.1. We specified the usage of an Ancova methodology, consistent with our econometric approach. Using "time spent to obtain a birth certificate", we obtain a sample size of 2,252 for a 0.1 s.d. drop in the time spent. This corresponds to a minimum detectable effect of a drop from an average of 8.8 days to obtain a birth certificate to 7.3 days (a reduction of 1.5 days). For observing a 0.1 s.d. change in the likelihood to pay bribes, we need a sample size of 2,234, and for a drop in the average bribe amount paid by 0.1 s.d., we need a sample size of 2,198.

[19] As mentioned above, the data were collected following a blinding strategy. Thus, we wrote a result-blind version of the article before accessing the follow-up data. We accessed the data after publishing the result-blind version of this article is available on the AEA RCT registry: https://www.socialscienceregistry.org/trials/6543.

[20] Enumerators were advised not to offer any examples, but to choose the administrative tasks mentioned by the participant from a comprehensive list of the most common administrative tasks.

how far the individual had to travel to complete the process, how much the individual had to pay to complete the process and whether the individual encountered any bribery demands or had offered any bribes (monetary, gifts, and so on). Another administrative roster was then conducted for any administrative task in which the respondent was involved to assist other individuals (e.g., friends or neighbors). This second roster was similar to the first roster, but included fewer details on issues which the respondent may not be able to answer accurately. The two rosters thus provide a comprehensive overview of everyday administrative tasks that Burkinabé face on a regular basis and which have oftentimes been subject to demands for bribes by low-ranking public officials.

3.2 Outcomes of interest

Our main outcomes are constructed at the individual level. For the subset of those who have completed any administrative task, we also specify outcomes at the administrative task level, rather than the individual, allowing us to consider several administrative tasks per person (instead of average values) and to control for the type of administrative task conducted.

We test five sets of hypotheses: (A) relates to the effect of the intervention on bribery; (B) focuses more specifically on the cost and success of interacting with the administration; (C) includes these two potential effects (bribery and administrative processes) for the network of the treated individual; and secondary hypotheses (D and E) relate to more specific costs and mechanisms.[21] These hypotheses correspond to categories of outcomes for which we perform multiple hypotheses tests (see below). The corresponding outcomes are described below.

The effect of the intervention on bribery payments (A) is captured through three different outcomes: (i) the occurrence of bribery payments (any payment, 0/1 indicator), that is, the individual has paid any sort of bribe in the last 12 months, even for bribes that do not have a clear monetary equivalent (e.g., a service or other favors); (ii) the total amount of bribery payments (log, CFA) where individuals are asked to estimate the monetary amount in CFA if the bribe was

[21] We follow hypotheses specified in our pre-analysis plan (PAP) available on the AEA RCT Registry (RCT ID: AEARCTR-0006543). As a measure of parsimony and to simplify the interpretation of the results, we removed one hypothesis from the PAP, "Category F: combined outcomes for oneself and network". This hypothesis included pooled values from the two rosters of administrative tasks (for oneself and for the network). We now focus on the same outcomes but treat the two rosters separately in the five other hypotheses (A to E). This category F was removed at the stage of writing a result-blind version of the article (see above).

provided in kind; and (iii) the total amount paid to the administration per task (log, CFA), which includes all fees paid, whether legitimate or not.

The cost and success of interacting with the administration (B) is measured with a series of outcomes related to administrative processes, that is, the number of administrative tasks completed successfully; time to complete administrative tasks (days); how many visits it took the individual to complete the task; and the subjective ease of completing administrative tasks.

The effect of intervention on payments and administrative processes among the beneficiary's network (C) is measured in a similar way as described above, except that individuals are asked about the administrative process in which they assisted others.

Hypotheses (D) and (E) refer to the modalities of bribery and interactions with the administrative. For example, we measure whether the intervention changes the use of intermediary (any intermediary (0/1 indicator) who facilitate administrative processes and are often used to process bribe payments[22], or whether an individual is more or less likely to initiate a bribe. We also investigate whether the intervention changes the private cost of administrative processes, such as costs related to transport, photocopies, etc., or total distance travelled, and whether the individual feels in control when they interact with the administration.

3.3 Descriptive statistics and balance tests

This section presents descriptive statistics for all individuals (Tables 1, 2 and 3) and for the subsamples of individuals who conducted an administrative process (Table 4), paid a bribe (Table 5), supported someone from their network (Table 6), or supported someone from their network who paid a bribe (Table 7). For both the full sample (Tables 1 to 3) and conditional samples (Tables 4 to 7), the control and treatment groups are well balanced: very few variables are significantly different across groups, and the differences are of small magnitude.

Table 1 presents characteristics of individuals of the full sample and disaggregated by treatment status. The average age is low (26.1 years), and only 15% of individuals are married. Only 18% are women. The proportion of students is very high (62%), consistent with the recruitment method (see section 2). However, 50% of the sample has an "average" or "low" level of spoken French.

[22] This is one of the findings from the qualitative study (see Appendix C).

Almost half of the sample (47%) lives in Ouagadougou, and only 1.6% of the sample lives in rural areas. As mentioned, the sample is not representative of the general population of Burkina Faso but may be representative of potential users of the App promoted by the intervention.

Most participants used internet daily (69%), and almost all use Facebook (95%) in addition to another social media (the average number of social media used is 2.82). Internet quality is good for only 23% of the users. Only 17% of them perceive corruption as not frequent, and 75% think that corruption has increased (46%) or remained stable (23%) in 2020. Finally, 80% of the respondents perceive that administrative processes have become harder or much harder in 2020 compared to previous years.

Table 2 presents information from the administrative rosters. In the last 12 months, 62% of individuals had conducted an administrative task for themselves, and 37% had supported someone else. The average number of tasks performed for oneself was 0.94. The most common tasks performed were the request of a national ID card, a criminal record, a birth certificate, or the "certification" (*légalisation*) of an official document. In the whole sample, 18% of individuals paid at least one bribe. In addition, 6% of individuals assisted someone who paid a bribe during the administrative process (Table 3).

Table 4 provides information on individuals who conducted at least one administrative process (1,539 observations). On average, these individuals took 21.5 days to complete an administrative process. They had to visit public services more than once (2.5 times on average). The distance travelled is 5.8 km on average, consistent with a location in urban areas. Approximatively 22% of individuals received helped from someone else during the process, and 11% failed to complete a task. The direct cost of conducting a task is relatively high (approximatively 11,500 CFA, or 23 USD), and indirect costs lower (approximatively 3,500 CFA or 7 USD).[23] While 44% of the respondents found the process quite or very difficult, 20% found it very easy. In 12% of these administrative processes, the individual paid a bribe. For this subsample including all individuals who conducted at least one administrative task (not conditional on paying one bribe), the average amount paid was about 1,000 CFA during an administrative process, and 1,100 CFA in other situations (e.g., bribes requested from the police during traffic stops).

[23] Direct costs represent approximatively 50% of the average monthly consumption in Burkina Faso based on EHCVM 2018–19 data.

Table 5 focuses on the 189 individuals who paid a bribe during an administrative process in the last 12 months. For them, the total administrative cost is much higher (approximatively 34,500 CFA or 69 USD), and they paid 8,247 CFA in bribes (16 USD). About 41% of them initiated the bribe themselves, and 71% paid the bribe to speed up the process.

Table 6 shows information on the administrative processes in which the sampled individual assisted someone else (915 individuals). The individual supported is mostly a family member (43%) or a friend (51%), and the respondent went herself to the public service in 60% of the cases. Bribery payments occurred in 15% of the cases. However, direct costs reported when helping someone are similar (approximately 10,500 CFA) to those paid oneself. The amount of bribe payments is also similar (8,000 CFA approximately) for the subsample who stated that a bribe was paid by the person supported (Table 7).

4 Analysis

4.1 Econometric specifications

Our identification strategy relies on the randomized design, that is, access to the App is only provided to the treatment group. The main estimation consists in comparing outcomes for the treatment and the control group and consists in intention to treat (ITT) estimations. To gain precision and estimate parameters of interest, secondary specifications also estimate treatment effects among individuals who engaged with the administration to conduct administrative tasks at least once. A last series of specifications focuses on people who opened the App at least once.

A. ITT: policy treatment on the whole sample

For each outcome, we test the effect of being in the treatment group on the outcomes of interest. Because not all individuals in the treatment group *downloaded*, *opened*, or *used* the App, this will generate "intention to treat" (ITT) estimates. These experimental estimates are conservative compared to the effect of the App on individuals who used it. However, they provide an estimation of the effect of a policy consisting in offering a free App to individuals who expressed an initial interest in the product. For the ITT specification, we estimate the following cross-sectional model at endline (t_1):

$$y_{i,t1} = \beta_0 + \beta_1 T_i + \beta_2 y_{i,t0} + \varepsilon_i \quad (1)$$

where i is the individual, T_i indicates the treatment status of the individual, and $y_{i,t0}$ is the value of the outcome of interest at baseline (see section 2.2). This widely used ANCOVA specification is preferred in this case because we expect a relatively small autocorrelation for most of our outcomes of interest, and therefore, controlling for outcome of interest at baseline increases precision (compared to a difference-in-difference specification; see McKenzie, 2012).[24] For this specification, outcomes are all aggregated at the individual level (see section 2.2).

In addition to this base specification, we perform robustness analyses adding control variables.

$$y_{i,t1} = \beta_0 + \beta_1 T_i + \beta_2 y_{i,t0} + \boldsymbol{\beta_k} \mathbf{X_{k,i,t0}} + \varepsilon_i \quad (2)$$

where $\mathbf{X_{k,i}}$ indicates k control variables at the individual level.

To define final control variables, we first use the one indicated in the blind paper as age, level of French, type of recruitment campaign and the quality of internet network. To choose additional controls, we the double-selection method to select the potential control variables to include in the model. We apply this method to all hypothesis and we decided to keep all the variables chosen by the method for hypothesis A. Consequently, $\mathbf{X_k}$ includes indicators for the recruitment channel of participants (see section 2.1) and individual demographic characteristics such as age, language, and network quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages.

B. ITT: policy treatment on the sample of administrative services users

This specification measures the effect of the policy treatment on the population of users of administrative services. Mechanically, for the intervention to have an effect, individuals must interact with the administration. We estimate equations (1) and (2) among individuals who reported having engaged with the administration during the follow-up survey. In these specifications, outcomes are aggregated at the individual level as specified in section 2.2. We also

[24] Baseline values may not be strongly correlated with $y_{i,t1}$ for some variables if the administrative processes completed at t=0 are not the same as the processes at t=1. However, outcomes related to distance (and thus cost) and influenced by personality traits may be correlated over time. As noted, controlling for baseline outcomes increases precision.

run a regression where the level of observation is the *administrative task*, rather than the *individual* (see section 3), which has several advantages. First, instead of considering only one process per person (or an average value for several processes), it increases the number of observations by potentially including several processes per individual. Second, it allows us to control for the type of administrative task performed, which is important as some administrative tasks are expected to take more time, cost more, or be more susceptible to bribery payments. For example, obtaining a criminal record is less time consuming than obtaining a driver's license (10 *vs* 44 days on average). We estimate the following specification:

$$y_{i,j,t1} = \beta_0 + \beta_1 T_{i,t1} + \mathbf{\beta_k X_{k,i,t0}} + \mathbf{\beta_m X_{m,i,j,t1}} + \varepsilon_{i,j} \quad (3)$$

where i is an individual and j is an administrative task, and $\mathbf{X_{k,i}}$ indicates k control variables at the individual level (baseline values) and $\mathbf{X_{m,i,j}}$ m control variables at the administrative task level (at endline). Because the same individual i can conduct several administrative tasks j, standard errors are clustered at the individual level. This specification does not include baseline values for the dependent variable ($y_{i,t0}$ in (1)) because although we observe a panel of individuals (at baseline and endline), there is no panel equivalent for administrative tasks: any administrative process is performed only once. $\mathbf{X_k}$ includes the same variables as in equation (2), indicators for the recruitment channel of participants and individual demographic characteristics. $\mathbf{X_{m,i,j}}$ includes indicators for the type of administrative task conducted (e.g., obtaining a driver's license). Equation (3) is unbiased (experimentally) as long as the treatment does not affect the likelihood of engaging with the administration. This is a plausible assumption– interactions with the administration are mostly driven by the need to obtain a particular document– and a testable one with endline data.

C. Treatment effect on App users

All individuals in the treatment group received access to the App, but not all installed it. The point estimates obtained through equations (1) to (3) will therefore be conservative. For this reason, we estimate the effect of using the App through an instrumental variable (IV) approach, where we instrument App usage with the treatment variable and a series of covariates $\mathbf{X_k}$, which are the same as for equation (2) and (3). This gives us an estimate of the effect of using the App. We obtain

actual App usage from administrative records from the developer firm (ONE). We estimate the following by two-stage least square:

$$y_{i,t1} = \beta_0 + \beta_1 \widehat{U}_{i,t1} + \beta_2 y_{i,t0} + \mathbf{\beta_k X_{k,i,t0}} + \varepsilon_i \quad (4)$$

$$U_{i,t1} = \gamma_0 + \boldsymbol{\gamma_j Z_{j,i}} + \mathbf{\gamma_k X_{k,i,t0}} + \kappa_i \quad (5)$$

where $\boldsymbol{Z_{j,i}}$ is a vector of instrumental variables. For these specifications, we generate the treatment variation $U_{i,t1}$ (App usage) either as a dummy variable (0/1, indicating that an individual has used the App at least once), or as a continuous variable (as the number of times that the individual used the App). Instruments include the random assignment to the treatment group and other determinants of App usage such as network quality in the individual's home area. We test the strength and exogeneity of the instruments used.

D. Additional corrections and tests

For each category of outcomes specified in section 2.2, we correct p-values for multiple hypotheses testing. Specifically, we generate the Romano-Wolf stepdown adjusted p-values, controlling for the familywise error rate (FWER). In addition, we test whether attrition is substantial and different between the treatment and control group. In our data, even if attrition rate is high, 24.59%, the level of attrition is really similar in control and treatment group. In addition, by removing attritors and using data from the baseline, the two samples are still quite balanced. Therefore, we did not use the Kling and Liebman (2004) sensitivity bounds approach to correct for attrition. The data set does not include the number of call attempts for 431 respondents (404 are attritors). Using the number of calls as in Behaghel et al. (2015) was not possible in our case. In addition, because the number of calls is balanced in the two groups bounds are the same and cannot give us a lower and upper bound.

E. Heterogeneity analysis

We conduct several heterogeneity analyses on sub-groups for which impacts are likely to differ. To limit the number of outcomes considered, we focus on the ITT specification presented in equation (2). Formally, our heterogeneity regression is conducted as:

$$y_{i,t1} = \beta_0 + \beta_1 T_i + \beta_2 S_i + \beta_3 T_i * S_i + \beta_4 y_{i,t0} + \beta_5 y_{i,t0} * S_i + \boldsymbol{\beta_k X_{k,i,t0}} + \varepsilon_i \quad (6)$$

where $\mathbf{X_k}$ includes the same control variables as in (2), S_i is an indicator that individual i belongs to a given category at baseline. β_3 indicates the additional effect of the treatment for category S_i, (while β_1 indicates whether the impact of the App is significant for individuals who do not belong for category S_i). A joint test of significance of β_1 and β_3 indicates whether the impact of the App is significant for individuals in S_i. Per the pre-analysis plan, heterogeneity analyses are conducted for the following categories of individuals: (1) individuals with good internet access; (2) heavy social media users; (3) women; (4) individuals with university education; (5) those who are fluent in French; and (6) those who live in Ouagadougou, the capital and administrative center of the country.

5 Results

5.1 Main results

Effect of the intervention on bribery

Table R1 shows the impact of the intervention on bribery payments, with specification (1) presented in Panel A and specification (2) in Panel B. The intervention does not have a significant impact on the occurrence of bribery payments, if the respondent paid or not a bribe during administration process. The treatment does not have a significant effect on the total amount of bribery payments paid by the respondent nor the total amount paid to the administration per task. The coefficients are small, and adding controls in specification (2) does not substantially change the results from specification (1). Table R2 presents the effect of the intervention on interactions with the administration. There is no significant effect on the number of tasks completed, the time required to complete administrative tasks and the number of visits to the administration. The treatment does not have an effect on the self-assessed level of difficulty in completing the tasks. The coefficients are small in magnitude for both specifications.

Results displayed in Tables R1 and R2 therefore show that the intervention did not fulfill its primary objective of reducing bribery practice, even when considering only those who engaged in administrative procedures over the past year (specification (3) presented in Tables RA1 and RA2 Panel A), suggesting that an information-based interventions directed at users of public services may not be sufficient to address the root causes of petty corruption. Similarly, results from the IV model (specification (4), results are displayed in tables RA1 and RA2 Panel B) are not significant. For this model the instrument is a binary variable which is 1 when the respondent used the App at

least once. Results from the first stage of the regression are presented in table RA. The validity of the instrument results from the Fisher test which is more than 10. The treatment variable as a significant impact on the utilization of the App.

Table R3 displays the impact of the intervention on potential spillover effects within the beneficiary's network. The coefficients are small and similar between specification (1), Panel A and specification (2), Panel B. The intervention does not have a significant impact on support provided to others for administrative tasks, the success rate of administrative tasks completed by supported relatives, the number of bribery payments made by supported relatives, the total amount paid by supported relatives, the total amount of bribery payments made by supported relatives, or the time taken to complete administrative tasks by supported relatives. While it did not create any effect on the individual itself, the intervention also did not create spillovers on the beneficiary's network.

Tables RA3 leads to similar conclusion when using IV model (Panel B) but also when regressing only on individuals who helped someone to do an administrative task over the past year, specification (3), Panel A.

Cost of interacting with the administration and bribery modalities

Finally, Table R4 and R5 present the effect of the intervention on the modalities of interactions with the administration for specifications (1) in panel A and (2) in panel B. The coefficients are small, and the differences between the two specifications are minimal. There is no significant effect of the treatment on the use of intermediaries to accomplish administrative tasks. In contract with what was expected by the intervention, there is no significant effect on the initiation of bribery payments by the respondent but also on bribes offered by individuals to expedite processes. There is no significant effect of the intervention on the total of other costs paid per administrative task, and the total distance traveled per task. The intervention does not have a significant impact on the support received by respondents from others, or the sense of control over administrative tasks.

The intervention did therefore not reduce the financial and non-financial costs of interacting with public agents nor the direct interactions. Comparable results are presents in tables RA4 and RA5 for specification (3) in panel A and (4) in Panel B.

The results from specifications (1), (2), (3) and (4) are not significant and do not allow for a conclusive assessment of the intervention's effects. Results from specification (3) can suggest that

targeting only respondents who did a task throughout the year cannot be enough to underlying causes of petty corruption. Thus, the lack of significance in our results cannot be attributed to targeting, as they remain non-significant even when the sample size is reduced. The results from specification (4) are not significant and indicate that respondents use the app, but its utilization does not produce the expected outcomes. Given the small magnitudes of the coefficients and standard errors, the study appears to be well-powered

5.2 Heterogeneity results

This section presents the heterogeneity results from specification (6), in order to generate insights regarding the mechanisms at play presented in section 4.1.E (result tables for hypothesis A and B are presented in appendix). Specifically, we test whether the App works better when it addresses strong pre-existing constraints (related to language, education, gender, etc.) or whether it works better in contexts where individuals are already more empowered. The results are consistent with those from our main specification. Belonging to a particular group does not seem to change the results. Indeed, the intervention does not have a different impact on respondents having a good internet quality (Table RA6), those who have been at university (Table RA7) and women (Table RA10).

The results in Table RA9 focus on individuals with an excellent level of French. For hypothesis A, only the treatment has a significant effect on the average direct costs of the administrative process, with an increase in costs for those who do not master French. However, this significance is not robust to the multiple hypothesis testing. For the hypothesis B, we find a decrease in the time to complete the administrative process for individuals with an excellent level of French. Indeed, the interaction term (treatment * excellent level of French) is significant, and the coefficient stay significant after the multiple hypothesis testing correction. We can reject the hypothesis that the joint coefficient of treatment and treatment interacted with excellent level of French is 0 at a confidence level of 90%. This means a treated respondent with an excellent level of French reduce the average time to complete the administrative process by 3.78 days in average, or approximately 25% of the mean value in the control group.

Overall, these results suggest that the intervention does not have an effect on a particular subcategory of the population. Thus, the intervention will not be more effective if it targets better the beneficiaries, whether on gender, education, geographic location, or internet usage.

6 Conclusion

This article shows the results from a randomized evaluation of an App-based intervention aimed at addressing petty corruption in Burkina Faso. We find that the intervention neither reduced the administrative burden for beneficiaries– based on quantitative measures such as the time spent on an administrative task or the money paid for its completion– nor decreased the amount of bribes paid. We estimate a precise null effect for all the outcomes specified in our pre-analysis plan across several specifications aimed at measuring the effect of individuals who received the App or used it– focusing on the whole sample or only on those who actually interacted with public services after receiving the App. In sum, the intervention was ineffective at addressing the administrative burden and petty corruption.

While the study has some limitations in terms of external validity, the findings suggest that information-based interventions focusing on service users has little potential in this context. Our exploration of the mechanisms show that a large part of the bribes are initiated by citizens, and that the intervention does not affect this pattern. The results and qualitative evidence are consistent with a bureaucratic structure in which bribery payments potentially increase the utility of individuals who pay bribes. Besides, an information-provision intervention focusing on individual public service users has little potential for addressing the systematic failures that lead to petty corruption. Our results suggest that these failures need to be addressed for eliminating corruption, even in the interaction with low-level civil servants.

The results are also consistent with a series of studies that are relatively pessimistic regarding the potential of App-based interventions to generate positive changes in a wide variety of applications in low-income countries. Alternative information-provision schemes (which do not rely on smartphone Apps) may be more successful at reducing bribery payments. However, our results rather suggest that interventions focusing on bureaucrats and public service providers (instead of

their users) are more likely to address the root causes of petty corruption, while reducing the administrative burden at the same time.

7 Bibliography

Ahmad, A. H., Green, C., & Jiang, F. (2020). Mobile money, financial inclusion and development: A review with reference to African experience. *Journal of economic surveys*, 34(4), 753-792.

Aidt, T. S. (2003). Economic analysis of corruption: a survey. *The Economic Journal*, 113(491), F632-F652.

Ajzenman, N. (2021). The power of example: Corruption spurs corruption. *American Economic Journal: Applied Economics*, 13(2), 230-57.

Avis, E., Ferraz, C., & Finan, F. (2018). Do government audits reduce corruption? Estimating the impacts of exposing corrupt politicians. *Journal of Political Economy*, 126(5), 1912-1964.

Baez-Camargo, C., Bukuluki, P., Sambaiga, R., Gatwa, T., Kassa, S., & Stahl, C. (2020). Petty corruption in the public sector: A comparative study of three East African countries through a behavioural lens. *African Studies*, 79(2), 232-249.

Banerjee, A., Green, D. P., McManus, J., & Pande, R. (2014). Are poor voters indifferent to whether elected leaders are criminal or corrupt? A vignette experiment in rural India. *Political Communication*, 31(3), 391-407.

Banerjee, A., Duflo, E., Imbert, C., Mathew, S., & Pande, R. (2020). E-governance, accountability, and leakage in public programs: Experimental evidence from a financial management reform in India. *American Economic Journal: Applied Economics*, 12(4), 39-72.

Bardhan, P. (1997). Corruption and Development: A Review of Issues. *Journal of Economic Literature*, 35(3), 1320-1346.

Behaghel, L., Crépon, B., Gurgand, M., & Le Barbanchon, T. (2015). Please call again: Correcting nonresponse bias in treatment effect models. *Review of Economics and Statistics*, 97(5), 1070-1080.

Björkman, M., & Svensson, J. (2009). Power to the people: evidence from a randomized field experiment on community-based monitoring in Uganda. *The Quarterly Journal of Economics*, 124(2), 735-769.

Chêne, M. (2019). *Successful approaches to tackle petty corruption*. Transparency International.

Chong, A., De La O, A. L., Karlan, D., & Wantchekon, L. (2015). Does corruption information inspire the fight or quash the hope? A field experiment in Mexico on voter turnout, choice, and party identification. *The Journal of Politics*, 77(1), 55-71.

Cooray, A., Dzhumashev, R., & Schneider, F. (2017). How does corruption affect public debt? An empirical analysis. *World Development*, 90, 115-127.

Del Monte, A., & Papagni, E. (2001). Public expenditure, corruption, and economic growth: the case of Italy. *European Journal of Political Economy*, 17(1), 1-16.

ECOSOC (2020). *Progress towards the Sustainable Development Goals*. Report E/2020/57.

Ferraz, C., & Finan, F. (2008). Exposing corrupt politicians: the effects of Brazil's publicly released audits on electoral outcomes. *The Quarterly journal of economics*, 123(2), 703-745.

Ferraz, C., & Finan, F. (2011). Electoral accountability and corruption: Evidence from the audits of local governments. *American Economic Review*, 101(4), 1274-1311.

Ferraz, C., Finan, F., & Moreira, D. B. (2012). Corrupting learning: Evidence from missing federal education funds in Brazil. *Journal of Public Economics*, 96(9-10), 712-726.

Finkelstein, A., & Notowidigdo, M. J. (2019). Take-up and targeting: Experimental evidence from SNAP. *The Quarterly Journal of Economics*, 134(3), 1505-1556.

Fisman, R., & Golden, M. (2017). How to fight corruption. *Science*, 356(6340), 803-804.

Fisman, R., & Svensson, J. (2007). Are corruption and taxation really harmful to growth? Firm level evidence. *Journal of Development Economics*, 83(1), 63-75.

George, T., Ballantyne, H., Belden, P., Birner, C., Castello, R., del Castren, R., ... & Treinen, V. (2011). *ICT in Agriculture. Connecting Smallholders to Knowledge, Networks, and Institutions*. Washington, D.C. : World Bank Group. http://documents.worldbank.org/curated/en/455701468340165132/ICT-in-agriculture-connecting-smallholders-to-knowledge-networks-and-institutions.

Gupta, A. (2012). *Red tape: Bureaucracy, structural violence, and poverty in India*. Duke University Press.

Gupta, S., Davoodi, H., & Alonso-Terme, R. (2002). Does corruption affect income inequality and poverty?. *Economics of governance*, 3(1), 23-45.

Gyimah-Brempong, K. (2002). Corruption, economic growth, and income inequality in Africa. *Economics of governance*, 3(3), 183-209.

Herd, P., & Moynihan, D. (2025). Administrative Burdens in the Social Safety Net. *Journal of Economic Perspectives*, 39(1), 129-150.

Holmberg, S., & Rothstein, B. (2011). Dying of corruption. *Health Economics, Policy and Law*, 6(4), 529-547.

Hunt, J., & Laszlo, S. (2012). Is bribery really regressive? Bribery's costs, benefits, and mechanisms. *World Development*, 40(2), 355-372.

Justesen, M. K., & Bjørnskov, C. (2014). Exploiting the poor: Bureaucratic corruption and poverty in Africa. *World Development*, 58, 106-115.

Kaufmann, D., Montoriol-Garriga, J., & Recanatini, F. (2008). How does bribery affect public service delivery? Micro-evidence from service users and public officials in Peru. Policy Research Working Paper 4492, World Bank.

Kukutschka, R. (2016). *Technology against corruption: the potential of online corruption-reporting apps and other platforms*. U4 Expert-Answer. Bergen: Chr. Michelsen Institute.

Leff, N. H. (1964). Economic development through bureaucratic corruption. *American behavioral scientist*, 8(3), 8-14.

Leys, C. (1965). What is the Problem about Corruption?. *The Journal of Modern African Studies*, 3(2), 215-230.

Lopoo, L. M., Heflin, C., & Boskovski, J. (2020). Testing behavioral interventions designed to improve on-time SNAP recertification. *Journal of Behavioral Public Administration*, 3(2).

Mbiti, I., & Weil, D. N. (2015). Mobile banking: The impact of M-Pesa in Kenya. In *African successes, Volume III: Modernization and development* (pp. 247-293). University of Chicago Press.

Madsen, J. K., Mikkelsen, K. S., & Moynihan, D. P. (2022). Burdens, sludge, ordeals, red tape, oh my!: a user's guide to the study of frictions. *Public Administration*, 100(2), 375-393.

Mauro, P. (1995). Corruption and growth. *The Quarterly Journal of Economics*, 110(3), 681-712.

Mauro, P. (1998). Corruption and the composition of government expenditure. *Journal of Public Economics*, 69(2), 263-279.

McKenzie, D. (2012). Beyond baseline and follow-up: The case for more T in experiments. *Journal of Development Economics*, 99(2), 210-221.

Mishra, A. (2006). Persistence of corruption: some theoretical perspectives. *World Development*, 34(2), 349-358.

Méon, P. G., & Sekkat, K. (2005). Does corruption grease or sand the wheels of growth?. *Public choice*, 122(1), 69-97.

Moynihan, D., Herd, P., & Harvey, H. (2015). Administrative burden: Learning, psychological, and compliance costs in citizen-state interactions. *Journal of Public Administration Research and Theory*, 25(1), 43-69.

Moynihan, D., & Herd, P. (2023). Special issue introduction: administrative burdens as a global public management phenomenon. *Asia Pacific Journal of Public Administration*, 45(4), 342-344.

Mugellini, G., Della Bella, S., Colagrossi, M., Isenring, G. L., & Killias, M. (2021). Public sector reforms and their impact on the level of corruption: A systematic review. *Campbell Systematic Reviews*, 17(2), e1173.

Nieto-Morales, F., Peeters, R., & Lotta, G. (2024). Burdens, bribes, and bureaucrats: the political economy of petty corruption and administrative burdens. *Journal of Public Administration Research and Theory*, 34(4), 481-497.

Olken, B. A. (2007). Monitoring corruption: evidence from a field experiment in Indonesia. *Journal of Political Economy*, 115(2), 200-249.

Olken, B. A., & Pande, R. (2012). Corruption in Developing Countries. *Annu. Rev. Econ.*, 4(1), 479-509.

Ogutu, S. O., Okello, J. J., & Otieno, D. J. (2014). Impact of information and communication technology-based market information services on smallholder farm input use and productivity: The case of Kenya. *World Development*, 64, 311-321.

Paldam, M. (2001). Corruption and religion adding to the economic model. *Kyklos*, 54(2-3), 383-413.

Peiffer, C., & Rose, R. (2018). Why are the poor more vulnerable to bribery in Africa? The institutional effects of services. *The Journal of Development Studies*, 54(1), 18-29.

Peisakhin, L. (2012). Transparency and corruption: Evidence from India. *The Journal of Law and Economics*, 55(1), 129-149.

Pring, C., & Vrushi, J. (2019). *Global corruption barometer: Africa 2019*. Transparency International. Available at: https://files.transparencycdn.org/images/Full-Report-Global-Corruption-Barometer-Africa-2019.pdf.

Qiang, C. Z., Yamamichi, M., Hausman, V., Altman, D., & Unit, I. S. (2011). *Mobile applications for the health sector*. Washington: World Bank, 2.

Reinikka, R., & Svensson, J. (2004). Local capture: evidence from a central government transfer program in Uganda. *The Quarterly Journal of Economics*, 119(2), 679-705.

Stahl, C., Kassa, S., & Baez-Camargo, C. (2017). *Drivers of petty corruption and anti-corruption interventions in the developing world-a semi-systematic review*. Basel: Basel Institute on Governance. https://www. baselgovernance. org/publications/3623.

Stephenson, M. C. (2020). Corruption as a self-reinforcing trap: Implications for reform strategy. *The World Bank Research Observer*, 35(2), 192-226.

Svensson, J. (2003). Who must pay bribes and how much? Evidence from a cross section of firms. *The Quarterly Journal of Economics*, 118(1), 207-230.

Svensson, J. (2005). Eight questions about corruption. *Journal of Economic Perspectives*, 19(3), 19-42.

Transparency International (2017). *Global Corruption Barometer (9th edition).* https://www.transparency.org/en/gcb/global/global-corruption-barometer-2017

Van Rijckeghem, C., & Weder, B. (2001). Bureaucratic corruption and the rate of temptation: do wages in the civil service affect corruption, and by how much?. *Journal of development economics*, 65(2), 307-331.

Vicente, P. C. (2014). Is vote buying effective? Evidence from a field experiment in West Africa. *The Economic Journal*, 124(574), F356-F387.

Wei, S. J. (2000). How taxing is corruption on international investors?. *Review of Economics and Statistics*, 82(1), 1-11.

Winters, M. S., Testa, P., & Fredrickson, M. M. (2012). Using Field Experiments to Understand Information as an Antidote to Corruption. In R. M. Isaac, & Norton, D. A. (Ed.), *New advances in experimental research on corruption* (pp. 213-246). Emerald Group Publishing Limited, Leeds. https://doi.org/10.1108/S0193-2306(2012)0000015010.

World Bank (2023). *Women, Business and the Law 2023*. Washington, DC: World Bank.

Zamboni, Y., & Litschig, S. (2018). Audit risk and rent extraction: Evidence from a randomized evaluation in Brazil. *Journal of Development Economics*, 134, 133-149.

Zaum, D., Taxell, N., & Johnson, J. (2012). Mapping evidence gaps in anti-corruption: assessing the state of the operationally relevant evidence on donors' actions and approaches to reducing corruption. Bergen: U4 Anti-Corruption Resource Centre, Chr. Michelsen Institute (U4 Issue)

8 Tables

Table 1: Test of balance, individual characteristics

	(1) All individuals	(2) Control group	(3) Treatment group	(4) T-test p-value
Demographic characteristics				
Age	26.1	26.0	26.3	-1.41
Female individual	0.18	0.18	0.17	0.26
Married	0.15	0.16	0.15	0.28
Secondary education	0.38	0.38	0.38	-0.17
Higher education	0.59	0.58	0.59	-0.12
Occupation: student	0.62	0.61	0.63	-1.37
Occupation: employee	0.15	0.16	0.15	0.45
Occupation: self-employed or employer	0.076	0.083	0.069	1.29
Spoken French: average	0.49	0.49	0.49	0.28
Spoken French: low	0.032	0.035	0.028	0.92
Spoken More: excellent	0.42	0.42	0.42	-0.20
Ouagadougou	0.47	0.48	0.47	0.64
Bobodioulaso	0.098	0.095	0.10	-0.41
Koudougou	0.24	0.24	0.24	-0.28
Other city	0.18	0.18	0.18	0.05
Village	0.016	0.014	0.018	-0.81
Connectivity				
Number of years with cellphone	9.40	9.38	9.41	-0.17
Uses internet daily	0.69	0.69	0.69	0.00
Hours of internet per day	6.87	6.71	7.02	-1.04
Number of social media used	2.82	2.81	2.84	-0.68
Uses Facebook	0.95	0.95	0.94	0.27
Uses Instagram	0.35	0.34	0.35	-0.59
Uses Twitter	0.17	0.17	0.17	0.00
Internet quality: low	0.18	0.17	0.20	-1.80*
Internet quality: average	0.58	0.58	0.57	0.69
Internet quality: good	0.23	0.24	0.22	0.86
Administration and corruption: perception				
Corruption very frequent	0.4	0.41	0.40	0.81
Corruption quite frequent	0.41	0.42	0.41	0.84
Corruption not frequent	0.17	0.16	0.18	-1.98**
Corruption increased in 2020	0.46	0.45	0.48	-1.41

Corruption stable in 2020	0.23	0.25	0.22	1.60
Corruption decreased in 2020	0.25	0.25	0.24	0.79
Covid: admin processes much harder	0.30	0.30	0.29	0.63
Covid: admin processes harder	0.50	0.48	0.51	-1.30
Covid: admin processes identical or easier	0.21	0.22	0.20	0.89
Covid: corruption increased	0.47	0.46	0.47	-0.20
Observations	2476	1238	1238	2476

Note: Descriptive statistics and balance, individual characteristics. Mean coefficients; *t* statistics in last column.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 2: Test of balance, administrative processes

	(1) All individuals	(2) Control group	(3) Treatment group	(4) T-test p-value
Processes in the last 12 months				
Any admin process last 12 months (self)	0.62	0.63	0.62	0.62
Any admin process last 12 months (network)	0.37	0.37	0.37	-0.04
Any admin process last 12 months (self or network)	0.74	0.75	0.73	0.96
Number of admin processes last 12 months (self)	0.94	0.96	0.91	1.27
Number of admin processes last 12 months (network)	0.48	0.47	0.49	-0.57
Process last 12mo: birth certificate excerpt	0.10	0.11	0.093	1.40
Process last 12mo: birth certificate	0.071	0.080	0.061	1.80*
Process last 12mo: child school registration	0.028	0.024	0.032	-1.10
Process last 12mo: national ID card	0.14	0.13	0.15	-0.81
Process last 12mo: passport	0.027	0.024	0.031	-0.98
Process last 12mo: criminal record	0.13	0.14	0.13	0.83
Process last 12mo: other (e.g. *légalisation*)	0.13	0.14	0.13	0.77
Economic cost				
Time to complete admin process (days, cs 99p) (average)	13.4	13.5	13.2	0.23
Number visits for admin process (cs 99p) (average)	1.53	1.55	1.50	0.74
Distance travelled for admin process (log km) (average)	1.09	1.10	1.07	0.61
Failed to complete admin process (any)	0.070	0.064	0.077	-1.26
Received help from family or acquaintance (any)	0.14	0.14	0.13	0.88

Received help from intermediary (any)	0.038	0.040	0.035	0.74
Direct cost admin process (CFA, cs 99p) (total)	7110.1	7139.6	7080.5	0.06
Indirect cost admin process (CFA, cs 99p) (total)	2227.6	2071.9	2383.3	-1.20
Total cost admin process (CFA, cs 99p) (total)	9337.7	9211.5	9463.8	-0.22
Process very easy (any)	0.13	0.13	0.12	0.72
Process quite easy (any)	0.32	0.32	0.32	0.09
Process quite difficult (any)	0.19	0.20	0.18	1.07
Process very difficult (any)	0.080	0.077	0.083	-0.59
Difficulty of the process (1-4) (average)	2.30	2.30	2.31	-0.25
Bribes				
Paid a bribe during admin process (=1) (any)	0.076	0.073	0.080	-0.68
Bribe amount during admin process (CFA, cs 99p) (total)	629.5	550.9	708.2	-1.05
Paid another bribe in last 12mo (=1)	0.12	0.12	0.13	-0.12
Other bribe payments in last 12 months (CFA, cs 99p)	953.4	1001.1	905.8	0.59
Paid any bribe in last 12 months (=1)	0.20	0.20	0.21	-0.49
Total bribe payments in last 12mo (CFA, cs 99p)	1583.0	1551.9	1614.0	-0.26
Initiated bribe (any)	0.032	0.032	0.031	0.21
Gave bribe to speed up process (any)	0.055	0.058	0.051	0.77
Observations	2476	1238	1238	2476
Administrative processes, network				
Time to complete admin process (network)(days, cs 99p) (average)	3.54	3.23	3.85	-1.41

Succeeded in completing task (total)	0.37	0.36	0.37	-0.25
Helped a family member (any)	0.16	0.17	0.16	0.66
Helped a friend (any)	0.19	0.19	0.19	-0.26
Went to administration to help (network) (any)	0.22	0.22	0.22	-0.15
Paid a bribe (network) (any)	0.055	0.052	0.059	-0.79
Direct cost admin process (network)(CFA, cs 99p) (total)	3818.3	3199.9	4436.8	-1.32
Bribe amount (network)(CFA, cs 99p) (total)	432.1	379.5	484.8	-0.67
Observations	2440	1221	1219	2440

Note: Descriptive statistics and balance, administrative processes. For variables from the roster of administrative tasks. Descriptive statistics and balance, administrative processes in which the individual helped someone else from her network. We show the average value (average), the total value (total), or the occurrence (any) for each individual when they have engaged in several administrative tasks over the last 12 months.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table R1: Hypothesis A, ITT specifications

	(1) Paid a bribe during admin process (any)	(2) Total bribe amount paid (log, CFA)	(3) Average direct costs of administrative process (log)
	Panel A		
Treatment	0.002	-0.015	0.275
	(0.011)	(0.119)	(0.179)
Baseline value of the outcome variable	0.112***	0.130***	0.140***
	(0.020)	(0.018)	(0.022)
Constant	0.049***	0.651***	2.429***
	(0.008)	(0.088)	(0.162)
Romano and Wolf p-values	0.950	0.950	0.277
Controls	No	No	No
	Panel B		

Treatment	0.002	-0.006	0.243
	(0.011)	(0.118)	(0.178)
Baseline value of the outcome variable	0.097***	0.118***	0.095***
	(0.021)	(0.018)	(0.023)
Constant	0.058	0.284	1.648*
	(0.054)	(0.595)	(0.895)
Romano and Wolf p-values	0.980	0.980	0.376
Controls	Yes	Yes	Yes
Mean in control group	0.070	1.470	4.460
Median in control group	0.000	0.000	6.400
Observations	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: ITT specifications for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. In panel A, the specification does not include any control variable. In panel B, control include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table R2: Hypothesis B, ITT specifications

	(1) Succeed to complete admin process (total)	(2) Average time to complete administrative process (days,cs 99p)	(3) Average number of visits for administrative process (days,cs 99p)	(4) Found the process difficult or very difficult (any)
Panel A				
Treatment	0.021	-0.214	0.007	-0.008
	(0.034)	(1.403)	(0.088)	(0.018)
Baseline value of the outcome variable	0.154***	0.068***	0.110***	0.086***
	(0.023)	(0.019)	(0.026)	(0.020)
Constant	0.477***	8.951***	1.138***	0.163***
	(0.030)	(1.025)	(0.074)	(0.014)
Romano and Wolf p-values	0.950	0.990	0.990	0.950
Controls	No	No	No	No
Panel B				
Treatment	0.017	-0.258	-0.005	-0.010
	(0.034)	(1.402)	(0.088)	(0.018)
Baseline value of the outcome variable	0.114***	0.059***	0.076***	0.078***
	(0.023)	(0.019)	(0.026)	(0.021)
Constant	0.534***	8.744	0.706	0.197**
	(0.171)	(7.050)	(0.444)	(0.090)
Romano and Wolf p-values	0.970	0.990	0.990	0.970
Controls	Yes	Yes	Yes	Yes
Mean in control group	0.730	13.660	1.540	0.260
Median in control group	1.000	0.000	1.000	0.000
Observations	1867	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: ITT specifications for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. In panel A, the specification does not include any control variable. In panel B, control include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table R3: Hypothesis C, ITT specifications

	(1)	(2)	(3)	(4)	(5)
	Number of admin processes last 12 months (network)	Succeed in completing task (network) (total)	Paid a bribe (network) (any)	Total bribe amount (network, CFA, log)	Average time to complete administrative process (network) (days,cs 99p)
Panel A					
Treatment	0.013	0.019	0.003	0.005	-0.568
	(0.026)	(0.025)	(0.008)	(0.059)	(0.905)
Baseline value of the outcome variable	0.108***	0.087***	0.002	0.008	0.152***
	(0.023)	(0.022)	(0.017)	(0.016)	(0.040)
Constant	0.339***	0.299***	0.026***	0.192***	4.240***
	(0.021)	(0.020)	(0.005)	(0.042)	(0.655)
Romano and Wolf p-values	0.921	0.881	0.921	0.970	0.901
Controls	No	No	No	No	No
Panel B					
Treatment	0.009	0.016	0.002	0.002	-0.679
	(0.026)	(0.025)	(0.008)	(0.059)	(0.900)
Baseline value of the outcome variable	0.075***	0.061***	-0.008	-0.002	0.139***
	(0.023)	(0.023)	(0.017)	(0.016)	(0.040)
Constant	0.041	0.007	-0.007	0.100	-8.652*
	(0.131)	(0.126)	(0.038)	(0.298)	(4.524)
Romano and Wolf p-values	0.941	0.901	0.941	0.941	0.901
Controls	Yes	Yes	Yes	Yes	Yes
Mean in control group	0.400	0.360	0.050	0.350	3.240
Median in control group	0.000	0.000	0.000	0.000	0.000
Observations	1867	1867	1867	1867	1867

Source: our calculations from baseline and endline surveys.

Note: ITT specifications for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. In panel A, the specification does not include any control variable. In panel B, control include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table R4: Hypothesis D, ITT specifications

	(1) Received help from intermediary (any)	(2) Initiated bribe (any)	(3) Gave bribe to speed up process (any)
	Panel A		
Treatment	0.004	-0.001	-0.001
	(0.009)	(0.007)	(0.009)
Baseline value of the outcome variable	0.098***	0.013	0.106***
	(0.023)	(0.019)	(0.021)
Constant	0.031***	0.021***	0.037***
	(0.006)	(0.005)	(0.007)
Romano and Wolf p-values	0.950	0.980	0.980
Controls	No	No	No
	Panel B		
Treatment	0.004	-0.001	-0.001
	(0.009)	(0.007)	(0.009)
Baseline value of the outcome variable	0.088***	0.010	0.097***
	(0.023)	(0.019)	(0.021)
Constant	0.040	0.029	0.099**
	(0.044)	(0.033)	(0.046)
Romano and Wolf p-values	0.901	0.941	0.941
Controls	Yes	Yes	Yes
Mean in control group	0.040	0.030	0.060
Median in control group	0.000	0.000	0.000
Observations	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: ITT specifications for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. In panel A, the specification does not include any control variable. In panel B, control include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table R5: Hypothesis E, ITT specifications

	(1) Indirect cost admin process (CFA) (average)	(2) Average distance travelled for administrative process (km, log)	(3) Received help from family or acquaintance (any)	(4) Confidence index (0-12)
Panel A				
Treatment	166.125	0.146	-0.005	-0.016
	(255.251)	(0.120)	(0.013)	(0.110)
Baseline value of the outcome variable	0.040*	0.162***	0.104***	
	(0.021)	(0.023)	(0.019)	
Constant	1059.425***	0.009	0.080***	7.585***
	(183.121)	(0.086)	(0.010)	(0.078)
Romano and Wolf p-values	0.871	0.703	0.891	0.891
Controls	No	No	No	No
Panel B				
Treatment	146.002	0.129	-0.008	-0.012
	(256.523)	(0.118)	(0.013)	((0.109))
Baseline value of the outcome variable	0.035	0.101***	0.088***	
	(0.021)	(0.024)	(0.019)	
Constant	-118.956	-0.827	0.068	5.776***
	(1288.694)	(0.595)	(0.067)	(0.553)
Romano and Wolf p-values	0.931	0.693	0.931	0.950
Controls	Yes	Yes	Yes	Yes
Mean in control group	1438.500	0.620	0.140	0
Median in control group	500.000	1.320	0.000	0
Observations	1867	1867	1867	1780

Source: our calculations from baseline and endline surveys.
Note: ITT specifications for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. In panel A, the specification does not include any control variable. In panel B, control include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

9 Appendices

Appendix A

This section presents the App platform and the services it provides. The interface is shown in Figure A.1. The content is available in French or in a local language (Moré). An interactive voice response feature is available;

Individuals can either select the category of administrative process they are interested in or go directly to the list of procedures in the second tab. Through these categories or going directly to the "Procedure" tab (Figure A.1), users can choose the document or administrative process needed. They can obtain details on a given administrative process, such as obtaining a national ID card (Figures A. 2). The App provides the location of the administration that delivers the ID card, the documents required to obtain it, and the cost (2,500 CFA in this example). It also indicates the processing time (3 to 21 days for the ID card, depending on the location). It provides additional, precise information (e.g., regarding the provision of a receipt, the need to take fingerprints, contact of the public services, etc.).

Figure A.1: procedures

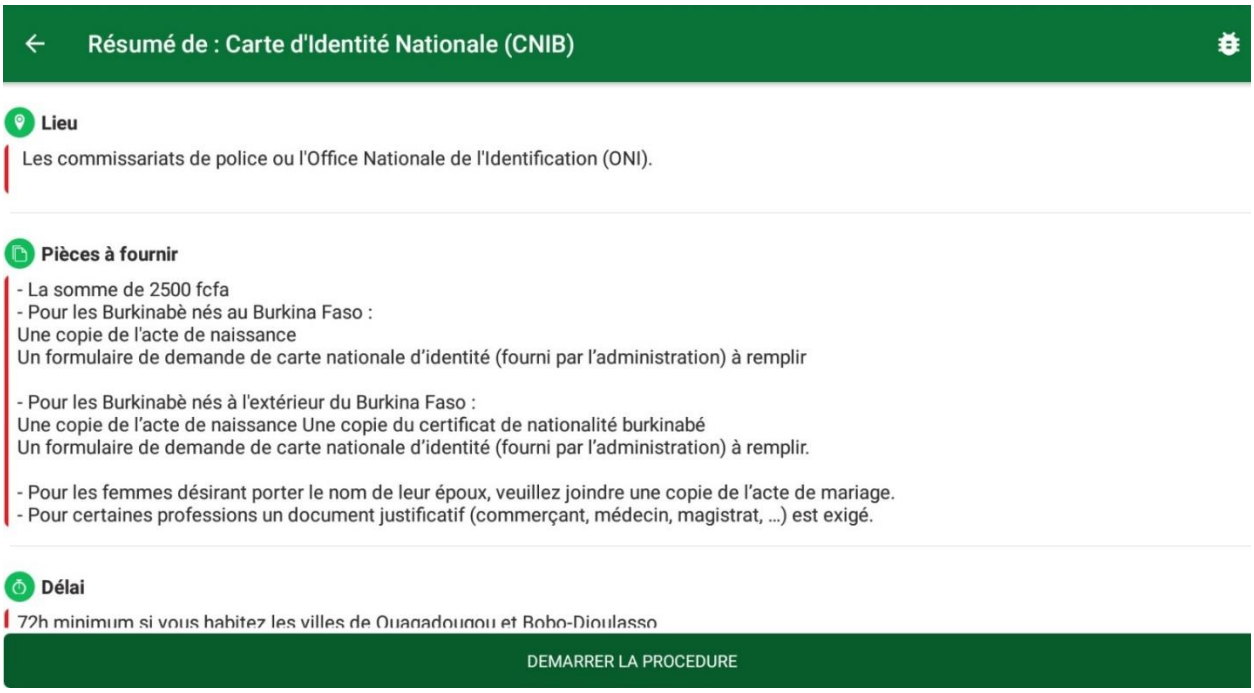

Figure A.2: summary for national ID card (1/2)

Appendix B: Summary of the pilot and qualitative research

In 2019, the App was provided to 465 participants as a proof of concept. Participants were randomly selected among those who expressed interest in the App on the Facebook forum '*je suis engagé contre la corruption*' ("I'm engaged against corruption"). Interested participants were asked to provide their name and mobile phone number and to complete a brief socio-economic profile. 465 randomly selected interested participants then received a message inviting them to test the App, as well as a link to download the pilot version of the App. The App developer team was able to track each phone number's usage of the App, that is, whether or not a phone number had downloaded the App, and when it was connecting to the App. This pilot served as a proof of concept and as an opportunity to gather basic data, including those we used for power calculations.

A qualitative study then took place in October 2020 to understand potential user's perceptions of the App's usefulness to improve its functioning. Given restrictions due to COVID-19, the qualitative interviews were conducted over the phone. Based on usage data of the App, potential pilot users were divided in three categories: i) those who only connected to the App once; ii) those who connected more than once; iii) those who were invited to download the App but never did so. Five persons per category were interviewed in fall 2020 by a local researcher, Nathalie Ouangraoua. The following summarizes the main findings from this qualitative study.

i) Where do people find information on the documents needed for administrative acts?

The best-known and most widespread sources of information are word of mouth. As one respondent put it: "People don't know what documents are needed for an administrative act, so they find out by word of mouth. If you know someone who has already done the act in question, you take their file. There's no information sheet specifying the necessary documents". For those who have nobody in their circle who has completed the specific act, they need to go to the department that is authorized to issue the act, where according to one respondent you have to "ask the agent there, or the people, the canvassers, or look on the notice board for information". In the absence of readily available information, people often engage intermediaries who they informally hire to support them in the administrative procedures "Birth certificates, CNIBs [IDs], permits, passports ... there are intermediaries, and we don't know what relationship they have with those who establish the acts. The canvassers [intermediaries] say they have to take money to motivate those who do the work."

ii) How can the App facilitate administrative processes?

Those who used the App attested to its usefulness in providing information on the procedures; legal prices; documents needed; deadlines; the location of the administration concerned; authenticity of information; and a way to avoid having to travel to obtain information on the procedure for drawing up documents. For example, one user explained "You're sitting at home or in the office and you need a birth certificate or a criminal record. With the App, it's easy to do this without having to go to your place of birth. Imagine if you're in ouaga [Ouagadougou] and you were born in bobo [Bobo-Dioulasso], you don't need to go anywhere; all you have to do is send the required documents".

iii) What are the barriers to using the App?

Interviews report that internet connection represents a barrier. An internet connection is needed to download and use the App, which implies connection costs and limits the possibility of access due to lack of connection. Interviewees also commented on the language of the App (French), which made it inaccessible to a large part of the population, who does not speak French or is illiterate. Finally, the App was only available for Android phones, limiting its potential.

Following this study, several tweaks were made to the App to make it more accessible. The App was made available in local languages in addition to French. It was further revised to be fully operable through interactive voice responses, making it accessible to those who are less literate. The App provider, ONE, provided technical support to users in installing the App and a social marketing campaign to stimulate its usage among participants. In addition, phone credit was provided to study participants with the aim of covering costs related to the download (500 CFA or 1 USD approximatively).

Appendix C: List of administrative processes available in the App (translation)

Act (responsible public service)

1. Birth certificate (City Hall)
2. Substitute birth certificate (City Hall)
3. Excerpt of birth certificate (City Hall)
4. Excerpt of supplementary birth certificate (City Hall)
5. Primary school registration (School)
6. Neonatal consultation (Maternity ward)
7. Deed of delivery (Maternity ward)
8. Burkinabe identity card (National Identification Office)
9. Passport (National Police)
10. Authorization to cut and/or collect dead wood for personal use (Environmental Service)
11. Death certificate (City Hall l)
12. Substitute death certificate (City Hall)
13. Family record book (City Hall)
14. Short marriage certificate (City Hall)
15. Marriage certificate (City Hall)
16. Excerpt of marriage certificate (City Hall)
17. Certificate of residence (City Hall)
18. Life certificate (City Hall)
19. Authorization to occupy public property (City Hall)
20. Authorization to open a bar (City Hall)
21. Authorization to open a restaurant (City Hall)
22. Health certificate (City Hall)
23. Certificate of inheritance (City Hall)
24. Landowner certificate (Land registry office)
25. Certificate of individual character (Court)
26. Certificate of nationality (Court)
27. Criminal record (Court)
28. One-stop land office
29. Technical inspection of vehicles
30. Vehicle customs clearance (motorcycles and cars)
31. Vehicle registration document (motorcycles and cars)
32. Duplicates
33. Freight
34. Driving license (renewal and replacement)
35. High school diploma
36. Other (specify)

Appendix D: Additional Tables

Table 4: Test of balance, conditional on administrative processes

	(1) All individuals	(2) Control group	(3) Treatment group	(4) T-test p-value
		Economic cost		
Time to complete admin process (days, cs 99p) (average)	21.5	21.6	21.5	0.05
Number visits for admin process (cs 99p) (average)	2.46	2.48	2.44	0.45
Distance travelled for admin process (log km) (average)	1.75	1.76	1.74	0.26
Failed to complete admin process (any)	0.11	0.10	0.12	-1.42
Received help from family or acquaintance (any)	0.22	0.23	0.21	0.72
Received help from intermediary (any)	0.060	0.064	0.056	0.65
Direct cost admin process (CFA, cs 99p) (total)	11439.0	11375.6	11503.5	-0.09
Indirect cost admin process (CFA, cs 99p) (total)	3583.8	3301.1	3872.1	-1.42
Total cost admin process (CFA, cs 99p) (total)	15022.8	14676.8	15375.6	-0.40
Process very easy (any)	0.20	0.21	0.20	0.57
Process quite easy (any)	0.51	0.51	0.51	-0.29
Process quite difficult (any)	0.31	0.32	0.30	0.90
Process very difficult (any)	0.13	0.12	0.14	-0.76
Difficulty of the process (1-4) (average)	2.30	2.30	2.31	-0.25
		Bribes		
Paid a bribe during admin process (=1) (any)	0.12	0.12	0.13	-0.84
Bribe amount during admin process (CFA, cs 99p) (total)	1012.8	877.7	1150.5	-1.15
Paid another bribe in last 12mo (=1)	0.14	0.14	0.14	0.07
Other bribe payments in last 12	1115.7	1122.0	1109.3	0.06

months (CFA, cs 99p)				
Paid any bribe in last 12 months (=1)	0.23	0.22	0.24	-0.88
Total bribe payments in last 12mo (CFA, cs 99p)	2128.5	1999.7	2259.8	-0.74
Initiated bribe (any)	0.051	0.051	0.050	0.14
Gave bribe to speed up process (any)	0.088	0.093	0.083	0.69
Observations	1539	777	762	1539

Note: Descriptive statistics and balance, administrative processes for the sample of individuals who have conducted at least one administrative process in the last 12 months. For variables from the roster of administrative tasks, we show the average value (average), the total value (total) or the occurrence (any) for each individual when they have engaged in several administrative tasks over the last 12 months.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Test of balance, conditional on bribery

	(1)	(2)	(3)	(4)
	All individuals	Control group	Treatment group	T-test p-value
Direct cost admin process (CFA, cs 99p) (total)	26909.3	27266.1	26584.8	0.11
Indirect cost admin process (CFA, cs 99p) (total)	7522.6	6894.2	8094.0	-0.72
Total cost admin process (CFA, cs 99p) (total)	34431.9	34160.3	34678.8	-0.07
Paid a bribe during admin process (=1) (any)	1	1	1	.
Bribe amount during admin process (CFA, cs 99p) (total)	8247.1	7577.8	8855.6	-0.80
Paid another bribe in last 12mo (=1)	0.28	0.32	0.24	1.22
Other bribe payments in last 12 months (CFA, cs 99p)	2960.3	3311.1	2641.4	0.63
Paid any bribe in last 12 months (=1)	1	1	1	.
Total bribe payments in last 12mo (CFA, cs 99p)	11207.4	10888.9	11497.0	-0.30
Initiated bribe (any)	0.41	0.44	0.38	0.84
Gave bribe to speed up process (any)	0.71	0.80	0.64	2.52**
Observations	189	90	99	189

Note: Descriptive statistics and balance, administrative processes for the sample of individuals who have paid at least one bribe during an administrative process (from the roster) in the last 12 months. We show the average value (average), the total value (total) or the occurrence (any) for each individual when they have engaged in several administrative tasks over the last 12 months.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Test of balance, administrative processes, conditional on supporting the network

	(1)	(2)	(3)	(4)
	All individuals	Control group	Treatment group	T-test p-value
Time to complete admin process (network)(days, cs 99p) (average)	9.59	8.76	10.4	-1.54
Succeeded in completing task (total)	0.99	0.99	1	-0.42
Helped a family member (any)	0.43	0.45	0.42	0.83
Helped a friend (any)	0.51	0.51	0.52	-0.30
Went to administration to help (network) (any)	0.60	0.60	0.60	-0.16
Paid a bribe (network) (any)	0.15	0.14	0.16	-0.82
Direct cost admin process (network)(CFA, cs 99p) (total)	10332.5	8668.5	11992.9	-1.35
Bribe amount (network)(CFA, cs 99p) (total)	1169.4	1028.0	1310.5	-0.67
Observations	915	457	458	915

Note: Descriptive statistics and balance, administrative processes in which the individual helped someone else from her network, conditional on having supported at least one person from the network. We show the average value (average), the total value (total) or the occurrence (any) for each individual when they have supported someone in completing administrative tasks several times over the last 12 months.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Test of balance, administrative processes, conditional on network paying a bribe

	(1)	(2)	(3)	(4)
	All individuals	Control group	Treatment group	T-test p-value
Time to complete admin process (network)(days, cs 99p) (average)	9.86	7.83	11.6	-1.27
Succeeded in completing task (total)	1.11	1.08	1.14	-0.62
Helped a family member (any)	0.38	0.34	0.41	-0.80
Helped a friend (any)	0.61	0.61	0.62	-0.08
Went to administration to help (network) (any)	0.59	0.56	0.62	-0.64
Paid a bribe (network) (any)	1	1	1	.
Direct cost admin process (network)(CFA, cs 99p) (total)	24312.8	15356.3	32165.1	-1.63
Bribe amount (network)(CFA, cs 99p) (total)	7810.2	7340.6	8221.9	-0.35
Observations	137	64	73	137

Note: Descriptive statistics and balance, administrative processes in which the individual helped someone else from her network, conditional on supporting someone who paid at least one bribe. We show the average value (average), the total value (total) or the occurrence (any) for each individual when they have supported someone in completing administrative tasks several times over the last 12 months.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table RA: IV specification, First stage

	(1) Used the app at least once
Internet quality: low	-0.030
	(0.026)
Internet quality: average	0.00025
	(0.019)
Treatment	0.61***
	(0.016)
Constant	0.0091
	(0.080)
Controls	Yes
Observations	1867
Fisher	495
p_value	0.000

Source: our calculations from baseline and endline surveys.
Note: Control variables include occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. P-value is the p-value associated to the fisher test. Standard errors in parentheses.
* p < 0.1, ** p < 0.05, *** p < 0.01

Table RA1: Hypothesis A, IV specification and ITT specification at the administration task level

	(1) Paid a bribe during admin process (any)	(2) Total bribe amount paid (log, CFA)	(3) Average direct costs of administrative process (log)
Panel A			
Treatment	0.002	-0.231	0.124
	(0.025)	(0.233)	(0.196)
Baseline value of the outcome variable	0.163***	0.205***	0.041
	(0.062)	(0.042)	(0.028)
Constant	0.226	1.113	5.824***
	(0.140)	(1.230)	(1.168)
Romano and Wolf p-values	0.901	0.347	0.614
Controls	Yes	Yes	Yes
Observations	1329	1329	1329
Panel B			
Used the App at least once	0.003	-0.010	0.396
	(0.017)	(0.191)	(0.287)
Baseline value of the outcome variable	0.097***	0.118***	0.095***
	(0.021)	(0.018)	(0.023)
Constant	0.057	0.284	1.645*
	(0.054)	(0.591)	(0.888)
Romano and Wolf p-values	0.931	0.970	0.396
Controls	Yes	Yes	Yes
Mean in control group	0.070	1.470	4.460
Median in control group	0.000	0.000	6.400
Observations	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: Panel A is the ITT specification where the level of observation is the administrative task and Panel B the IV specification for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. In panel A and panel B, control variables include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* p < 0.1, ** p < 0.05, *** p < 0.01

Table RA2: Hypothesis B, IV specification and ITT specification at the administration task level

	(1) Succeed to complete admin process (total)	(2) Average time to complete administrative process (days,cs 99p)	(3) Average number of visits for administrative process (days,cs 99p)	(4) Found the process difficult or very difficult (any)
Panel A				
Treatment	-0.022	-0.580	-0.037	-0.030
	(0.062)	(2.284)	(0.119)	(0.033)
Baseline value of the outcome variable	0.124***	0.059	0.036	0.098***
	(0.046)	(0.044)	(0.034)	(0.037)
Constant	1.582***	63.534**	3.692***	0.784***
	(0.393)	(26.134)	(0.562)	(0.190)
Romano and Wolf p-values	0.911	0.911	0.911	0.525
Controls	Yes	Yes	Yes	Yes
Observations	1329	1329	1329	1329
Panel B				
Used the App at least once	0.027	-0.419	-0.008	-0.016
	(0.055)	(2.266)	(0.142)	(0.029)
Baseline value of the outcome variable	0.114***	0.059***	0.076***	0.078***
	(0.023)	(0.019)	(0.026)	(0.020)
Constant	0.534***	8.748	0.706	0.197**
	(0.170)	(7.003)	(0.441)	(0.089)
Romano and Wolf p-values	0.941	0.970	0.970	0.941
Controls	Yes	Yes	Yes	Yes
Mean in control group	0.730	13.660	1.540	0.260
Median in control group	1.000	0.000	1.000	0.000
Observations	1867	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: Panel A is the ITT specification where the level of observation is the administrative task and Panel B the IV specification for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. In panel A and panel B, control variables include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* p < 0.1, ** p < 0.05, *** p < 0.01

Table RA3: Hypothesis C, IV specification and ITT specification at the administration task level

	(1) Number of admin processes last 12 months (network)	(2) Succeed in completing task (network) (total)	(3) Paid a bribe (network) (any)	(4) Total bribe amount (network, CFA, log)	(5) Average time to complete administrative process (network) (days,cs 99p)
Panel A					
Treatment	-0.075*	-0.032	0.009	-0.064	-1.259
	(0.039)	(0.046)	(0.021)	(0.174)	(1.840)
Baseline value of the outcome variable	0.078**	0.042	-0.047	-0.034	0.143**
	(0.032)	(0.038)	(0.040)	(0.041)	(0.067)
Constant	0.311	0.067	-0.150	-1.020	-12.649
	(0.214)	(0.254)	(0.118)	(0.957)	(10.104)
Romano and Wolf p-values	0.198	0.644	0.693	0.693	0.594
Controls	Yes	Yes	Yes	Yes	Yes
Observations	730	730	730	730	730
Panel B					
Used the App at least once	0.015	0.026	0.004	0.003	-1.107
	(0.042)	(0.040)	(0.012)	(0.096)	(1.458)
Baseline value of the outcome variable	0.075***	0.061***	-0.008	-0.002	0.141***
	(0.023)	(0.022)	(0.017)	(0.016)	(0.040)
Constant	0.041	0.007	-0.007	0.100	-8.641*
	(0.130)	(0.125)	(0.038)	(0.296)	(4.499)
Romano and Wolf p-values	0.950	0.901	0.950	0.950	0.901
Controls	Yes	Yes	Yes	Yes	Yes
Mean in control group	0.400	0.360	0.050	0.350	3.240
Median in control group	0.000	0.000	0.000	0.000	0.000
Observations	1867	1867	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: Panel A is the ITT specification where the level of observation is the administrative task and Panel B the IV specification for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. In panel A and panel B, control variables include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table RA4: Hypothesis D, IV specification and ITT specification at the administration task level

	(1) Received help from intermediary (any)	(2) Initiated bribe (any)	(3) Gave bribe to speed up process (any)
	Panel A		
Treatment	0.009	-0.009	-0.012
	(0.021)	(0.015)	(0.022)
Baseline value of the outcome variable	0.196**	-0.011	0.142**
	(0.081)	(0.032)	(0.066)
Constant	0.076	0.091	0.214
	(0.112)	(0.074)	(0.133)
Romano and Wolf p-values	0.723	0.723	0.723
Controls	Yes	Yes	Yes
Observations	1329	1329	1329
	Panel B		
Used the App at least once	0.007	-0.002	-0.002
	(0.014)	(0.011)	(0.015)
Baseline value of the outcome variable	0.087***	0.010	0.097***
	(0.023)	(0.019)	(0.021)
Constant	0.040	0.029	0.099**
	(0.043)	(0.033)	(0.046)
Romano and Wolf p-values	0.941	0.970	0.970
Controls	Yes	Yes	Yes
Mean in control group	0.040	0.030	0.060
Median in control group	0.000	0.000	0.000
Observations	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: Panel A is the ITT specification where the level of observation is the administrative task and Panel B the IV specification for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. In panel A and panel B, control variables include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* p < 0.1, ** p < 0.05, *** p < 0.01

Table RA5: Hypothesis E, IV specification and ITT specification at the administration task level

	(1) Indirect cost admin process (CFA) (average)	(2) Average distance travelled for administrative process (km, log)	(3) Received help from family or acquaintance (any)	(4) Confidence index (0-12)
Panel A				
Treatment	159.078	0.125	-0.026	0.107
	(418.733)	(0.111)	(0.028)	(0.161)
Baseline value of the outcome variable	0.066***	0.002	0.117***	
	(0.024)	(0.025)	(0.041)	
Constant	2617.729*	2.938***	0.490**	5.635***
	(1460.072)	(0.593)	(0.194)	(0.764)
Romano and Wolf p-values	0.723	0.426	0.525	0.693
Controls	Yes	Yes	Yes	Yes
Observations	1329	1329	1329	1311
Panel B				
Used the App at least once	237.548	0.210	-0.012	-0.019
	(414.696)	(0.191)	(0.022)	(0.172)
Baseline value of the outcome variable	0.035*	0.100***	0.088***	
	(0.021)	(0.024)	(0.019)	
Constant	-121.205	-0.830	0.068	5.776***
	(1280.776)	(0.591)	(0.066)	(0.549)
Romano and Wolf p-values	0.941	0.782	0.941	0.950
Controls	Yes	Yes	Yes	Yes
Mean in control group	1438.500	0.620	0.140	0
Median in control group	500.000	1.320	0.000	0
Observations	1867	1867	1867	1780

Source: our calculations from baseline and endline surveys.
Note: Panel A is the ITT specification where the level of observation is the administrative task and Panel B the IV specification for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. In panel A and panel B, control variables include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table RA6: Heterogeneity specification, good internet quality

	(1) Paid a bribe during admin process (any)	(2) Total bribe amount paid (log, CFA)	(3) Average direct costs of administrative process (log)	(4) Succeed to complete admin process (total)	(5) Average time to complete administrative process (days,cs 99p)	(6) Average number of visits for administrative process (days,cs 99p)	(7) Found the process difficult or very difficult (any)
	Hypothesis A			**Hypothesis B**			
Treatment	0.003	0.027	0.202	0.002	-0.247	-0.034	-0.025
	(0.012)	(0.134)	(0.201)	(0.038)	(1.582)	(0.100)	(0.020)
Treatment * Good internet quality	-0.008	-0.156	0.188	0.065	-0.148	0.134	0.068
	(0.026)	(0.287)	(0.432)	(0.082)	(3.396)	(0.214)	(0.043)
Baseline value of the outcome variable	0.078***	0.105***	0.086***	0.101***	0.092***	0.079***	0.069***
	(0.023)	(0.020)	(0.026)	(0.027)	(0.023)	(0.029)	(0.023)
Constant	0.031	0.115	1.986**	0.545***	8.780	0.684	0.240***
	(0.055)	(0.602)	(0.906)	(0.173)	(7.123)	(0.451)	(0.091)
Romano and Wolf p-values Treatment	0.990	0.990	0.822	1.000	0.990	0.990	0.842
Romano and Wolf p-values Treatment * Good internet quality	0.990	0.970	0.990	0.980	1.000	0.980	0.594
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean in control group	0.070	1.470	4.460	0.730	13.660	1.540	0.260
Median in control group	0.000	0.000	6.400	1.000	0.000	1.000	0.000
Treatment + Treatment * Good internet quality = 0	0.850	0.610	0.310	0.360	0.900	0.600	0.260

Observations	1867	1867	1867	1867	1867	1867	1867

Source: our calculations from baseline and endline surveys.

Note: ITT heterogeneity specifications for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. The penultimate row of the table shows the p value of a Wald tests for the sum of the coefficients for treatment and treatment interacted with having a good internet quality. Control variables include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table RA7: Heterogeneity specification, university

	(1) Paid a bribe during admin process (any)	(2) Total bribe amount paid (log, CFA)	(3) Average direct costs of administrative process (log)	(4) Succeed to complete admin process (total)	(5) Average time to complete administrative process (days,cs 99p)	(6) Average number of visits for administrative process (days,cs 99p)	(7) Found the process difficult or very difficult (any)
	Hypothesis A			**Hypothesis B**			
Treatment	-0.013	-0.111	0.298	-0.007	1.601	-0.212	-0.023
	(0.017)	(0.188)	(0.282)	(0.054)	(2.229)	(0.140)	(0.028)
Treatment * University education	0.026	0.181	-0.078	0.040	-3.076	0.335	0.021
	(0.022)	(0.242)	(0.364)	(0.069)	(2.871)	(0.181)	(0.037)
Baseline value of the outcome variable	0.010	0.044	0.040	0.057	0.055	0.114***	0.100***
	(0.039)	(0.030)	(0.036)	(0.039)	(0.037)	(0.042)	(0.035)
Constant	0.065	0.377	1.745*	0.569***	7.906	0.767*	0.203**
	(0.054)	(0.597)	(0.902)	(0.172)	(7.096)	(0.447)	(0.090)
Romano and Wolf p-values Treatment	0.891	0.891	0.772	0.980	0.980	0.485	0.941
Romano and Wolf p-values Treatment * University education	0.644	0.891	0.891	0.980	0.772	0.238	0.980
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean in control group	0.070	1.470	4.460	0.730	13.660	1.540	0.260
Median in control group	0.000	0.000	6.400	1.000	0.000	1.000	0.000
Treatment + Treatment * University education = 0	0.350	0.640	0.340	0.440	0.410	0.280	0.920
Observations	1867	1867	1867	1867	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: ITT heterogeneity specifications for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. The penultimate row of the table shows the p value of a Wald tests for the sum of the coefficients for treatment and treatment interacted with having a university degree. Control variables include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table RA8: Heterogeneity specification, heavy social media user

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Paid a bribe during admin process (any)	Total bribe amount paid (log, CFA)	Average direct costs of administrative process (log)	Succeed to complete admin process (total)	Average time to complete administrative process (days,cs 99p)	Average number of visits for administrative process (days,cs 99p)	Found the process difficult or very difficult (any)
	Hypothesis A			**Hypothesis B**			
Treatment	-0.003	0.009	-0.073	-0.005	-1.614	-0.014	-0.024
	(0.016)	(0.177)	(0.266)	(0.051)	(2.098)	(0.132)	(0.027)
Treatment * Heavy social media user	0.009	-0.028	0.565	0.034	2.476	0.005	0.024
	(0.022)	(0.239)	(0.359)	(0.068)	(2.828)	(0.178)	(0.036)
Baseline value of the outcome variable	-0.007	0.082***	0.080**	0.140***	0.010	0.111***	0.096***
	(0.036)	(0.029)	(0.035)	(0.035)	(0.037)	(0.041)	(0.032)
Constant	0.098*	0.556	1.986**	0.533***	11.066	0.654	0.181**
	(0.052)	(0.579)	(0.874)	(0.166)	(6.850)	(0.434)	(0.087)
Romano and Wolf p-values Treatment	1.000	1.000	1.000	1.000	0.970	1.000	0.941
Romano and Wolf p-values Treatment * Heavy social media user	1.000	1.000	0.465	0.980	0.941	1.000	0.970
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean in control group	0.070	1.470	4.460	0.730	13.660	1.540	0.260
Median in control group	0.000	0.000	6.400	1.000	0.000	1.000	0.000
Treatment + Treatment * Heavy social media user = 0	0.700	0.910	0.040	0.520	0.650	0.940	0.990

Observations	1867	1867	1867	1867	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: ITT heterogeneity specifications for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. The penultimate row of the table shows the p value of a Wald tests for the sum of the coefficients for treatment and treatment interacted with being heavy social media user. Control variables include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table RA9: Heterogeneity specification, excellent in French

	(1) Paid a bribe during admin process (any)	(2) Total bribe amount paid (log, CFA)	(3) Average direct costs of administrative process (log)	(4) Succeed to complete admin process (total)	(5) Average time to complete administrative process (days,cs 99p)	(6) Average number of visits for administrative process (days,cs 99p)	(7) Found the process difficult or very difficult (any)
	Hypothesis A			**Hypothesis B**			
Treatment	-0.011	-0.101	0.452*	0.007	3.151	0.130	0.016
	(0.015)	(0.165)	(0.248)	(0.047)	(1.954)	(0.123)	(0.025)
Treatment * Excellent level of French	0.028	0.212	-0.427	0.023	-6.933**	-0.272	-0.051
	(0.021)	(0.236)	(0.356)	(0.068)	(2.800)	(0.176)	(0.036)
Baseline value of the outcome variable	0.018	0.048*	0.084***	0.066*	0.028	0.111***	0.039
	(0.034)	(0.027)	(0.032)	(0.034)	(0.029)	(0.038)	(0.029)
Constant	0.012	0.678	0.598	0.371**	3.373	-0.002	0.181**
	(0.054)	(0.589)	(0.887)	(0.169)	(6.980)	(0.440)	(0.089)
Romano and Wolf p-values Treatment	0.673	0.673	0.248	0.921	0.446	0.644	0.851
Romano and Wolf p-values Treatment * Excellent level of French	0.485	0.584	0.505	0.921	0.059	0.446	0.446
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean in control group	0.070	1.470	4.460	0.730	13.660	1.540	0.260
Median in control group	0.000	0.000	6.400	1.000	0.000	1.000	0.000
Treatment + Treatment * Excellent level of French = 0	0.270	0.510	0.920	0.540	0.060	0.260	0.170
Observations	1867	1867	1867	1867	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: ITT heterogeneity specifications for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. The penultimate row of the table shows the p value of a Wald tests for the sum of the coefficients for treatment and treatment interacted with being excellent in French Control variables include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table RA10: Heterogeneity specification, female individual

	(1) Paid a bribe during admin process (any)	(2) Total bribe amount paid (log, CFA)	(3) Average direct costs of administrative process (log)	(4) Succeed to complete admin process (total)	(5) Average time to complete administrative process (days,cs 99p)	(6) Average number of visits for administrative process (days,cs 99p)	(7) Found the process difficult or very difficult (any)
	Hypothesis A			**Hypothesis B**			
Treatment	0.005	0.069	0.165	0.003	-1.065	-0.034	-0.018
	(0.012)	(0.129)	(0.195)	(0.037)	(1.536)	(0.097)	(0.020)
Treatment * Female	-0.019	-0.457	0.469	0.079	4.739	0.166	0.050
	(0.029)	(0.316)	(0.476)	(0.091)	(3.757)	(0.236)	(0.048)
Baseline value of the outcome variable	0.100***	0.133***	0.104***	0.129***	0.063***	0.085***	0.090***
	(0.022)	(0.019)	(0.025)	(0.025)	(0.021)	(0.028)	(0.022)
Constant	0.056	0.229	1.640*	0.529***	8.919	0.697	0.195**
	(0.054)	(0.594)	(0.896)	(0.171)	(7.054)	(0.445)	(0.090)
Romano and Wolf p-values Treatment	0.861	0.861	0.861	0.941	0.921	0.921	0.901
Romano and Wolf p-values Treatment * Female	0.861	0.485	0.822	0.901	0.703	0.921	0.861
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean in control group	0.070	1.470	4.460	0.730	13.660	1.540	0.260
Median in control group	0.000	0.000	6.400	1.000	0.000	1.000	0.000
Treatment + Treatment * Female = 0	0.600	0.180	0.140	0.330	0.280	0.540	0.460

Observations	1867	1867	1867	1867	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: ITT heterogeneity specifications for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. The penultimate row of the table shows the p value of a Wald tests for the sum of the coefficients for treatment and treatment interacted with being a female individual. Control variables include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table RA11: Heterogeneity specification, living in Ouagadougou

	(1) Paid a bribe during admin process (any)	(2) Total bribe amount paid (log, CFA)	(3) Average direct costs of administrative process (log)	(4) Succeed to complete admin process (total)	(5) Average time to complete administrative process (days,cs 99p)	(6) Average number of visits for administrative process (days,cs 99p)	(7) Found the process difficult or very difficult (any)
	Hypothesis A			**Hypothesis B**			
Treatment	0.002	0.077	-0.009	-0.022	-0.050	-0.120	-0.009
	(0.015)	(0.163)	(0.245)	(0.047)	(1.935)	(0.122)	(0.025)
Treatment * Ouagadougou	-0.001	-0.180	0.535	0.082	-0.521	0.245	0.002
	(0.022)	(0.238)	(0.357)	(0.068)	(2.814)	(0.177)	(0.036)
Baseline value of the outcome variable	0.094***	0.105***	0.078**	0.095***	0.024	0.072**	0.040
	(0.032)	(0.026)	(0.032)	(0.033)	(0.026)	(0.036)	(0.029)
Constant	0.058	0.250	1.939**	0.579***	9.346	0.805*	0.208**
	(0.055)	(0.603)	(0.912)	(0.174)	(7.137)	(0.451)	(0.091)
Romano and Wolf p-values Treatment	1.000	0.941	1.000	1.000	1.000	0.901	1.000
Romano and Wolf p-values Treatment * Ouagadougou	1.000	0.851	0.455	0.772	1.000	0.634	1.000
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean in control group	0.070	1.470	4.460	0.730	13.660	1.540	0.260
Median in control group	0.000	0.000	6.400	1.000	0.000	1.000	0.000
Treatment + Treatment * Ouagadougou = 0	0.920	0.550	0.040	0.220	0.780	0.330	0.790
Observations	1867	1867	1867	1867	1867	1867	1867

Source: our calculations from baseline and endline surveys.
Note: ITT heterogeneity specifications for the whole sample. Each column shows an ANCOVA regression that includes the baseline value of the dependent variable. The penultimate row of the table shows the p value of a Wald tests for the sum of the coefficients for treatment and treatment interacted with living in Ouagadougou. Control variables include age, level of French, recruitment campaign, internet quality, occupation, level of education, household size, gender, hours of internet connection by week, number of social media, number of years with a cell phone, living in Ouagadougou and living in other city or villages. Standard errors in parentheses. The Romano and Wolf p-value computes the standard error for the Treatment coefficient adjusted for multiple hypothesis testing across all outcomes of the table.
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

10 Administrative information

Funding

The work was supported by the World Bank Rapid Social Response (RSR) Multi-donor trust fund, Round 13. The RSR is funded by the Russian Federation, Norway, the UK, Australia, Sweden and GFDRR (Global Facility for Disaster Risk Reduction). Quentin Stoeffler acknowledges financial support from IdEx université de Bordeaux / GPR HOPE.

Institutional Review Board (ethics approval)

Ethics approval for this study was received from the relevant Burkinabe authority (Comité d'éthique institutionnel pour la recherche en sciences de la santé). Approval was received on 2020-11-05 with IRB Approval number 48-2020/CEIRES.

Declaration of interest

The authors do not have any conflicts of interest.

Acknowledgments

The authors would like to thank Ayaba Gilberte Kedote, Rebekka Grun, and Ousmane Kolie for their assistance during the design and implementation of the research. We also thank Nathalie Ouangraoua, Karim Paré, Gabriel Lawin and SDI's team for conducting and supervising data collection efforts. We also thank Romaric Codo, Bernice Codo, and the entire ONE team for their support in carrying out this study. We thank Sueda Uludag and Lucie Piaser for excellent research assistance.