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Who bears the burden of bribery? Evidence from Public Service Delivery in Kenya

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Abstract

This paper empirically examines how an individual's economic, social and political capital affects the propensity to make bribe payments in exchange for public services. Using an individual-level survey on bribes, the econometric results suggest that the burden of bribery is borne by the poor, but substantially decreases when institutions that constrain bureaucratic corruption are strong and effective. The results also show that bribery incidences decrease when social capital is high but increase when political networks are prevalent. These findings support the need to combine anti-corruption reforms with poverty reduction strategies in order to foster equity in public services provision in Kenya.

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1. Introduction

The theoretical debate on who bears the cost of bribery in public service delivery has culminated with two contrasting hypotheses. One line of argument posits that the burden of bribery is borne by the rich and those who are politically connected, as they can afford to 'grease the wheels' and circumvent costly bureaucratic red tape. Bribery is perceived to be an outcome of a rational process which enhances efficiency, especially in countries with weak institutions and accountability mechanisms (Leff, 1964; Rose-Ackerman, 1978). However, a competing argument postulates that the burden of bribery is borne by the poor as they significantly depend on public services due to income constraints and costly exit options to alternative private suppliers (Myrdal, 1968; Hirschman, 1970). Bribes are therefore perceived to 'sand the wheels' and generate adverse welfare implications (Meon and Weill, 2010; Deininger and Mpunga, 2005). Reconciling these conflicting arguments on who bears the burden of bribery remains challenging and disappointing, despite its importance in the design of sound anti-corruption reforms. At the theoretical level, most studies are grounded on a uni-dimensional approach in economics, sociology or political science. At the empirical front, micro-level data which matches the incidence of bribery with public service delivery and income levels is largely unavailable. This paper reconciles this debate by providing empirical evidence which takes into account these diverse dimensions.

The objective of this paper is twofold. First, it examines how economic, social and political factors affect an individual's likelihood to pay a bribe in exchange for public services such as health, education, water, security and permits in Kenya. The main emphasis is placed on economic factors, which are captured by a multi-dimensional index of poverty and deprivation. Second, the paper investigates how accountability mechanisms can deter bureaucratic corruption and promote an egalitarian access to public services across local government counties. Given that neither theory nor empirics provides a clear guidance on these aspects, this paper develops a conceptual framework which depicts the determinants of bribe payments when bureaucrats interact with citizens and then extends the model to illustrate how the introduction of accountability mechanism modifies the nature of this relationship.

This paper explores a recent and original survey conducted at the individual-level to test the validity of the model's prediction. The empirical analysis, which is based on binary logistic models, exploits variations in public service provision using a large random sample of 44 local government counties. It focuses on Kenya for several reasons. First, although the country is perceived as one of the most corrupt, ranking 145 out of 175 in the global transparency international index, limited empirical analysis on the incidence of bribery has been conducted due to data unavailability (TI, 2015). Most authors focus

on grand corruption, an approach which is unable to detect bureaucratic corruption[1] at the county level. Second, related studies examine the burden of bribery at the firm level (Sequeira and Djankov, 2014; Ufere et al. 2012), and thus fail to capture the micro-level relationship between bureaucrats and ordinary citizens. Third, recent studies examining bribery in public service provision have adopted a cross-country approach (Justesen and Bjornskov, 2014; Hunt and Laszlo, 2012), making interpretation difficult due to differences in the definition of corruption across countries, cultural settings and time periods (Donchev and Ujhelyi, 2014; Sequeira, 2012). In fact, while such pitfalls may be mitigated by employing a within-country analysis, such an approach is surprisingly lacking in the literature. Finally, most studies in the literature are either conducted at the macro level (Sekkat and Meon, 2005) or lack any rigorous analysis which can yield evidence-based policy recommendations.

The empirical results generate three main findings. First, in contrast to conventional wisdom, the results lend support to the hypothesis that bribery is a function of an individual's income, and its likelihood increases with poverty levels. The empirical results point out to a poverty-bribery trap, where poor individuals are 6.9% more likely to pay a bribe in exchange for a public service. Second, the results reveal that the burden of bribery systematically varies with the type of public service. Bureaucrats seem to pursue third price discrimination and the poor are more likely to pay bribes in exchange for health and education - services which the rich are likely to exit and seek alternative (private) suppliers. Third, the results indicate that countervailing accountability mechanisms such as civil society movements and an independent media are instrumental in reducing bureaucratic corruption. These findings are robust to changes in econometric technique and specifications as well as inclusion of multiple control variables.

These findings contribute to the literature on bureaucratic corruption and accountability in public service delivery in several dimensions. First, at the conceptual level, the study presents an analytical framework which combines the traditional economic approach to corruption (Rose–Ackerman, 1975, 1978) with a political economy model based on Hirschman (1970). Such an approach emerges to be useful in reconciling a wide range of contradictory results on the micro-level determinants of bribe payments. The conceptual framework posits that in localized provision of public services, the propensity to extract bribes not only depends on the social-economic and political status of individuals, but it is also contingent on the type of the public service being offered.

Second, the study contributes to an emerging theoretical and empirical debate on the role of political and social capital in driving corruption in developing countries. The current literature is split on whether such networks provide perverse incentives for bribery through elite capture or lower the incidence of

[1] In this paper, bureaucratic corruption is used interchangeable with the term bribery. Other forms of corruption such as embezzlement or nepotism are not considered.

bribery by promoting trust and norms of civic cooperation which constrain bureaucrat's behaviour (Knack and Keefer, 1997). Consistent with Putnam (1993), the empirical results lend support to the hypothesis that social capital in the form of religious organizations is associated with lower likelihood to bribe while political capital increases bribery as self-interest motives are associated with interest groups, a finding consistent with the theoretical proposition by Olson (1982).

Third, it contributes to the empirical literature which quantifies the determinants of bribe payments in public service provision (TI, 2015; Justesen and Bjornskov, 2014; Hunt and Laslzo, 2012). In contrast with most studies which are based on perception indices, the methodology adopted in this paper relies on an experience-based survey, and thus mitigates the problem of perception and cognitive biases such as the bandwagon and halo effects (Sequeira, 2012; Treisman, 2007). Finally, it adds value to a bourgeoning body of literature on behavioural science which argues that corruption is contagious, and individual's decision to engage in bribery depends on the anticipated behaviour of others (de Sardan, 1999, Serra and Ryvkin, 2012; Lambsdorff, 2012).

The rest of the paper proceeds as follows. Section 2 reviews the theoretical determinants of bribery while section 3 presents the conceptual framework. The empirical strategy is presented in section 4 while the results are discussed in section 5. Robustness checks are conducted in section 6 while section 7 concludes with policy implications.

2. Related Literature

Corruption in Kenya remains prevalent despite concerted national efforts to fight the vice. While notable success has been achieved in eliminating corruption at the firm level, bureaucratic corruption at lower levels of governance is still persistent, perpetuating inequality in access to public services. In order to address this problem, the government adopted a new constitution in 2010, whose hallmark involved devolving power and public service provision from the central government to 47 newly created local counties. As per the constitution, devolution would promote '*good governance, integrity, transparency and accountability, enhance checks and balances, promote social and economic development through the provision of proximate, easily accessible services and prevent corruption in the provision of public goods and services*' (GoK, 2010, various pages). Consistent with the literature, this re-orientation of public service delivery from a top-down to a bottom-up system would reduce the scope for corruption by enhancing political accountability, responsiveness to local needs and increasing participation of citizens in local governance (Faguet, 2014). This would change the structure of incentives bureaucrats and politicians face, and thus lead to efficient service provision. In addition, it would generate inter-local government competition and thus reduce the scope for corruption. And yet, despite this policy initiative, recent empirical studies analysing corruption in

Kenya show that bribery has steadily soared over the past years, resulting in uneven development across most local counties (TI, 2015; Hope, 2014).

2.1 Why bribery in public service provision occurs

At the theoretical level, an extensive body of literature identifies three pre-conditions for corruption to occur. These include discretionary power where bureaucrats exercise bestowed authority to design and administer regulations, the existence of economic rents which are prone to capture by special interest groups and accountability mechanisms whose capacity to detect and impose sanctions is weak (Becker, 1968; Jain, 2001). While discretionary power and economic rents create incentives for corruption to thrive, the quality of the accountability system influences the cost of corruption. The interaction of these factors determines the payoffs for bureaucrats to engage in bribery.

Following the influential works of Rose-Ackerman (1975, 1978) and Klitgaard (1988), variation in corruption can be explained by the degree of discretionary power in the allocation and regulation of public services. Derived from a principal-agent model, it is assumed that there exist a 'goal conflict' between principals (citizens) who are guided by public interest and agents (bureaucrats and politicians) who are motivated by self-interest. The principal-agent model hypothesizes that due to information asymmetry, agents may not fully disclose information to the principals, generating incentives to be corrupt. As discussed by Persson et al. (2013, p.452), 'corruption occurs when an agent betrays the principal's interest in the pursuit of his or her own interest'. The principal-agent model thus presupposes that bureaucrats and politicians are the key drivers of corruption, a problem exacerbated when principals lack effective instruments to hold them accountable. A theoretical model by Bardhan and Mookherjee (2000) shows that discretionary powers also act as a channel of transferring corruption from the central government to local politicians in localized systems of public service provision.

The second pre-condition relates to the amount of rents to be extracted. Rational bureaucrats engage in bribery if the benefits of being corrupt outweigh any costs, a phenomenon which occurs when the value of rents is high (Jain, 2001). For instance, Bardhan (1997) shows that competition between different government agencies in providing public service lowers rents and in its absence, bureaucrats have incentives to engage in bureaucratic corruption due to the increase in the amount of rents to be extracted. Such rents may have different implications, as argued by Shleifer and Vishny (1993) who distinguish between corruption with and without theft. In the case of corruption without theft, bribes act as a tax, implying that the cost of a public service comprises its official cost plus the bribe. As a result of the increase in price, the burden of bribery is likely to fall on rich individuals, while the poor might be totally excluded. However, in the case of corruption with theft, bureaucrats offer public

services for less than the official price, implying that both rich and poor individuals are better off bearing the burden of bribery.

The third prerequisite relates to the level of accountability, which to a large extent depends on the strength of political and legal institutions - as they determine the probability of detection and sanction. Theoretical predictions argue that when politicians are elected by local constituents, the degree of accountability is high as public officials have the incentives to provide public services in an honest manner, given that their career prospects hinge directly on the local citizens and not on the central government (Wallis and Oates, 1988). In addition, the close proximity between citizens and bureaucrats enhances accountability by reducing information asymmetry since the costs of monitoring the behaviour of bureaucrats are low (Bardhan and Mookherjee, 2000). In fact, Seabright (1966) argues that due to repetitive interactions, local citizens are able to correctly infer strategic behaviour of bureaucrats and use such information to sanction or reward them in democratic elections. The possibility of sanctioning in turn fosters downward accountability and 'dramatically tightens the loop of accountability between those who produce public goods and services and those who consume them' (Faguet, 2014, p.5).

But while accountability is often perceived in terms of electoral competition, most African countries are characterized by infrequent voting, malpractices such as rigging, absence of term limits and prevalence of nominated rather than elected politicians and bureaucrats (O'Donnell, 1994). As a result, Bratton and Logan (2006, p.2) argue that elections 'constitute a blunt instrument for enforcing accountability'. In the presence of such constraints, Alam (1995) presents a theory of countervailing actions which links accountability to intermediary institutions and social organizations such as community groups and independent media outlets. Such platforms, which are also discussed by Diamond (1999) and Brett (2009) foster citizen participation by revealing information regarding politics and bureaucratic procedures and thus solve collective action problems which normally perpetuate corruption.

Alam's theory aims to examine 'how actions taken by losers might work to resist and set limits on corruption' (p. 420). This approach contrasts with traditional theories which advocate for vertical accountability – elections - or horizontal accountability - checks and balances within the government. Corresponding to the classical work of Hirschman (1970) on the role of exit, individual's actions such as relocating and seeking public services from non-corrupt officials, seeking substitutes from alternative suppliers or foregoing consumption of public services can alter the structure of incentives faced by government bureaucrats and reduce corruption. Conversely, in line with Hirschman's use of voice, individuals who bear the burden of bribery can result to *'confronting corrupt officials with evidence of their corrupt activities, taking complaints about corrupt officials to their superiors or*

courts, facilitating media reports about corrupt acts or officials, or by using violence, threat, or organized campaigns against corrupt officials' (p.426). Such countervailing strategies can deter corruptive behaviour by increasing the probability of detection and sanction. Empirical evidence by Kneller et al. (2007) and Reinikka and Svensson (2004) suggest that high levels of information dissemination can improve accountability by informing citizens about bureaucratic procedures and the cost of public services.

2.2. Theoretical propositions on who bears the burden of bribery

2.2.1 Rich individuals: The economist argument

The mainstream approach dominating the literature argues that the burden of bribery is borne by rich individuals. Pioneered by Leff (1964) and later formalized by Rose-Ackerman (1975, 1978), the rich pay bribes in order to overcome bureaucratic rigidities and provide 'the much needed grease for the squeaking wheels of a rigid administration' (Bardhan, 1997, p.1322). It is argued that this leads to allocative efficiency and can foster individual productivity. The theoretical intuition behind this argument as discussed by Becker (1968) and Lui (1985) is that the rich conduct a cost benefit analysis, where bribes reflect their opportunity costs. The benefits of bribery may arise if rich individuals incentivize bureaucrats to provide services they ought to (speed money) or to provide services that they are not entitled to - for instance a driving licence even after failing a test. Therefore, a key implication is that given bureaucratic inefficiencies, individuals with high income and wealth status will pay bribes in order to save time and effort by avoiding cumbersome regulations. In other words, the burden of bribery is borne by rich individuals who in turn re-allocate their resources to high productive activities.

An expanding body of empirical literature lays support to this argument. For instance, Hunt and Laszlo (2012) find that rich individuals in Uganda incur the cost of bribery as they frequently interact with government bureaucrats relative to the poor. The authors show that the rich pay bribes in order to avoid deliberate delays in processing documents. In a cross-country analysis of developing countries, Meon and Weill (2010) find evidence in support of the 'grease the wheels' hypothesis and show that in countries with less effective institutions and accountability frameworks, bribe payments by the rich are associated with efficiency gains. Hunt (2010) examine the burden of bribery in Uganda's health sector and find that the rich are 1.2% points more likely to pay bribes than the poor, although their analysis is restricted to a comparison between public and private health facilities. In a case study of Peru, Hunt and Laszlo (2012) find that although rich individuals are four times more likely to pay bribes compared to poor individuals, although bribes by the poor constitute a large proportion of their income.

However, the argument that the burden of bribery falls on rich individuals due to efficiency reasons is often criticized on several grounds. First, speed money generates perverse incentives, as bureaucrats may deliberately introduce more delays and red tape in order to increase opportunities for extracting bribes. Second, (Bardhan, 2006) argues that bribes are 'implicit contracts' and due to their secretive nature, they are not legally enforceable, implying that bureaucrats have vested interests in not committing to them. Third, evidence by Mutonyi (2002) shows that the rich spend substantial time negotiating with corrupt bureaucrats and this offsets any efficiency gains. In Kenya, empirical evidence by Hope (2014) suggests that the rich are less likely to bear the burden of bribery as they either form part of the bureaucracy, the political elite or possess resources which enable them to acquire information and solve information asymmetry problem which drives corruption. The author also provides suggestive evidence that bureaucrats may be unwilling to extort the rich, as their income status may reflect a high social class and thus increase the probability of detection and sanction.

2.2.2 Poor individuals: The social inequality argument

While the economist approach is grounded on the ability to pay bribes, a competing view advanced by social scientists argues that the burden of bribery is borne by the poor. Three main premises support this argument. First, the poor face income and credit constraints, an aspect which inhibits them from accessing financial markets and privately provided services. Recognizing this, bureaucrats capitalize on their discretionary power to demand bribes on users of public services (Smart, 2008). Second, the poor face costly exit options. As discussed by Paul (1992), such costly exit options could be attributed to spatial variations, where most poor individuals reside in remote areas where only public services produced by natural monopolies (for instance water or electricity supply) are available. Third, following Olson's (1965) proposition, the poor are more likely to face bribery demands due to collective action problems as they are unable to mobilize themselves and sanction corrupt bureaucrats. Even when mobilized, they are less willing to vote or simply vote on the basis of ethnicity or religious attributes. In fact, according to the neo-institutional economics theory discussed by Shah (2006), the poor suffer from bounded rationality as they face high transaction costs which hinder the acquisition and processing of information. As a result, this generates perverse incentives for the better informed bureaucrats to demand bribes from the poor. Finally, Peiffer and Rose (2014) argue that the poor lack financial knowledge to differentiate between official prices from bribery and are therefore more likely to get extorted.

In a theoretical model by Justesen and Bjornskov (2014), the authors show that due to reduced purchasing power arising from low incomes, poor individual significantly rely on public services, and this acts as a signal to corrupt bureaucrats to engage in bribery. They show that bribes paid by the poor signify a deadweight loss, as they constitute an inefficient transfer of resources. Thus bribes tend

to act as a regressive tax and can result to the poor being excluded from public services. Using a panel of 18 sub-Saharan African countries, the authors find that the poor are 2.5 times more likely to pay bribes than the rich. In fact, according to empirical evidence by Kaufmann et al. (2008) in Peru, the authors show that compared to rich households, low income households pay a considerable share of their income as bribe to access public services up to the point of discouragement. Thus 'bribery appears to penalize twice poorer users, both acting as a regressive tax and as a discriminating mechanism for access to basic services' (p.2).

2.2.3 Individuals with social networks: The social organization argument

While the economist and the social inequality approaches emphasize individual's monetary ability, the social organization argument postulate that the likelihood of paying bribes hinges on the depth of an individual's social capital and inclusion (Arrow, 1972). Grounded on the concept of reciprocity, social networks are perceived as informal channels which individuals, both rich and poor, capitalize on to bypass bureaucratic procedures and access public services. This situation is argued to be pervasive in African countries where institutional rules are subject to discretionary interpretation by both bureaucrats and politicians. According to a classical study by Putnam (1993), societies with high social capital, in terms of trust and norms of civic cooperation, experience quality public service provision due to social and informal restrictions to bureaucratic opportunisms. In such societies, bribery extortions are limited. As argued by Knack and Keefer (1997, p.1254), 'cooperative norms act as constraints on narrow self-interest, leading individuals to contribute to the provision of public goods of various kinds, and internal and external sanctions (such as guilt and shame) associated with norms alter the costs and benefits of defecting' and engaging in bribery. Empirical evidence by Putnam (1993) points out to the role of social capital in explaining differences in effective public service provision across regional governments.

A key aspect emphasized by Uribe (2014) and Smart (2008, p.411) and also integrated in the empirical analysis relates to the nature of social capital, where a distinction is made between social and political networks. For instance, Olson (1982) argues that social capital, embedded in community participation and religious groups reduces the likelihood of corruption by solving collective action problem and enhancing information flow on bureaucratic procedures and official user prices for public services. This in turn increases political participation of individuals which enable them to sanction corrupt officials through democratic processes, and the formation of civil society movements which provide checks and balances on bureaucrat's performance. Such organizations enhance transparency and accountability and thus mitigate corruptive behaviour.

On the other hand, political networks are associated with increased propensity to promote self-interest motives as opportunistic individuals can interact with well-connected politicians to influence bureaucratic decisions. Grounded in the works of Portes (1998) and North et al. (2009), political contacts are associated with limited access order, as personal relationships form the basis for social interaction. As a result, political networks are perceived as special interest groups whose preferences are misaligned with institutional and social norms. The adverse effect of political networks is exacerbated when politicians have influence on government bureaucrats. Kaufmann and Wei (2000) show that in most African countries, politicians can sanction bureaucrats by transferring them to remote locations or impeding their career advancement, making them vulnerable to capture. Even worse, Arrow (1972) argues that political networks act as mechanisms which facilitate clientistic and patronage relationships. As a result, bribery is anticipated to be high for individuals affiliated with local political networks and outfits.

2.2.4 Individuals with low levels of trust: The behavioural argument

Unlike the preceding arguments, this school of thought views corruption through the len of behavioural science, attributing it to cultural and psychological aspects driven by self-fulfilment attitudes of individuals (de Sardan, 1999). The extent to which individuals engage in bribery is purely normative and significantly influenced by the perception that everyone else is corrupt and untrustworthy. In an institutional setting where public services are rendered in an honest manner, all agents internalize the costs of corruption and thus refrain from it (Peiffer and Rose, 2014). However, the contrary is true, and in African countries where bribery is rampant and anti-corruption measures are weak, bribery becomes a logical option, as the ‘short-term costs of being honest are comparatively very high’ and individual’s reason in a manner reflecting ‘well, if everybody seems corrupt, why shouldn’t I be corrupt?’ (Persson et al, 2013, p.457). Theoretical models in behavioural science show that there exist multiple equilibria and the prevalence of corruption depends on the aggregate level of bribery in the society (Lambsdorff, 2012). When bribery is anticipated to be high, the probability of detection declines while that of encountering corrupt individuals and bureaucrats increases and as a result, this perpetuates bribe payments in exchange of public services (Serra and Ryvkin, 2012, Bardhan, 2006).

Persson et al. (2013) present a behavioural model in terms of an assurance game and then demonstrate its validity in the context of Kenya and Uganda. The model assumes that there are two agents, an individual and the society, where each individual can engage or refrain from bribery while encountering government bureaucrats. The authors show that the first best option is when all individuals act in an honest manner, yielding a pareto-efficient outcome where everyone is better off as public services are optimally provided. However, if one individual perceives that at least one

member of the society is corrupt, not engaging in bribery turns out to be an irrational strategy, leaving one worse off. This in turn generates a societal norm and culture of bribery, culminating into 'sub-optimal corruption equilibrium'. Therefore, the burden of bribery is conditional on an individual's perception and trust in other individuals and bureaucrats in the society.

3. Conceptual Framework

The analysis of the preceding four arguments highlights the inadequacy of a uni-dimensional approach in analysing the factors associated with the burden of bribery. To yield a nuanced and analytical framework, this section develops a simple conceptual framework of political agency following the seminal work of Rose-Ackerman (1975) and Hirschman (1970). The model then forms the basis for the ensuing econometric specification.

In this political agency model, it is assumed that bureaucrats and individuals engage in a two-level game in which the bureaucrat has monopoly on the provision of public services. Given this monopoly and discretionary power, the bureaucrat initiates the first move, and decides whether to demand for a bribe or not. If the bureaucrat abstains from bribery, and acts in an honest manner, then public services are rendered without shirking and in accordance with institutional rules. If the bureaucrat inclines for a bribe, the official can out rightly demand for it or prompt the client to offer. This leads to the second level of the game where the client decides whether to offer a bribe or not. If the client declines, then the bureaucrat shirks, and the individual internalises the costs by not receiving the service or experiencing delays. If the client offers a bribe, then the bureaucrat commits to offering the service.

In line with the principal-agent model, it is conjectured that bribery occurs only if it is mutually beneficial to both agents. An individual pays a bribe if the utility derived from accessing the public service U_2 is greater than the utility obtained from not accessing it U_1. On the other hand, a bureaucrat engages in bribery if the monetary and non-monetary benefits of the bribe are greater than the effort used to circumvent institutional rules as well as the sanctions faced if found shirking or demanding for a bribe.

Let *w* be the wage of the bureaucrat, *b* is the amount of bribe, *E* is the effort induced in circumventing institutional rules, *p* is the probability of being caught and S be sanctions imposed if caught. Then a rational bureaucrat will engage in bribery if (w + b) (1-p) > pS + E. A bureaucrat thus aims to maximize current and future rents denoted by the utility function

$$U^B (r) = u(w) + u(b) + p (w, b \dot{\alpha}) \partial V^p \quad \text{Equation (A)}$$

which depends positively on current wages (w), bribes received (b), as well as the function p (w, b $\dot{\alpha}$) which represents the probability of holding a public office, ∂V^p captures the expected future utility and $\dot{\alpha}$ denotes any accountability mechanisms which constraints the bureaucrat from engaging in corruption.

However, according to the theoretical propositions by Rose-Ackerman (1978), Olson (1982) and Putnam (1993), a key attribute affecting the parameter *b* relates to individual's economic, social and political capital. Bribes are mostly paid in monetary and non-monetary terms, and are therefore depend on the economic status of an individual, where the rich are *a priori* anticipated to engage in bribery. Individuals can also result to political contacts such as member of parliaments or local councillors or they can rely on social networks such as community groups and associations which might facilitate access to public services.

In addition, a key attribute affecting $\dot{\alpha}$ relates to the nature of the public service in terms of the degree of market failure and availability of voice and exit options. Hirschman (1970) as well as Paul (1992) classify public services into two categories. The first category includes public services which are only rendered by bureaucrats (natural monopolies) such as the issuance of permits or utilities such as water and electricity. For these services, bureaucrats have an incentive to demand bribes from both the rich and the poor due to the absence of alternative suppliers, implying that exit is not a feasible tool for accountability. The second category relates to services such as health and education, which exhibit exit options, in the sense that these services are also rendered by private actors, though at a higher cost but better quality. This implies that rich individuals have the possibility to bow out of public services when the cost of bribery is higher than the cost of exit. On the other hand, if the cost of bribery is lower than the cost of exit, individuals would prefer to bribe to attain utility U_2. Voice and exit options thus modify the participation constraint and individuals with higher income are more likely to exit public services such as health and education while the poor bear the burden of bribery.

In light of this proposition, the bureaucrat's utility function modifies to

$$U^B (r) = u(w) + u(b, D) + p (w, b \dot{\alpha} E) \partial V^p \qquad \text{Equation (B)}$$

where it now depends on an additional factor *D* which denotes economic, social and political factors as well as *E* which denotes the cost associated with voice and exit options. Introducing the realistic possibility of exit options significantly changes the model's implication as it relaxes the monopoly assumption. This implies that both *D* and *E* act as a threshold which determines individual's

willingness to bribe. In light of these additional factors, the conceptual framework advances the following testable hypotheses;

I. The likelihood of paying bribes to access public services is borne by poor individuals and depends on the type of public service;

II. The likelihood of paying bribes decreases for individuals with social networks;

III. The likelihood of paying bribes increases for individuals with political networks;

IV. Strong accountability mechanisms reduce the incidence of bribery.

4. Empirical Methodology

4.1 Data

The data used to test the above hypotheses is obtained from the 5th round of the *Afro-barometer* survey, a cross sectional individual-level survey on the quality of democracy and governance in Kenya. The survey was conducted between November 2011 and November 2012 using a standard questionnaire translated into 7 different languages (English, Kiswahili, Kikuyu, Luo, Kamba, Kalenjin and Luhya) by trained enumerators from the University of Nairobi. The unit of observation and analysis is the individual and survey respondents are restricted to those above 18 years old. The sample consists of 2400 individuals located in 44[2] local government counties, thus being a nationally representative survey. However, due to missing values, the sample slightly reduces to 2305 individuals. The sampling frame is based on the 2009 National Population and Housing Census conducted by the Kenya National Bureau of Statistics while the sample design is a 'random, clustered, stratified, multistage area probability sample' (Carter, 2012, p. 2). The data is weighted to take into account individual selection probabilities. The contact rate was 96.9 percent while the response rate was 73.4 percent, resulting in a minimal refusal rate of 9.1 percent.

The survey contains detailed responses on individual's social-economic, demographic and political characteristics, information on corruption perception in the country's main institutions and whether an individual paid a bribe to access public services such as permits (driving licence and identity cards), health, education, security and connection to utilities (water). The dataset also includes information on whether individuals sought assistance from a politician, local government councillor or a member of parliament in the previous year to ease the process of obtaining any public services. Finally, the survey contains responses on affiliation of individuals to different social and political movements

[2] There are 47 counties in total, and the 3 counties excluded include Mandera, Garissa and Turkana.

such as religious or voluntary/community groups. The definitions of the main variables used in the empirical model are summarized in Table A1.

4.2 Empirical Model

In order to examine who bears the burden of bribery, the baseline specification which estimates the probability of an individual paying a bribe conditional on prevailing economic, social and political factors is denoted by

$$y_{ij} = \beta_0 + \beta_{1j} Z_{ij} + \beta_{2j} S_{ij} + \beta_{3j} P_{ij} + \beta_{4j} B_{ij} + \beta_{5j} X_{ij} + \eta_i + \varepsilon_{ij}$$

Equation (1)

where the dependent variable y_i denotes the bribe index which equals 1 if an individual *i* paid a bribe to access a public service *j* and 0 otherwise. The vector of independent variables includes Z_i which captures an individual's economic status (an index of poverty), S_i represents an individual's social capital (a binary variable which indicates membership in religious association), P_i represents an individual's political capital (a binary variable which represents contact with local councillor, political party, member of parliament or government agency) and B_i captures an individual's cognitive effect (a binary variable which represents an individual's level of trust regarding the corruptive behaviour of others). In order to avoid results driven by omitted variable bias, vector X_i includes a number of individual-level controls (age, education, gender, employment status and geographical location) which may affect an individual's poverty status as well as the likelihood to pay a bribe. To ease presentation, the control variables are only reported for the main results in Table 2. The model also includes local county fixed effects η_i to control for time invariant factors (such as ethnicity, historical factors) and ε_i is the error term.

The main coefficient of interest is denoted by β_1 and describes the relationship between an individual's poverty level and the probability of paying a bribe. Based on the conceptual framework presented in section 3, the coefficient of β_1 is expected to be positive, implying that poor individuals are more likely to face bureaucratic corruption in exchange of public service due to costly exit option. The proxy for social capital – membership in a religious group - is expected to have a negative sign ($\beta_2 < 0$) as social networks deter bribe payments by solving collective action problems while the coefficient of political capital- contact with a public official or being a member of a voluntary association- is anticipated to portray a positive sign ($\beta_3 > 0$) as political networks are associated with

special interest groups and elite capture. Finally, the coefficient of β_4 is expected to be negative ($\beta_4 < 0$) as high levels of trust in a society decrease the likelihood of an individual engaging in bureaucratic corruption.

Given the binary nature of the dependent variable, the econometric technique adopted to estimate Equation 1 consists of a binary logistic regression model (Wooldridge, 2002). This ensures that, unlike linear probability models (LPM), the predicted probabilities are not greater than 1 or less than zero i.e. ($0 \leq$ probability ≥ 1). This transforms Equation 1 to

$$\log\left(\frac{\pi_i}{1-\pi_i}\right) = \alpha_0 + \alpha_{1j} Z_{ij} + \alpha_{2j} S_{ij} + \alpha_{3j} P_{ij} + \alpha_{4j} B_{ij} + \alpha_{5j} X_{ij} + \eta_i + \varepsilon_{ij}$$

Equation (2)

where π_i= P ($Y_i = 1$) and $1 - \pi_i$= P ($Y_i = 0$) and the empirical estimates can be interpreted both as odds ratios or as probabilities.

Construction of the poverty index

One of the key limitations of the Afro-barometer dataset is that it does not contain any direct measure of the respondent's economic status (poverty levels). In order to address this concern, a novel approach is adopted where a poverty index is constructed as a proxy. It is derived from a series of questions which ask respondents how frequent they have been deprived of basic household amenities in the previous year. On a scale from zero to four, (0=Never, 1=Just once or twice, 2=Several times, 3=Many times, 4=Always) respondents are asked 'O*ver the past year, how often, if ever, have you or anyone in your family gone without: (1) enough food (2) enough clean water for home use (3) enough without medical care (4) enough fuel to cook your food and (5) without a cash income*' Carter (2012, p.10-11). The responses to these five questions are then aggregated into a single index, using equal weights. Figure 1 displays the distribution of the index, with higher values implying that individuals are poor and lack basic household necessities while lower values imply individuals are rich and well-off. As illustrated by the pairwise correlation in Table A2, all the five components of the index are positive and significantly correlated at the 5 percent level.

The reliance on this index is superior to conventional income measures as it encompasses a multi-dimensional assessment of poverty and deprivation, a standard approach proposed in the poverty literature by Sen (1976). This approach diverts from the consumption index used by Hunt and Laszlo (2012) in their study of Uganda and Peru, as consumption may be a proxy for individual's choices

rather than their poverty levels. It also improves on the income measures used by Hunt (2007) as respondents are more likely to underestimate their income and wealth in survey data.

5. Results

5.1 Descriptive Statistics

Descriptive statistics on the perception of bribery in the country's main institutions is depicted in Table A3. The data reveals that bribery is perceived to be high and prevalent, especially in institutions at the county level. At least 90% of the respondents claim that local government councillors, bureaucrats, members of parliament and the police are corrupt. Among these, 31% claim that the entire police force is corrupt, while this magnitude is 15.6% for councillors and 13% for members of parliament, perhaps reflecting the degree of discretionary powers exercised by such officials or due to prior experience. Less than 10% of the respondents perceive corruption to be non-existence, a finding consistent with TI (2015). Table A4 presents the distribution of bribe payments, disaggregated by poverty quintile, where the 1^{st} quintile represents the poorest individuals while the 5^{th} quintile represents the richest. The results show that while the burden of bribery is distributed across all groups, a substantial number of individuals who paid bribes fall in the middle of the distribution. Thus, bribery seems to be a major problem affecting both rich and poor individuals. Out of 2305 respondents, 56.2% paid a bribe to access a permit while 54.1% paid a bribe to avoid problems with the police. According to the Paul (1992), these reflect the type of public services which the bureaucrats possess monopoly in their provision and thus more likely to exhibit higher bribery rates.

Table A5 reports the frequency of bribe payments across all the public services. The results show that the frequency of bribery is high for police and permits, services which are only provided by bureaucrats. For instance, 6.8 % of the respondents pay bribes regularly when seeking permits while 20.3% of the respondents have at least paid a bribe once or twice. The pairwise correlation matrix in Table A6 shows that paying bribes is positively and significantly correlated with an individual's poverty level as well as social and political capital. Individuals who have contacted politicians are more likely to pay bribes while old respondents, especially females, are associated with lower propensity to bribe, given their limited contacts with bureaucrats or demand for public services.

5.2 Estimating the determinants of paying bribes

Tables 1-2 report the determinants of bribe payment in exchange for public services across the 44 local counties. As a starting point, Table 1 presents the results of a linear probability model (LPM) corresponding to the baseline specification. In column (1), the binary dependent variable equals 1 if an individual paid a bribe to access at least one type of public service and zero otherwise, while in columns (2) through (6), the dependent variable is disaggregated in order to examine whether the

determinants of bribery vary across different types of public services. County fixed effects are incorporated in all the specifications in order to control for unobserved heterogeneity. In all the columns, the results suggest that the impact of poverty on the likelihood of paying a bribe is positive and statistically significant at the conventional levels. This result indicates that poor individuals, as measured by the poverty index, are more likely to pay bribes to bureaucrats. Holding other factors constant, a 1 unit increase in the poverty index is associated with an increase in the likelihood of paying a bribe by 0.8% to 1.9%. The disaggregated results show that the highest effect is for health (1.9%) - services which the rich have an exit option to private providers whose services cost, as well as quality, is higher than in the public sector. This finding provides suggestive evidence that point out to a poverty-bribery trap, where the poor end up bearing the burden of bribery while the rich opt out of public services.

Table 1: Linear Probability Model

Dependent variable: Bribe paid	(1) Bribe index	(2) Permits	(3) Water	(4) Health	(5) Police	(6) Education
Poverty	0.012***	0.013***	0.010**	0.019***	0.011***	0.008*
	(3.71)	(3.59)	(2.63)	(5.29)	(2.83)	(1.93)
Religious group member	-0.024***	-0.008	-0.013	0.001	-0.035***	-0.026***
	(-2.65)	(-0.68)	(-1.25)	(0.11)	(-4.41)	(-2.91)
Voluntary group member	0.019*	0.015	0.038***	0.022**	0.038***	0.022*
	(1.69)	(1.34)	(3.50)	(2.02)	(2.98)	(1.90)
Contact with local councilor	0.036**	0.061***	0.029	0.032*	0.034**	0.011
	(2.06)	(3.45)	(1.61)	(1.72)	(2.33)	(0.62)
Contact with MP	0.007	0.012	0.034*	0.050**	0.016	0.041**
	(0.46)	(0.76)	(1.72)	(2.45)	(0.90)	(2.23)
Contact with gov. agency	0.006	-0.002	-0.003	-0.033**	-0.014	-0.038***
	(0.43)	(-0.13)	(-0.16)	(-2.09)	(-1.01)	(-2.66)
Contact with political party	-0.005	0.001	-0.017	-0.017	0.034**	0.0003
	(-0.38)	(0.05)	(-0.95)	(-0.93)	(2.45)	(0.02)
Cognitive effect (trust)	-0.008	-0.006	-0.0002	-0.009	-0.005	-0.005
	(-1.13)	(-1.01)	(-0.03)	(-1.49)	(-0.54)	(-0.80)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
N	2305	2305	2305	2305	2305	2305
R^2	0.039	0.039	0.030	0.046	0.040	0.028
F statistic	11.15	5.43	4.52	4.43	9.93	6.67

*t statistic in parentheses. Robust standard errors used. Significance at * 10%; ** 5%; *** 1%. Control variables as defined in the baseline model.*

Table 2 reports the main findings which are based on a binary logistic regression. The estimates, which are significant at the 5 percent level, underscore poverty as an important determinant of paying

bribes in exchange for public services. This result is robust across the different public services, even after controlling for individual-level characteristics and county fixed effects. In column (1), the coefficient of poverty implies that a 1 unit increase in poverty multiplies the odds of paying a bribe by a factor of exp (0.067) = 1.069. In other words, with all other factors held constant, the probability for a poor individual to pay a bribe increases by 6.9%. This result is in line with the theoretical claims by Peiffer and Rose, (2014) that bribery has adverse distributional consequences and does not constitute an elite problem in most African countries. Consistent with the LPM results, the likelihood of paying a bribe also depends on the type of public service. Poor individuals in pursuit of health services are more likely to face bureaucratic corruption (the odds increase by 8.5%) while the odds of those seeking public education increase by 3.6%. This could perhaps reflect the possibility that the rich use the exit option and opt out of public health or education, while the poor who continue to depend on such services bear the cost of bribery. In sum, the estimates from both LPM and logistic regression are consistent with the pairwise correlations in Table A6 and provide consistent evidence to support hypothesis 1: compared to rich individuals, the poor are more likely to pay bribes to bureaucrats in exchange for public services.

The empirical results in Tables 1-2 also underpin social capital and informal networks as key determinants of bribe payment. In line with the social network argument, the results show that the effect of social network on bribery systematically differs from that of political networks. The estimates show that individuals who are affiliated to a religious group are less likely to bear the burden of bribery and according to column (1) in Table 2, holding other factors constant, being a member of a religious group is associated with an 11.8% [1- exp (-0.126)] decrease in the probability of paying a bribe. This finding, which is significant at the 1% level, supports the theoretical proposition by North et al. (2009) that open access to social organizations is vital in providing third party enforcement on officials in the public sector. Consistent with hypothesis 2, the results support the notion that social networks reduce the incidence of bribery.

By contrast, membership in a voluntary organization such as business group increases the chances of paying a bribe. In columns (3) through (6) of Table 2, the results show that, consistent with the logic by Olson (1982), the odds of individuals affiliated to voluntary organization paying a bribe are high: 17.23% for water, 10.30% for health , 17.12% for police and 10.08% for education. As for the effect of political contact on the likelihood of bribe payment, the results in Table 1-2 suggest a positive and statistically significant effect, especially for individuals who contact a member of parliament or a local councillor. The magnitude of the coefficients are however larger in the logistic model and significant across the different public services. In column (1) of Table 2, the results show that contacting a local councillor in order to access a public service multiplies the odds of paying a bribe by exp (0.212) = 23.6%. This magnitude turns out to be the highest for those seeking permits (30.7%)

and police services (16.1%). As argued by Tanzi (1995), in weak states, localization of public service may ‘promote personalism and reduce professionalism and arm’s length relationships as bureaucrats value individual citizens needs and disregard public interests’ (Shah, 2006. p. 17). This finding seems to be in line with a case study by Khaunya et al. (2015), where the authors find evidence of collusion between local politicians, bureaucrats and elites due to increased cohesiveness at the county level. In line with hypothesis 3, this finding may be interpreted as evidence that political capital increases the likelihood of bribe payment.

Finally, the results do not provide evidence that cognitive factors influence the probability of bribe payment. In Tables 1-2, the proxy for cognitive bias is not significant at any conventional level, although it consistently retains a negative sign. This finding complements recent studies by Campbell and Goritz (2013) who argue that social norms and ideologies are endogenous and constantly change over time. This could partly explain the low explanatory power of cognitive factors as determinants of bribery across the different public services.

Table 2: Binary Logistic Model

Dependent variable: Bribe paid	(1) Bribe index	(2) Permits	(3) Water	(4) Health	(5) Police	(6) Education
Poverty	0.067***	0.054***	0.044***	0.082***	0.044***	0.035**
	(3.58)	(3.54)	(2.63)	(5.33)	(2.80)	(2.03)
Religious group member	-0.126***	-0.033	-0.054	0.004	-0.151***	-0.115***
	(-2.67)	(-0.72)	(-1.24)	(0.09)	(-4.33)	(-2.85)
Voluntary group member	0.100	0.063	0.159***	0.098**	0.158***	0.096*
	(1.60)	(1.31)	(3.47)	(2.04)	(2.87)	(1.95)
Contact with local councilor	0.212*	0.268***	0.124	0.141*	0.149**	0.052
	(1.95)	(3.33)	(1.62)	(1.77)	(2.28)	(0.68)
Contact with MP	0.066	0.073	0.146*	0.224**	0.081	0.182**
	(0.62)	(0.92)	(1.72)	(2.49)	(1.00)	(2.26)
Contact with gov. agency	0.036	-0.008	-0.012	-0.155**	-0.061	-0.181**
	(0.44)	(-0.13)	(-0.19)	(-1.99)	(-1.01)	(-2.50)
Contact with political party	-0.027	0.005	-0.071	-0.075	0.170**	0.010
	(-0.32)	(0.07)	(-0.95)	(-0.91)	(2.29)	(0.12)
Cognitive effect(trust)	-0.039	-0.024	-0.001	-0.040	-0.018	-0.020
	(-1.09)	(-0.96)	(-0.04)	(-1.48)	(-0.51)	(-0.75)
Employment	0.105*	0.082	-0.070	0.015	0.063*	-0.144***
	(1.88)	(1.30)	(-1.56)	(0.40)	(1.67)	(-4.00)
Education	0.023	-0.008	-0.002	-0.0001	0.009	0.025
	(1.02)	(-0.91)	(-0.24)	(-0.01)	(0.78)	(1.47)
Religion	-0.00004	-0.00005**	-0.0001*	-0.00003	-0.00002	-0.00004*
	(-1.36)	(-1.98)	(-1.66)	(-1.47)	(-0.77)	(-1.88)
Gender	-0.164*	-0.056	0.061	0.095	-0.252**	-0.040
	(-1.68)	(-0.66)	(0.91)	(1.13)	(-2.60)	(-0.51)
Age	-0.002***	-0.001	-0.001	-0.001	-0.002*	-0.003
	(-2.72)	(-1.50)	(-1.01)	(-1.05)	(-1.81)	(-1.74)
Urban	-0.044	0.119	0.026	-0.040	0.027	-0.196**
	(-0.39)	(0.99)	(0.28)	(-0.37)	(0.28)	(-2.21)
Constant	0.801**	-0.355	-0.825***	-1.096***	0.113	-0.020
	(2.20)	(-1.10)	(-3.59)	(-4.75)	(0.38)	(-0.09)
N	2305	2305	2305	2305	2305	2305
Pseudo R^2	0.035	0.030	0.023	0.035	0.030	0.022

*z statistic in parentheses. Robust standard errors used. Significant at * 10%; ** 5%; *** 1%*

5.3 Estimating the determinants of the frequency of bribe payments

Table 3 investigates the determinants of the frequency of bribe payments in exchange for public services. Given that the dependent variable has a natural ordering (0=Never, 1=Once or twice, 2=A few times, 3=Often), the baseline specification is estimated using an ordinal logistic regression (Cameron and Trivedi, 2005). This transforms Equation 1 to

$$\left(\frac{P(Y_i \leq j)}{P(Y_i > j)}\right) = \log\left(\frac{\gamma_i^j}{1-\gamma_i^j}\right) = \delta^{(j)} - (\delta_{1j} Z_{ij} + \delta_{2j} S_{ij} + \delta_{3j} P_{ij} + \delta_{4j} B_{ij} + \delta_{5j} X_{ij} + \eta_i + \varepsilon_{ij})$$

Equation (3)

where the dependent variable has 4 ordered categories denoted by j = 1, …4, $\delta^{(j)}$ are the 3 thresholds between each category and probabilities γ_i^j = P ($Y_i \leq j$).

Consistent with the previous findings, not only are the poor more likely to pay bribes, but they make such payments more frequently than the rich and well-off. Across the different public services, the coefficient of poverty turns out to be positive and statistically significant at the 1% level, even after the inclusion of several control variables and local county fixed effects. In column (1) of Table 3, the odds of paying bribes for poor individuals is in exchange for permits is multiplied by a factor of exp (0.105) = 1.1107. This is equivalent to stating that, controlling for the other explanatory variables, a 1 unit increase in the poverty index is associated with an 11.07% increase in the odds of giving a response that indicate higher frequency in paying bribes in exchange for permits. The empirical results further show that despite an even distribution of the frequency of bribe payment across the different public services, the magnitude is stronger for health services (15.8%), water (15.1%) and education (12.2%). These results are consistent with the descriptive statistics in Table A5 and correspond to Hunt's (2007) assertion that 'corruption hits people when they are down'. In sum, the findings lend support to the hypothesis that not only does the burden of bribery disproportionally fall on the poor, but it affects public services such as health and education which exhibit costly exit options for poor individuals.

Table 3: Ordinal Logistic Regression

Dependent variable: Bribe paid	(1) Permits	(2) Water	(3) Health	(4) Police	(5) Education
Poverty	0.105***	0.141***	0.147***	0.059***	0.115***
	(5.99)	(7.12)	(10.83)	(4.05)	(7.12)
Religious group member	-0.007	-0.103*	-0.018	-0.114***	0.001
	(-0.15)	(-1.82)	(-0.33)	(-2.65)	(0.02)
Voluntary group member	0.024	0.188***	0.096**	0.154***	0.118**
	(0.52)	(4.52)	(2.17)	(2.95)	(2.45)
Contact with local councilor	0.199***	0.060	0.125	0.056	0.125
	(3.09)	(0.70)	(1.63)	(0.87)	(1.35)
Contact with MP	0.021	0.121	0.197**	-0.050	0.128
	(0.28)	(1.43)	(2.28)	(-0.59)	(1.45)
Contact with gov. agency	-0.047	-0.172*	-0.123	0.010	-0.180*
	(-0.74)	(-1.75)	(-1.46)	(0.22)	(-1.88)
Contact with political party	0.035	0.130	-0.078	0.240**	0.016
	(0.46)	(1.25)	(-0.90)	(2.52)	(0.18)
Control variables	Yes	Yes	Yes	Yes	Yes
N	2305	2305	2305	2305	2305
Pseudo R^2	0.041	0.055	0.052	0.042	0.038

*z statistic in parentheses. Robust standard errors used. Significant at * 10%; ** 5%; *** 1%.*

5.4 Estimating the role of accountability mechanisms

In line with the political agency model elaborated in the conceptual framework, this section examines how countervailing accountability mechanisms such as voice and exit can cushion the poor from bribery by altering bureaucrat's opportunistic behaviour and increasing the levels of political awareness. To analyse this link, an interaction term between proxies for accountability and poverty are introduced into the baseline specification which is estimated using a binary logistic model. Due to data availability, the analysis is only restricted to the use of voice as an instrument for enforcing accountability. Following Alam (1995), the strength of civil society movements and a free and independent media are used as proxies for voice. This transforms Equation 1 to

$$\text{Log}\left(\frac{\pi_i}{1-\pi_i}\right) = \lambda_1 Poverty_i + \lambda_2 Accountability + \lambda_3 (Poverty)(Accountability) + \lambda_4 A_i + \varepsilon_i$$

Equation (4)

where π_i= P (Y_i = 1) and $1 - \pi_i$= P (Y_i = 0) and accountability is a dummy variable representing

$$\text{civil society} = \begin{cases} 1, \text{if its strong} \\ 0, \text{ otherwise} \end{cases}$$

and

$$\text{media} = \begin{cases} 1, \text{if its strong} \\ 0, \text{otherwise} \end{cases}$$

and the intercept term as well as all variables excluded from the interaction are denoted by *A*. By taking derivatives, the effect of poverty on bribe payment is given by $\beta_1 + \beta_3(Accountability)$, where it is conditional on the strength of existing accountability mechanisms. Table 4 reports the results corresponding to civil society movements, and the interaction term is negative and statistically significant across most specifications. The empirical estimates in column (1) show that the effect of poverty on bribe payment is 0.104-0.015*(civil society). Intuitively, this implies that when the civil society is weak (civil society = 0), the odds of a poor individual paying a bribe in exchange for a public service is exp (0.104) = 1.1096, that is it increases by 10.96%. However, in counties with strong civil societies which hold local officials and bureaucrat accountable (civil society = 1), the likelihood of bribe payment declines significantly as the odds of a poor individual paying a bribe is exp (0.104-0.015) = exp (0.089) = 1.093. In other words, the probability is 9.3% which is lower compared to weak civil societies. Table A7 further confirms the effectiveness of countervailing strategies when media is taken as a proxy for accountability, a result which is consistent with studies such as those of Kneller et al. (2007) and Reinikka and Svensson (2004). These findings support hypothesis 4 that accountability mechanism based on third party enforcement can play a key role in mitigating bureaucratic corruption by holding local officials accountable and fostering transparency in bureaucratic procedures.

Table 4: Binary Logit Regression: Role of Civil Society Movements

	(1) Bribe index	(2) Permits	(3) Water	(4) Health	(5) Police	(6) Education
Poverty	0.104***	0.092***	0.101***	0.103***	0.082***	0.066**
	(5.27)	(5.21)	(5.36)	(5.12)	(4.55)	(2.87)
Civil society	0.052	0.064*	0.087**	0.012	0.066*	0.045
	(1.27)	(1.86)	(2.62)	(0.34)	(1.88)	(1.20)
Poverty * Civil society	-0.015***	-0.012***	-0.017***	-0.007	-0.013***	-0.011**
	(-2.68)	(-2.88)	(-4.16)	(-1.41)	(-3.18)	(-2.11)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
N	2300	2300	2300	2300	2300	2300
Pseudo R^2	0.016	0.013	0.015	0.024	0.010	0.010

*z statistic in parentheses. Robust standard errors used. Significant at * 10%; ** 5%; *** 1%.*

6. Robustness

To ensure the reliability and accuracy of the main findings, three potential concerns are addressed. The first one relates to differences in the interpretation of bribery across respondents from different cultures in the different counties. However, such effect can be argued to be minimal given that the survey was conducted in local languages. The second concern appertains to social desirability bias as respondents may inaccurately misreport (underestimate or overestimate) the incidence of bribery due to fear of social and legal litigations (Sequeira, 2012). In order to address the downward social desirability bias, an innovative approach is adopted where the main resulted in Tables 2-3 are re-estimated after excluding the proportion of respondents who thought that the survey was being conducted or financed by the central government. Despite the reduction of the sample size by 48%, the results reported in Table A8-A9 reveal that the main findings related to the four hypotheses are robust.

The final concern relates to the choice of the econometric technique. Amongst the respondents who did not pay a bribe, some of them may have never been asked to pay by bureaucrats. This implies that if the poor frequently pay bribes, the coefficient of poverty will be overestimated. To address this, a two-stage econometric model is estimated (hurdle model) which takes into account zero and positive counts and fits a model to the positive counts only. Given the over-dispersion in bribe payments (a large number of zero's in the dependent variable) as depicted in figure 2, the main results (Table 2) are replicated using a negative binominal model. The estimates are reported in Table A10. As anticipated, poverty, – as well as the proxies for social and political capital- retain the expected signs and remain significant at the conventional levels. In summary, the robustness results show that the results are insensitive to different specifications and econometric assumptions.

7. Conclusion and Policy Recommendations

Existing empirics in the corruption literature continue to advance contradictory propositions on how to design sound anti-corruption reforms aimed at addressing bureaucratic corruption. This paper argues that this arises due to the failure to identify the distributional impact of bribe payments and precisely who bears the burden of bribery. In reconciling previous studies, this paper presents a unified analytical framework which simultaneously examines how the incidence of bribery in public service delivery varies with an individual's economic, social and political factors. It then investigates what forms of accountability mechanisms are effective in mitigating bureaucratic opportunism behaviour.

Using an individual-level and experience-based survey conducted across local counties in Kenya, and implementing a series of logistical regression analysis, several key findings emerge. First, the burden

of bribery disproportionally falls on the poor, who face costly exit options to alternative supplies. Second, the poor pay bribes more frequent than the rich, an aspect which reinforces the poverty-bribery trap. Third, the likelihood of paying bribes differs across public services, with the effects being stronger for health and education - services which the rich have the potential to exit and seek from the private sector. Fourth, membership to social organizations reduces bribery while political organizations increase the propensity to bribe. Finally, the results offer strong evidence in support of strong civil societies and media as effective instruments which can deter bureaucratic corruption.

These findings have important policy implications. First, they highlight the need to align anti-corruption reforms with poverty reduction strategies, an aspect lacking in the localization initiative in Kenya. Empowering the poor, in terms of boosting income opportunities may play a key role in reducing the incidence of bribery by increasing opportunities to exit to alternative sources which provide better quality but expensive services. Second, consistent with the logic by North et al. (2009), promoting open access order, especially membership in religious and community association should be encouraged as a channel for solving information asymmetry and collective action problems which perpetuate corruption. Finally strengthening local countervailing mechanisms such as civil society movements and a free media can alter the structure of incentives faced by bureaucrats and local politicians, and thus foster downward accountability, and thus equity in accessing public services.

Despite the rigor undertaken in the analysis, several caveats remain. First, the paper is silent on the magnitude of bribes. Poor individuals might be more likely to pay bribes, but the amount may be lower compared to the rich. While this could be the case, substantiating this claim is not possible as the survey data does not contain any information on the actual amount of bribes paid. Second, from the survey responses, it is not possible to identify whether individuals drive bribery or react to demands from bureaucrats. The third caveat relates to the problem of reverse causality. While the poor are prone to pay bribes, individuals who pay bribes might be poorer to begin with and thus perpetuate bribery in exchange of public services. However, in the absence of a valid instrument for poverty, the analysis abstains from interpreting the empirical estimates in a causal manner. Finally, given the trade-off between quantitative and qualitative techniques, the analysis does not fully capture the underlying processes and mechanisms which account for variations in public service provision and accountability between better and worse performing local counties. While these concerns are fully acknowledged and left for future research, the empirical findings offer vital insights on the micro-level dynamics of bribery in public service delivery across local counties in Kenya.

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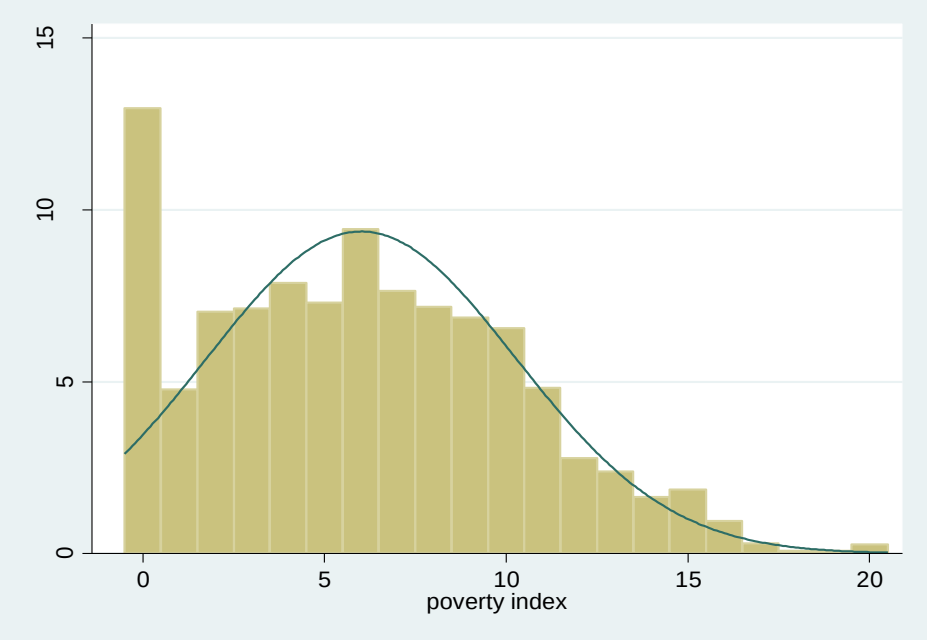
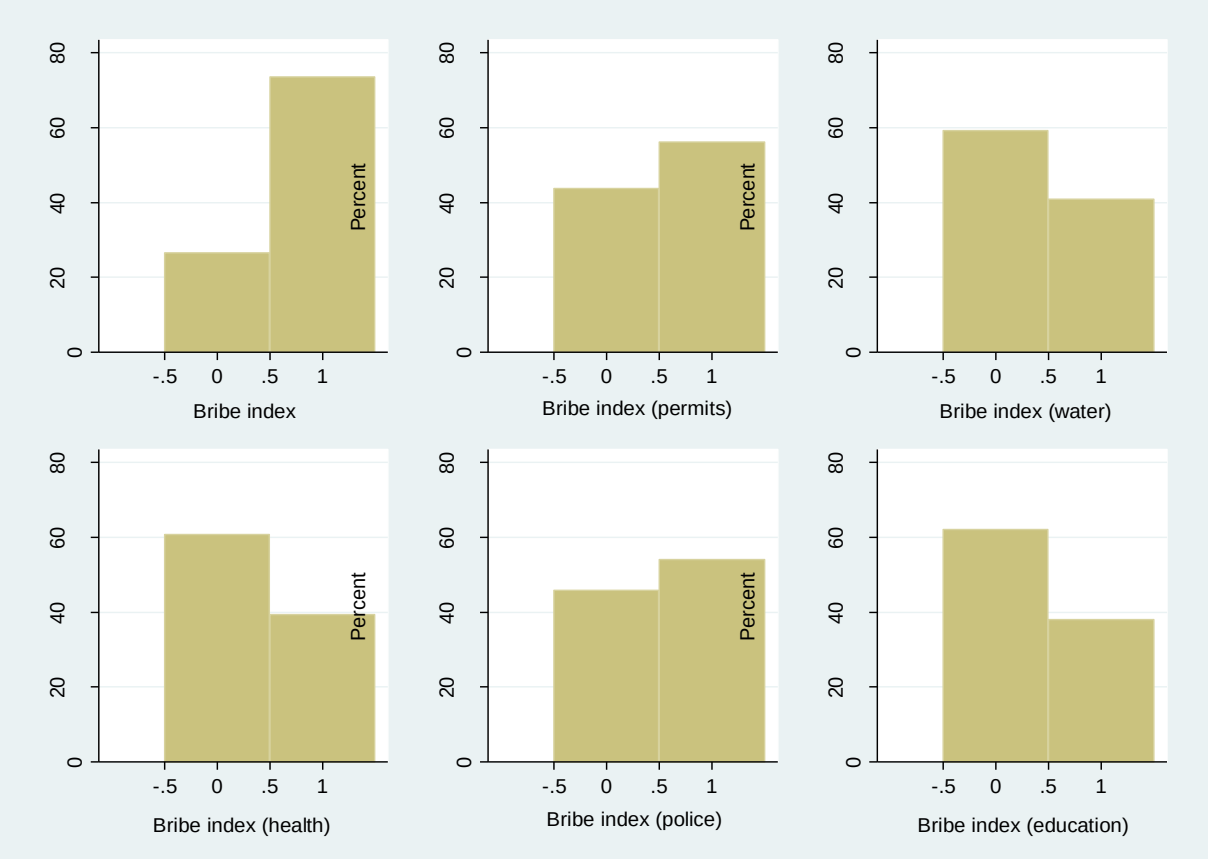
Appendix

Figure 1: Distribution of poverty index



Source: own calculation from Afro-barometer survey (2011).

Figure 2: Distribution of the response variable (disaggregated by each public service)



Source: own calculation from Afro-barometer survey (2011).

Table A1: Variable Description

Variable	Question number in the survey	Description*	Expected sign
Bribe	Q61A-Q61E	In the past year, how often, if ever, have you had to pay a bribe, give a gift or do a favour to government officials in order to get: water or sanitation services, treatment at a local health clinic or hospital, avoid problem with the police or get school placement? 0=Never, 1=Only once, 2=A few times, 3=Often, 4= no experience	Dependent variable
Poverty	Q8A-Q8E	Poverty index as constructed in section 4	positive
Religious group member	Q25A	Are you a member of a religious group? yes= 1; No = 0	negative
Voluntary group member	Q25B	Are you a member of a voluntary association? yes= 1; No = 0	positive
Contact with local councillor	Q30A	How often have you contacted the local government councillor at some important problem to assist? 0=Never, 1=Only once, 2=A few times, 3=Often	positive
Contact with MP	Q30B	How often have you contacted the local government councillor at some important problem to assist? 0=Never, 1=Only once, 2=A few times, 3=Often	positive
Contact with gov. agency	Q30C	How often have you contacted the local government councillor at some important problem to assist? 0=Never, 1=Only once, 2=A few times, 3=Often	positive
Contact with political party	Q30D	How often have you contacted the local government councillor at some important problem to assist? 0=Never, 1=Only once, 2=A few times, 3=Often	positive
Cognitive effect (trust)	Q60C	How many government officials do you think are involved in corruption? None=0, 1= at least some of them	positive
Employment	Q96	Employed = 1; Unemployed = 0	positive
Education		0=No formal schooling, 1=Informal schooling only, 2=Some primary schooling, 3=secondary school ,4=post-secondary	ambiguous
Gender	Q101	male=1; female =0	ambiguous
Age	Q113	age in years	negative
Urban	Q115	urban= 1; rural=0	ambiguous
Media	Q53	How effective the news media reveals government mistakes and corruption? 1= effective, 0=ineffective	
Civil society movement	Q59	How effective civil societies reveal government mistakes and corruption? 1= effective, 0=ineffective	

Source: Carter (2012). *Description of the questions are replicated from the questionnaire.

Table A2: Pairwise Correlation (components of the poverty index)

	Fuel	Water	Medical care	Cooking fuel	Cash income
Fuel	1				
Water	0.461**	1			
Medical care	0.474**	0.485**	1		
Cooking fuel	0.409**	0.428**	0.431**	1	
Cash income	0.408**	0.305**	0.414**	0.323**	1

** Significance at 5%.

Source: own calculation from Afro-barometer survey (2011).

Table A3: Distribution of the number of individuals (in %) who perceive different institutions as corrupt

	all of them	most of them	some of them	none of them	don't know
Members of parliament	13.1	36.8	41.0	2.3	6.8
Government officials	12.4	40.1	39.4	1.6	6.4
Local government councillors	15.6	34.7	41.0	2.9	5.9
Police	31.0	39.3	23.0	2.4	4.9

Source: own calculation from Afro-barometer survey (2011).

Table A4: Distribution of the number of individuals (in %) who paid a bribe, disaggregated by quintiles of the poverty index

						Number of people who		number of respondents
	1st	2nd	3rd	4th	5th	paid bribes	did not pay bribes	
Permits	11.7	11.76	10.2	13.15	9.5	1296	1009	2305
Water or sanitation services	8.5	8.8	6.3	10.02	7.2	940	1365	2305
Treatment at local health clinic	7.3	7.6	6.2	10.4	7.8	905	1400	2305
Police	12.1	12.1	8.2	12.2	9.5	1247	1058	2305
Placement in primary school	8.7	8.2	5.6	8.9	6.7	876	1429	2305

Source: own calculation from Afro-barometer survey (2011).

Note: The quintiles are constructed using the poverty index as outlined in section 4.

Table A5: Distribution of the number of individuals (in %) who paid a bribe, disaggregated by frequency of payments

	Often	a few times	once or twice	no experience within last past year
Permits	6.8	11.8	20.3	18
Water or sanitation services	2.6	7.4	7.6	23.3
Treatment at local health clinic	4.2	11	12.8	11.8
Police	8.2	10.8	12.7	22.6
Placement in primary school	2.4	5.6	9.1	21

Source: own calculation from Afro-barometer survey (2011).

Table A6: Correlation Matrix

	Bribe index	Poverty	Religious group member	Voluntary group member	Contact with local councilor	Contact with MP	Contact with gov. agency	Contact with political party	Employ-ment	Education	Gender	Age	Trust	Urban
Bribe index	1													
Poverty	0.10***	1												
Religious group member	-0.03	0.08***	1											
Voluntary group member	0.06***	0.10***	0.31***	1										
Contact with local councilor	0.10***	0.08***	0.09***	0.19***	1									
Contact with MP	0.07***	0.04**	0.06***	0.11***	0.50***	1								
Contact with gov. agency	0.06***	0.03	0.06***	0.17***	0.38***	0.36***	1							
Contact with political party	0.04**	0.04*	0.08**	0.10***	0.38***	0.46***	0.38***	1						
Employment	0.05**	-0.16***	-0.01	0.06**	0.04	0.05**	0.04**	0.06***	1					
Education	0.03	-0.06***	-0.03	0.002	0.07***	0.14***	0.08***	0.11***	0.10***	1				
Gender	-0.07***	-0.02	0.04*	-0.01	-0.15***	-0.07***	-0.13***	-0.12***	-0.11***	-0.07***	1			
Age	-0.05**	0.08***	0.02	-0.01	0.08**	0.08***	0.07***	0.08***	-0.03	0.22***	0.001	1		
Trust	-0.04	0.08***	-0.02	0.02	-0.03	-0.04*	-0.02	0.001	-0.06***	-0.09***	0.11***	-0.02	1	
Urban	-0.003	0.11***	0.08***	0.01	0.10***	0.08***	0.04**	0.04**	-0.14***	-0.07***	-0.02	0.04**	0.03	1

Significance is denoted by *** for p<0.01, ** for p<0.05 and * for p<0.1

Source: Afro-barometer survey (2011).

TableA7: Logistic regression: Role of the Media

	(1) Bribe index	(2) Permits	(3) Water	(4) Health	(5) Police	(6) Education
Poverty	0.110***	0.144***	0.191***	0.174***	0.131***	0.196***
	(5.72)	(5.97)	(3.94)	(7.42)	(6.04)	(6.63)
Media	0.115**	0.037	0.052	0.032	0.119	0.079
	(2.11)	(0.66)	(0.45)	(0.45)	(1.40)	(0.82)
Poverty * Media	-0.017**	-0.017**	-0.023	-0.009	-0.029***	-0.032***
	(-2.37)	(-2.09)	(-1.42)	(-0.95)	(-2.78)	(-2.82)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
N	2300	2300	2300	2300	2300	2300
Pseudo R^2	0.037	0.064	0.078	0.079	0.069	0.034

*z statistic in parentheses. Robust standard errors used. Significant at * 10%, ** 5%, *** 1%.*

Source: Afro-barometer survey (2011).

Table A8: Robustness results: Logit Regressions – correction for social desirability bias

	(1) Bribe index	(2) Permits	(3) Water	(4) Health	(5) Police	(6) Education
Poverty	0.072***	0.043***	0.044***	0.062***	0.037**	0.048***
	(4.30)	(2.99)	(3.04)	(4.21)	(2.52)	(3.29)
Religious group member	-0.144**	-0.013	-0.096	-0.038	-0.218***	-0.114**
	(-2.32)	(-0.23)	(-1.64)	(-0.64)	(-3.77)	(-1.96)
Voluntary group member	0.085	0.032	0.120**	0.104*	0.118**	0.058
	(1.40)	(0.59)	(2.16)	(1.87)	(2.13)	(1.04)
Contact with local councilor	0.234***	0.321***	0.126*	0.141*	0.100	0.006
	(2.70)	(4.23)	(1.70)	(1.89)	(1.36)	(0.08)
Contact with MP	-0.010	-0.040	0.060	0.082	-0.042	0.148
	(-0.08)	(-0.39)	(0.60)	(0.81)	(-0.42)	(1.47)
Contact with gov. agency	0.003	-0.033	-0.064	-0.093	-0.035	-0.038
	(0.03)	(-0.47)	(-0.89)	(-1.26)	(-0.50)	(-0.52)
Contact with political party	-0.08	-0.029	-0.103	-0.049	0.183*	-0.060
	(-0.75)	(-0.29)	(-1.02)	(-0.49)	(1.74)	(-0.60)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
N	1286	1286	1286	1286	1286	1286
Pseudo R^2	0.036	0.026	0.016	0.020	0.031	0.016

z statistic in parentheses. Robust standard errors used. Significant at * *10%;* ** *5%;* *** *1%*

Note: The sample size in this table excludes all respondents who perceived that the survey was conducted or financed by the central government. It excludes all those who answered central government to the question Q100: Who do you think sent us to do this interview?

Source: Afro-barometer survey (2011).

Table A9: Robustness results: Ordered regression - correction for social desirability bias

	(1) Permits	(2) Water	(3) Health	(4) Police	(5) Education
Poverty	0.097***	0.153***	0.142***	0.071***	0.144***
	(6.54)	(7.66)	(8.61)	(4.59)	(7.44)
Religious group member	0.035	-0.163*	-0.033	-0.178***	-0.031
	(0.61)	(-1.94)	(-0.49)	(-2.81)	(-0.38)
Voluntary group member	0.033	0.190**	0.155**	0.164***	0.097
	(0.60)	(2.54)	(2.46)	(2.80)	(1.30)
Contact with local councilor	0.304***	0.174*	0.174**	0.110	0.125
	(4.23)	(1.74)	(2.10)	(1.43)	(1.27)
Contact with MP	-0.045	0.059	0.157	-0.072	0.155
	(-0.44)	(0.45)	(1.38)	(-0.70)	(1.19)
Contact with gov. agency	-0.005	-0.157	-0.0615	0.0315	-0.108
	(-0.07)	(-1.45)	(-0.74)	(0.45)	(-1.03)
Contact with political party	-0.0005	0.040	-0.098	0.163*	-0.096
	(-0.01)	(0.31)	(-0.85)	(1.74)	(-0.72)
Control variables	Yes	Yes	Yes	Yes	Yes
Threshold 1					
	1.109***	2.339***	1.729***	0.400	2.344***
	(3.40)	(5.20)	(4.22)	(1.20)	(5.30)
Threshold 2					
	2.193***	3.016***	2.475***	1.159***	3.189***
	(6.63)	(6.62)	(5.98)	(3.45)	(7.10)
Threshold 3					
	3.396***	4.508***	3.932***	2.157***	4.588***
	(9.83)	(9.23)	(9.09)	(6.26)	(9.52)
N	1286	1286	1286	1286	1286
Pseudo R^2	0.046	0.072	0.055	0.058	0.051

z statistic in parentheses. Robust standard errors used. Significant at * *10%;* ** *5%;* *** *1%*

Note: The sample size in this table excludes all respondents who perceived that the survey was conducted or financed by the central government. It excludes all those who answered central government to the question Q100: Who do you think sent us to do this interview?

Source: Afro-barometer survey (2011).

Table A10: Robustness results: Hurdle model - Negative binomial Regression

	(1) Bribe index	(2) Permits	(3) Water	(4) Health	(5) Police	(6) Education
Poverty	0.016***	0.022***	0.025***	0.047***	0.019***	0.020**
	(3.81)	(3.50)	(2.69)	(5.91)	(2.97)	(2.06)
Religious group member	-0.033**	-0.012	-0.029	0.004	-0.066***	-0.071***
	(-2.61)	(-0.63)	(-1.18)	(0.17)	(-4.17)	(-2.92)
Voluntary group member	0.026*	0.027	0.090***	0.058**	0.070***	0.057**
	(1.73)	(1.37)	(3.81)	(2.12)	(3.17)	(2.06)
Contact with local councilor	0.047**	0.099***	0.065	0.070*	0.060**	0.028
	(2.12)	(3.59)	(1.62)	(1.68)	(2.40)	(0.64)
Contact with MP	0.008	0.012	0.065*	0.098**	0.024	0.098**
	(0.40)	(0.50)	(1.66)	(2.26)	(0.83)	(2.31)
Contact with gov. agency	0.007	-0.002	-0.006	-0.085*	-0.025	-0.112**
	(0.45)	(-0.11)	(-0.18)	(-1.87)	(-0.97)	(-2.56)
Contact with political party	-0.005	0.002	-0.032	-0.026	0.053**	0.017
	(-0.28)	(0.11)	(-0.83)	(-0.63)	(2.62)	(0.36)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
N	2305	2305	2305	2305	2305	2305

z statistic in parentheses. Robust standard errors used. Significant at * *10%;* ** *5%;* *** *1%*

Source: Afro-barometer survey (2011).