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Does Greater Accountability Improve the Quality of Public Service Delivery? Evidence from Uganda

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Summary. — It is now widely realized that in many developing countries, the low quality of public services and governance can limit the scope for poverty reduction and growth. Empirical micro-level evidence on the scope for improved accountability to help reduce corruption and improve the quality with which critical public services are provided is, however, limited. Using a large data set from Uganda to address this issue, we find that household knowledge on how to report inappropriate behavior by bureaucrats and unsatisfactory quality of services does help to not only reduce the incidence of corruption but is also associated with significant improvements in service quality.

Key words — governance, corruption, public service provision, poverty reduction, Uganda

1. INTRODUCTION

Higher levels of economic integration across countries and greater availability of information provide significant potential for efficiency gains. These trends have also helped to expose corruption, defined as the abuse of public power for private benefit, as a key constraint to efficient allocation of economically valuable resources, effective provision of public goods and services, and people's confidence in the state and the legal system. Greater accountability, defined as a system of controls that, in a climate where information is openly available and transparency high, can help to improve economic efficiency and reduce the scope for discretionary action by public officials and is likely to be critical for the development process in at least two ways.

First, it is widely held that for growth to reduce poverty in developing countries, it should be largely driven by private investment. Rent-seeking by partial and corrupt public officials, however, increases the costs associated with entrepreneurial investment and may lead foreign investors to take their businesses elsewhere while forcing domestic entrepreneurs to go underground, leading to high levels of informality and a very narrow tax base. Complaints about lack of transparency, high levels of regulatory intervention and corruption, and the cost which these impose on doing business are at the core of recent empirical evidence gathered from entrepreneurs in the Global Investment Climate Survey.

A second reason of equal importance is that developing countries require significant investment in public goods such as infrastructure, education, and health, as a basis for private investment, broad-based, and sustainable economic development, especially in a decentralized environment. But, high levels of corruption have been shown to bias public spending in undesirable directions and reduce the quality with which such services are

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provided. Unless transparent mechanisms to allocate public funds toward growth-enhancing investments are available, and officials are accountable for the use they make of them, their full economic potential may not be realized. The harmful and potentially far-reaching importance of corruption, as well as the fact that high levels of economic growth do not necessarily lead to a reduction of corrupt practices, is now widely recognized. As a consequence, the issue has moved up on the agenda of international institutions and institutional reforms to combat corruption, including anti-corruption commissions, have been established in many countries.

We use the case of Uganda to explore in more detail three issues. First, we demonstrate that corruption is indeed widespread and examine the prevalence and incidence of corruption across different government departments. In doing so, we are able to test for systematic differences in the assessment of this phenomenon by the private and the public sector. We also introduce a measure of knowledge on how to respond to corruption and hold officials accountable and lay out implications of better knowledge in this regard on corruption in the narrow sense as well as the overall quality of public service delivery. Second, we use data on individuals who reported to have been asked to pay a bribe to examine factors that encourage bribe-taking, and in particular, the hypothesis that knowledge of procedures for complaint is an effective means to deter officials from such illegal activity. Third, to complement this narrow definition of accountability with a broader one, we test the extent to which our measure of accountability leads to higher quality of public services as measured by either the satisfaction of users with the quality of service provision in a wide range of sectors or, more appropriately, changes in the quality with which services were provided in the recent past. The fact that we find strong evidence for accountability having a strong impact on both counts suggests that both governments and donors might be well advised to focus on ways by which ordinary citizens can hold (elected and appointed) bureaucrats to account as a means to improve outcomes in the public sector.

The paper is structured as follows: Section 2 links the topic to the broader literature and discusses the conceptual framework as well as the strategy to implement econometric tests on this topic with the data at hand. Section 3 describes the data from Uganda's second integrity survey and uses them to provide descriptive evidence on the incidence of corruption across different institutions, households' exposure to corrupt practices and their knowledge of procedures to report corruption, and the quality of public service delivery. Section 4 discusses the econometric evidence to identify the impact of greater accountability on the incidence of bribe taking and the quality of public service delivery. Section 5 concludes by summarizing the evidence and translating them into a number of recommendations for policy.

2. RELATION TO THE LITERATURE AND MODEL

Issues of governance have long been one of the neglected areas in development economics (Bardhan, 2000). Recently, however, there has been increasing interest in quantifying the levels of corruption, transparency, and accountability across countries, to improve understanding of their impact, and to identify measures that can help to reduce undesirable consequences. This helped bring to the fore the fact that corruption is widespread and constitutes an important obstacle to economic growth, in particular through its impact on the nature and quality of spending on public service provision and the investment decisions by foreign and domestic private entrepreneurs which, in return, will affect the size of a country's tax base. As developing countries share many characteristics that make them particularly prone to high levels of corruption, a consensus that actions to improve governance would be warranted and needed in addition to growth-enhancing policies, is now emerging among international financing institutions. While this has resulted in the establishment of institutions that can help combat corruption, less attention has been devoted to the need to enhance accountability in order to make these institutions work.

(a) *Insights from the literature*

Thanks partly to more widespread availability of information, higher levels of economic integration, and greater emphasis on competitiveness and efficiency, interest in corruption and governance, in line with greater awareness of the importance of institutions in the process of development, has markedly increased in recent years (Bardhan, 1997; Nugent & Robinson, 2002; Tanzi, 1998). As private investment

is likely to be a key determinant of growth in most developing countries (Bengoa & Sanchez-Robles, 2003), a set of institutional factors related to transparency and the ability to enforce contracts and hold public officials to account, commonly lumped together under the heading ''investment climate'' has been identified as an important determinant of more and higher-quality investment. In fact, based in most instances on assessments by outside investors or local experts, crosscountry indicators to assess various aspects of this phenomenon, compare them, and measure their impact have been developed by academics (Feld & Voigt, 2003), independent institutions such as Transparency International (Eigen, 2002) and the World Bank (Batra, 2003; Djankov, 2002).

Descriptive evidence based on these efforts highlights that a combination of high taxes, arbitrary regulations, policy uncertainty, low quality of public service delivery and ill-developed financial markets are universally perceived as key constraints to business development. These phenomena are not independent of each other but can in many cases be traced to high levels of corruption that significantly reduce the scope for economic growth and development. This is confirmed by a large number of crosscountry econometric studies that have used indices of different aspects of the phenomenon to demonstrate the harmful impact of corruption on aggregate growth through a variety of mechanisms (Bardhan, 1997; Feld & Voigt, 2003; Mauro, 1995; Mo, 2001; Rivera-Batiz, 2002; Tanzi & Davoodi, 1997). Although more limited, evidence from within country studies supports these results (Fisman & Gatti, 2002b; Gomez & Gallon, 2002). Two main channels through which such an effect comes about are the type of public services provided and the efficiency of their provision and the level of investment by private entrepreneurs.

A first channel through which corruption affects economic growth is by affecting the composition of public spending and the quality of public service provision. It has long been known that large investment projects provide greater opportunities for government bureaucrats to obtain kick-backs than, spending on education and health, or on operation and maintenance. Indeed, empirical evidence demonstrates that, in countries with high levels of corruption, public spending is less effective, biased toward new projects rather than operation and maintenance of old ones, and directed toward sectors where social returns (as contrasted to the potential for obtaining private kick-backs) are relatively low (Mauro, 1998). This has been shown to be associated with a significant reduction in the productivity of public investment in countries where, partly due to a narrow tax base and high costs of raising public revenue, domestic resource mobilization is already insufficient (Ades & Di Tella, 1997).

This will make it harder for government to provide public key goods, including enforcement of contracts and protection of property rights at low cost, and to impose regulatory controls as a response to market failures. The lack of publicly provided infrastructure capital, in turn, has been shown to constitute an important bottleneck for the development of private firms which, through creation of unnecessary barriers to entry, reduces competition and innovation by small start-up firms (Broadman & Recanatini, 2002; May, Pyle, & Sommers, 2002). In addition to reducing economic growth, the quality of public service delivery, and foreign investment, this can, in the extreme, lead to a significant reduction in the legitimacy of the state (Tanzi, 1998). This may be one of the reasons that infrastructure investment improves economic growth only if associated with the right governance environment (Esfahani & Ramirez, 2003).

In addition to this impact on the nature and level of public services provided, corruption also has a more direct impact on the level of economic activity. The reason is that the need to pay a random bribe in return for public services will distort incentives and act as an arbitrary and unpredictable tax that adds to the cost of doing business in a country. There is evidence that levels of foreign direct investment are much higher in countries where individual freedom and respect for civil and property rights is high (Harms & Ursprung, 2002). The corruption-induced increase in the transaction cost for private business has often prompted foreign investors to either enter into specific types of joint ventures or to move to other countries (Smarzynska & Wei, 2001). Domestic firms may also to move abroad to escape the negative impact of regulations which many countries require to register a business (Djankov, 2002), or in order to escape the demands of a corrupt bureaucracy and a weak legal system, they often join the informal economy, thereby further reducing the potential for generation of government revenue, provision of public goods, and economic development (Friedman, 2000).

The issue of corruption is particularly relevant in the context of economic development because developing countries share many characteristics that make them particularly prone to corruption (Tanzi, 1998). These include a plethora of regulatory interventions, regimes of taxation which are comparatively high but contain many loopholes, nontransparent procedures, high levels of discretionary government spending, limited scope for own revenue generation by local governments (Fisman & Gatti, 2002a) and bureaucrats' ability to award large rents (e.g., from natural resources and public lands or licenses) in a discretionary manner. These are exacerbated by low quality of the bureaucracy and public sector wages (van Rijckeghem & Weder, 2001), limited ability to impose administrative controls, and nontransparent rules, laws, and processes.

Disproportionate dependence on aid transfers has been shown to reduce accountability and the quality of governance (Knack, 2001), with potentially far-reaching effects on the whole economy (Lanyi, 2004) and on specific sectors (Azfar & Gurgur, 2004). This may have been of limited relevance as long as the political economy of aid was dominated by the demands of the cold war environment (Alesina & Weder, 2002), but is now coming under increased scrutiny (Burnside & Dollar, 2000). As a result, donors supported establishment of specific institutions to deal with corruption in a large number of countries (Meagher, 2004). There is, however, little impact on the extent to which these have been successful or on factors that would need to be considered if they are to be effective. Unless such evidence is available, it will be difficult to provide empirical backing for demands to increase accountability (Ebrahim, 2003), among others as a means to improve institutional effectiveness (Stromberg, 2001).

Uganda provides an interesting case to study this issue. Despite high levels of economic growth since the early 1990s, the country has ranked continuously in the bottom part of Transparency International's corruption perception index. [1] Problems in public financial management have been identified as an important constraint to further growth which, together with low levels of transparency and accountability are potential obstacles to continued progress in reducing poverty (Francis & James, 2003; World Bank, 2003). This is confirmed by micro-studies pointing toward high rates of capture of public expenditure (Reinikka & Svensson, 2004).

At the same time, there is some evidence suggesting that, in the case of education, greater transparency can make a significant contribution to reducing corruption and embezzlement (Reinikka & Svensson, 2003). In this case, the practice of publicizing the amounts of school capitation grant that were released to greatly increased parents' and others' ability to monitor local officials handling of the funds and led to massive improvements in the share of the funds reaching the schools which increased from less than 20% in 1995 to about 80% in 2001. Testing whether improving mechanisms for accountability can allow to improve the quality of service delivery in a broader sense and other sectors is one of the aims of this paper.

(b) *Conceptual model*

To set the framework for the subsequent empirical discussion, we first consider a rather narrow definition of "accountability" as not embezzling money and then expand our discussion to define accountability as a broader responsibility for outcomes. Assume that a public administrator receives exogenously given transfers (e.g., from central government) of size M (which can include user charges) to provide public goods. The monetary benefit to the administrator from investing an amount x in public goods is given by $b(x)$ which we assume to be a well-behaved function (i.e., $b'(x) > 0$, $b''(x) < 0$ and $b(x) < x$ for any x). [2] The administrator has the possibility of diverting a share $t < 1$ of the money involved to own use. This money can be kept if the looting is not detected but an amount $d(lx)$ with $d'(x) > 0$, $d''(x) > 0$ and $d(x) > x$ has to be repaid if diversion of x is detected. The probability of detection is given by a function $p(a, I)$ that is strictly increasing in both its arguments, the parameters $a > 0$ and $I > 0$ representing the level of accountability and the institutional framework, respectively. The problem of the administrator is then to choose t to maximize

$$b[M(1-t)] + Mt - p(a,I)d(Mt). \tag{1}$$

Deriving the first order conditions (FOC) for this problem, one notes that there is either a corner solution with no theft where the FOC are satisfied with inequality or there is an equilibrium level of "theft" or corruption $t^*(M, a, I)$.

It is also intuitive and easy to show that, for any given M, the derivatives of t^* with respect to its second and third element are nonpositive. In other words, since for any interior solution, the administrator will embezzle funds up to the point where the expected loss from being caught equals the marginal benefit from the investment, any improvement in accountability or institutional quality will reduce the level of embezzlement and thereby automatically increase the amount of money that is spent in productive public or private investment. The implication from the model, and one of the two key hypotheses to be tested empirically below is that, within any given institutional setup, higher levels of accountability will be associated with public servants being less likely to demand bribes from the private sector and, in the public sector, have greater incentives to not only demand less fees for their services but also deliver them more effectively.

This model can easily accommodate a definition of accountability in a broader sense of administrators being responsible for outcomes rather than just the nondiversion of money. To do so, let their payoff be defined as $a^*b[R(x)]$ where $R(x)$ is a monotonically increasing function that relates spending of money to tangible results and a is the level of accountability as above. Intuitively, the administrator may be able to expect promotion or reelection based on the results from spending her or his budget, with the link being strengthened by higher levels of accountability, e.g., because greater accountability will make it more difficult to obfuscate and hide undesirable results. The problem then is to choose t to maximize

$$a^*b\{R[M(1-t)]\} + Mt - p(a,I)d(Mt). \qquad (2)$$

Denoting the solution to this problem as $t^{**}(M,a,I)$, it is easy to show that under very weak assumptions as to the nature of R in relation to the production function for public goods, $t^{**} \leqslant t^*$ for any given a, i.e., the amount of money diverted under outcome-based monitoring will always be less or equal to the one under input-based monitoring. Below we discuss how we use this as a basis for our empirical test.

(c) *Empirical implementation and estimation strategy*

Our data contain information on bribe-taking as well as an assessment of the quality of public service delivery as well as changes in this quality over time. To derive estimable equations, we assume that the only source of variation in institutional quality is across sectors, implying that we can use sectoral dummies to absorb differences in this variable. As a measure of accountability, we use the share of households who indicate to know where and how to report corruption or complain about inadequate quality of service provision, something that can be justified in a situation where, as in the case of Uganda, an explicit anticorruption policy exists and institutions to enforce this policy and improve quality of service provision have been established, but few households know how to make use of these institutions.

One econometric issue that arises in this context is that such knowledge is unlikely to be exogenous; in fact individuals who are more likely to be subject to corrupt practices, have been hurt by it in the past, for whom knowledge is easier to acquire, and who care more about it, will be more likely to make the investment needed to find out how to report corruption. This implies that in order to obtain an unbiased estimate, instrumentation will be needed. To do so, we use the head's level of education as well as the level of knowledge in the village as instruments. Even if a household does not have the knowledge itself, having many others in the village who do will make it easier to take remedial action without directly affecting the probability of being affected by bribery or low service quality. Similarly, higher levels of education will make it easier to acquire information on how corruption and low quality of service delivery should be reported. Both can therefore be used as an identifying instrument (Greene, 1995). If the knowledge on corruption were measured as a continuous dependent variable, standard two-stage least squares could be used to deal with this problem. In cases with a limited dependent variable, using the predicted value from a first-stage probit regression does produce unbiased results (Angrist, 1991). We therefore first estimate a probit equation for households' knowledge on how to report corruption

$$K_i = \alpha_1 + \alpha_2 \boldsymbol{X}_i + \mu_i, \qquad (3)$$

where K_i is an indicator for whether or not the household knows the procedures for reporting corruption or complaining about low quality of service provision, $\boldsymbol{X}_i$ is a vector of household

and community characteristics, and μ_i is an iid error term. In particular, $\boldsymbol{X}_i$ includes, in addition to the share of households in the community (excluding the household under concern) who know how to report, the head's educational qualification, the household's level of consumption expenditure and wealth proxied by dummies for a range of assets, as well as the mean expenditure in the village, the sector of main economic activity, and rural/urban and regional dummies. We expect that higher levels of education and asset ownership and employment in formal sectors of the economy will all increase a households' likelihood of knowing the necessary procedures and use the predicted value as one of the right-hand side variables in subsequent regressions that aim to test the impact of accountability (as proxied by this variable) on the incidence of bribe-taking and the quality of public service delivery.

To test the first prediction from our model, i.e., determinants of bribery, we use the fact that the survey at hand provides a direct measure of whether or not a household who, during the last six months had approached a specific institution, was required to pay a bribe as well as the amount that needed to be paid. This allows us to estimate an equation of the form

$$B_i = \alpha_1 + \alpha_2 \widehat{K}_i \alpha_3 \boldsymbol{Z}_i + \mu_i, \tag{4}$$

where B_i is an indicator of whether or not a bribe had to be paid, $\widehat{K}_i$ is the predicted value from regression (2) as discussed above, $\boldsymbol{Z}_i$ is equal to the vector $\boldsymbol{X}_i$ as defined above with the exception that community knowledge and educational attainment are not included, and μ_i is again an iid error term. Based on the conceptual discussion, we expect α_2, the coefficient on our measure of accountability, to be negative and significant. While it appears most appropriate to estimate this equation only on those who actually used the service under concern, we report results for regressions with users only and for the whole population. [3]

To test the predictions from our model with respect to the impact of higher accountability on public service delivery, we estimate a second equation with the quality of service delivery as the dependent variable. As this variable will be affected by many factors (e.g., the pre-existing level of infrastructure, staffing levels, etc.) on which we do not have information, we complement the analysis of the level of satisfaction with an assessment of *changes* in the perceived quality of service delivery. Such use of changes helps to eliminate time-invariant fixed effects and will thus produce estimates that are less likely to be affected by bias. Defining Q_{ijk} as the (perceived) quality of provision of service k by household i in village j and ΔQ_{ijk} as the reported change in this variable, the equation to be estimated is given by

$$\Delta Q_{iik} = \alpha_1 + \alpha_2 \widehat{K}_{ii} + \alpha_3 C_{ij} + \alpha_4 S_{ij} + \alpha_5 \boldsymbol{R}_{ij} + \mu_i, \tag{5}$$

where $\widehat{K}_{ii}$ is the predicted knowledge of reporting procedures as defined earlier, C_{ij} and S_{ij} are the mean levels of corruption and expenditure, and R_{ij} is a vector of regional dummies, all for household i located in village j. [4] The rationale for these variables is straightforward: while we expect households' knowledge on how to report corruption to improve the incentive structure for bureaucrats, higher levels of pre-existing corruption would reduce the level of service quality and dampen the impact of better knowledge. At the same time, higher levels of village wealth are likely to increase the amount of resources available and thus make improvements in service quality more likely. This implies that we expect α_2 and α_4 to be positive and α_3 to be negative.

There are two reasons to complement the above regression on determinants of bribe-taking with information on the quality of public services. One is that the former regressions could suffer from selectivity bias to the extent that certain households may not even approach government institutions because they expect not to be attended or to have to pay bribes. A second one is that higher levels of accountability might have an independent impact on public servants' motivation to provide services in an effective manner.

3. DATA AND DESCRIPTIVE EVIDENCE

Uganda's second national integrity survey provides not only a basis for econometric estimation but also a rich source to describe the incidence and pervasiveness of corruption and public service delivery, its various elements, and to assess whether there are differences in the perception of these phenomena by different types of actors (especially those in the private and public sector). Based on a description of this survey, we discuss descriptive statistics on

the extent of bribery, quality of public service delivery, and knowledge of measures to deal with unsatisfactory outcomes in these regards as a background for subsequent econometric investigation.

(a) *The Uganda national integrity survey*

Our data come from the Second National Integrity Survey which was conducted for the Inspectorate of Government in the second half of 2002 to improve the empirical basis for policies and programs to assess the incidence of corruption in different institutions and strengthen accountability and the quality of public service provision (Republic of Uganda, 2002). The survey covered 12,190 households in 55 of Uganda's 56 districts that were in existence at the time the sample was drawn. As the goal was to be representative at the district level, in each district, 20% of the subcounties were randomly selected, starting with the District Headquarters. Within these, two to three local councils (LC1s, the lowest administrative units) and subsequently households were selected randomly.

In addition, an institutional module was administered to 618 private entrepreneurs as well as 480 public sector representatives. The *public sector* survey was administered in eight districts [5]—two in each of the country's four regions: Central, East, West and North. A list of institutions and their respective representatives was drawn up with the goal of interviewing all units responsible for administration of law and order or provision of public services at the national, district, or subdistrict level. While the nonresponse by Ministers at the national level was substantial, coverage is fairly complete at the district and subdistrict level, implying that most of the about 60 interviews that were envisaged for each of the eight districts could indeed be conducted. For the *private sector* survey, the database of firms paying VAT in the same eight districts where the public sector survey was implemented was used as a sample frame. This is far from being an ideal solution. [6] One implication is that the sample, with a total of 623 interviews, is strongly biased toward Kampala where about 60% of the enterprise interviews were conducted. A second consequence is that, even though efforts were made to adjust the sectoral composition of the sample, the final distribution of interviews by sector is quite different from the contribution of different sectors to the country's GDP. [7] This implies that, at least in geographical terms, the private and public sample are likely to be quite complementary to each other and leads us to interpret their results jointly in the discussion below.

(b) *Assessment of corruption by entrepreneurs and public officials*

Compared to households who, if they were not in contact with officials, may not have a good basis for an assessment of corruption issues, those included in the public and private sector surveys are all likely to have had first-hand experience of dealing with the public sector and, in the case of private firms, are likely to use this as the basis for economic decisions. We focus on respondents' perceived level of corruption in different government institutions. Table 1 lists, in ascending order, the share of respondents from public and private sectors, respectively, who rated a certain government department as "not honest" or "highly corrupt." [8]

The table illustrates that the incidence of perceived corruption varies widely. A significant number of institutions, led by the Central Bank, the Ministry of Foreign Affairs, the Directorate of Ethics and Integrity, and the Ministry of Finance, Planning and Economic Development but also including the Parliament, the Ministry of Education and Sports, and the President's Office were perceived to have a high level of integrity. The IGG, the Ministry of Health, the Privatization Unit, the Immigration Department and courts are perceived to be more susceptible to corruption. Finally, institutions perceived to be most corrupt are (in descending order) the traffic police, the Uganda Revenue Authority, Tender Boards, the Electoral Commission, the nontraffic part of the police, and the Ministry of Defense. This suggests that, while confidence is high in top levels of the executive, it is limited for the institutions that are meant to implement decisions and the organs for enforcing the law. Comparing columns 1 and 2 of Table 1 illustrates that the ranking of institutions' level of corruption is quite consistent between private and public sector respondents; the slight differences in ratings rarely affect the ranking of institutions. [9]

To understand the extent of corruption, respondents were asked to assess the presence of five increasingly severe forms of corruption, namely favoritism, bribery, embezzlement, extortion, and fraud in the typical government

Table 1. *Perceptions of bribery in different institutions, Uganda by private and public sector*

	Sector of respondent (%)		
	Private	Public	Total
Low level of corruption			
Central Bank	3.26	3.72	3.46
Ministry of Foreign Affairs	3.77	4.84	4.24
Directorate of Ethics and Integrity	4.12	5.21	4.60
Ministry of Labor, Gender and Social Development	5.49	7.64	6.43
National Water and Sewerage Corporation	6.69	7.64	7.11
Prisons	8.58	8.75	8.65[a]
Ministry of Finance, Planning and Economic Development	8.23	13.04	10.33
Ministry of Works, Housing and Communications	8.58	15.08	11.42
Ministry of Agriculture, Animal Industry and Forestry	13.55	9.12	11.61
Administrator General's Office	14.07	11.17	12.80
Ministry of Public Service	17.67	13.22	15.72
Ministry of Education and Sports	19.73	14.9	17.62
Director of Public Prosecutions	17.32	18.25	17.73
Parliament	15.78	23.46	19.14[a]
Private companies	21.27	16.57	19.22
State House/President's Office	21.78	17.69	19.99
Medium level of corruption			
IGG's office	25.56	13.59	20.33[a]
LC 1	22.3	18.62	20.69
Subcounty Councils	20.58	25.14	22.57
NSSF	30.53	16.95	24.59[a]
Local Administration	30.36	20.86	26.21[a]
Ministry of Health	31.22	25.70	28.81
District councils	31.39	33.15	32.16
Privatization Unit	39.97	29.42	35.36[a]
Immigration Department	45.10	30.78	38.75[a]
Courts	35.47	43.46	39.02[a]
High level of corruption			
Ministry of Defense	44.6	36.69	41.14
Police excluding traffic police	58.66	52.51	55.97
Electoral commission	59.69	52.70	56.63
Tender boards	59.52	55.12	57.60
Uganda Revenue Authority	72.38	54.93	64.75[a]
Traffic police	73.76	64.99	69.93
No. of observations	618	480	1,098

Source: Authors' own calculations based on the Institutional Module of the Uganda Second National Integrity Survey 2002.

[a] Denotes that differences between the public and the private sector are statistically significant at the 1% level.

department. [10] The results which are presented separately for the public and private sector, as well as for different types of private entrepreneurs, confirm that, even though more severe forms of corruption are perceived to be less common, the overall level of confidence in public institutions is quite low (Table 2). More than three-quarters of the respondents believe that favoritism, bribery, and embezzlement are fairly common, prevalent, or very prevalent while 56% do so for fraud and 42% for extortion. Focusing only on those who rank different phenomena as either prevalent or very prevalent, the picture changes only slightly: 61% believe that favoritism is prevalent, 50% do so for bribery and embezzlement and 28% and 18%, respectively, believe that fraud and extortion are prevalent.

While one would expect public employees to assess the quality of public institutions more

Table 2. *Assessment of the prevalence of different forms of corruption according to the private and public sector*[a]

	Favoritism (%)		Bribery (%)		Embezzlement (%)		Fraud (%)		Extortion (%)		
	Prev.	Com.	Prev.	Com.	Prev.	Com.	Prev.	Com.	Prev.	Com.	Obs.
Single proprietor	67.8	13.8	53.9	25.7	54.6	27.0	26.3	28.3	17.1	21.7	152
Partnership	59.8	20.1	56.7	22.6	61.0	20.7	28.7	31.7	17.7	26.8	164
Foreign corporation	66.7	17.6	68.6	21.6	51.0	31.4	29.4	25.5	13.7	37.3	51
Local company[b]	73.6	13.9	69.9	17.6	58.3	25.5	31.9	27.8	20.4	28.7	251
All private sectors	67.6	16.0	61.9	21.4	57.5	25.0	29.3	28.8	18.2	27.1	618
All public sectors	52.1	21.5	34.8	33.4	39.8	30.4	25.8	28.2	14.5	23.3	480
Total	60.8	18.4	50.1	26.6	49.8	27.4	27.8	28.5	16.6	25.4	1,098

Source: Authors' own calculations based on the Institutional Module of the Uganda Second National Integrity Survey 2002.
[a] *Note*: Pre. = prevalent; Com. = common.
[b] Includes others.

favorably than respondents from the private sector, differences between the two are less pronounced, echoing other studies in Africa (Goldsmith, 2003): Bribery is more of a concern to foreign and local corporations than the rest. By comparison, foreign (but not local) corporations complain less about embezzlement and extortion. While favoritism seems to be a complaint particularly of local corporations, there are no systematic differences in the ranking of fraud across different parts of the private sector.

(c) *Households' experience with corruption and public service provision*

Household-level data allow complementing the above ranking with measures of incidence and impact of corruption on the broader population. Table 3 reports descriptive statistics for the sample which, in view of the forced inclusion of district headquarters, is somewhat biased toward urban households. [11] This can be illustrated by comparing the results to what is obtained in the nationally representative Uganda National Household Survey (UNHS). We find that 15% of households, as compared to about 25% nationally, are female-headed and that only 59%, as compared to about 80% in a national sample, are rural. The income gap between rural and urban areas is illustrated by the fact that 73% of the bottom quintile are from rural areas, compared to 44% in the top quintile. As to economic sectors, one third of the sample households (49% in the bottom and 21% in the top quintile) are headed by individuals whose main source of income is the agricultural sector, 21% by traders, and about another third by professionals and craftspeople.

Our indicator for incidence of corruption is whether, upon personally contacting a particular institution, a household was forced to pay a bribe for services that should have been delivered for free. The top panel of Table 4 provides descriptive evidence for the aggregate and by expenditure quintile. [12] Not surprisingly, the share of households who have done so varies: Panel 1 illustrates that about two thirds reported to have approached a health institution, about 44% and 40% education or local administration, respectively, and about 22% the police and institutions charged with providing productive services. Poorer households had generally less contact with the institutions of concern. [13] As this may result in selectivity bias,

Table 3. *Household characteristics*

	Total	Expenditure quintiles				
		1	2	3	4	5
Female head (%)	14.99	19.57	13.46	14.70	13.08	14.12
Age of head (years)	36.68	37.77	35.01	35.28	35.65	39.69
Household size	5.70	4.56	4.95	5.50	5.99	7.51
Education of head (%)						
None	9.04	17.28	8.78	7.52	6.64	4.93
Primary 1–4	12.09	17.86	14.82	11.79	9.59	6.36
Primary 5–7	30.03	34.98	36.00	32.57	26.98	19.58
Secondary	36.29	25.19	32.51	36.14	42.76	44.91
Tertiary	11.78	3.71	7.39	11.05	13.57	23.23
Occupation of head (%)						
Farmer	32.14	49.00	37.32	29.16	24.15	20.98
Trader	21.15	14.39	18.10	21.48	26.04	25.78
Professional	15.33	6.11	11.08	14.91	18.04	26.56
Craftsperson	16.78	17.73	20.57	18.81	15.79	11.00
Student/other	4.18	4.16	3.78	4.23	4.31	4.43
Ownership of assets (%)						
Bicycle/cycle/car	49.24	37.49	45.65	48.42	54.78	59.93
Permanent house	38.11	21.31	30.09	38.15	44.32	56.81
Rural household	58.84	72.94	66.30	57.54	52.93	44.42

Source: Authors' own calculations based on the Second National Integrity Survey 2002 for Uganda.

Table 4. *Knowledge of mechanisms to report corruption and actual reporting*

	Total	Expenditure quintile				
		1	2	3	4	5
(1) Use of services and incidence of bribery						
Used public service six months before survey (%)						
Education	43.62	24.90	34.36	42.63	52.15	64.20
Health	65.96	53.34	64.53	68.05	71.22	72.74
Police	22.22	11.04	16.79	21.48	28.13	33.74
Administration	39.58	30.93	36.41	39.06	43.26	48.32
Productive services	22.04	11.37	15.93	22.26	25.99	36.78
Share of users being subjected to payment of bribes (%)						
Health	20.91	19.79	21.63	20.52	20.44	21.95
Education	7.03	4.75	7.41	6.55	7.08	7.99
Administration	14.70	11.86	12.51	15.04	16.21	16.57
Productive services	26.18	21.51	24.48	23.80	26.97	28.46
Police	36.11	31.37	34.96	36.71	37.03	37.10
Amount of bribe paid (Median, Ushs)						
Health	4,000	2,000	3,000	5,000	5,000	5,000
Education	5,000	2,000	2,500	3,000	5,000	6,000
Administration	3,000	2,050	3,000	3,000	3,000	4,000
Productive services	10,000	5,000	5,000	10,000	9,000	14,000
Police	15,000	10,000	10,000	15,000	18,000	20,000
(2) Satisfaction with service provision						
Highly satisfied with service (%)						
Health	7.63	4.97	5.79	7.72	9.39	10.30
Education	6.81	3.42	4.64	5.83	8.28	11.90
Police	1.80	0.82	1.07	1.23	2.46	3.41
Administration	7.22	4.77	5.99	6.49	8.65	10.22
Service	3.30	1.59	1.77	3.04	3.69	6.40
Satisfied with service (%)						
Health	38.59	33.25	36.86	39.26	41.90	41.71
Education	29.13	16.71	23.07	29.08	34.89	42.00
Police	9.44	4.20	6.12	9.20	12.14	15.60
Administration	24.57	19.60	23.44	23.90	26.45	29.52
Service	12.68	5.99	8.13	12.36	15.09	21.88
Changes in quality of service during last four years (%)						
Health improved significantly	8.45	7.05	6.65	8.54	9.47	10.55
Health improved somewhat	48.05	40.10	46.10	49.40	51.70	53.00
Teaching improved significantly	10.43	5.38	5.87	9.40	12.46	19.05
Teaching improved somewhat	44.38	32.48	36.21	43.08	48.34	61.86
School buildings improved significantly	17.02	10.88	11.70	16.22	19.93	26.44
School buildings improved somewhat	51.99	39.73	43.47	52.07	56.01	68.76
Education facilities improved significantly	12.07	7.54	8.05	11.62	13.94	19.21
Education facilities improved somewhat	48.18	36.80	39.66	47.56	52.36	64.61
(3) Knowledge of corruption and reporting						
Knowledge and of reporting of corruption (%)						
Affected by bribery	28.04	18.87	25.94	27.89	31.41	36.17
Ever reported corruption case	4.48	1.20	3.86	4.40	4.39	7.76
Knew of corruption cases but did not report	40.45	28.16	36.50	41.63	46.26	49.87
Did not know where to report	39.79	41.61	41.26	39.93	38.97	38.22
Did not want to offend other people	18.85	19.46	20.33	19.81	18.99	16.45

(*continued on next page*)

Table 4—*continued*

	Total	Expenditure quintile				
		1	2	3	4	5
Avoided the bother	13.48	13.77	12.76	12.21	15.13	13.37
Other reason	27.88	25.16	25.65	28.05	26.91	31.96
Knows reporting procedures	20.63	13.45	18.31	20.49	22.63	27.75

Source: Authors' own calculations based on the Second National Integrity Survey 2002 for Uganda.

we complement analysis of these households' actual experience of bribery with the perceived satisfaction with service provision by *all* households in the sample as discussed in more detail below.

Panels 2 and 3 illustrate that the evidence on corruption is broadly consistent with the ranking of different institutions in the institutional part of the survey: Education emerges as the least corrupt with only 7% of users having had to pay bribes, followed by local administration (15%), health (21%), and productive services (26%). The police emerge as the country's most corrupt institution—36% of the households who had contact with them reported that they had to pay a bribe. The median bribe paid varies from USh 3,000 for administrative services to USh 15,000 for the police. [14] In most cases the share of poor users who had to pay bribes was below average and the amount of bribe paid by them less than for the rich, consistent with some wealth-differentiated access and the finding that administrators discriminate among clients to extract maximum revenue (Svensson, 2003).

Rankings of departments in terms of users satisfaction with the services provided, as reported in the second part of the table, suggest that users of health, education, and local administration are most content (6.8%, 7.6% and 7.2% "highly" satisfied and 29.1%, 38.6% and 24.6% "somewhat satisfied"). By comparison, only 1.8% and 3.3% of the population are "highly" and 9.4% and 12.7% "somewhat" satisfied with police and productive services, respectively. The variation in assessment of institutional quality over the income distribution is more marked than in the case of bribe-paying. For example, less than 2% of the bottom two quintiles are highly satisfied, as compared to 6.4% in the top quintile. Thus, contrary to what one would expect given lower demand for bribes from low-income groups, the poor are consistently less satisfied with the quality of service provision than are the rich, even though the latter pay more bribes. This could imply that many of the poor may not even try to access services because they expect not to be attended or not able to pay the fees needed and that looking at actual bribe payments will thus not be sufficient. [15]

Given that there are many factors (e.g., levels of staffing and pre-existing infrastructure) that would affect the quality of service provision but on which we do not have data, econometric analysis might produce biased estimates. Some of these problems can be avoided by looking at *changes* rather than levels in the quality of service provision. Information on such changes over the last four years is available only for education and health. The penultimate panel of Table 4 illustrates that about 11% and 44% of households thought that teaching had improved or somewhat, respectively, as compared to 17% and 52% who believe the same for school buildings, 12% and 48% for education facilities (i.e., books and other materials), and 8.5% and 48%, respectively for health services.

The bottom panel of Table 4 highlights that, despite a relatively high prevalence of corruption, few of the incidents are actually reported and knowledge about how to do so remains limited. Compared to nearly one third of households who reported to have paid at least one bribe during the last six months, only 4.5% indicate that they ever reported an incident of corruption. More importantly, about 40% of the sample know of corruption cases that they failed to report. According to the survey, the single most important reason for not doing so is lack of knowledge on the necessary procedures (40%), followed by other reasons (28%), households being afraid to offend others (19%), and reporting not being worth the bother (13%). This suggests that the large majority of corruption cases in Uganda go unreported—and without consequences—not primarily because people fear the social consequences or doubt the effectiveness of doing so but because of a lack of knowledge

Table 5. *Institutions/organizations that help in reducing corruption*

	All Uganda	Central	East	North	West
High impact (%)					
Radio	49.27	54.67	43.56	21.19	58.41
Presidents' Office/State House	44.19	45.70	40.81	13.21	62.14
IGG' Office	34.81	33.62	29.70	22.74	50.04
Commissions of enquiry	34.67	39.69	25.09	12.78	45.07
Newspapers	33.46	37.63	29.66	15.68	37.61
Church organizations	27.59	29.52	34.59	22.39	18.77
Local Councils	23.63	24.31	25.78	15.04	24.81
Medium impact (%)					
Directorate of Ethics and Integrity	19.20	18.32	13.86	3.11	36.25
Television	18.73	22.02	19.35	6.00	17.52
General public	18.66	18.97	25.13	12.50	14.87
Members of Parliament	16.69	16.95	17.90	9.39	19.10
Local politicians	16.16	16.61	17.54	11.09	16.65
Human rights groups	14.28	16.81	16.73	7.20	9.73
Teachers	13.30	13.74	15.64	9.53	12.01
Judiciary	13.19	14.05	12.73	9.75	13.59
Women's organizations	12.70	12.98	17.01	5.72	11.68
Nongovernmental organizations	12.64	13.94	17.17	7.42	7.87
Auditor General	11.72	12.54	11.96	7.49	11.97
Little impact (%)					
Police	8.98	9.77	9.90	6.99	7.29
Universities	8.29	8.75	10.06	4.45	7.58
National Bureau of Standards	7.00	7.14	9.78	3.88	5.63
Professional bodies	6.80	6.63	9.17	2.33	7.42
Observations	12,200	5,895	2,475	1,416	2,414

Source: Authors' own calculations based on the Second National Integrity Survey 2002 for Uganda.

on procedures. The fact that only 21% of the overall population (13% in the bottom quintile as compared to 28% in the top quintile) know how to report corruption highlights that, in the absence of knowledge on the applicable procedures, establishment of national anti-corruption commissions make little difference at the field level.

Before proceeding toward an empirical assessment of the impact of different institutions on the variables of interest, we review responses on the type of institutions perceived to be most helpful in reducing corruption. Table 5 suggests that a more intense public discourse and establishment of institutions with a mandate to deal effectively with misuse of public office need to go together: while the radio, newspapers, church organizations, and local councils, rank among the most important means to help reduce corruption, the President's Office, the IGG, and commissions of enquiry are equally important. One clear finding is that the police and the judiciary are not in a good position to establish higher standards of conduct but are rather part of the problem. On the other hand, regional differences are quite large; for example in the North where poverty is the highest and the presence of other institutions is low, the IGG, church organizations, and the radio are rated as most important.

4. ECONOMETRIC EVIDENCE

Econometric analysis provides considerable support to the hypothesis that lack of knowledge on how to report irregular practices constitutes a constraint to reducing corruption and improving service delivery. Those who know how to report corruption are significantly less likely to have to pay a bribe, to be more satisfied with service delivery, and to perceive greater improvements in education and health over time. In each of the cases, the point estimate of the coefficients is large, suggesting that

improving households' ability to take action against arbitrary behavior by bureaucrats is likely to improve the effectiveness of the institutions that have been established to this end and at the same time increase incentives for effective provision of public services.

(a) *Knowledge of reporting and incidence of corruption*

We first report results from the instrumental equation for knowledge of reporting procedures (Table 6, column 1). The predicted value is then used as a right-hand side variable to help explain whether households were actually subject to corruption. [16] Results from the first-stage equation illustrate that, as expected, higher levels of education and village-level knowledge on reporting procedures both increase households' knowledge on how to report corruption significantly. Households whose head has upper primary education are 31% more likely to know the processes involved while those with secondary and tertiary education are, respectively, 10% and 17% more likely to know. In addition, a 10% increase in the share of villagers who are familiar with complaints procedures increases the probability that a household in the village (who is not included in this average) will know by 3.2% points.

Compared to these, the impacts of other variables are much smaller. Higher expenditure at the household level is estimated to have a similar, though much lower, effect; a 10% increase in spending on consumption would increase the mean villager's level of knowledge only by 0.2% points. This is consistent with the hypothesis that, although they are likely to improve knowledge and thus help reduce corruption, higher levels of economic development on their own are unlikely to have a large impact on improving households' knowledge on how to deal with corruption. Business people are more likely (by 5.6%) to be aware of mechanisms to report corruption, as are those with higher levels of assets, as proxied by ownership of a bicycle. The fact that female-headed households are significantly less likely to know (by 5.9% points) about how to lodge complaints could make them more vulnerable to such practices. Finally, there are marked differences in knowledge across regions; holding constant for other factors, knowledge seems actually to be lower in the country's central region than in others. [17]

Results from probit regressions of the likelihood that any of the households in the sample had to pay a bribe are reported in column 2. To demonstrate the robustness of the coefficient, the top panel contains results for the sample consisting only of households who used the service under concern in the preceding six months while the bottom panel reports the coefficient of the knowledge variable for the whole sample. [18] In general, they clearly support our hypothesis regarding the importance of knowledge on how to complain as a deterrent to being exposed to this practice. According to the point estimate, knowing how to address corruption reduces the probability of being subject to bribe-taking by about 25%. Consistent with expectations and the descriptive statistics, affluent households are significantly more likely to be forced to pay bribes: Ownership of a permanent house and of a bicycle increase the probability of being exposed to corruption by 3.0% and 6.4% points, respectively. Compared to these, the impact of higher levels of expenditure is rather modest. A 10% increase in income would be predicted to increase the likelihood of having to pay a bribe by 0.6%. We also note that both ownership of a vehicle and being occupied in business reduce this probability (by 3.3 and 5.5 points, respectively), possibly because of the higher mobility that comes with them.

We also note that female-headed households are estimated to be significantly less (by almost 11 points) likely to have to pay bribes, thus more than compensating for their being on average less well informed. At the same time professionals are by about 2.7 points more likely to be affected by corruption than farmers, the excluded category in the regressions. But, people in rural areas are much more likely to be subject to demands for bribes, by an estimated 12% points. This is consistent with evidence that often arbitrarily imposed controls constitute an important impediment for the development of Uganda's agricultural and rural sector (Ellis & Bahiigwa, 2003) and may also be linked to more limited presence of government agents to register complaints in these areas.

Disaggregating the estimates by sector in general supports our conclusions, as illustrated in columns 3–7 of the same table where the top panel refers to only households who demanded services in the period under concern while the bottom panel includes all households in the estimation. Concerning our hypothesis, we note that knowledge of reporting procedures is esti-

Table 6. *Determinants and impact of knowledge on reporting corruption*[a]

	Knowledge	Household subject to corruption with respect to					
		Overall	Health	Education	Police	Administrative	Productive services
Knowledge	0.317***	−0.250***	−0.192**	0.082	−0.261**	−0.070	−0.740***
	(8.49)	(3.06)	(2.11)	(1.28)	(1.96)	(0.60)	(4.51)
Consumption expenditure (log)	0.020***	0.060***	0.014***	0.004	0.037***	0.025***	0.047***
	(6.26)	(14.06)	(2.88)	(1.22)	(5.19)	(4.28)	(5.54)
Female head	−0.059***	−0.109***	−0.069***	0.004	−0.035	−0.036*	−0.069**
	(5.59)	(8.57)	(4.93)	(0.30)	(1.39)	(1.93)	(2.29)
Permanent house	0.009	0.030***	0.006	0.004	0.003	0.020*	0.062***
	(1.20)	(3.44)	(0.58)	(0.52)	(0.20)	(1.90)	(3.56)
Owns a bicycle	0.058***	0.064***	0.017	0.025*	0.108***	0.037*	0.061*
	(3.87)	(3.75)	(0.87)	(1.76)	(4.01)	(1.84)	(1.89)
Owns a vehicle	−0.005	−0.033***	−0.024**	−0.022**	0.048**	−0.000	−0.003
	(0.52)	(3.13)	(2.05)	(2.50)	(2.50)	(0.00)	(0.11)
Business	0.056***	−0.055***	−0.026	−0.024**	−0.039*	0.014	−0.001
	(4.66)	(3.70)	(1.57)	(2.21)	(1.67)	(0.64)	(0.04)
Professional	−0.011	0.027***	0.012	−0.001	0.014	0.006	0.048**
	(1.39)	(2.95)	(1.15)	(0.09)	(0.86)	(0.51)	(2.51)
Rural	0.027***	0.120***	0.091***	0.010	0.022	0.045***	0.130***
	(2.59)	(10.24)	(7.19)	(1.04)	(1.19)	(2.97)	(5.74)
East	0.035***	0.038***	0.086***	−0.019	−0.059**	0.052**	−0.021
	(2.75)	(2.59)	(5.22)	(1.48)	(2.40)	(2.38)	(0.69)
North	0.060***	−0.009	−0.052***	−0.028***	0.054**	0.072***	0.026
	(5.55)	(0.63)	(3.49)	(2.63)	(2.10)	(3.60)	(0.83)
West	0.054***						
	(3.24)						
Upper primary	0.316***						
	(8.47)						
Secondary	0.101***						
	(6.06)						
Tertiary	0.174***						
	(7.84)						
Observations	11,883	11,883	7,854	5,202	2,694	4,717	2,694
Log likelihood ratio	−5,724.65	−6,774.10	−3,934.76	−1,306.50	−1,145.04	−1,955.00	−1,480.97
			All observations included[b]				
Knowledge			−0.161**	−0.062**	−0.102**	−0.061	−0.091**
			(2.49)	(2.16)	(2.18)	(1.440)	(2.34)
Observations			11,883	11,883	11,883	11,888	11,883
Log likelihood ratio			−4,814.26	−1,632.56	−3,263.26	−2,676.73	−2,547.35

[a] *Note*: coefficient on ''knowledge'' is for village level knowledge in the first column and for predicted knowledge in the remainder.
[b] Contrary to the panel above that includes for each service only households who actually used it during the last six months, the panel below includes all households in the sample, irrespectively of whether they reported to have used the service under concern.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

mated to significantly reduce the likelihood of being subject to bribery in all sectors except education and administrative services. For those who demanded services, the magnitude of the estimated coefficient is largest (−0.74) for productive services, followed by the

police (−0.26), and health (−0.19). Concerning other variables, the regressions are quite consistent with the aggregate evidence, especially suggesting that bribes are more likely to be demanded from those with higher levels of wealth and from those in rural areas while female-headed households are less subject to such demands. We note, however, that, as compared to that for predicted knowledge, the magnitude of all the other coefficients is much smaller. This would suggest that, in most sectors, expanding knowledge of complaints procedures, together with mechanisms to focus bureaucrats' attention to such claims and create incentives to effectively deal with them are likely to be a key element in efforts to improve the level of governance in a narrow sense and thus reduce the incidence of bribe-taking and apparent corruption. In fact, a glance at the bottom panel illustrates that neither the magnitude nor significance of the estimated coefficients changes much if we use the whole sample rather than only the sample composed of service users.

(b) *Satisfaction with and improvements in service delivery*

In addition to referring to a rather restricted notion of accountability, another possible shortcoming of the results reported above is that households may not even contact officials because, for example based on past experience, they do not believe that they will obtain the needed services. To deal with this, and to provide evidence on the impact of knowledge on how to register complaints as well as a given level of corruption at the local level on the quality of service delivery, we estimate Eqn. (5), either in levels for the whole range of sector considered earlier or in changes for education

Table 7. *Determinants of satisfaction with service delivery*

	High satisfaction with services provided by				
	Education	Health	Police	Administration	Productive services
Predicted knowledge	0.169***	0.199***	0.516***	0.170**	0.323***
	(3.06)[a]	(3.12)	(4.37)	(2.52)	(3.09)
Mean corruption in village	−0.192***	−0.183***	0.004	−0.153***	−0.128*
	(4.81)	(4.68)	(0.06)	(3.41)	(1.91)
Village expenditure (log)	0.013	0.021**	0.025	0.005	0.017
	(1.37)	(2.03)	(1.26)	(0.49)	(0.96)
Rural	−0.008	0.004	−0.011	−0.001	0.046**
	(0.68)	(0.37)	(0.48)	(0.10)	(2.20)
East dummy	−0.048***	−0.053***	−0.068**	−0.061***	−0.013
	(3.44)	(3.69)	(2.41)	(3.93)	(0.54)
North dummy	−0.035*	−0.133***	−0.010	−0.043**	−0.036
	(1.94)	(7.52)	(0.26)	(2.16)	(1.19)
West dummy	0.065***	−0.020	−0.091***	−0.000	−0.112***
	(4.59)	(1.28)	(3.23)	(0.00)	(3.80)
Observations	5,202	7,854	2,663	4,715	2,694
Log likelihood ratio	−2,162.92	−4,773.24	−1,826.49	−2,201.98	−1,675.00
	All observations included[b]				
Predicted knowledge	0.218***	0.284***	0.382***	0.432***	0.605***
	(8.86)	(5.13)	(11.69)	(8.40)	(15.88)
Observations	11,883	11,883	11,883	11,883	11,883
Log likelihood ratio	−2,836.82	−8,170.40	−4,044.62	−7,201.20	−4,927.99

[a] Absolute value of *z*-statistics in parentheses.
[b] Contrary to the panel above that includes for each service only households who actually used it during the last six months, the panel below includes all households in the sample, irrespectively of whether they reported to have used the service under concern.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

and health, the only two sectors from which such information is available.

Results from the level equation in Table 7, where the upper panel reports coefficients for only those who used the service during the period under concern and the lower panel provides the coefficients for our knowledge variable for all households included in the sample, point to two issues of interest. First, we find strong positive coefficients for both education and health, the two sectors where earlier results did not corroborate the hypothesis of an impact of knowledge on bribe-taking behavior by local officials in a narrow sense. This suggests that, even though they may not be subjected to bribes, [19] the satisfaction of households who actually demanded public services in the recent past with the quality of services they received in any given sector clearly increased with their ability to potentially hold officials to account. The coefficients are all highly significant and the estimated coefficient on our knowledge

Table 8. *Impact of knowledge and corruption on changes in quality of service delivery*

	Significant improvement in...			
	Teaching	Buildings	Education facilities	Health services
Predicted knowledge on reporting	0.322***	0.285***	0.260***	0.079**
	(6.78)[a]	(4.79)	(5.00)	(1.98)
Mean overall corruption in village	−0.103***	0.026	0.008	−0.031
	(3.12)	(0.68)	(0.23)	(1.21)
Village-level expenditure (log)	0.041***	0.043***	0.031***	0.007
	(5.15)	(4.38)	(3.64)	(1.11)
Rural	−0.031***	−0.005	−0.005	0.015*
	(3.18)	(0.47)	(0.44)	(1.92)
East	−0.054***	0.026*	−0.015	−0.012
	(4.97)	(1.89)	(1.25)	(1.39)
North	−0.106***	−0.100***	−0.117***	−0.055***
	(8.45)	(6.15)	(8.47)	(5.26)
West	−0.003	−0.034**	−0.016	−0.008
	(0.26)	(2.31)	(1.28)	(0.89)
Observations	7,617	7,617	7,617	9,015
Log likelihood ratio	−3,236.88	−4,346.38	−3,613.05	−3,136.62
	Moderate improvement in...			
Predicted knowledge on reporting	0.346***	0.123**	0.223***	0.127**
	(5.36)	(2.29)	(3.75)	(2.03)
Mean overall corruption in village	−0.166***	−0.090***	−0.085**	−0.089**
	(4.18)	(2.67)	(2.30)	(2.29)
Village-level expenditure (log)	0.026**	−0.006	−0.006	−0.023**
	(2.54)	(0.66)	(0.63)	(2.38)
Rural	−0.050***	−0.022**	−0.036***	0.028**
	(4.11)	(2.17)	(3.17)	(2.34)
East	−0.080***	−0.011	−0.040***	−0.033**
	(5.48)	(0.93)	(2.90)	(2.33)
North	−0.097***	−0.017	−0.085***	−0.134***
	(5.44)	(1.15)	(5.09)	(7.78)
West	−0.040**	−0.009	−0.030**	0.010
	(2.45)	(0.67)	(2.01)	(0.63)
Observations	7,617	7,617	7,617	9,015
Log likelihood ratio	−4,598.79	−3,659.96	−4,218.22	−5,867.35

[a] Absolute value of *z*-statistics in parentheses.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

variable implies that knowing complaints procedures increases the probability that a household is highly satisfied with the services received by between 17% in the case of administration and 52% in the case of the police. We also note that households' satisfaction with services is greatly reduced by higher levels of pre-existing corruption in the village for all cases except the police and that village level expenditure, although significant at conventional levels only for the case of health, has the expected (positive) sign in all cases. Second, we note that in almost all of the sectors, with the only exception being the police, magnitude of the coefficient on knowledge is significantly larger if all households as compared to only users of the service are included. In both cases, the magnitude of the coefficient on predicted knowledge suggests that greater accountability can have a major impact on improving the quality of service delivery, a conclusion that again seems to be robust to the choice of the underlying sample as can be verified by inspecting the second panel of Table 7.

For education (separately for teaching, buildings, and other facilities) and health, we are able to complement the above evidence on households' levels of satisfaction with service delivery with information on their perceptions regarding changes in the quality of service provision over time. Results from doing so, for all the households who answered this question rather than those who experienced the service during the last three months, are illustrated in Table 8 with the top panel using a dummy for significant improvements and the bottom panel a moderate improvement as the dependent variable. [20] Doing so not only supports our earlier conclusions but also provides a number of additional insights of interest. First, greater accountability in the broader sense, i.e., the ability of households to complain about bureaucrats and administrators in case service delivery is not in conformity with standards, is positively and significantly associated with improvements in all areas considered. The magnitude of the estimated coefficients ranges from about 8% points for significant improvements in health to 35 points for moderate improvements in education. [21]

Second, higher levels of pre-existing corruption have a uniformly negative impact on the ability to achieve moderate improvements in the delivery of education and health. Comparing the bottom with the top panel suggests that the ability to bring about significant improvements is more affected by the overall resource envelope as proxied by the mean level of expenditure in the village. Note also that the regional dummies are almost universally negative, supporting the hypothesis that improvements in service delivery have been more limited in the North (both for health and education) and, for moderate improvements in education, the East and the West.

Finally, we note that both moderate and significant improvements in education services have been less likely in rural areas while the reverse is true for health where such improvements were more likely in rural areas. This, together with the finding that moderate health improvements appear to be negatively related to village expenditures, could be one of the consequences of the abolition of user fees in the health sector in March 2001. [22] Household survey evidence suggests that this measure did indeed have a very positive impact (Deininger & Mpuga, 2004).

5. CONCLUSION AND POLICY IMPLICATIONS

Crosscountry regressions on the incidence of bribery and corruption and their possibly far-reaching economic consequences have long drawn attention to the importance of governance. But, inability to back these up with country-specific evidence at the micro level has limited the potential usefulness of these insights as a means to identify strategies that can assist to improve accountability in practice. This paper constitutes a first attempt at doing so, thereby illustrating not only that it is possible to design survey instruments that capture key elements of the issue but also that doing so can yield insights and avenues for policy action.

We find that, even in a country such as Uganda the macroeconomic policies of which have traditionally been viewed as an example for others to follow, issues of governance and corruption remain a serious concern. In fact, if not attended to in due time, these phenomena could well impair the potential for further poverty reduction or future economic growth. Micro data indeed suggest that Ugandan households are exposed to bribery on a large scale, that, their knowledge on how to confront corruption and deal with inadequate service provision is limited, and their satisfaction with quality of public services often remains low.

Representatives from firms and the public sector have an almost unanimous low opinion concerning the integrity of many public institutions—especially those responsible for law enforcement. Respondents point toward independent institutions (including the IGG, churches, and local councils), together with a more open dialogue promoted by radio, newspapers, and television, as important elements to reduce bribery and corruption.

In this context, our econometric results which suggest that better knowledge on how to report misbehavior and low delivery standards on the part of bureaucrats can help to not only reduce the incidence of people being asked to pay bribes but also to improve quality of public services, provides reason for hope. The magnitude of the estimated coefficients suggests that improving knowledge on reporting can be an important ingredient not only of strategies to reduce the tendency of government bureaucrats to use the power bestowed on them for individual gain but also to improve service delivery in a broader sense. To make this work will obviously require that incentives for bureaucrats to actually take notice of and act upon such complaints will be in place.

Even though our data do not allow us to explore the underlying mechanisms in greater detail, they suggest that establishing mechanisms to better articulate their opinions and increasing civic responsibility (and ability to resist unjustified claims) and taking measures to increase public debate and transparency may have side-effects beyond the original goal of reducing the incidence of corruption. Further exploration of this link, as well as the channels through which it may come about, would be of great interest not only for Uganda but also for other developing countries.

NOTES

1. While the expansion in the number of countries in the corruption perception index compiled by Transparency International makes a consistent assessment more difficult, Uganda ranked as 43rd out of 51 countries in 1996 (the first year when the country was included), 74th of 85 in 1998, 80th out of 90 in 2000, and 113th out of 133 in 2003.

2. The latter just implies that the monetary benefit will not be greater than the amount invested.

3. Note that we are interested not in the magnitude of the bribe extracted but rather than whether a bribe was asked for. Doing so can be justified on substantive reasons—even a request for a comparatively small bribe can have a big impact on the poor—and because it is quite likely that, in determining the size of the bribe, bureaucrats will take into account their estimate of the capacity to pay.

4. In each of these cases, respondents were asked to assess the level of improvement on a 1–5 scale. Table 8 provides results for the determinants of ''significant'' (top ranking) and ''moderate'' (second ranking) improvements in each of these sectors.

5. These are Kampala, Lira, Mbale/Tororo, Mbarara, Arua, Jinja (Lugazi/Kakira), Masaka and Kasese.

6. As the Uganda Bureau of Statistics (UBOS) was still in the process of completing its Census of Business Establishments, it was not possible to use the a more comprehensive register of businesses instead, despite the obvious shortcomings of the VAT register. The key issue to bear in mind in interpreting the results is that, given that the VAT register contains only about 6,000 firms, compared to 160,000 expected to be included in the list of establishments maintained by UBOS, this biases the sample in favor of larger and more formal firms, most of which have more than five employees.

7. In the final sample, 13% of the establishments are from agriculture, 16% from manufacturing, 56% from services, 12% from construction, and 3% from other sectors (including mining).

8. Respondents were asked to rank corruptability of different public institutions on a scale of 1–3 and, for each institution, did have the option of not responding (i.e., do not have an opinion).

9. Column 4 marks cases where the difference between the private and the public sector's assessment is statistically significant at the 1% level. The main difference between public and private sector responses is that employees of the former identify the ministries of finance and works, as well as parliament and the courts, as more corruptible than the latter. The latter, by contrast, have less confidence in the integrity of the President's Office, the IGG and the NSSF, as well as the Privatization Secretariat, the Ministry of Defense,

the Immigration Department, the URA, and the Traffic Police.

10. Corruption in general is defined as the use of public power for private gain. In this context, *favoritism* implies that benefits are obtained through personal relations between those with power and those seeking favors (jobs, land, or other property), *bribery* as the demand for payment for services that should be freely given, *embezzlement* as the diversion of public property/money for private use, *extortion* as the demand for money, services or other gains with threats, and *fraud* as the use of explicitly illegal methods to obtain such private gain. Respondents were asked to assess the presence of the different forms of corruption in government on a 1–5 scale where 1 implies nonexistent, 2 very limited, 3 fairly common, 4 prevalent, 5 very prevalent.

11. Despite repeated requests, we were unable to obtain weights that would have allowed to generate nationally representative figures.

12. Here and below, we distinguish education, health, the police, local administration, and institutions to provide productive services (including those under the ministries of economy, agriculture, water, forestry, and land).

13. At least in the case of education, this does not mean that they did not use the services under concern.

14. 1 US$ is equivalent to about USh 1,800 and that the average daily wage in agriculture is about USh 2,000.

15. Future surveys of this type will therefore need to pay more attention to selectivity issues.

16. The coefficients reported are marginal probabilities and the Huber–White estimator has been used throughout.

17. One possible explanation for this is that knowledge is concave in income, i.e., that the marginal contribution of higher income levels declines as the absolute amount of income increases.

18. The full set of results is available from the authors upon request.

19. In the case of education, the absence of bribes may be linked to the implementation of Universal Primary Education (Deininger, 2003).

20. Results for the whole sample as well as those who utilized the service during the last six months are similar and not reported separately.

21. As is easily verified, predicated knowledge of reporting procedures increases the probabilities of households' reporting significant improvements in teaching, buildings and education facilities and health by 32%, 29%, 26% and 8% points, respectively and the probability for moderate improvements by 35, 12, 23 and 13 points.

22. Note that the reference period for improvements asked for in the survey (i.e., 1998–2002) includes the abolition of health user fees but not the initiation of the Universal Primary Education program in 1996.

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