NBER WORKING PAPER SERIES

BRIBERY IN HEALTH CARE IN PERU AND UGANDA

Jennifer Hunt

Working Paper 13034
http://www.nber.org/papers/w13034

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
April 2007

I am grateful to Vincent Chandler for excellent research assistance, to the Instituto Nacional de Estadística e Informacíon for the Peruvian data, and to Niels Ulrich, Paul Mpuga, Barbara Kasura Magezi Ndamira and K2 Consulting for the Ugandan data. I thank Lorena Alcázar, Leah Brooks, Dean Yang and seminar participants at McGill, UC Davis, UC Berkeley and the NBER Inter-American Seminar for comments. I am also affiliated with the CEPR, IZA and DIW-Berlin, and I acknowledge the Social Science and Humanities Research Council of Canada for financial support. The views expressed herein are those of the author and do not necessarily reflect the views of the National Bureau of Economic Research.

Bribery in Health Care in Peru and Uganda
Jennifer Hunt
NBER Working Paper No. 13034
April 2007
JEL No. H4,K4,O1

ABSTRACT

In this paper, I examine the role of household income in determining who bribes and how much they bribe in health care in Peru and Uganda. I find that rich patients are more likely than other patients to bribe in public health care: doubling household consumption increases the bribery probability by 0.2-0.4 percentage points in Peru, compared to a bribery rate of 0.8%; doubling household expenditure in Uganda increases the bribery probability by 1.2 percentage points compared to a bribery rate of 17%. The income elasticity of the bribe amount cannot be precisely estimated in Peru, but is about 0.37 in Uganda. Bribes in the Ugandan public sector appear to be fees-for-service extorted from the richer patients amongst those exempted by government policy from paying the official fees. Bribes in the private sector appear to be flat-rate fees paid by patients who do not pay official fees. I do not find evidence that the public health care sector in either Peru or Uganda is able to price-discriminate less effectively than public institutions with less competition from the private sector.

Jennifer Hunt
Professor of Economics
Department of Economics
McGill University
Leacock Building Room 443
855 Sherbrooke Street West
Montreal, QC, H3A 2T7,Canada
and NBER
jennifer.hunt@mcgill.ca

The empirical literature on corruption has identified consequences of corruption for countries, such as lower growth and foreign direct investment,[1] and causes of corruption across countries, such as the legal, political and fiscal systems.[2] It has made progress in suggesting remedies for corruption: some papers infer corrupt practices in particular industries, and examine how rule changes or audits affect business practices.[3] In this paper, I contribute to a nascent empirical literature that seeks to understand bilateral interactions between public officials and clients as a stepping stone to devising policy.[4] I do so by studying bribery in health care in Peru and Uganda, with particular emphasis on the role of household permanent income in determining who bribes and how much.

In earlier work, Hunt and Laszlo (2007) analyzed bribery mechanisms for samples pooling all institutions in Uganda and Peru, and found similar results for the two countries. The health sector is worthy of separate study for several reasons. First, mechanisms could differ across institutions, and different mechanisms may require different solutions. Unlike many public institutions, the public health care system has competition from the private sector, which could influence bribery mechanisms. Second, the health sector is one where equitable access, and hence the link between permanent income and bribery, is of particular concern. Third, this is a sector where differences between Peru and Uganda might be expected, as health care is relatively free of bribery in Peru, while it has a bribery rate close to average for the public sector in Uganda. Fourth, for Uganda, a comparison between bribery in the public and private health care systems may be made.[5] Finally, the data for both countries allow a richer set of covariates to be used in the study of health care than could be used with other institutions. The comparison of Peru and Uganda is instructive because Peru is a middle–ranking country in Transparency International's Corruption Perceptions Index, with a GNI per capita of US$5,830, while

[1] Mauro (1995), Wei (2000).

[2] Fisman and Gatti (2002), Treisman (2000).

[3] DiTella and Schargrodsky (2003), Ferraz and Finan (2005a,b), Olken (2005, 2006), Yang (2005, 2006).

[4] See also Kaufmann and Wei (1999) and Svensson (2003) for firms, and Deininger and Mpuga (2004) and Thompson and Xavier (2004) for individuals.

[5] Corruption is not by definition confined to the public sector: see Gambetta (2002).

Uganda is classified as one of the most corrupt countries by TI and has a GNI per capita of only US$1,500.[6]

Theory suggests that richer clients should be more likely to bribe a public official, and should pay more conditional on bribing. This stems from the official's possessing a degree of monopoly power, and hence the ability to price–discriminate amongst customers. If such discrimination is observed, it could reflect first–degree price discrimination, or, if the exact service being paid for by the client cannot be observed, third–degree price discrimination (the rich pay more and get more). Greater competition between service providers, whether private or public, should reduce the ability of officials to price discriminate, and indeed, under perfect competition bribe amounts should be bid down to zero. Lewis (2006) has proposed that infrequent bribery in health care in certain countries, including Peru, is explained by the presence of private sector competition in those countries.

As expected, I find that rich patients are more likely than other patients to bribe in public health care: doubling household consumption increases the bribery probability by 0.2–0.4 percentage points in Peru, compared to a bribery rate of 0.8%; doubling household expenditure in Uganda increases the bribery probability by 1.2 percentage points compared to a bribery rate of 17%. The absolute effect is therefore larger in Uganda, but the percent effect is larger in Peru. More intriguing is the fact that the probability of bribing in the Ugandan private sector is unrelated to household expenditure. The income elasticity of the bribe amount cannot be precisely estimated in Peru, but is about 0.37 in the public sector in Uganda: the rich pay more, but pay a smaller share of their expenditure. This elasticity is the same as that for official payments in both the public and the private sector. This could be a coincidence, or could indicate that in all three cases the elasticity is determined by the same combination of fee–for–service (and the rich demanding more expensive services) and price–discrimination. Private sector bribe amounts are determined differently, since the income (expenditure) elasticity is only 0.15.

Although in Peru, particularly, bribery rates and amounts are lower in health care

[6]Perceptions from Transparency International (2004a). Purchasing power parity Gross National Income from siteresources.worldbank.org/DATASTATISTICS/Resources/GNIPC.pdf.

than in other public institutions, I do not find evidence that the public health care system in either Peru or Uganda is able to price–discriminate less effectively than other public institutions. This somewhat crude test of whether competition reduces bribery therefore fails to support the hypothesis.

Bribes in the Ugandan public sector are disproportionately paid by the richer patients amongst those not paying official fees. The results, combined with anecdotal evidence, suggest that much public sector bribery represents a facility–level extortion policy to raise revenue from patients exempted from payment by government policy. Bribes in the private sector are flat–rate fees paid almost exclusively by patients not paying official fees. It is unclear whether private patients pay voluntarily to avoid official fees, or whether exempted patients are extorted to raise revenue as in the public sector.

1 Health, Health Care and Corruption in Peru and Uganda

1.1 Health and Health Care

As would be expected given the differences in economic development, health outcomes and health care quality are very different in Peru and Uganda. Table 1 shows that life expectancy at birth is more than twenty years higher in Peru than Uganda. Peru has 1.17 doctors per thousand population, compared to 0.08 for Uganda, although the two countries have a very similar ratio of nurses to population. Health spending represents a larger share of GDP in Uganda, but government health spending is a smaller share of total health spending in Uganda than in Peru (20% compared to 48%). In 2000 there were 1,226 public, 465 NGO and 49 private (non–NGO) health facilities in Uganda.[7] In Peru, the public sector accounts for 51% of hospitals, 69% of health centers and 99% of

[7]Uganda Investment Authority www.ugandainvest.com/health.htm. Reinikka and Svensson (2005) outline the post–colonial history of private and public health care in Uganda.

health posts.[8]

My Peruvian data, described below, indicate that for people of all ages, 44% have some type of health insurance (children are much more likely than adults to be insured, thanks to subsidized insurance), whereas in Uganda health insurance is essentially non–existent.[9] At least in the early days of the Peruvian insurance expansion, poor uninsured patients benefited from reduced fees or exemptions from fees.[10] In Uganda during the period relevant for my data, health care at public facilities below the hospital level was free, while in public hospitals fees were based on the patient's ability to pay.[11] Although NGO and mission hospitals also make provision for fee exemptions for the poor, Amone et al. (2005) observe that in their sample of Catholic hospitals, only a minority of exempted patients were poor (the others were predominantly hospital and church staff, and teachers and pupils of the Catholic school). Most of these hospitals charged on a fee–for–service basis (each service had an associated fee), with the exception of treatment for tuberculosis and sexually transmitted diseases including HIV/AIDS, which was funded by the government.[12]

1.2 Corruption in Health Care

Complaints about corruption in hospitals in Peru include staff charging patients more than official prices and pocketing the difference, collusion between hospital staff and external pharmacies or external providers of medical tests, high absenteeism on the part of doctors with a second job in the private sector, doctors referring patients to their private practice, and bribes of money or sex to obtain jobs.[13] Concerning corruption that would

[8]Pan–American Health Organization www.paho.org/English/DD/AIS/cp_604.htm undated, accessed 18 January 2007.

[9]Valdivia (2002) describes Peruvian insurance for children and the poor; Peréz and Lenz (2006) describe this and the organization of the health system more generally.

[10]Cotlear (2000).

[11]Nabyonga et al. (2005).

[12]See also Uganda Ministry of Health Online (2000) at www.health.go.ug/budget.htm.

[13]lincolnmaylleantaurco.blogspot.com/2006_03_01_lincolnmaylleantaurco_archive.html, Alcázar and Andrade (2001), Webb and Valencia (2006).

involve explicit bribes by patients, patients bribe to advance on hospital waiting lists, and hospitalized patients bribe to obtain the attention of medical staff, particularly a consultation with the doctor, and to have surgery.[14] Many payments appear to inhabit a grey area between bribes and official payments. Hospitals or groups of professionals within the hospital raise poorly documented revenue that they keep, rather than remitting to the central authorities, some of which is used to top up doctor salaries in violation of official policy. This revenue comes in part from fees for medicines, medical supplies and laboratory tests. Social workers charge poor patients for evaluations as to their eligibility for exemptions from fees, and charge for the certificate of exemption.[15]

As part of the collection of the Ugandan data, described below, the consulting company commissioned by the government ran focus groups on bribery and availability of public services in 180 villages. Almost every focus group notes that medical attention at public hospitals and health units can only be obtained in exchange for payment despite the official abolition of user fees at health units. They state that patients have to bribe to attract the attention of medical staff and pay for all medical supplies, no matter how small.[16] The impression conveyed by the focus groups is less one of individual bad apples within a particular facility than of facility–wide policies to extort bribes.

Focus group participants complain that the only drug available at Ugandan health facilities is Panadol (Tylenol). Other drugs must be purchased at pharmacies, drug shops or private practices with connections to the doctor recommending the drug, despite the fact that they should be available free in the public health units.[17] Some groups note that the corruption and poor service in the public health sector lead people to use private clinics, despite their cost.

It is possible that the abolition of Ugandan user fees shortly before my study period led health workers to extract more bribes as a way of allocating scarce resources and

[14]Lorena Alcázar, personal communcation.

[15]Webb and Valencia (2006).

[16]Jitta et al. (2003) observe that patients routinely bring their own syringes and must pay for the liquids used to mix the injection fluid.

[17]The respondents in Jitta et al. (2003) make the same observation.

raising revenue. Nevertheless, accounts of the health care system in periods where user fees existed describe widespread corruption similar to that deplored by the 2002 focus groups.[18] Based on a mixed of quantitative and qualitative data from a period when user fees were becoming more widespread, McPake et al. (1999) conclude that there is some evidence that introducing official fees reduced bribery. They also quantify claims of the focus groups: for example, 76% of drugs at the facilities they studied disappeared before reaching patients.

2 Data

2.1 Peru

I use the 2002 and 2003 waves of the Peruvian household surveys, the Encuesta Nacional de Hogares (ENAHO), conducted yearly by Peru's national statistical agency, the Instituto Nacional de Estadística e Información. The surveys, for which rural regions are oversampled, have more than 18,000 respondent households per year. Beginning in 2002, the agency included a governance module with questions on the use and bribery of public officials.[19] One randomly chosen adult per household is asked numerous questions pertaining to the household's use of 21 different types of officials or institutions: the relevant one for this paper is state hospitals. If a particular type of official was used in the previous twelve months, then respondents are asked a series of questions in connection with use of this official type in this time–frame, and possible bribery: whether the official asked for a bribe, gift, tip or "coima" (slang for bribe), whether the respondent felt obliged to bribe, bribed voluntarily, or refused to bribe, and the amount of the bribe if she bribed.

The health module of the survey asks each adult (and an adult proxy for children) questions about their health and hospital use in the previous twelve months, as well as more detailed questions about the previous three months and four weeks. I also use responses to questions in the bribery module about ill fortune the household has met

[18] For example, Konde–Lule and Okello (1998).

[19] However, beginning in 2004 the agency stopped releasing this module with the rest of the data.

with in the previous twelve months, especially whether someone in the household had had an accident or had been seriously ill. I also identify households with babies born in the previous twelve months. The Data Appendix provides further information.

2.2 Uganda

I use information on the 12,000 household respondents to the Ugandan Second National Integrity Survey, which over–sampled urban areas. The Ugandan government commissioned a consulting company to conduct this survey in 2002. All questions are asked of the household head or spouse. The core of the survey has a similar structure to the Peruvian bribery section, with a series of questions on usage, bribery, and service quality posed for each of 21 types of official or institution. However, in this paper I focus on the module devoted to bribery in the health sector. A series of questions is asked about the most recent health care visit of a household member in the last three months. Information gathered about this visit includes the type of facility, whether it was public or private, the age of the patient and the nature of her ailment, whether the visit was part of a longer treatment, the amount of official payments and the amount of unofficial payments (which I call bribes), and qualitative questions about the quality and cost of treatment. A disadvantage of using the health module is that, unlike in the main bribery module, the respondent is not asked if s/he received a receipt for payment.

There are fewer non–corruption variables in this survey than in the Peruvian surveys, and missing values, zeroes and not applicable responses cannot always be distinguished. Household expenditure is elicited through six questions pertaining to the previous week, and three questions pertaining to the previous month, and is hence rather crudely measured. The question on bribe payments does not seem designed to elicit the value of in–kind payments. The Data Appendix provides further information.

2.3 Samples and descriptive statistics

I restrict my analysis to households who report using the health care system in the relevant time frame. For Uganda, this means those reporting usage in the health bribery module. For Peru, this means those who report using state hospitals in the bribery module, since it is only for them that bribery information is available.

A comparison of responses to the Peruvian health and bribery modules reveals that a considerable number of individuals who used state hospitals did not have this usage reported in the bribery survey by their household's respondent. The extent of underreporting decreased greatly in 2003 in most, but not all, regions, suggesting that survey–takers in most regions attempted to reduce the discrepancy between the modules in 2003. For example, in 2002 only 45% of the individuals who said they had been hospitalized in the main type of public hospital, MINSA, were in households whose respondent reported usage of public hospitals in the bribery module. This number rose to 73% in 2003. To account for differing selection into the sample by region and year, I include 24 regional indicators interacted with a dummy for the 2003 survey in all regressions. I do not attempt to deal with the fundamental selection problem, however.

Table 2 shows that 12,262 of 36,000 Peruvian households reported using state hospitals (in the bribery module), and of these 0.8% reported paying or refusing to pay a bribe (a bribery "episode"), below the 2.3% bribery rate for users of all 21 official types. The number of bribery episodes in the sample is therefore only 95. Average household monthly consumption is US$339, but households with a bribery episode are richer, at US$385. The table also shows the shares of households who had suffered a misfortune, such as a serious illness or accident of one of its members, and shows such victims are over–represented amongst households with a bribery episode. The average bribe for bribers was US$9.10, which is below the (unreported) average bribe across all institutions of $20. The lower than average bribery rate and amount are consistent with reduced corruption in health care through competition with the private sector.

Table 3 shows means of variables from the Peruvian health module for the same sample.

The means are of responses to questions asked of all respondents, and the values are for the respondent to the bribery module. When these variables are used as covariates in bribery regressions, the matching will introduce measurement error, as the bribery respondent is not necessarily the household member whose visit led to the behavior reported in the bribery module. Three quarters of respondents have no health insurance and a quarter have a chronic health condition, and both groups are over–represented amongst households with a bribery episode. The 9% of people hospitalized in the previous twelve months represent 18% of households with a bribery episode. The other variables refer to windows of less than twelve months, which means that they can control only imperfectly for events in the twelve month window relevant for bribery.

I present means of further health module variables in Table 4. The questionnaire asks about symptoms in the previous four weeks, and if symptoms are present asks about care sought in response to these symptoms. If the level of care sought was sufficiently sophisticated, questions are asked about the type of professional the respondent saw and the types of tests she underwent. Additional Peruvian means are given in Appendix Table 1.

I analyze Ugandan patients in the public sector and the private sector separately. Column 1 of Table 5 shows that the 17% bribery rate for the public sector (panel A) is an order of magnitude larger than the Peruvian rate (0.8%) despite being based on the most recent visit in the past three months, rather than on all visits in the previous twelve months.[20] Panel B considers patients of Ugandan public hospitals, to make the sample comparable to the Peruvian sample, but the bribery rate is similar to the overall public rate, at 19%. The private bribery rate is lower, at 11% (panel C). In column 2 I show the share of patients who made official payments: 38% of public patients do so, but almost all private patients (83%) do so. The amount of the bribes averaged US$6.06 in the public sector, US$7.88 in public hospitals and is lower at US$5.26 in the private sector. Official payments, for those paying, are likewise highest at public hospitals, at US$15.81. For

[20]The three–month rate in the Ugandan health bribery module is more than half the six–month rate in the Ugandan main bribery module, however.

the public sector, the bribery rate is slightly below the bribery rate for all institutions together (20%) and the bribe amount is also lower compared to the average bribe of $13. This could be a sign that competition from the private sector reduces corruption in public health care, although the difference is less pronounced than for Peru.

Table 6 contains the means of variables from the Ugandan health module (additional means are in Appendix Tables 2 and 3). Uganda is much poorer than Peru, and patients of the public sector (columns 1 and 2) are slightly poorer than patients of the private sector (columns 3 and 4). Public sector patients who did not bribe had only US$82 in monthly household expenditure, while public sector bribers had higher expenditure at US$91. Private sector bribers are not richer than other private sector patients. In each column, at least 62% of patients suffered from malaria/fever/headache. Slightly more than half of public patients visited a hospital, while this share was low for private patients: 14% for non–bribers and 6% for bribers (though private clinics perform many functions of a hospital).

3 Estimation

My first outcome of interest is the probability that household i bribes conditional on using the health system, $P(B|U)$. I estimate

$$P(B|U)_i = \beta_0 + \beta_1 W_i + \beta_2 X_i + \epsilon_i, \tag{1}$$

where W_i is household consumption (Peru) or expenditure (Uganda), and X_i are other covariates. I estimate this using a probit for Uganda and linear probability for Peru, where the small number of bribes and the large number of categorical covariates makes estimation by probit difficult.

My second outcome of interest is the amount of the bribe A. Using the sample of bribes, I estimate

$$logA_i = \beta_3 + \beta_4 W_i + \beta_5 X_i + \eta_i. \tag{2}$$

For Uganda, I estimate both equations separately for users of the private and public

health systems. In order to allow a comparison of how official and unofficial payments work to allocate resources, I also compare the Ugandan results when the dependent variable is official payments, rather than bribes.[21] Because Ugandan expenditure is measured quite crudely, I expect some bias towards zero in the Ugandan estimates of β_1 and β_4. In all cases, the standard errors are clustered at the level of the smallest region in the data.

Because of the oversampling of rural areas in Peru, and the oversampling of urban areas in Uganda, all Peruvian specifications control for region (interacted with a 2003 dummy) and city size, and all Ugandan specifications control for district and urban location. All Peruvian specifications also control for household size dummies, time to the district administrative center and a dummy for the 2003 survey. All Ugandan specifications control for household size dummies.

4 Results

4.1 Probability of bribing

Table 7 presents coefficients from linear probability regressions for the probability of bribing at state hospitals in Peru. The first column contains only the basic covariates; additional non–medical covariates are added in columns 2 and 3; and the medical covariates are gradually added in columns 4–6. The covariates do not affect the coefficient on consumption greatly: it ranges from 0.0051–0.0063. This implies that were consumption doubled, the probability of a bribery episode would rise between 0.35 percentage points (0.0051*log(2)) and 0.43 percentage points. These are small effects absolutely, but are large compared to the overall bribery rate of 0.8%. For specifications with fewer covariates, probits can be run. The unreported marginal effect is about 0.0036 (a doubling of expenditure implying a 0.25 percentage point increase in bribery), within the 95% confidence interval of the linear probability effects. The marginal effects for all officials pooled in Hunt and Laszlo (2007) were lower at 0.0025–0.0028, which means the hypothesis that

[21] This could in principle also be done for Peru, but the presence of insurance complicates the analysis of official payments.

expenditure plays a lower role in health care bribery because of private sector competition is not supported.

The equivalent regressions for Uganda are presented in panel A of Table 8. Columns 1–3 contain marginal effects from probits for patients in the public sector. The preferred marginal effect of 0.017, with the full covariates in column 3, implies that a doubling of expenditure increases the bribery probability by 1.2 percentage points. This is much larger than the percentage point effect for Peru, but is smaller than for Peru compared to the overall bribery probability, which for the Ugandan public sector is 17%. The Ugandan effect is probably more attenuated by measurement error than the Peruvian effect, however. Unreported effects for public hospitals are very similar to effects for the public health sector as a whole. The effects are similar to point estimates of 0.011–0.018 for all officials pooled in Hunt and Laszlo (2007). There is again no evidence that competition in health care reduces the role of expenditure in determining bribery. In contrast to the public sector, there is no significant effect of expenditure on the probability of bribing in the private sector, in the linear probability regressions of columns 4–6 (nor in unreported probit counterparts with fewer covariates).

Hunt and Laszlo (2007) reported that lower–expenditure Ugandan patients were more likely than richer patients to pay what they considered to be official payments, but receive no receipt. If these are unwitting bribes, it means that their omission leads the role of expenditure in paying a bribe to be overstated. These unwitting bribes cannot be identified in the health module, but I have examined their relation to household expenditure in the main bribery module for health care alone. The unreported results show a positive but insignificant relation between expenditure and the payment of unwitting bribes, suggesting that their omission does not bias the health care bribery results as much as was the case for all officials pooled in Hunt and Laszlo (2007).[22]

I investigate the link between expenditure and the probability of an official payment in panel B of Table 8. In the public sector, the marginal effect of 0.043 in column 3

[22]This check is not perfect, as in the main bribery module the private and public sectors cannot be distinguished.

implies that a doubling of consumption increases the probability of making an official payment by 3.0 percentage points, compared to a mean payment rate of 38%. The absolute effect is larger than for bribes, while the percent effect is similar. The positive effect is not a surprise, as there are exemptions from payment for the poor, and the rich may demand more of the services which are not free. By comparison, Hunt and Laszlo (2007) found a smaller marginal effect of 0.022 for all officials pooled.[23] There is no significant link between expenditure and official payment probability in the private sector, where most people make official payments (83%), although the point estimate is 0.01 (panel B, columns 4–6). This is consistent with the observation of Amone et al. (2005) that patients exempted at Catholic hospitals are typically not poor.

The patients paying bribes and the patients making official payments are to a large degree different people, as Table 9 indicates. In the public sector, while 22% of those making no official payment bribe, only 8% of those making an official payment bribe, and 81% of bribes are paid by patients not making an official payment. The contrast is even greater in the private sector: fully 55% of the small number of patients making no official payment bribe, while only 2% of patients who make an official payment bribe, and 83% of bribes are paid by patients not making an official payment. The strong negative correlation between paying bribes and making official payments holds up for both sectors in regressions with the controls used in Table 8. When the bribery regressions of panel A in Table 8 are repeated for samples of patients not paying official fees, the marginal effects are larger for the public sector (though not significantly so), and remain insignificant for the private sector (these results are not reported).

It is possible that people bribe to avoid official payments: one focus group mentioned this, although the bribe in question was paid to the local government official issuing the exemption certificate. However, most of the public sector bribes mentioned in the focus groups had a different purpose, which suggests that the causality may be the opposite: health officials may attempt to extract bribes from the richer patients who need not pay

[23]For official payments for which a receipt was given. The marginal effect including receiptless payments would be smaller.

officially (because of the type of facility or because of their low income). This would be a logical fund–raising response for local public officials whose official fees are set centrally.

It is possible that local private hospitals likewise try to circumvent centrally imposed exemption policies, or that in the private sector bribes are indeed paid principally to avoid official payment (less anecdotal evidence is available on private sector bribes). Patients with respiratory and sexually transmitted diseases do not appear more likely to bribe in the regressions, suggesting the purpose of the bribes is not to raise money from patients whose care is paid for by the government (however, these patients appear more likely than malaria patients to pay official fees, raising the possibility that they are unaware their care should be free and are paying unwitting bribes). Whatever the reason for the private bribes by patients not paying official payments, the procedure differs from that in the public sector, as the richer patients are not those paying the bribes.

4.2 Amount of bribe

For Peru, (log) household consumption has an insignificant effect on the (log) amount of the bribe, but standard errors in the range 0.3–0.5 mean that little can be learned from the small Peruvian sample of bribes. In Table 10 panel A I examine the determinants of the amount of the (log) bribe in Uganda. The preferred specifications are those in columns 3 and 6 with the maximum covariates: in the public sector, the income (expenditure) elasticity is 0.37, while is is only 0.15 in the private sector. The rich pay more than the poor in both sectors, but pay a lower share of their expenditure, since the elasticity is less than one. These elasticities compare with elasticities of 0.25–0.33 for pooled officials in Hunt and Laszlo (2007): once again, competition from the private sector does not appear to reduce price–discrimination in the public sector. If the panel A regressions are repeated for patients making no official payments, the (unreported) elasticities are similar.

Panel B shows that the income (expenditure) elasticity for official payments is essentially the same as for bribes in the public sector, at 0.36, while the private sector elasticity for official payments is much higher than for private bribes, at 0.38. Public sector bribes,

public sector official fees, and private sector official fees are extracted from payers in the same way based on their expenditure. Only private sector bribes are extracted differently, and are closer to a flat–rate fee.

4.3 Discussion of Ugandan results

Together, Tables 8–10 suggest the following characterization of payments for health care in Uganda. In the public sector, richer patients are considerably more likely to make official payments, presumably in part because of official policies charging patients according to ability to pay, and in part because richer patients demand more of services that are not free. However, some rich patients are using free services, and some poorer patients not making official payments are willing to pay non–zero amounts, so health facilities are able to induce these patients, particularly the richer ones, to make unofficial payments. The income (expenditure) elasticity for the bribe amounts is the same as for official payment amounts.

The private sector differs in that almost everyone makes an official payment, exemptions are not based on household expenditure, and bribes appear to be flat fees assessed on the exempted. However, the income elasticity for official payment amounts is the same as for official payments and bribes in the public sector. This could be a coincidence, or could indicate that in all three cases the elasticity is determined by the same combination of fee–for–service (and the rich demanding more expensive services) and price–discrimination. Anecdotal evidence indicating that public sector bribes often consist of paying for supplies is consistent with an important role for fee–for–service bribes.

If private–sector health facilities operate in more competitive environments than public facilities, this would be an explanation for less frequent and lower–value private–sector bribes, as well as the inability of the private facilities to price discriminate in bribes. However, the ability to price discriminate also depends on how well staff can judge patients' ability to pay, which is in turn influenced by staff turnover, the distance patients travel to the hospital and procedures for assessing patient eligibility for official fee exemptions.

A priori it is unclear whether private or public staff know their patients better.

5 Conclusions

In both Peru and Uganda, richer patients are more likely to bribe in the public health care system. A doubling of household consumption increases the Peruvian bribery probability by 0.2–0.4 percentage points, compared to a bribery rate of 0.8%. A doubling of household expenditure in Uganda increases the bribery probability by 1.2 percentage points, compared to a bribery rate of 17%, a larger absolute effect than for Peru, but smaller in percent terms. The income (expenditure) elasticity of the bribe amount is 0.37 in Uganda, and insignificant in Peru (where the sample size is very small, however). In both Peru and Uganda, the link between bribery and consumption or expenditure is similar to or higher than the link for all officials pooled, despite the presence of competition from the private sector which might be expected to weaken this link.

For Uganda, additional results combined with anecdotal evidence suggest that the public sector health staff extort bribes particularly from the richer among the patients who officially need not pay. The amount of the bribe is then influenced by household expenditure in the same way as official charges in both the public and private sector, probably through a combination of price–discrimination and fee–for–service. Although private sector bribes are even more strongly associated with not making official payments, the mechanism works differently. Those exempted in the private sector have similar household expenditures to those not exempted, and appear to pay close to a flat–rate bribe.

References

[1] Alcázar, Lorena and Andrade, Raúl. 2001. "Induced Demand and Absenteeism in Peruvian Hospitals". In Rafael DiTella and William Savedoff eds. *Diagnosis Corruption: Fraud in Latin America's Public Hospitals* Washington, D.C.: IADB Press.

[2] Amone, Joseph, Salome Asio, Adriano Cattaneo, Annet Kakinda Kweyatulira, Anna Macaluso, Gavino Maciocco, Maurice Mukokoma, Luca Ronfani and Stefano Santini. 2005. "User fees in private non–for–profit hospitals in Uganda: a survey and intervention for equity". *International Journal for Equity in Health* Vol.4 (6).

[3] Cotlear, Daniel. 2000. "Peru: Reforming Health Care for the Poor". World Bank LCSHD Paper Series No. 57.

[4] Deininger, Klaus and Paul Mpuga. 2004. "Does Greater Accountability Improve the Quality of Public Service Delivery? Evidence from Uganda". *World Development* Vol.33 (1) pp.171–191.

[5] Di Tella, Rafael and Ernesto Schargrodsky. 2003. "The Role of Wages and Auditing During a Crackdown on Corruption in the City of Buenos Aires". *Journal of Law and Economics*, Vol.1 pp. 269–292.

[6] Ferraz, Claudio and Fred Finan. 2005a. "Reelection Incentives and Political Corruption: Evidence from Brazil's Municipal Audit Reports". UC Berkeley working paper.

[7] Ferraz, Claudio and Fred Finan. 2005b. "Exposing Corrupt Politicians: The Effect of Brazil's Randomized Anti–Corruption Program on Electoral Outcomes". UC Berkeley working paper.

[8] Fisman, Raymond and Roberta Gatti. 2002. "Decentralization and Corruption: Evidence Across Countries". *Journal of Public Economics*, Vol.83 pp. 325–345.

[9] Gambetta, Diego. 2002. "Corruption: An Analytical Map". In S. Kotkin and A. Sajo eds. *The Political Corruption of Transition: A Sceptic's Handbook* Budapest: Central European University Press.

[10] Hunt, Jennifer and Sonia Laszlo. 2007. "Is Bribery Really Regressive? Bribery's Costs, Benefits and Mechanisms". McGill University working paper.

[11] Jitta, Jessica, Susan Reynolds Whyte, and Nathan Nshakira. 2003. "The availability of drugs: what does it mean in Ugandan primary care". *Health Policy* Vol.65 pp. 167–179.

[12] Kaufmann, Daniel and Shang–Jin Wei. 1999. "Does 'Grease Money' Speed Up the Wheels of Commerce?". NBER working paper 7093.

[13] Konde–Lule, Joseph K. and David Okello. 1998. "User Fees in Government Health Units in Uganda: Implementation, Impact and Scope". Partnerships for Health Reform Small Applied Research Paper No. 2.

[14] Lewis, Maureen. 2006. "Governance and Corruption in Public Health Care Systems". Center for Global Development Working Paper Number 78.

[15] Mauro, Paolo. 1995. "Corruption and Growth". *Quarterly Journal of Economics*, Vol.110(3) pp. 681–712.

[16] McPake, Barbara, Delius Asiimwe, Francis Mwesigye, Mathias Ofumbi, Lisbeth Ortenblad, Pieter Streefland and Asaph Turinde. 1999. "Informal economic activities of public health workers in Uganda: implications for quality and accessibility of care". *Social Science and Medicine* Vol.49 pp. 849–865.

[17] Nabynoga, J., M. Desmet, H. Karamagi, P.Y. Kadama, F. G. Omaswa and O. Walker. 2005. "Abolition of cost–sharing is pro–poor: evidence from Uganda". *Health Policy and Planning* Vol.20 (2) pp. 100–108.

[18] Olken, Benjamin. 2005. "Monitoring Corruption: Evidence from a Field Experiment in Indonesia". NBER Working Paper 11753.

[19] Olken, Benjamin. 2006. "Corruption and the Costs of Redistribution: Micro Evidence from Indonesia". *Journal of Public Economics* 90 (4-5) pp. 853-870.

[20] Peréz, Betty Alvarado and Rony Lenz. 2006. "Pro–poor Policies in the Peruvian Public Health Sector". In Daniel Cotlear ed. *A New Social Contract for Peru: An Agenda for Improving Education, Health Care, and the Social Safety Net* Washington D.C.: World Bank.

[21] Reinikka, Ritva and Jakob Svensson. 2005. "Working for God?" World Bank working paper.

[22] Svensson, Jakob. 2003. "Who Must Pay Bribes and How Much? Evidence From A Cross Section of Firms". *Quarterly Journal of Economics*, Vol.118 pp. 207–30.

[23] Thompson, Robin and Ana Xavier. 2002. "Unofficial payments for acute state hospital care in Kazakhstan. A model of physician behaviour with price discrimination and vertical service differentiation". LICOS Working Paper 124.

[24] Treisman, Daniel. 2000. "The Causes of Corruption: A Cross–National Study". *Journal of Public Economics*, Vol.76 (3) pp. 399–457.

[25] Valdivia, Martín. 2002. "Public health infrastructure and equity in the utilization of outpatient health care services in Peru". *Health Policy and Planning* 17 (Suppl 1) pp. 12–19.

[26] Webb, Richard and Sofía Valencia. 2006. "Human Resources in Public Health and Education". In Daniel Cotlear ed. *A New Social Contract for Peru: An Agenda for Improving Education, Health Care, and the Social Safety Net* Washington D.C.: World Bank.

[27] Wei, Shang–Jin. 2000. "How Taxing is Corruption on International Investors?" *Review of Economics and Statistics* Vol. 82 (1) pp. 1-11.

[28] Yang, Dean. 2005. "Integrity for Hire: An Analysis of a Widespread Program for Combating Customs Corruption". University of Michigan working paper.

[29] Yang, Dean. 2006. "Can Enforcement Backfire? Crime Displacement in the Context of Customs Reform in the Philippines". University of Michigan working paper.

Data Appendix

Peru – Encuesta Nacional de Hogares

The data are available at www.inei.gob.pe/srienaho/English/Consulta_por_Encuesta.asp. The 2002 survey was taken in October, November and December of 2002. The "2003" survey was taken from May 2003 to April 2004. One quarter of the 2003 households were also interviewed in 2002. I simply combine monetary values from surveys taken at different times with no adjustment for inflation or seasonality, which tests indicated was appropriate for household consumption. Household consumption is computed by the statistical agency, based on the survey's 31 pages of questions on household expenditure and consumption.

The twenty–one types of official listed in the survey are: municipal (city) government, social security (providing social insurance other than pensions), state banks, judiciary, drinking water, telephone, electricity, state schools, arbitration, Ministry of Agriculture, Ministry of Industry, tax/customs authority, state hospitals, national civil identification registry, Department of Migration, police, electoral office, electoral court, development agency, food agency, and "other".

Uganda – Second National Integrity Survey

The survey was conducted in 55 of 56 districts of Uganda. The subsequent non–random sampling of sub–counties led to the sub–county of the district headquarters always being chosen, which means that urban areas are over–sampled. The district's sub–counties were divided into three categories based on availability of government services and infrastructure, and 20% of sub–counties in each category were randomly chosen. Within each of these sub–counties, the local council 1 areas were similarly divided into three categories, and one local council 1 area per category was chosen randomly. The selection of which households to interview within these local council 1 areas did not appear to be random, as it appeared to involve choosing households near the residence or office of the local council 1 chairperson.

It is not possible to distinguish between zeroes and missing values in the components of expenditure, so I simply assign zeroes to all missing values and sum the nine components. For seven components, most of the values are missing. In the health module, there are some valid responses for households who had not used the health care system in the previous three months: I drop these observations. Also, some households gave information on more than one health care visit in the previous three months (contrary to the survey instructions): I retain only one visit per household.

The twenty–two agencies listed in the survey are: local primary school, Department of Education, health unit, police, traffic police, local council 1, local council 3, Agriculture Department, Veterinary Department, Fisheries Department, Forestry Department, Department of Cooperatives, Public Service (pensions), Water Department, Land Board, Magistrates Court, Ugandan People's Defence Force, Local Defence Force, Uganda Revenue Authority (licencing), Uganda Revenue Authority (customs, anti–smuggling),

Uganda Electricity Board and "other". However, the variable for whether or not the household used "other" officials is missing from the data I have received.

Table 1: Health and health care in Peru and Uganda

	Peru		Uganda	
	Year	Value	Year	Value
Life expectancy at birth - males	2004	69	2004	48
Life expectancy at birth - females	2004	73	2004	51
Share population 15-49 HIV positive	2003	0.5	2003	4.1
Share births attended by skilled personnel	2004	71.1	2000	39.0
Doctors per 1000 pop	1999	1.17	2004	0.08
Nurses per 1000 pop	1999	0.67	2004	0.61
Health spending as % GDP	2003	4.4	2003	7.3
Government spending as % total health spending	2003	48.3	2003	30.4

Source: WHO http://www3.who.int/whosis/core/core_select.cfm

Table 2: Means of Peruvian variables from modules other than health

	(1) All	(2) Bribery episode
Bribery episode	0.0077	1
Household consumption,	339	385
monthly, in US $	(271)	(262)
Visits (from bribery module)	4.2	5.0
	(3.8)	(4.9)
Household problem previous 12 mths:		
earner died	0.012	0.053
member sick or had accident	0.068	0.126
fire in apartment, shop, property	0.002	0
crime (robbery, assault etc.)	0.039	0.063
natural disaster	0.066	0.074
Child born to household previous 12 mths	0.14	0.14
Bribery respondent age	40	39
	(16)	(14)
Bribery respondent years education	8.0	8.6
	(4.8)	(5.1)
Observations	12,262	95
Amount of bribe, in US $ (if reported)	--	9.10
		(15)
Observations	--	76

Notes: Standard deviations are in parentheses. The unit of observation is a household that in the bribery module reported using state hospitals.

Table 3: Means of Peruvian bribery respondent health characteristics

	(1) All	(2) Bribery episode
Current:		
no health insurance	0.74	0.83
chronic health condition	0.25	0.36
Previous 12 months:		
hospitalized	0.09	0.18
duration of hospitalization (days)	0.80	1.67
	(5.75)	(5.31)
surgery	0.03	0.07
Preventative consultation previous 3 months:		
family planning (women 15-49)	0.10	0.13
vaccination program	0.06	0.06
iron supplement (pregnant, child 0-2)	0.01	0
health campaign	0.03	0.03
promotion of healthy practices	0.02	0.04
Previous 3 months:		
dental services	0.09	0.05
opthalmological services	0.03	0.02
any other medical goods/services	0.08	0.08
Previous 4 weeks:		
consultation	0.28	0.35
medicine	0.43	0.53
tests	0.06	0.12
X-ray	0.01	0.05
other procedures	0.02	0.04
Observations	12,262	95

Notes: Standard deviations are in parentheses. The unit of observation is a household whose respondent reported using state hospitals in the bribery module. Examples of "other medical goods/services" are thermometer, orthopedics. Possible chronic health conditions mentioned in the survey were arthritis, hypertension, asthma, rheumatism.

Table 4: Means of variables related to health issues in previous four weeks - Peru

	(1) All	(2) Bribery episode
Health issues previous 4 weeks: symptoms	0.37	0.43
Illness	0.27	0.29
relapse of chronic condition	0.08	0.09
Accident	0.01	0.02
Pregnancy	0.02	0
none of above	0.37	0.26
Went to health center/hospital/doctor/clinic about previous month's health issue	0.25	0.33
Most qualified health professional seen for previous month's health issue if went to health center etc:		
Obstetrician	0.012	0
Doctor	0.180	0.253
Dentist	0.002	0
Nurse	0.040	0.053
Paramedic	0.006	0
Pharmaceutical sales rep	0.001	0
Other	0.005	0.021
Health procedures for previous month's health issue if went to health center etc:		
Tests	0.053	0.116
Medicine	0.228	0.284
X-ray	0.013	0.053
Other	0.019	0.042
Observations	12,262	95

Notes: Standard deviations are in parentheses. The unit of observation is a household whose respondent reported using state hospitals in the bribery module. The symptoms dummy equals one if the respondent said s/he had "symptoms or discomfort (cough, headache, fever, nausea)". The illness dummy equals one if the respondent said s/he had "illness (flu, colitis etc)". Questions about the place where care was sought were asked of those who said they had had one of the listed health issues. Questions about health professionals and procedures were asked of those who responded that they had sought care at a health center, hospital, doctor's or clinic. More than one answer was permitted for the health professional, but I ranked them in the order given and assigned a unique indicator for the highest qualified professional the respondent saw. Additional Peruvian means are given in Appendix Table 1.

Table 5: Ugandan health unit users in past three months

	(1) Bribe	(2) Made official payment	(3) Amount bribe	(4) Amount official payment	(5) Observations
A. Public					
All	0.17	0.38	--	--	4104
Bribe reported	--	--	6.06 (15)	--	697
Bribe or official payment reported	--	--	--	11.66 (59)	1550
B. Public hospitals					
All	0.19	0.41	--	--	2350
Bribe reported	--	--	7.88 (18)	--	449
Bribe or official payment reported	--	--	--	15.81 (74)	973
C. Private					
All	0.11	0.83	--	--	3467
Bribe reported	--	--	5.26 (10)	--	398
Bribe or official payment reported	--	--	--	12.23 (87)	2868

Note: Amounts in US dollars. Standard deviations are in parentheses.

Table 6: Ugandan health unit users in past three months

	(1)	(2)	(3)	(4)
	Public sample		Private sample	
	No bribery	Bribery	No bribery	Bribery
Household expenditure,	82	91	109	101
monthly, in US $	(124)	(125)	(171)	(153)
Urban household	0.37	0.37	0.44	0.36
Respondent no education	0.11	0.10	0.08	0.10
Respondent 1-4 years edu	0.15	0.16	0.13	0.12
Respondent age	36	35	34	35
	(12)	(11)	(11)	(12)
Patient age	19	19	17	17
	(18)	(17)	(17)	(16)
Patient illness:				
malaria/fever/headache	0.62	0.61	0.70	0.68
pregnant/gynecological	0.07	0.09	0.03	0.04
intestinal/stomach	0.04	0.04	0.04	0.04
respiratory	0.04	0.05	0.05	0.03
Patient treatment:				
single	0.54	0.48	0.54	0.53
part of course	0.44	0.49	0.43	0.46
other	0.02	0.02	0.02	0.01
Health facility:				
public	1	1	0	0
private or other	0	0	0.91	0.96
mission	0	0	0.09	0.04
Health facility:				
hospital	0.53	0.58	0.14	0.06
health unit	0.28	0.24	0.44	0.54
dispensary	0.15	0.10	0.13	0.15
hospital + unit/dispens	0.03	0.06	0.02	0.03
pharmacy	0.00	0.00	0.03	0.03
clinic	0.01	0.01	0.22	0.17
drug store, other	0.00	0	0.01	0.01
Observations	3407	697	3069	398

Note: Standard deviations are in parentheses. Additional Ugandan means are given in Appendix Tables 2 and 3.

Table 7: Peruvian state hospital users in past twelve months – who bribes?

	(1)	(2)	(3)	(4)	(5)	(6)
Log household	0.0056	0.0057	0.0055	0.0051	0.0064	0.0063
consumption	(3.7)	(3.7)	(3.5)	(3.3)	(3.9)	(3.8)
R-squared	0.01	0.01	0.01	0.02	0.02	0.02
Basic	Yes	Yes	Yes	Yes	Yes	Yes
Education, job	--	Yes	Yes	Yes	Yes	Yes
Other non-medical	--	--	Yes	Yes	Yes	Yes
Symptoms, problems	--	--	--	Yes	Yes	Yes
Insurance	--	--	--	--	Yes	Yes
Hospital visited	--	--	--	--	Yes	Yes
Hospitalized, surgery	--	--	--	--	--	Yes
Professionals, tests	--	--	--	--	--	Yes

Notes: Linear probability regressions for 12,262 observations with t-statistics in parentheses. The unit of observation is the household. All regressions include 24 regional dummies interacted with a dummy for the 2003 survey, nine household size dummies, town size dummies, time to the district administrative center (basic covariates). Education is years of education; job dummies are dummies for whether the respondent is a doctor, nurse or medical technician. The other non-medical covariates are the number of visits and dummies for respondent sex and age, and the presence of children.

Table 8: Ugandan users in past three months – who bribes, who pays?

	(1)	(2)	(3)	(4)	(5)	(6)
		Public sample			Private sample	
A. Bribe						
Log household expenditure	0.015	0.021	0.017	0.001	0.005	0.006
	(3.0)	(3.9)	(3.2)	(0.1)	(0.7)	(0.8)
R-squared	0.08	0.10	0.11	0.06	0.07	0.10
B. Official payment						
Log household expenditure	0.051	0.053	0.043	0.011	0.010	0.010
	(5.8)	(5.6)	(4.4)	(1.6)	(1.4)	(1.3)
R-squared	0.08	0.08	0.12	0.12	0.12	0.14
Observations		4104			3467	
Basic covariates	Yes	Yes	Yes	Yes	Yes	Yes
Education, job	--	Yes	Yes	--	Yes	Yes
Other covariates	--	--	Yes	--	--	Yes

Notes: Marginal effects from probits in columns 1-3, linear probability coefficients in columns 4-6. All regressions include 54 district dummies, 13 household size dummies, and an urban dummy (basic covariates). Education is captured by dummies and job refers to dummies for respondent occupation and the main source of household income. The other non-medical covariates are the number of household males and females over 18, respondent sex, age and age squared, and status as head or spouse. The other medical covariates are the patient age, dummies for patient illness, type of facility, ongoing versus once-off treatment, and (in columns 4-6) a dummy for a mission facility.

Table 9: Bribes and official payments among Ugandan health care users (%)

	Public			Private		
	No bribe	Bribe	All	No bribe	Bribe	All
No official payment	78	22	100	45	55	100
	58	81		9	83	
Official payment	92	8	100	98	2	100
	42	19		91	17	
All	100	100		100	100	

Table 10: Ugandan bribers – log amount of bribe, log amount of official payment

	(1)	(2)	(3)	(4)	(5)	(6)
		Public sample			Private sample	
A. Bribe						
Log household expenditure	0.427	0.431	0.373	0.257	0.251	0.153
	(7.3)	(6.4)	(5.4)	(3.5)	(3.0)	(2.0)
R-squared	0.24	0.27	0.37	0.30	0.37	0.51
Observations		697			398	
B. Official payment						
Log household expenditure	0.452	0.464	0.357	0.433	0.440	0.376
	(9.7)	(9.3)	(8.1)	(16.7)	(15.9)	(13.9)
R-squared	0.26	0.28	0.40	0.23	0.25	0.36
Observations		1550			2868	
Basic covariates	Yes	Yes	Yes	Yes	Yes	Yes
Education, job	--	Yes	Yes	--	Yes	Yes
Other covariates	--	--	Yes	--	--	Yes

Notes: Linear probability coefficients with t-statistics in parentheses. All regressions include 54 district dummies, 13 household size dummies, and an urban dummy. Education is captured by dummies and job refers to dummies for respondent occupation and the main source of household income. The other non-medical covariates are the number of household males and females over 18, respondent sex, age and age squared, and status as head or spouse. The other medical covariates are the patient age, dummies for patient illness, type of facility, ongoing versus once-off treatment, and (in columns 4-6) a dummy for a mission facility.

Appendix Table 1: Means of further Peruvian covariates

	All households	Households reporting bribery episode
Household member is: doctor	0.004	0
Nurse	0.011	0.032
Medical technician	0.001	0
Bribery respondent sex (female=1)	0.54	0.51
Household contains child aged: 0-3	0.35	0.34
4-7	0.37	0.34
8-11	0.38	0.26
12-15	0.34	0.23
Household size	4.7	4.2
	(2.2)	(2.0)
Minutes travel to district administrative center	62.5	56.8
	(155.3)	(83.0)
Town >500,000	0.13	0.11
Town 100,000-500,000	0.24	0.24
Town 50,000-100,000	0.06	0.09
Town 20,000-50,000	0.08	0.08
Town 2000-20,000	0.08	0.06
Town 500-2000	0.06	0.01
Town about 200	0.26	0.26
Town about 100	0.09	0.14
Year=2003	0.71	0.52
Observations	12,262	95

Notes: Standard deviations are in parentheses. The unit of observation is a household that in the bribery module reported using state hospitals. Unlisted household level variables used are departmento (region), year=2003.

Appendix Table 2: Means of Ugandan household main income source and respondent occupation

	Public sample		Private sample	
	No bribery	Bribery	No bribery	Bribery
Farming – cash crops	0.16	0.15	0.12	0.16
Farming – foods crops	0.25	0.25	0.18	0.19
Farming – livestock	0.02	0.01	0.02	0.02
Manufacturing, crafts, repair	0.06	0.09	0.07	0.09
Trade - petty	0.09	0.07	0.09	0.09
Trade – retail/shop/stall	0.10	0.11	0.15	0.15
Trade – wholesale, crop buying	0.02	0.03	0.03	0.02
Government – salaried or wage	0.12	0.10	0.10	0.08
Private – salaried or wage	0.05	0.04	0.08	0.06
Stipends from relatives	0.02	0.01	0.01	0.00
Casual work	0.08	0.11	0.07	0.10
Other	0.05	0.03	0.06	0.05
Farmer – mainly crops	0.37	0.38	0.26	0.33
Farmer – mainly livestock	0.02	0.01	0.02	0.02
Trader	0.18	0.19	0.25	0.21
Civil servant/armed forces	0.06	0.04	0.05	0.03
Teacher	0.05	0.04	0.06	0.04
Professional in private practice (doctor/lawyer)	0.02	0.02	0.03	0.03
Craftsperson (carpenter/mechanic etc)	0.06	0.07	0.07	0.08
Casual laborer	0.07	0.08	0.07	0.08
Housewife	0.10	0.09	0.10	0.10
Student	0.01	0.00	0.01	0.01
Tailor/builder	0.01	0.01	0.01	0.01
Bodaboda or taxi driver	0.01	0.01	0.02	0.02
Repair and service jobs	0.04	0.04	0.05	0.04
Unemployed	0.01	0.01	0.00	0.01
Retired	0.00	0.00	0.00	0
Observations	3407	697	3069	398

Appendix Table 3: Means of Ugandan patient illnesses

	Public sample		Private sample	
	No bribery	Bribery	No bribery	Bribery
Malaria/fever/headache	0.62	0.61	0.70	0.68
Diarrhea	0.03	0.02	0.03	0.05
Injury	0.03	0.04	0.03	0.05
Pregnant/gynecological	0.07	0.09	0.03	0.04
Immunization	0.03	0.00	0.00	0
STDs	0.01	0.01	0.00	0.01
Intestinal/stomach	0.04	0.04	0.04	0.04
Heart	0.02	0.01	0.02	0.02
Accident	0.00	0.00	0.00	0.00
Dental	0.01	0.02	0.01	0.01
Ear/nose/throat/eye	0.02	0.01	0.01	0.01
Skin	0.01	0.01	0.01	0.01
Backache	0.00	0.00	0.00	0
Bone	0.00	0.00	0.00	0.00
Other diseases	0.03	0.03	0.03	0.04
Respiratory	0.04	0.05	0.05	0.03
Tetanus, measles	0.02	0.03	0.03	0.01
General check up	0.00	0.00	0.00	0
Observations	3407	697	3069	398