Trust and Bribery: The Role of the Quid Pro Quo and the Link with Crime

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I study data on bribes actually paid by individuals to public officials, viewing the results through a theoretical lens that considers the implications of trust networks. A bond of trust may permit a quid pro quo to substitute for a bribe, which in some situations is more efficient and honest. I show that in the presence of quid pro quos, the incidence of bribery may be non-monotonic in client income. I find evidence of this in the International Crime Victim Surveys, as well as evidence that bribery is less frequent in small towns, where the appropriate networks are more easily established. Older people, who have had time to develop a network, bribe less. The low bribery incidence of the poor presumably implies reduced access to public services, yet city size, age, gender and car ownership are more important determinants of bribery than income. I also show that victims of crimes bribe all types of public officials more than non-victims, and argue that both their victimization and bribery stem from a distrustful environment. I find indirect evidence that criminals are particularly likely to bribe the police and customs. Together these results suggest that the best start to changing a distrustful environment is combatting corruption in the police and customs.

In the last fifteen years a large literature on corruption has developed, as the view that corruption is a second-best solution to excessively cumbersome bureaucracy has given way to a concern that it is a brake on economic growth. The empirical side of this literature has focused on bribes paid by businesses, based on surveys of business executives asking them for their impressions of the level of corruption in their country of operation.[1] The theoretical literature includes analysis of bribes paid by individuals[2], but studies by economists have generally neglected the possibility that a quid pro quo, implicit or explicit, could substitute for an immediate bribe in cash or gifts. More generally, the economic literature has not drawn on the work of other social scientists analyzing the implications of trust and personal relations for social and economic interactions.[3]

In this paper, I study data on bribes actually paid by individuals to public officials, viewing the results through a theoretical lens that considers whether trust could be established between the official and the client. Bilateral trust permits the substitution of a quid pro quo for a bribe, and I argue that while in many situations this improves both efficiency and honesty, in other situations it is detrimental to both. I show theoretically that when a quid pro quo is a possibility, and the official is a discriminating monopolist, the incidence of bribery may be non-monotonic in the client's income. I look for evidence of this in the data, as well as evidence that bribery is less frequent in small towns, where the trust networks appropriate for an exchange of services are more easily established. I also assess the overall importance of income as a

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[1] Fisman and Gatti (2002), Mauro (1995), Swamy et al. (2001), Treisman (2000).
[2] Lui (1985), Rose-Ackerman (1978, 1999), Schleifer and Vishny (1993).
[3] An exception is the interdisciplinary project "Honesty and Trust: Theory and Experience in the Light of Post-Socialist Transformation" led by economists Susan Rose-Ackerman and Janos Kornai. Bardhan (1997) provides a survey of the corruption literature.

determinant of bribery relative to other characteristics of individuals, and consider the links between trust, bribery and crime at the individual and regional levels.[4]

There are several reasons why the study of bribes paid by individuals is an important extension of the literature studying businesses. Although the sums paid by businesses are likely to be higher, the effective tax imposed on individuals by the need to pay bribes could be equivalent, and hence important on welfare grounds. Bribery by individuals is also a cause for concern for distributional reasons. An inability to pay bribes may exclude the poor from certain public services, or force them to accept lower quality or delayed service. It has also been argued that distortions introduced by business corruption could have static or dynamic macro effects that disadvantage the poor.[5] Another concern is that widespread payment of small bribes by individuals in everyday settings may create a climate in which this larger business corruption becomes acceptable. Finally, individual bribery may be part of a wider pattern of dishonesty and distrust that reduces the quality of life through crime and more subtle channels.

The importance of measuring the actual prevalence of bribery rather than an impression of how much other people are bribing, as in the existing literature, is obvious. The difficulty when businesses are the unit of interest is that a question about actual payment of bribes is too sensitive.[6] By contrast, in countries where bribery is widespread, there is little stigma or danger attached to an individual's admitting that he or she has paid a bribe.[7] I use data from Eastern Europe, the former Soviet Union, Latin America, Africa and Asia from the International Crime Victim Surveys, which ask whether in the previous year any government official had asked the

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[4] I shall use "crime" to refer to crime other than bribery.
[5] Gupta et al. (1998).
[6] Some surveys ask about bribe prevalence among "similar firms".
[7] Miller et al. (1998) tabulate data on actual bribes paid by individuals "in the last few years".

respondent for a bribe or expected a bribe. An additional advantage of the data is that they allow a study of the link between victimization and bribery at the individual level for the first time.

If the bribe-taker is a perfectly discriminating monopolist, he or she will provide service to all who can afford at least the marginal cost to the official of accepting a bribe.[8] If the marginal cost is non-zero, this will lead to some poorer people not paying the bribe and not receiving the associated service. If a client can provide the official a good or service that cannot be bought with cash, the official may not take a cash bribe. I show that if clients above some income threshold can provide such a good or service to the official, the prevalence of bribery may be non-monotonic in income: those who cannot pay the marginal cost will be excluded, those slightly richer will bribe, those richer still will pay through reciprocal exchange, while those richer still will bribe. This last category will emerge if the value of the non-cash services clients can provide rises sufficiently slowly with income.

I find that the rich pay the most bribes and the poor the least, while in the middle range bribery is somewhat insensitive to income. I also find that bribery is much less prevalent in smaller cities. These results are consistent with the use of trust networks and the quid pro quo in small towns and by some middle-income clients, and with reduced access to services for low-income clients. However, three characteristics in addition to city size are more important than income: age, sex, and ownership of a car. People in their twenties and thirties are much more likely to bribe, which could be explained in part by their not yet having established the appropriate trust networks. If the ability to obtain public services with a quid pro quo is indeed more strongly influenced by the life-cycle than by income, this would mitigate concerns that the

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[8] Rose-Ackerman (1978 p.21, 1999 p.12) discusses the theoretical possibility of price discrimination by the official, and Svensson (2003) find evidence of this with firm-level data from Uganda.

poor are excluded from public services. Women's lower propensity to bribe may also be related in part to the quid pro quo, since women may possess more valuable reciprocal services, in the form of sexual favors.

I show that individuals who have been victims of crimes are more likely to bribe. However, this is not because their victimization brings them into contact with more officials, since the effect of reported and unreported victimization is the same, and the effect is similar for bribes to a variety of public officials. I conjecture that crime flourishes in an environment with low one-sided trust in institutions and a lack of faith in the honesty of one's peers. This environment is conducive to the payment of bribes, but fosters too little trust to permit the delayed payments associated with quid pro quos or to facilitate honest dealings.

Using within-country variation in regional crime rates, and conditioning on victimization, I show that crime is not only related to bribes to the police, but, for consumer fraud and larceny, also to bribes to customs officials. This pattern suggests the regional crime effect reflects bribery by criminals. I propose that the best way to break the vicious cycle of distrust, crime and bribery is to combat corruption in the police and customs.

Theoretical Considerations

A theoretical and experimental sociology literature analyzes the effect of risk in economic and social transactions on the formation of trust networks.[9] In the face of widespread dishonesty and corruption, a second-best solution is to form networks of family, friends and other trusted members, and to conduct transactions within this network. Bonds of trust may be formed by gift-exchange, an observation originally made by anthropologists. One person may offer a good or service to another without insisting on immediate payment, with an implicit or

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[9] See Cook et al. (2002). Falk and Kosfeld (2003) test economic theories of network formation.

explicit expectation of reciprocity. If reciprocity does occur, bilateral trust will be established, allowing for future mutually beneficial transactions. The distinction between gifts and bribes is ill defined and culture-specific, and a function of whether an explicit quid pro quo exists[10].

For certain pairs of public officials and clients, the provision of the official's service without an immediate bribe can be an opportunity to establish trust, or the result of previously established trust.[11] For this to be the case, the client and the official must expect to have repeated encounters. This could happen if bureaucracy is so high as to require frequent transactions between the pair, or in small communities or ethnic groups where the pair would naturally interact in other settings.

The client must also have something to give that the official values more than cash. In societies with poorly developed markets, this could be something not provided by the market, such as insurance. In small communities it could be good relations during leisure time or with neighbors. Honest private services or provision of private goods where information is imperfect is also valuable: 29% of respondents in my sample report being victims of fraud in the previous year, principally in stores. It appears that much fraud cannot be detected until it is too late to obtain restitution (only 4% of frauds were reported to the police). If the fraud cannot be detected as it is perpetrated, it is unlikely that paying extra (a bribe) to the fraudster will be sufficient to avoid being defrauded. A bond of trust is required instead. Another favor an official may want from a client, the employment of a relative, may be available more cheaply as part of a quid pro quo than for cash: the client might perceive the risk of obtaining a job for the relative of a bribe-

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[10] Rose-Ackerman (1999 chapter 6).
[11] See Rose-Ackerman (2001). Radaev (2004) is an application of these ideas to business corruption in Russia.

taking official to be higher, as the relative might also be corrupt, which would reflect badly on the client.

Varese (2000) notes that even a bribe requires trust between the two parties involved, since either party could betray the other to the authorities, and the bribe-payer must trust the bribe-taker to perform the services paid for. He also notes, however, that under pervasive corruption, the danger of betrayal is low. Furthermore, in many situations of potential bribery by individuals the result can be seen on the spot: an emissions permit or driver's licence is issued, a speeding fine is waived, a driver is allowed through a check-point. The client does not have to trust the official to provide the service at a later date.

For modeling purposes it is necessary to know the relative values of a cash bribe and a quid pro quo to the client. Being a good neighbor may be almost costless, so the client might prefer to pay in this currency, particularly since the client benefits equally from the trust established. More commonly, however, I argue that the client is indifferent between a cash bribe and a quid pro quo. A dishonest car mechanic can forego profit by doing honest repairs for the official, or can pay the equivalent as a bribe to the official. From the client's point of view, public service can be obtained either way, and a bond of trust is not necessary.

If this is the case, quid pro quos raise welfare, since the service provided by the client to the official is worth more to the official than the client. If bribes and quid pro quos serve mainly to persuade the official to do his or her duty and clients to be honest in their job, implicit quid pro quos will be very close to honesty and will be efficient. By contrast, if bribes and quid pro quos usually cause officials to behave dishonestly and inefficiently, and if clients typically reciprocate with efficiency-reducing acts such as obtaining jobs for unqualified relatives of

officials, efficiency and honesty will both be worsened by quid pro quos. The former scenario is more likely in small communities. [12]

When I consider the links between crime and trust the issues are somewhat different. In this context, trust should lead to honesty, rather than a network for mutually beneficial but possibly illegal exchange (the exception being the case of criminal gangs). Furthermore, the type of trust required to reduce crime is generalized, rather than bilateral, trust.

Model

A bribe-taking public official must have some monopoly power, or his or her rents would be competed away. It is plausible that bribe-taking officials have some power to discriminate: there can be no resale of their service, and even if they do not know the potential bribe-payer, they have information on how the client is dressed, and possibly his or her mode of transport and address. I will assume that the bribe-taker can discriminate perfectly, which will be more accurate the smaller the community. If payment can only be made on the spot, the diagram will be the textbook one of Figure 1. We can imagine that the demand curve D_B orders individuals by their ability to pay, and individuals between the origin and Q_1 pay the bribe, while the poorer individuals between Q_1 and Q_T do not. The monopolist receives a different bribe amount from each bribe-payer, according to their ability to pay, and appropriates all the consumer surplus.

In Figure 2 I consider a market where official favors are only dispensed in return for a reciprocal service later on (or the expectation of one). The value of a service includes the trust potentially established, but is discounted by a default rate. I assume again that the demand curve orders individuals by ability to pay, and that the ordering is the same as in Figure 1. It is likely

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[12] Bulgarians from small villages in the Miller et al. (1999) focus groups mentioned "People know each other. Bribes are not expected."

that below some threshold income Q_2, people have nothing of more value than cash to offer the official. (In a more general model, the slope of the demand for services D_K would become steeper to the right of Q_2.) Above the threshold, the value of services rises with client income.

When officials can be paid either immediately or in reciprocal services, the demand faced by the official is the maximum of the demands in Figures 1 and 2. The official will take an immediate bribe or a reciprocal service, depending on which is more valuable to him or her. If services are sometimes more valuable, the demand curves D_B and D_K will have some intersection such as at Q_2 in Figure 3 when superposed.

It also seems plausible, however, that at high income, the value of services will rise less fast than income. There is a limit to how good a job the client can get the official's mediocre son, whether the client's firm be medium-sized or large. The official may also interact infrequently with rich people other than in the course of the official's duty, or their potential services may be too large and lumpy to be taken advantage of. Thus, the official can extract more from a rich person in cash than in services. If so, the two demand curves will intersect again, such as at Q_3 in Figure 3. This leads to the demand curve of Figure 3, D_{BK}, the outer envelope of D_B and D_K.

The pattern of bribe-paying then depends on the marginal cost of taking the bribe. For simplicity I assume that the marginal cost of accepting a bribe and payment in services is the same: the danger comes from detection of the bureaucratic actions the official takes, not detection of the transfer of cash, and the effort is the same. If the marginal cost is low, as in Figure 3, bribe-paying will be non-monotonic in income: the poorest (between Q_1 and Q_T) will accept slow service (wait) or forego the public service, the next income group (between Q_2 and Q_1) will bribe, since its services are not valuable to the official, the next income group (between Q_3 and Q_2) will pay in reciprocal services, while the richest group (between 0 and Q_3) will bribe.

If the marginal cost is higher and intersects D_{BK} between Q_3 and Q_2, clients will be split into three groups by income: waiters, payers in kind, and bribers, while if the marginal cost is high and intersects D_{BK} at $Q<Q_3$, there will just be two groups: waiters and bribers.

There may be certain types of public official that must be dealt with by people of almost all income classes. Others, however, will be dealt with much more by upper income people. The data show the most salient example is public officials encountered in connection with car ownership. Figure 3 may accurately represent both types of encounter qualitatively, but there will be fewer low-income people demanding car-related services. To determine overall bribery (and payment in services) frequency, bribes and payments in services from all relevant "markets" must be summed at each income. If there are just two markets, one affecting people of all incomes, and one affecting car-owners, the richest people will pay one bribe in each market, for a total of two bribes. There will remain an upper-middle income class that pays once or twice in services, and a lower-middle income class that pays one or two bribes. The non-monotonicity of immediate bribery with income is thus preserved. By contrast, if each market were represented by Figure 1, aggregation would lead to the poor paying no bribes, the middle paying one bribe, and the rich paying two bribes.

Data and Descriptive Statistics

I use 1990s data on countries outside the traditional OECD from the International Crime Victim Surveys (ICVS), conducted for the United Nations Interregional Crime and Justice Research Institute.[13] Interviews are conducted face-to-face with a randomly selected member of the household. Almost two thirds of the observations are from countries making the transition from communism: the appendix lists the full set of countries. For most countries, the ICVS is

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[13] The data are available from the ICPSR.

not a random sample: certain cities are selected, in many cases only the largest city, and particular neighborhoods within cities are chosen, based on economic status. Within neighborhoods, the samples are random, however.

The survey focuses on the details of respondents' experiences of victimization, but also inquires about bribery. The question asked is: "In some countries, there is a problem of corruption among government or public officials. During 199x, has any government official, for instance a customs officer, a police officer or inspector in your country asked you, or expected you to pay a bribe for his or her services?". Respondents who answer yes are then asked what type of government official was bribed (somewhat oddly, the first option is "government official"), and then whether the incident of corruption was reported (which is almost never the case). I drop only observations with missing values, and use a sample of 43,752 individuals. Owing to the non-random nature of the sample, and despite the existence of sample weights, I do not report any cross-country comparative statistics, since differences would be greatly affected by the sampling scheme.

Table 1 shows the extent of bribery in the data: 11% of respondents reported having paid a bribe to a public official in the previous year. The two most common types of bribes were those paid to a government official (26%), and those paid to the police (35%). For the subset of data for which a more detailed categorization is available, the most common "other" type of bribe was paid to nurses and doctors.

The unweighted means of all the variables used in the analysis are shown in Tables 2a and b. The means of the city size dummies (Table 2a) reflect the over-sampling of large cities: only 28% of respondents live in cities of less than 100,000 inhabitants. 36% of respondents own one car, 8% own two cars, and 2% own three or more cars. Although the 48% of the sample that

is working is over-represented amongst those having paid bribes, they nevertheless represent only 61% of those paying bribes, which represents an upper bound on the share of bribes that could have been paid in the course of business. Among the victimization variables (Table 2b) it is noteworthy that 29% of respondents claimed to have been victims of consumer fraud in the previous year (of whom 60% report being defrauded in a shop). I do not drop observations with missing values of income quartile, city size and education, but rather include dummies for missing values in the regressions below.

Empirical Specification

      I examine the determinants of bribe-paying with probits and multinomial logits. I begin with a probit for the probability of an individual i in country c paying a bribe in year t:

$$P(\text{paid bribe}_{ict}) = X_{ict}\beta + \delta_t + \gamma_c + \varepsilon_{ict}.$$

All specifications include year (δ) and country (γ) dummies. I adjust the standard errors to allow for correlation among observations in the same region, since the sampling frame is to sample regions. Since the regions are chosen based on city size and affluence, I present only specifications that control for the respondent's income quartile and city size, as well as dummies for the size of the household (to adjust household income, to adjust for the under-representation of large households introduced by interviewing only one household member, and to take into account the number of people on whose behalf the respondent might potentially pay bribes). Conditioning on the variables determining the endogenous sampling ensures that coefficients are unbiased.[14] For probits I report marginal effects.

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[14] In a future version I will also always control for the affluence of the neighborhood. This does not affect the results (see below).

I then investigate how the determinants of bribes vary according to the recipient of the bribe by estimating multinomial logits with six categories: the first for no bribe paid, and the remaining five for bribes paid to the five types of official. I report odds ratios (exponentiated coefficients). For both probits and multinomial logits I report t-statistics, and the omitted category is no bribe paid.[15]

Probit Results

Bribes and individual characteristics

Tables 3a-c contain various specifications of a probit for the probability of having paid a bribe in the previous year: the coefficients are reported in three tables owing to the large number of covariates. The specification of column 1 contains no variables beyond those included in all regressions (described in the previous section), and all coefficients are reported in Table 3a. The first three rows show that the probability varies greatly by income: the bottom quartile's probability is six percentage points lower than that of the (omitted) top quartile, compared to an average probability of 11%. The second and third quartiles are rather similar, with a probability about four percentage points lower than that of the top quartile. The variation by city size is similarly large: inhabitants of the smallest towns are six percentage points less likely to bribe than those of the omitted category of cities of more than one million, and the gap declines as the city size increases.

In the subsequent columns I control for an increasing number of other covariates. In the specification of column 2 I add controls for car ownership, in column 3 I add controls for age, and in column 4 I add controls for motor cycle and bicycle ownership (the latter's insignificant coefficient is not reported), sex, education and labor force status. Table 3a shows the addition of

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[15] In the multinomial logits the coefficients on the dummies of three low-bribery countries are ill-conditioned for some categories, so I group them with a neighboring country.

these controls leaves the coefficients on the city size dummies unchanged. However, they cut the coefficients on income quartile more than in half.

Column 2 shows that bribery increases by 5-6 percentage points with each additional car owned (Table 3a). Since car ownership is positively correlated with income, these controls reduce the income coefficients. The addition of subsequent covariates reduces the effect of owning a car to 3-4 percentage points in column 4, however.

The addition of the age dummies in column 3 (see Table 3b) indicates that people in their twenties and thirties are most likely to bribe (the omitted age category is 25-29). Teenagers are four percentage points less likely to bribe than this group, presumably because their parents bribe on their behalf. The probability of bribery falls gradually after the peak age to reach a minimum for people in their seventies or older, who are seven percentage points less likely to bribe.

Column 4 shows that women are less likely to bribe than men, by four percentage points, and that each year of education increases the probability of bribery by 0.25 percentage points (Table 3b). The inclusion of each of these reduces the coefficients on income slightly. Ownership of a motorcycle or moped also increases bribery, by 2.7 percentage points, while labor force status has little effect: only the negative coefficient on being retired or disabled is significant, and its coefficient is small at 1.4 percentage points. The weakness of the labor force variables suggests that most bribes in the data set do not stem from business transactions.

The coefficients on income quartile and city size in column 4 (Table 3a) are consistent with the theory developed: small places have less bribery, consistent with the development of trust networks and exchanges of services, and while bribery increases with income, there is a middle range where bribery is not very sensitive to income, consistent with the importance of payments in services over middle ranges of income. Other forces probably also play some role,

since there may be fewer services available that are worth bribing for in small towns, for example.[16] Also, the regressions do not control for the number of contacts with public officials: rich people have higher demand for goods and services, which may simply expose them to more situations which may involve bribes.

The increase in bribery with education, while probably influenced by some of the same factors as in the income case, may also reflect the usefulness of contacts with influential people formed while studying with them, and a greater understanding of government and hence insight into how to manipulate the system. One could equally argue, however, that these contacts should allow an educated person to get services without resorting to bribery.

The results of column 4 also show that several other characteristics are more important than income in determining bribery. The importance of age could be related to trust: people in their twenties and thirties may not yet have developed the personal networks necessary to avoid paying bribes. Alternatively, there could be certain services one needs early in life that must be obtained with bribes, such as connection to electricity or telephone, a first driver's licence, a place at university, good grades at university, medical services for sick children, or paying oneself out of trouble with the police. This will be explored further in the multinomial logits.

Owning a car also has a larger effect on bribery than the difference between the top and bottom income quartile. There could be several reasons for this: a car requires a licence and usually inspections, it may give an impression of wealth that attracts bribe-takers, driving it leads one to commit certain infractions such as speeding and leaves one vulnerable to false allegations of such infractions. The effects of owning a motorcycle or moped may be similar, or could possibly indicate involvement in a motorcycle gang. Ownership of a vehicle could also be

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[16] It would be logical to test the interaction of city size and income, but the small town sample is too small to permit this.

endogenous: if one wishes to smuggle goods professionally, one needs to buy a car and bribe customs officials.[17]

The effect of being female is also larger than the income effect. Swamy et al. (2001) show that women disapprove of bribery more than men, and that female-run Georgian firms pay fewer bribes. They hypothesize that women may be more honest than men.[18] There are other possibilities, however. In some contexts it may be more effective for a woman to get a man to pay a bribe on her behalf, if his bargaining power is stronger.[19] Even at a given household income a woman may encounter fewer business situations where a bribe is required.[20] To the extent that some of the bribes occur in a criminal context, they are less likely to be paid by women. Finally, however, some part of the effect could be because women may have more opportunity than men to pay in sexual favors.

Bribes and Crime

The multinomial logits in the next section will shed more light on these various possibilities. First, however, I examine the link between bribery and crime. In column 5 of Tables 3a-c I add controls for whether the individual had been a victim of assault, burglary, larceny, robbery or consumer fraud in the previous year. These variables are strongly associated with the payment of bribes (their coefficients are reported in Table 3c). In particular, having been a victim of fraud raises the bribe probability by 6.5 percentage points. Robbery and assault raise the probability by about five percentage points, while burglary and larceny raise it by 2.4

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[17] I experimented with instrumenting car ownership with whether the respondent lived in a house or an apartment, to reflect parking availability, but the instrument was not sufficiently powerful.
[18] Other coefficients could also represent differences in attitudes to bribes across groups.
[19] Marital status is not available in all country-years, but in unreported regressions on a smaller sample, the coefficients on both having a spouse and its interaction with sex were insignificant.
[20] Swamy et al. (2001) make the similar point that business women may not have the contacts necessary to pay bribes. However, an unreported regression shows that the interaction of female and working is insignificant.

percentage points. Controlling for victimization reduces the coefficients on the city size dummies slightly, since larger cities have more crime.[21] This link itself is likely to be related to less personalized and trusting interactions between people in larger cities.[22]

One explanation for the victimization effects is that crime is exogenous, and victims have to bribe the officials they must deal with when reporting the crime. This can be tested by dividing the crimes according to whether the victim reported them to the police or not. In column 6 I provide two dummies for each crime category: whether the respondent had been a victim and had reported it or whether the respondent had been a victim and had not reported it. The results show that reporting the crime or not has little effect on its association with bribery, which rules out the proposed channel of causation. A different possibility is that victims perceive the rule of law or morality as being weak, which encourages them to bribe. Alternatively, victims may be more likely than non-victims to live in an environment with low one-sided trust in institutions and a lack of faith in the honesty of one's peers. This type of environment is conducive to both crime and bribery, but not with the trust networks necessary for quid pro quos, nor with honest service by public officials. Such an environment could correspond to a particular neighborhood, for example.

I have also included measures of crime at the regional level in the   probit regressions. With crime measured at the regional level, the coefficient can reflect the fact that crime can be associated with bribes paid by non-victims, possibly criminals (the channel between victims and bribes is captured by the victimization dummies). The (unreported) coefficients are always insignificant, however. This strategy will be more informative in the multinomial logit setting.

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[21] Glaeser and Sacerdote (1999).
[22] Wirth (1938) is merely one example of an early paper on this topic.

Multinomial Logit Results

Splitting bribery into several categories means that coefficients are less precisely estimated than in the probits, so that differences across categories in individual coefficients are not always significant. But the hypothesis that the coefficients (other than the country and year dummies) are the same for any pair of categories can be rejected in all regressions below.

Table 4 is the multinomial equivalent of column 1 in Table 3a.The effect of income on the relative probability of bribing each type of official, compared to not bribing, varies by type of official. For bribery of a government official in column 1, the main difference is between the top quartile and the rest: lower quartiles have about half the relative probability of bribing.[23] Bribery of the police and inspectors (columns 3 and 4) falls off more smoothly as income falls, while bribes to "other" officials (column 5) appear to be non-linear in income (although insignificantly so), and thus conform most closely to the theory developed. The biggest gap between the top and bottom quartiles is for bribery of customs officials (column 2) and inspectors (column 4): the bottom quartile has only 30% of the relative probability of bribing that the top quartile does.

The coefficients on city size in columns 1-5 indicate that the biggest differences between the largest and smaller cities are for bribery of police and customs officials (the relative probability of bribing in the smallest towns is only 27-28% of that of the omitted category). Although coefficients for the other categories are less precisely estimated, they indicate that the relative bribery probability in the smallest towns is only 40-50% of that of the omitted city size

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[23] When comparing magnitudes with the probits of Table 3, recall that this is half of the probability of bribing this particular type of official, a much lower probability than the overall probability of bribing.

for customs and "other", and 50-70% for government officials. It seems likely that the difference in city size effect across official types reflects differences in opportunities to bribe.[24]

In Table 5 I add controls for car ownership. As in the probit results in Tables 3a column 2, this scarcely affects the coefficients on the city size dummies, but reduces gaps by income. The largest change is the reduction in income gaps for the police category, while the smallest change is for the "other" category. This corresponds to the fact that the coefficient on single car ownership is largest for the police category (the relative probability is 2.4 times higher in column 3) and smallest for the "other" category (only 25% higher in column 5). However, multiple car ownership has the largest effect on the customs category (having three cars rather than none multiplies the relative bribery probability by six in column 2).[25] The significance of car ownership for all categories of official suggests that the variety of explanations for its effect proposed in the previous section are all operative, but that the increased interactions with the police is the most important channel.

Tables 6a-b are the multinomial equivalent of column 4 in Table 3. The additional demographic and labor force controls further reduce the income gaps for all official categories compared to Table 5, particularly the gap between the lowest and highest quartiles (Table 6a). The coefficients on the city size dummies change slightly, but following no clear pattern. The coefficients on car ownership are reduced somewhat, across the board. The age pattern is qualitatively similar across categories, but there are some differences of interest (Table 6b). The peak age range for bribing the police is 20-34, rather than 20-39, the police bribery prevalence for teenagers is not as low as for bribery of other officials, and the relative probability falls faster

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[24] Recall in this context that goods can often be cleared through customs in large cities not on the border.

[25] The car coefficients for police and customs are not significantly different from one another, but are significantly larger than for other types of official.

than for any other category, to only about 20% for individuals in their 60s and 70s. This differential age pattern, and the large gender gap for police bribes, is probably driven by the propensity to commit crimes or generally get in trouble with the police by age and sex. The age pattern for the "other" category has an interesting peak at age 30-34, which could be related to obtaining health care for children.

Education significantly increases bribery of government officials, customs and "other", but not of the police and inspectors (Table 6b). The most noteworthy of the labor force status coefficients are for "other": students and home-makers are particularly likely to make these bribes, and the gender differential is small for this category.

To summarize Tables 5 and 6, the patterns seen for the probits are generally reproduced for the individual categories in the multinomial logits. Differences by income and city size are larger for customs and police, reflecting the number of encounters that could lead to bribes, rather than the likely outcome of an encounter, conditional on its happening. Bribes paid to officials in the "other" category conform most closely to the theory developed in terms of the effects of city size and income, but clearly differ from the other categories in that they are paid by home-makers and students, with a strong peak in the age 30-34 range. This is consistent with these bribes being to officials in the education and health sectors.

Table 7 reports selected coefficients from the multinomial version of Table 3 column 5. With three exceptions, the coefficients on all victimization dummies have significantly positive effects on bribes in all official categories, and the similarity of the coefficients across columns, indicating rises in relative probability of 50-100% in most cases, is more striking than the differences. The similarity of the coefficients suggests that the victimization variables indeed

reflect individuals' living in situations of low trust, where crime rates and bribery of all types are high.

In Table 8 I examine the impact of certain regional-level variables whose values I compute from within the data set. The addition of these variables (to the specification of Table 7) changes the coefficients of the individual-level variables almost imperceptibly, and I therefore report only the coefficients on these regional variables. Each row in Table 8 reports results from a different regression. I begin by examining the impact of the share of people in the region who had been victims of the most common crimes, which can be reliably measured at the regional level: burglary, larceny and fraud. These prevalences have less significant coefficients when included together, which is why I introduce them separately.

The first three rows show that burglary and larceny are significantly positively associated with bribes to the police, as one would expect for crime generally, while more interestingly, fraud and larceny are associated with bribes to customs. This suggests that stolen and fraudulent goods are being moved across borders with the connivance of bribed customs officers. It is surprising that burglary is not also associated with customs bribes, but the prevalence of burglary is much lower, and the variable hence more affected by measurement error. The magnitude of the burglary coefficient for police implies that a one percentage point increase in prevalence increases the relative bribery probability by 8%.

These results suggest that campaigns to reduce corruption in the police and customs could be particularly beneficial. This would reduce crime, increasing trust in the community and thus reducing bribes to officials by non-criminals. Some of the reduction in bribery could take the form of an increase in quid pro quos, however, which may not be as great an improvement as a simple increase in honest transactions.

Since car ownership was such an important variable at the individual level, I investigate whether its regional variation plays a role in the fourth row of Table 8. In regions with more cars, bribes to inspectors are actually lower: a one percentage point increase in the share of people owning a car reduces bribes to inspectors by 3.4%. Regional car ownership plays no role for other types of bribes. By contrast, the share of people in a region owning motor cycles or mopeds is positively associated with bribes to government officials, customs officers and police. This hints at a possible criminal link between the two, yet the prevalence of motor cycles and the regional crime rates are only weakly correlated (if both are included, the coefficient on the motor cycle variation remains unchanged). It may rather capture something related to the density of the city's population.

Finally, since we know that rich countries have less bribery than poor countries, I hypothesized that rich regions within countries would have less bribery than poor regions. The sixth row indicates that this is true only for bribes to government officials.

Conclusions

In this paper I study the determinants of bribery through a theoretical lens considering the implications of trust networks. Trust networks would facilitate reciprocal exchanges of services between public officials on the one hand, and middle-income clients and clients living in smaller communities on the other. This would reduce bribery for these clients, and could, I show, render the relation between client income and bribery non-monotonic. The (typically unmeasured) quality or speed of public services remains proportional to income, however, and the effect on efficiency and honesty is ambiguous. I find empirical evidence consistent with the theory: the rich pay the most bribes and the poor the least, while in the middle range bribe-paying is somewhat insensitive to income. For bribes to officials predominantly in the health and

education sectors, I have weak evidence of non-monotonicity. Furthermore, people in smaller cities pay fewer bribes.

There are several characteristics, however, that affect bribe-paying more than the difference between being in the top and bottom income quartiles. A person's age is strongly related to his or her probability of paying a bribe: a person is most likely to pay a bribe in his or her twenties or thirties. This may also reflect the importance of trust, as individuals need time to build the acquaintance networks necessary for avoiding bribes via a quid pro quo. Women are much less likely to bribe than men, which could be in part because they can more easily offer sexual favors as payment for services. Car ownership has a strong positive effect on bribery, particularly of police, for reasons unrelated to trust. If indeed the reduction of bribes with age reflects an ability of older people of all incomes to obtain services through a quid pro quo, the direct exclusion of the poor from corrupt public services is of only moderate concern over the life-cycle.

I also present evidence that victims of crime are more likely to bribe all types of official, which explains part of the city-size effect. I show this is not because crime causes victims to have more contact with public officials. Crime may cause a breakdown in trust, or vice-versa, which leads to an environment conducive to bribes rather than honesty or reciprocal exchange of services. Measured at the regional level, and thus reflecting the effects of bribes paid by non-victims, probably criminals, crime increases bribes to the police and customs. The crime results suggest that reducing corruption in the police and customs, and thus reducing crime, could be the best way to attempt to rebuild an atmosphere of trust, which would bring about less bribery by non-criminals.

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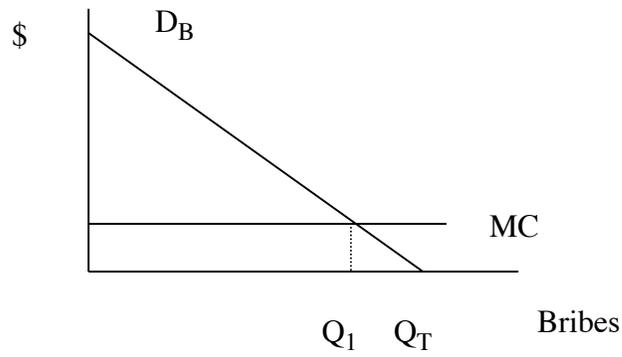
Figure 1: Perfectly Discriminating Monopolist
Cash Bribes Only
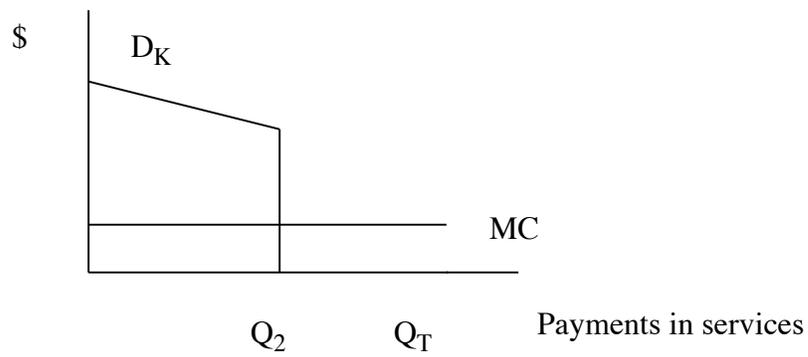
Figure 2: Perfectly Discriminating Monopolist
Payments in Services Only
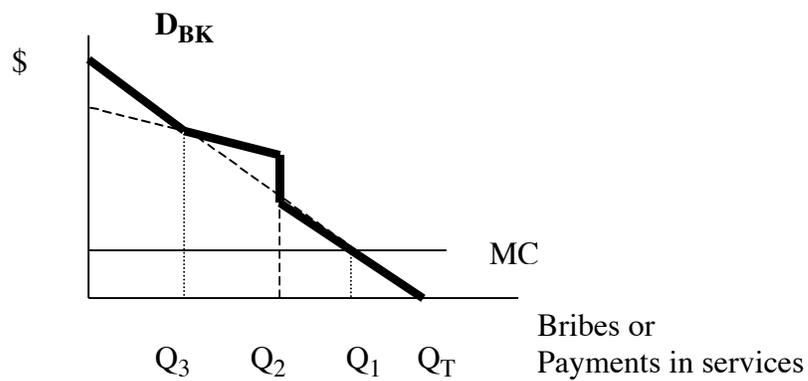
Figure 3: Perfectly Discriminating Monopolist
Bribes or Payments in Services

Table 1: Extent of Bribery of Public Officials

Bribe paid?			Type of official to whom bribe paid		
No	89%	38,855	--	--	--
Yes	11%	4897	Government official	26%	1257
			Customs official	13%	613
			Police officer	35%	1696
			Inspector	12%	606
			Other	15%	725
	100%	43,752		100%	4897

Table 2a: Means of Main Individual Variables

	Full sample	Bribe=no	Bribe=yes
Bribed official?	0.11	0	1
Top inc quartile?	0.22	0.20	0.35
2nd inc quartile?	0.18	0.18	0.18
3rd inc quartile?	0.25	0.26	0.22
Bottom inc quartile?	0.24	0.26	0.14
Income missing?	0.10	0.10	0.11
City <10,000	0.15	0.16	0.04
City 10-50,000	0.07	0.08	0.04
City 50-100,000	0.06	0.06	0.04
City 100-500,000	0.26	0.26	0.25
City 500-1,000,000	0.15	0.15	0.16
City 1,000,000+	0.28	0.27	0.39
City size missing?	0.03	0.03	0.08
Own one car?	0.36	0.35	0.41
Own two cars?	0.08	0.08	0.14
Own three+ cars?	0.02	0.02	0.05
Own motorcyle or moped?	0.11	0.11	0.18
Own bike?	0.53	0.52	0.57
Age 16-19	0.06	0.06	0.04
Age 20-24	0.11	0.10	0.15
Age 25-29	0.11	0.11	0.16
Age 30-34	0.11	0.10	0.16
Age 35-39	0.11	0.11	0.14
Age 40-44	0.10	0.10	0.10
Age 45-49	0.09	0.09	0.09
Age 50-54	0.07	0.07	0.06
Age 55-59	0.06	0.07	0.04
Age 60-64	0.05	0.06	0.02
Age 65-69	0.05	0.06	0.02
Age 70+	0.08	0.08	0.01
Sex (female=1)	0.55	0.57	0.40
Education (years)	10.7 (4.7)	10.5 (4.6)	11.8 (4.8)
Education missing?	0.08	0.08	0.07
Working	0.48	0.47	0.61
Looking for work	0.10	0.10	0.10
Keeping house	0.11	0.11	0.09
Retired/disabled	0.21	0.22	0.06
Student	0.09	0.08	0.11
Other	0.02	0.02	0.03
Observations	43752	38855	4897

Notes: Standard deviations are in parentheses.

Table 2b: Means of Victimization, Regional and Other Variables

	Full sample	Bribe=no	Bribe=yes
Assaulted?	0.04	0.04	0.08
Burgled?	0.07	0.07	0.11
Victim of larceny?	0.18	0.16	0.28
Robbed?	0.03	0.02	0.05
Defrauded?	0.29	0.26	0.50
Regional fraud prevalence	0.29	0.28	0.36
	(0.18)	(0.18)	(0.19)
Regional larceny prevalence	0.18	0.18	0.20
	(0.07)	(0.07)	(0.08)
Regional burglary prevalence	0.07	0.07	0.08
	(0.04)	(0.04)	(0.05)
Regional mean of car ownership	0.47	0.47	0.45
	(0.17)	(0.17)	(0.16)
Regional mean of motor cycle ownership	0.12	0.11	0.14
	(0.11)	(0.10)	(0.15)
Regional mean share in top income quartile	0.21	0.21	0.23
	(0.13)	0.13)	(0.14)
Household size=1	0.09	0.10	0.05
Household size=2	0.19	0.20	0.13
Household size=3	0.20	0.20	0.22
Household size=4	0.24	0.23	0.27
Household size=5	0.14	0.13	0.16
Household size=6+	0.15	0.14	0.17
Ex-communist country?	0.65	0.67	0.51
Latin American country?	0.12	0.11	0.20
Other developing country?	0.23	0.23	0.29
Year=1991	0.04	0.04	0.02
Year=1994	0.02	0.03	0.01
Year=1995	0.61	0.60	0.72
Year=1996	0.21	0.21	0.20
Year=1999	0.12	0.13	0.05
Observations	43752	38855	4897

Notes: Standard deviations are in parentheses. The prevalence of a crime is the share of respondents who were a victim in the previous calendar year.

Table 3a: Probits for determinants of paying bribe –
coefficients on income, city size and car ownership

	(1)	(2)	(3)	(4)	(5)	(6)
2nd quartile income	-0.039 (-7.1)	-0.025 (-4.7)	-0.022 (-4.7)	-0.017 (-3.6)	-0.017 (-3.8)	-0.017 (-3.8)
3rd quartile income	-0.044 (-7.3)	-0.029 (-6.7)	-0.026 (-6.1)	-0.020 (-5.2)	-0.019 (-5.1)	-0.019 (-5.1)
4th quartile income	-0.061 (-8.1)	-0.042 (-6.1)	-0.035 (-5.9)	-0.027 (-4.8)	-0.025 (-4.7)	-0.025 (-4.7)
City <10,000	-0.058 (-4.5)	-0.058 (-4.5)	-0.056 (-4.5)	-0.056 (-4.7)	-0.043 (-3.9)	-0.043 (-3.9)
City 10-50,000	-0.042 (-3.4)	-0.040 (-3.3)	-0.041 (-3.5)	-0.042 (-3.8)	-0.032 (-3.1)	-0.032 (-3.1)
City 50-100,000	-0.039 (-2.8)	-0.036 (-2.5)	-0.036 (-2.7)	-0.036 (-2.8)	-0.025 (-2.2)	-0.025 (-2.2)
City 100-500,000	-0.033 (-2.2)	-0.030 (-2.1)	-0.032 (-2.3)	-0.031 (-2.3)	-0.022 (-1.8)	-0.022 (-1.8)
City 500-1,000,000	-0.023 (-1.5)	-0.020 (-1.4)	-0.019 (-1.3)	-0.019 (-1.4)	-0.014 (-1.1)	-0.014 (-1.1)
Own one car?	--	0.050 (9.1)	0.043 (8.2)	0.034 (6.1)	0.030 (5.8)	0.031 (5.8)
Own two cars?	--	0.111 (13.4)	0.100 (13.3)	0.080 (10.8)	0.071 (10.3)	0.072 (10.2)
Own three or more cars?	--	0.177 (12.1)	0.160 (12.1)	0.127 (9.8)	0.111 (8.9)	0.112 (8.9)
Age dummies?	No	No	Yes	Yes	Yes	Yes
Sex, education, motor cycle, labor force status?	No	No	No	Yes	Yes	Yes
Victimization dummies?	No	No	No	No	Five	Ten
R^2	0.10	0.12	0.14	0.15	0.18	0.18

Notes: Marginal effects of probits, 43,752 observations. T-statistics are reported in parentheses, adjusted for correlation within regions of countries. All regressions include year dummies, household size dummies, country dummies, and missing city size and income quartile dummies. Regressions in columns 4-6 include a dummy for missing education, a dummy for bicycle ownership, and a dummy for the "other" labor force category. Coefficients on age, sex, education, motorcycle ownership and labor force status are reported in Table 3b. Coefficients on victimization variables are reported in Table 3c.

Table 3b: Probits for determinants of paying bribe –
coefficients on age, sex, education, motorcycle ownership and labor force status

	(3)	(4)	(5)	(6)
Age 16-19	**-0.043**	**-0.039**	**-0.037**	**-0.037**
	(-7.7)	**(-6.2)**	**(-6.4)**	**(-6.4)**
Age 20-24	-0.006	-0.006	-0.006	-0.006
	(-1.3)	(-1.2)	(-1.3)	(-1.4)
Age 30-34	0.007	0.007	0.006	0.007
	(1.3)	(1.4)	(1.4)	(1.4)
Age 35-39	-0.007	-0.007	-0.007	-0.007
	(-1.2)	(-1.3)	(-1.4)	(-1.4)
Age 40-44	**-0.025**	**-0.024**	**-0.023**	**-0.023**
	(-3.6)	**(-3.9)**	**(-3.8)**	**(-3.8)**
Age 45-49	**-0.024**	**-0.023**	**-0.020**	**-0.020**
	(-3.8)	**(-3.8)**	**(-3.7)**	**(-3.7)**
Age 50-54	**-0.033**	**-0.031**	**-0.028**	**-0.028**
	(-4.9)	**(-4.6)**	**(-4.4)**	**(-4.4)**
Age 55-59	**-0.047**	**-0.044**	**-0.040**	**-0.040**
	(-8.1)	**(-7.7)**	**(-7.4)**	**(-7.3)**
Age 60-64	**-0.056**	**-0.050**	**-0.046**	**-0.046**
	(-7.0)	**(-6.1)**	**(-5.9)**	**(-6.0)**
Age 65-69	**-0.063**	**-0.055**	**-0.049**	**-0.049**
	(-9.2)	**(-6.6)**	**(-6.0)**	**(-6.0)**
Age 70+	**-0.074**	**-0.065**	**-0.059**	**-0.059**
	(-11.5)	**(-8.2)**	**(-7.6)**	**(-7.6)**
Sex	--	**-0.044**	**-0.045**	**-0.045**
		(-13.2)	**(-14.5)**	**(-14.5)**
Education (years)	--	**0.0025**	**0.0018**	**0.0019**
		(3.2)	**(2.5)**	**(2.6)**
Own motorcycle or moped?	--	**0.027**	**0.023**	**0.023**
		(4.9)	**(4.8)**	**(4.8)**
Looking for work	--	-0.002	-0.002	-0.002
		(-0.3)	(-0.3)	(-0.3)
Keeping House	--	-0.011	-0.010	-0.010
		(-1.7)	(-1.6)	(-1.6)
Retired/ Disabled	--	**-0.014**	**-0.014**	**-0.014**
		(-2.3)	**(-2.5)**	**(-2.5)**
Student	--	-0.003	-0.003	-0.003
		(-0.4)	(-0.5)	(-0.5)
Income, city size,car ownership?	Yes	Yes	Yes	Yes
Victimization dummies?	No	No	Five	Ten
R^2	0.14	0.15	0.18	0.18

Notes: See Table 3a. Coefficients on income, city size and car ownership are reported in Table 3a. Coefficients on victimization variables are reported in Table 3c.

Table 3c: Probits for determinants of paying bribes – victimization coefficients

	(5)	(6)
Assaulted?	**0.056** **(8.3)**	--
Assaulted-reported to police?	---	**0.057** **(4.6)**
Assaulted-unreported?	--	**0.056** **(7.7)**
Burgled?	**0.024** **(4.5)**	--
Burgled-reported to police?	--	**0.023** **(3.8)**
Burgled-unreported?	--	**0.025** **(3.6)**
Larceny victim?	**0.024** **(7.7)**	--
Larceny-reported to police?	--	**0.019** **(2.5)**
Larceny-unreported?	--	**0.027** **(6.5)**
Robbed?	**0.048** **(6.3)**	--
Robbed-reported to police?	--	**0.049** **(3.9)**
Robbed-unreported?	--	**0.048** **(5.8)**
Defrauded?	**0.065** **(14.3)**	--
Defrauded-reported to police	--	**0.076** **(5.4)**
Defrauded-unreported?	--	**0.065** **(14.1)**
R^2	0.18	0.18

Notes: See Table 3a. Coefficients on income, city size and car ownership are reported in Table 3a columns 5 and 6. Coefficients on age, sex, education, motorcycle ownership and labor force status are reported in Table 3b columns 5 and 6.

Table 4: Effects of Income, City Size and Car Ownership
on Different Types of Bribe

	(1)	(2)	(3)	(4)	(5)
	Gov official	Customs	Police	Inspector	Other
2nd quartile income	**0.53**	**0.58**	**0.65**	**0.71**	**0.60**
	(-5.3)	**(-4.2)**	**(-3.8)**	**(-3.2)**	**(-4.3)**
3rd quartile income	**0.53**	**0.50**	**0.55**	**0.59**	0.81
	(-5.3)	**(-5.0)**	**(-5.0)**	**(-4.1)**	(-1.4)
4th quartile income	**0.46**	**0.29**	**0.46**	**0.33**	**0.65**
	(-5.1)	**(-5.8)**	**(-6.3)**	**(-5.4)**	**(-2.7)**
City <10,000	0.69	**0.27**	**0.28**	**0.47**	0.44
	(-1.5)	**(-3.1)**	**(-4.5)**	**(-2.3)**	(-1.6)
City 10-50,000	**0.55**	0.59	**0.43**	0.76	0.65
	(-2.2)	(-1.3)	**(-3.8)**	(-1.1)	(-0.9)
City 50-100,000	0.87	**0.41**	**0.41**	0.77	0.71
	(-0.6)	**(-2.0)**	**(-3.7)**	(-0.7)	(-0.7)
City 100-500,000	0.92	0.52	**0.58**	0.81	0.70
	(-0.4)	(-1.8)	**(-2.3)**	(-0.8)	(-0.7)
City 500-1,000,000	0.86	0.50	0.66	0.87	1.26
	(-0.6)	(-1.6)	(-1.6)	(-0.5)	(0.5)

Notes: Multinomial logit odds ratios, 43,752 observations, $R^2=0.11$. T-statistics are reported in parentheses, adjusted for correlation within regions of countries. Unreported controls are year dummies, household size dummies, country dummies and missing city size and income quartile dummies. The coefficients on Indonesia (for Inspector) and Brazil (for Other) are constrained to be zero.

Table 5: Effects of Income, City Size and Car Ownership on Different Types of Bribe

	(1)	(2)	(3)	(4)	(5)
	Gov official	Customs	Police	Inspector	Other
2nd quartile income	**0.62**	**0.75**	0.83	0.85	**0.66**
	(-3.7)	**(-2.3)**	(-1.8)	(-1.4)	**(-3.5)**
3rd quartile income	**0.63**	**0.63**	**0.68**	**0.70**	0.89
	(-3.9)	**(-3.6)**	**(-4.8)**	**(-3.2)**	(-0.9)
4th quartile income	**0.57**	**0.42**	**0.63**	**0.42**	0.74
	(-3.5)	**(-4.5)**	**(-4.6)**	**(-4.3)**	(-1.9)
City <10,000	0.68	**0.26**	**0.28**	**0.46**	0.44
	(-1.6)	**(-3.1)**	**(-4.5)**	**(-2.3)**	(-1.6)
City 10-50,000	**0.57**	0.61	**0.45**	0.78	0.67
	(-2.2)	(-1.2)	**(-3.6)**	(-1.1)	(-0.9)
City 50-100,000	0.92	0.44	**0.43**	0.78	0.74
	(-0.4)	(-1.8)	**(-3.5)**	(-0.6)	(-0.6)
City 100-500,000	0.94	0.55	**0.60**	0.83	0.72
	(-0.3)	(-1.6)	**(-2.2)**	(-0.7)	(-0.6)
City 500-1,000,000	0.90	0.54	0.67	0.89	1.30
	(-0.4)	(-1.4)	(-1.5)	(-0.4)	(0.5)
One car	**1.46**	**2.18**	**2.37**	**1.65**	**1.25**
	(3.5)	**(7.8)**	**(9.6)**	**(3.4)**	**(2.0)**
Two cars	**2.50**	**3.73**	**3.36**	**2.34**	**1.72**
	(5.5)	**(9.2)**	**(9.6)**	**(5.9)**	**(3.5)**
Three or more cars	**2.91**	**6.1**	**4.39**	**3.67**	**3.25**
	(4.6)	**(8.4)**	**(7.1)**	**(5.6)**	**(3.3)**

Notes: Multinomial logit odds ratios, 43,752 observations, R^2=0.13. T-statistics are reported in parentheses, adjusted for correlation within regions of countries. Unreported controls are year dummies, household size dummies, country dummies and missing city size and income quartile dummies. The coefficients on Indonesia (for Inspector) and Brazil (for Other) are constrained to be zero.

Table 6a: Determinants of Other Individual Characteristics on Different Bribe Types

	(1)	(2)	(3)	(4)	(5)
	Gov official	Customs	Police	Inspector	Other
2nd quartile income	**0.67**	0.82	0.88	0.92	**0.75**
	(-3.2)	(-1.6)	(-1.3)	(-0.7)	**(-2.5)**
3rd quartile income	**0.70**	**0.70**	**0.74**	**0.80**	0.97
	(-2.7)	**(-2.8)**	**(-4.1)**	**(-2.1)**	(-0.3)
4th quartile income	**0.69**	**0.52**	**0.73**	**0.53**	0.88
	(-2.4)	**(-3.8)**	**(-3.5)**	**(-3.2)**	(-0.8)
City <10,000	**0.61**	**0.24**	**0.22**	**0.36**	0.46
	(-2.1)	**(-3.2)**	**(-4.9)**	**(-3.0)**	(-1.6)
City 10-50,000	**0.52**	0.54	**0.36**	0.63	0.63
	(-2.5)	(-1.4)	**(-4.3)**	(-1.9)	(-1.0)
City 50-100,000	0.91	**0.40**	**0.36**	0.68	0.70
	(-0.4)	**(-2.0)**	**(-3.8)**	(-0.9)	(-0.7)
City 100-500,000	0.88	0.52	**0.51**	0.73	0.70
	(-0.6)	(-1.7)	**(-2.7)**	(-1.1)	(-0.7)
City 500-1,000,000	0.89	0.52	0.63	0.80	1.21
	(-0.5)	(-1.4)	(-1.7)	(-0.8)	(0.4)
Own one car?	**1.28**	**1.88**	**2.20**	**1.50**	1.00
	(2.1)	**(5.7)**	**(8.0)**	**(2.7)**	(0.0)
Own two cars?	**2.12**	**2.98**	**3.04**	**2.07**	1.28
	(4.6)	**(7.4)**	**(9.9)**	**(4.9)**	(1.6)
Own three or more cars?	**2.43**	**4.56**	**3.74**	**2.99**	**2.23**
	(3.7)	**(6.5)**	**(7.1)**	**(4.7)**	**(2.4)**

Notes: Multinomial logit odds ratios, 43,752 observations, R^2=0.16. T-statistics are reported in parentheses, adjusted for correlation within regions of countries. Coefficients on age, sex, education and labor force status are reported in Table 6b. Unreported controls are year dummies, household size dummies, country dummies, a bicycle ownership dummy, a dummy for the "other" labor force category, missing education, missing city size and missing income quartile dummies. The coefficients on Indonesia (for Inspector) and Brazil (for Other) are constrained to be zero.

Table 6b: Determinants of Other Individual Characteristics on Different Bribe Types

	(1) Gov official	(2) Customs	(3) Police	(4) Inspector	(5) Other
Age 16-19	**0.45** **(-3.7)**	**0.35** **(-4.1)**	**0.62** **(-3.1)**	**0.42** **(-3.0)**	0.65 (-1.9)
Age 20-24	**0.74** **(-2.5)**	0.93 (-0.5)	1.03 (0.4)	0.91 (-0.4)	0.99 (0.1)
Age 30-34	1.11 (0.8)	1.12 (0.7)	1.00 (0.0)	0.87 (-0.9)	**1.61** **(4.1)**
Age 35-39	0.93 (-0.4)	0.99 (-0.1)	**0.81** **(-2.3)**	0.89 (-0.7)	1.2 (0.8)
Age 40-44	0.76 (-1.7)	**0.70** **(-2.1)**	**0.67** **(-3.3)**	**0.70** **(-2.4)**	**0.76** **(-2.2)**
Age 45-49	0.78 (-1.7)	0.66 (-1.7)	**0.65** **(-3.1)**	0.73 (-1.8)	0.87 (-0.7)
Age 50-54	**0.68** **(-2.1)**	0.70 (-1.4)	**0.50** **(-4.7)**	**0.55** **(-3.2)**	0.76 (-1.4)
Age 55-59	**0.51** **(-3.4)**	**0.52** **(-2.3)**	**0.35** **(-7.9)**	**0.48** **(-4.0)**	0.70 (-1.6)
Age 60-64	**0.43** **(-3.5)**	0.50 (-1.5)	**0.18** **(-6.6)**	**0.32** **(-2.3)**	0.80 (-0.9)
Age 65-69	**0.41** **(-3.7)**	**0.15** **(-3.1)**	**0.18** **(-6.0)**	**0.48** **(-2.1)**	**0.47** **(-2.5)**
Age 70+	**0.26** **(-4.9)**	**0.14** **(-3.0)**	**0.22** **(-5.6)**	**0.28** **(-2.7)**	**0.19** **(-4.3)**
Sex	**0.71** **(-4.4)**	**0.61** **(-5.2)**	**0.38** **(-11.0)**	**0.44** **(-7.5)**	0.85 (-1.7)
Education	**1.04** **(2.3)**	**1.04** **(2.1)**	1.01 (0.5)	1.01 (0.2)	**1.10** **(5.5)**
Own motorcycle or moped?	**1.36** **(4.5)**	**1.36** **(2.5)**	1.30 (1.9)	**1.60** **(4.4)**	1.28 (1.9)
Looking for work	0.80 (-1.6)	0.96 (-0.2)	1.14 (1.7)	0.75 (-1.7)	1.12 (0.8)
Keeping House	**0.74** **(-2.1)**	0.91 (-0.5)	0.97 (-0.3)	**0.59** **(-2.1)**	**1.36** **(2.4)**
Retired/ Disabled	0.78 (-1.5)	0.74 (-0.9)	**0.64** **(-2.9)**	0.68 (-1.3)	1.16 (0.9)
Student	0.74 (-1.9)	1.22 (1.1)	0.86 (-1.3)	0.74 (-1.3)	**1.60** **(2.7)**

Notes: See Table 6a. Coefficients on income, city size and car ownership are reported in Table 6a.

Table 7: Effect of Individual Victimization on Different Types of Bribe

	(1)	(2)	(3)	(4)	(5)
	Gov official	Customs	Police	Inspector	Other
Assaulted?	**2.02**	**2.06**	**1.66**	**1.81**	**1.79**
	(5.7)	**(5.0)**	**(4.6)**	**(4.0)**	**(3.5)**
Burgled?	**1.47**	**1.50**	**1.29**	1.17	**1.34**
	(3.6)	**(3.5)**	**(2.0)**	(1.1)	**(2.1)**
Victim of	**1.23**	**1.40**	**1.47**	**1.48**	**1.27**
larceny?	**(3.1)**	**(4.1)**	**(5.8)**	**(3.8)**	**(2.7)**
Robbed?	**1.49**	**2.52**	**1.89**	1.33	1.22
	(2.3)	**(5.6)**	**(5.7)**	(1.2)	(0.9)
Defrauded?	**2.35**	**2.14**	**2.02**	**2.18**	**2.43**
	(8.9)	**(7.7)**	**(8.9)**	**(6.9)**	**(6.6)**

Notes: Multinomial logit odds ratios, 43,752 observations, R^2=0.18. T-statistics are reported in parentheses, adjusted for correlation within regions of countries. All covariates of Table 6 are also included. The coefficients on Indonesia (for Inspector) and Brazil (for Other) are constrained to be zero.

Table 8: Effect of Regional Crime Prevalence on Different Types of Bribe.

	(1) Gov official	(2) Customs	(3) Police	(4) Inspector	(5) Other
Burglary prevalence	0.006	6.2	**2404**	2.68	0.03
	(-1.8)	(0.5)	**(3.1)**	(0.3)	(-0.9)
Larceny prevalence	1.38	**59.7**	**84.0**	0.63	0.56
	(0.2)	**(2.3)**	**(2.7)**	(-0.2)	(-0.3)
Fraud prevalence	**7.55**	**8.5**	4.08	0.19	0.96
	(2.0)	**(2.2)**	(1.6)	(-1.2)	(-0.0)
Car ownership	0.35	9.71	1.07	**0.03**	2.61
	(-0.9)	(1.3)	(0.1)	**(-2.0)**	(0.7)
Motor cycle or moped ownership	**36.7**	**58.1**	**7.04**	0.18	3.68
	(3.6)	**(2.7)**	**(2.5)**	(-1.2)	(0.9)
Top income quartile share	**0.06**	0.35	0.78	0.27	0.44
	(-2.8)	(-0.9)	(-0.2)	(-0.8)	(-0.6)

Notes: Each row represents odds ratios from a different multinomial logit regression with 43,752 observations. T-statistics are reported in parentheses, adjusted for correlation within regions of countries. All covariates of Table 7 are also included. The coefficients on Indonesia (for Inspector) and Brazil (for Other) are constrained to be zero.

Appendix: Countries in Sample

Baltic

Estonia, Latvia, Lithuania.

Central and Eastern Europe

Czech Republic, Hungary, Poland, Slovakia.

Balkans

Albania, Bulgaria, Croatia, Macedonia, Romania, Slovenia, Yugoslavia.

Commonwealth of Independent States

Belarus, Georgia, Kyrgyzstan, Russia, Ukraine.

Latin America

Argentina, Bolivia, Brazil, Colombia, Costa Rica, Paraguay.

Africa

Botswana, South Africa, Uganda, Zimbabwe.

Asia

India, Indonesia, Mongolia, Philippines.