The Power of Negative Thinking: Corruption Perception and Willingness to Bribe in Ukraine

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Abstract

This paper provides an empirical analysis of the association between corruption perception and the willingness to offer bribes, as well as of the influence of different sources of information on corruption perception in the Ukraine. The higher the perceived corruption in an organization, the more probable it is that a person dealing with that organization will offer a bribe, therefore supporting corruption. Since corruption perceptions are rarely based on actual experience, they might describe reality inadequately. In such a case the sources of corruption perception might facilitate or diminish the actual corruption level.

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1. Introduction

Many factors that facilitate corruption are discussed in the economic literature. Scholars often cite the lack of adequate legislation, poor law enforcement, cultural prerequisites, the lack of incentive for the government to fight corruption, low wages for state officials, etc. (see Mauro, 1996, Tanzi, 1998, Rose-Ackerman 1997, Hofstede, 1991, Andvig, 1991) as causes of corruption. One factor that is often either forgotten or not clearly articulated, however, is the perception of corruption and the ways in which it may significantly influence corruption itself.

Corruption perceptions are very complex phenomena that, depending on the circumstances, may act to either reinforce or reduce corruption. For example, high corruption perception can increase corruption by encouraging people to believe that they must pay bribes, and by enticing officials to think that there is nothing wrong with accepting bribes. The problems escalate as, perceiving that many people pay bribes, customers become much less sure a matter can be settled without a bribe, and much surer that a bribe will be accepted. Believing that everybody takes bribes, officials lose the fear of being punished for receiving them. If everyone believes everyone else is corrupt, corruption becomes a part of the culture.

On the other hand, there are situations in which corruption perception can diminish corruption. In countries with strong law enforcement, corruption perception can put public pressure on law enforcement to fight corruption, eventually limiting it. This scenario is contingent on several factors, however. The first is the availability of sufficient resources to fight corruption. If corruption is already widespread, it may be very difficult for the police to find resources to investigate every corrupt act. A second factor is the real, as opposed to apparent willingness of law enforcement to actually fight corruption. If corruption becomes ingrained in a society it is very difficult to root it out, even if the best legislation is in place and people perceive corruption to be a serious problem.

In this paper, we postulate an operational definition of corruption perception as the product of information sources about corruption, keeping in mind that they may or may not describe the actual level of corruption adequately or accurately. To study the interactions of these sources we provide an econometric analysis of the influence of information sources about corruption on corruption perception, and the associations between these perceptions and the willingness to give bribes using data on Ukraine.

We are interested in looking at four questions:

(1) Is the willingness to give bribes associated with corruption perception?

(2) Is the government an important player in the anti-corruption game, and is the government's perceived willingness to fight corruption associated with the willingness of the population to offer bribes?

(3) Is the corruption perception of the general public tied to reality, and does it hinge on the frequency of visits to the particular institution?

(4) Do the mass media have the power to influence the corruption perception of the population?

This paper is organized as follows. The next section presents the equations to be estimated. The third section describes the data collected in a survey by the Kiev International Institute of Sociology in 1998, and the details of the transformation/grouping we made. The fourth section discusses the method of estimation, its limitations and results. The last section presents conclusions.

2. Modelling Bribery and Corruption Perception

The two equations to be formulated and estimated are the corruption–perception and the willingness–to–give–bribe equation. Obviously, one cannot ignore their simultaneity. Once having paid a bribe, a customer will be even more convinced that officials are corrupt. Similarly, once having accepted a bribe, officials are more certain than before that the organization is corrupt. Corruption perceptions, thus, are a product of corruption itself, although there are other influences. Both of the left-hand side variables in the equations we present are perception variables.

There is, however, another type of perception in this system: the perceived willingness of the government to fight corruption. One could argue that it is necessary to model this perception as well, and include it as a third equation in the system. Indeed, the perceived willingness of the government to fight corruption affects the perceived willingness to pay a bribe. The more a government is willing to fight corruption, the less people are willing to pay bribes. On the other hand, the willingness to pay bribes may influence the perceived willingness of the government to fight corruption, and so forth. We decided not to model the perceived willingness of the government to fight corruption in a separate equation for one reason: nearly two thirds of respondents (63 per cent) believe that the government does nothing to fight corruption, while only 8 per cent believe otherwise. Even if perceived willingness of the government to fight corruption is a determinant of corruption, the variation in our data would not allow us to uncover this effect.

People learn about corruption from different sources. Although one of the most reliable is from their personal experience of corruption, however, actual contacts between officials and the public are quite rare. The vast majority of people hear about corruption through the mass media and by talking with the other people. (See Table 1 for the proportion of respondents using different sources of information about corruption.) The information gained in these

ways may be subjective, incomplete, or politically biased. For example, journalists looking for a big story or being paid by politicians may tend to exaggerate stories about corruption, and, publishers may choose to publish proportionately more articles on corruption than the phenomenon deserves. Or on the other hand, for fear of punishment for uncovering real acts of corruption, the mass media may censor itself. Similarly, information about corruption conveyed by friends or strangers is also subjective.

2.1. Willingness–to–give–bribe equation

We estimate the following relationship:

$$B = f_1(C_i, I, T, O, A, G) + e_1 \qquad (1)$$

where

B is the perceived necessity to pay a bribe; C_i is corruption perception in institution i (higher C_i is expected to lead to higher B, for the list of institutions see table 2); I is the perceived inactiveness of the government in fighting corruption (higher I is expected to lead to lower B); T is the size of the respondent's town of residence (greater T is expected to lead to greater B); O are occupational dummies (the effect on B depends on occupations); A is the respondent's age (the expected sign of the relationship with B is generally unclear); G is the respondent's gender (the expected sign is unclear).

B is a categorical variable varying from one to five. Age is continuous. The rest of variables are dummies.

The perceived probability that a bribe is accepted by a certain institution may be well represented by how corrupt the institution is perceived to be.[2] If one perceives an institution to

[2] Here we leave out the problem of facing one official many times and deriving the relevant corruption perception from the interactions with a particular official rather than the whole institution. The data allow us to do so since the number of visits to the institutions in question is often rather small, and thus the probability that the respondents would rely on their experience with one particular official is small as well.

be very corrupt, one is much more prepared to give a bribe for any procedure, and expect that the bribe will be accepted. We use corruption perception as a proxy for the perceived probability that the bribe would be required or accepted. The decision of whether to give bribes depends on the expected benefits from the bribery net of possible losses[3].

The benefits from corruption are different in nature as well as extent for different institutions. The benefits from corruption in, for example, tax inspection, are completely different from those at schools or medical establishments. Sometimes, it is impossible to find a monetary approximation of some benefits such as additional doctor care, which may save the patient's life. In order to address this nonhomogeneity of benefits, we conduct an analysis for different institutions separately rather than aggregating the data across institutions.

Two types of perceived punishment are possible if the bribe is not accepted: legislative and social. Legislative punishment, weighted by the probability that the punishment is implemented, is proxied by the perceived inaction of the government in fighting corruption[4]. Social punishment represents the possible resentment of neighbors toward corrupt behavior. This depends substantially on whether corruption is perceived by the population to be an evil, but also on the particular subculture present in the population group (see the peasant example below). In any case, a major prerequisite for social punishment is the extent to which people in a community know each other. In a big city, where people do not know each other very well, social punishment is virtually impossible: one does not care about the antipathy of strangers. Thus, the expected punishment is proxied by both the perceived willingness of the government to fight corruption and, partially, by the size of the town in which the respondent lives.

[3] We abstract here from the losses of effort employed when offering bribes.
[4] Note that the question in the questionnaire about the willingness of the government to fight corruption is formulated in a way that addresses the actual deeds of the government rather than legislative acts that are never enforced.

Hence, in estimating the willingness to give bribe equation we control for the individual characteristics of respondents, namely age, gender, occupation, and the size of the respondent's town of residence.[5].

Occupation influences the respondent's cultural environment and his/her attitude toward corruption. Take, for example, peasants. It is well established in anthropology literature that peasants usually have their own culture, which distinguishes them from people in other occupations. According to Harrison (1985), peasants are usually people who believe that everything in this world exists in finite/limited quantities: the land they work cannot be increased, nor can they collect more than a certain amount of harvest per year. The only way they can make themselves better off is to grab a bigger piece of the social pie. One can argue that possessing such beliefs, peasants perceive the corruption of state officials as an opportunity to get more of the pie.

Occupation may also be connected to the profitability of corruption, and the frequency of facing it, which in turn affects the willingness to give bribes. Businessmen are the people for whom bribery is likely to be the most profitable, and, not surprisingly, are much more likely than other members of population to give bribes. They also have to communicate with state officials much more often than the rest of the population and usually have limited time to solve problems. Businessmen are also the people for whom bribery is the most profitable.

It makes a great difference for businessman, however, if a bribe is given in a small town for the monopolistic position in the local market or a bribe is offered to a state official in a big city for a substantial share of the national market.

2.2 Corruption–Perception Equation

We estimate the following equation:

[5] One can argue that the education of the respondents should be included, too. On the other hand, since the impact of education is already partially included through age and occupation of the respondents, we decided to

$$C_i = f_2 (F_i, S, T, O, A, G) + e_2 \quad (2)$$

where

C_i is corruption perception in institution I (for the list of institutions see table 2); F_i is the frequency of contacts with the institution i (the expected sign of the relationship of F_i and C_i is unclear); S are the sources of information about corruption (the expected sign of relationship of S and C_i is unclear, for the list of sources of information see table 1); T is the size of the respondent's town of residence (the larger is T, the larger C_i is expected to be); O are occupational dummies (the sign of the relationship depends on occupation); A is respondent's age (the expected sign of relationship with C_i is unclear); G is the respondent's gender (the expected sign is unclear).

C_i is a categorical variable varying from one to five. Age is continuous. The rest of variables are dummies.

The perception of corruption, like any other type of perception, is very much influenced by two factors: the information one receives about the phenomenon and how the individual processes the information and draws conclusions. The information received may be intentionally or unintentionally biased by the source of information. The way the individual processes the information depends substantially on his/her individual characteristics.

The most reliable source of information that influences one's perception of corruption in a particular institution is the actual experience of dealing with its officials. Here a person may face a blatant demand for a bribe, an intentional slowing down of bureaucratic procedures in the hope of a bribe, or a smooth and easy response to his/her request. Thus, one could argue that the more a person visits a certain institution, the more accurate his/her perception of corruption in this institution becomes.

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leave out education so that it can be used in correction equations (see Section 3).

While the frequency of visits is a very important determinant of corruption perception, in some cases it may be misleading. The respondent might have to go to the institution many times just because he/she had the misfortune to meet a corrupt official on the first visit who slowed down bureaucratic procedures in order to be able to ask for a bribe. Yet, there are very few people in the sample who had visited the institutions more than once in the year prior to the survey, so we exclude this last possibility from the analysis.

It became clear that few people go to state institutions often enough to be able to form their perception of corruption solely on their personal experience. People learn about corruption in many ways. They read about it in the press, listen to stories on the radio, and watch TV programs. They share the information with their friends, relatives, or strangers on the streets. All of these sources are likely to provide subjective information about corruption.

The most controversial information source about corruption is the mass media. The media may want to suppress information about corruption for fear of being punished by state officials. They may publish politically biased articles on corruption. Or, they may publish more articles on corruption than the phenomenon deserves in hopes of increasing their audience. Sometimes, the audience can distinguish between these kinds of articles, but often not. In any case, the influence of the mass media on a person's corruption perception depends on the extent of his/her trust in the mass media.

Other sources of information are friends, relatives and strangers. While the extent of trust might also be important here, the contacts between the giver and the receiver of information are closer than in the case of the mass media and, except for strangers, one can better estimate the trustworthiness of the information, except when it comes from strangers.

Besides sources of information the individual characteristics of the respondents such as age, gender and occupation might be important determinants of one's perception of corruption. Very old or very young people may not be interested in corruption, nor are they as

likely to face corruption as people of working age. Men and women may perceive corruption differently. People who hold intellectually demanding positions are more likely to exercise critical thinking and develop their own opinion on corruption, rather than accepting the opinions of those in their immediate circle or of the producers of TV and radio programs. In addition, an occupation that imposes the need for more frequent contacts with officials grant him/her a more realistic corruption perception than that of his/her fellows whose contacts with red tape are scarce.

Another important factor that influences corruption perception is education, but we intentionally leave it out because its effect is already captured by age and occupation.

Furthermore, one's corruption perception is influenced by the size of one's town of residence. In large cities, as opposed to small towns, many factors facilitate the spread of corruption and are likely to be reflected in corruption perception. Some of these are listed below.

- Since the large urban areas serve as administrative centers for the regions, there are more bureaucratic positions.
- Bureaucrats of large cities usually decide about larger sums of money.
- In large cities there are more opportunities and more marketing pressure from advertising to spend money. Is take advantage of the many attractive goods and services, more money is necessary, and the temptation to accept bribes is stronger.
- People living in large cities are less likely to have private gardens. It has happened at times during the transition in Ukraine that officials endured long period without their salary being paid and had to find other means to survive. In towns and rural areas, people rely on their private gardens to supply basic

foodstuffs. In urban areas where cash is required to obtain food, bribes may be essential to survival for officials not receiving their normal salaries.

- In the Ukraine, officials in large urban areas are much more likely to meet rich customers since big cities are usually the centers of business activity.
- Large urban areas are the centers of political life, and, thus, political corruption is more of an issue than in small towns.
- In large cities information is spread more easily. Cities, as opposed to small towns are more likely to have multiple sources for any given media, with several newspapers, TV channels and radio stations, as well as better access to the Internet.

On the other hand, as was already discussed in the previous section, people are less likely to know each other well in cities as in smaller towns. Thus, it is much more difficult in large cities to effectively exercise mechanisms of social punishment. The impact of lack of information about neighbors on corruption and corruption perception depends on community values. If corruption is perceived negatively, the ability of small towns to socially punish wrongdoers might lead to less corruption, which is then reflected in lower corruption perception. If, on the other hand, corruption is seen as a norm, those who are not corrupt may be seen as social outcasts, and the mechanisms of social punishment may lead to more corruption.

3. Data transformations

Data were collected in 1998 by the Kiev International Institute of Sociology in a survey entitled Questions on National Integrity. In this survey 2600 respondents from most regions of Ukraine were asked to assess the level of corruptness of state and nonstate institutions, to

reveal their opinions of the effectiveness of some methods for fighting corruption, and to give the sources of their information about corruption and the reliability of these sources. The respondents were chosen in a purely random fashion so that all adult citizens had an equal chance to be interviewed[6]. Four hundred and seventy-five respondents or 19 per cent of the intended sample, refused to be interviewed. The resulting sample size is 2104 respondents, which although 20 per cent smaller than intended, it is still representative of the population as a whole.[7] The data in this paper are a subset of the survey data set.

As we suggested above, corruption perception and the number of contacts with the institutions are institution–specific, whereas the willingness to give a bribe is not. The question arises as to whether to construct one general corruption perception from the seventeen institution–specific corruption perceptions and then run the model above for each institution separately, or to combine these two approaches and pool corruption perception of some institutions. None of these approaches is perfect. If one constructs a single corruption-perception variable, one runs the risk of losing information by choosing an imperfect aggregation procedure. The institutions are very different and it is difficult to choose the weights for each institution in the aggregate outcome. In addition, one cannot address the different types of benefits from corruption in different institutions. On the other hand, if one runs seventeen different analyses, one is in danger of misinterpreting the coefficients, since the willingness to give a bribe, which might be determined by experiences in one institution, might be attributed to another. The best strategy would seem to be the middle path: pool the institutions belonging to each category and leave the others separate.

A final reason for pooling some institutions is the problem of missing values and

[6] The selection of respondents was done in several stages. First, towns and villages were chosen at random so that the probability of inclusion of a village or town in the survey was proportional to the number of residents. Then according to the same principle post offices, streets, buildings and, finally, the respondents were chosen. The interviewers then informed the potential respondents about the survey and visited them at their homes. It was not permitted to replace a respondent who declined to be interviewed with someone else.

[7] The Kiev International Institute of Sociology compared the gender, age and education of the resulting sample

sampling zeroes in the institution–specific variables. There are only two variables that capture institution specifics: corruption perception and number of contacts with the institution. These variables are the most important in distinguishing one institution from another. Unfortunately, there were very few respondents who actually visited the institutions, and even fewer who both visited the institutions and revealed their corruption perception (see Table 2). The lack of observations and plethora of zeroes in the contingency tables made the potential results unreliable. The solution was to combine the data on similar institutions. For example, ministries, the presidential administration and the parliament were pooled with the central government group, and the original seventeen groups were collapsed to eleven. For a description of which institutions are included in which group, see Table 3. For each of the eleven groups we calculated the resulting corruption perception and frequency of visits.[8]

Unfortunately, even after the data transformation, the contingency tables still contained many zeros. The only other possibility to reduce the number of zeroes was to diminish the number of categories of the frequency-of-visits variable. The cut-off point was that each cell have not less than five observations, as is the usual rule in contingency table analysis (Agresti 1996). For the corrected categories, see Table 4.

Even after these data transformations, the response rates for corruption perception and number of visits in some cases were still very low (e.g. around 50% of the sample for state TV, see Table 2). Thus, the question arose as to whether the people who answered all the questions constituted a representative sample. In order to avoid self-selection bias, we used

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to the results of a demographic survey of the Ukrainian population.

[8] Three cases are to be distinguished depending on whether the respondent provided his corruption perception (frequency of visits) for all the included institutions, some of them, or none.

1) If the respondent provided his/her corruption perception (or frequency of visits) to all organizations included, the rounded average was computed and used as his/her corruption perception (or frequency of visits) for the group of institutions.
2) If the respondent did not provide his corruption perception (frequency of visits) in some of the institutions, the average of the rest was computed and assigned to be his/her corruption perception (frequency of visits) for the group.
3) If the respondent did not provide his corruption perception (frequency of visits) in any of the institutions, N/A was assigned to the group.

Heckman's correction approach (Heckman, 1979). First we ran correction equations, saved Heckman's lambda (inverse Mill's ratio) and included it in the right-hand side of the main equations.

4. Estimation

In the previous section we formulated two equations:

willingness-to-give-bribe equation

$$B = Pr\,(\beta_{b1} + \beta_{b2}\,C_i + \beta_{b3}\,I + \beta_{b4}\,T + \beta_{b5}\,O + \beta_{b6}\,A + \beta_{b7}\,X + \beta_{b8}\,\lambda_b) + e_1 \qquad (3)$$

and

corruption-perception equation

$$C_i = Pr\,(\beta_{c1} + \beta_{c2}\,F_i + \beta_{c3}\,S + \beta_{c4}\,T + \beta_{c5}\,O + \beta_{c6}\,A + \beta_{c7}\,X + \beta_{c8}\,\lambda_c) + e_2 \qquad (4)$$

where

Pr denotes the normal probability distribution; B is the perceived necessity to pay bribe; C_i is corruption perception in institution i; F_i is the frequency of contacts with institution i; S denotes the sources of information about corruption; T is the size of respondent's town of residence; O stands for the occupational dummies; I denotes perceived inactiveness of government in fighting corruption; A stands for age; X denotes gender, λ_b and λ_c are inverse Mill's ratios coming from the correction equations.

As we mentioned in the introduction, there are several arguments for estimating corruption-perception (CP) and willingness-to-give-bribe (WGB) equations simultaneously. Since both CP and WGB are limited dependent variables varying from 1 to 5, let us consider the following model

$$\begin{pmatrix} y_1^* \\ y_2^* \end{pmatrix} = \begin{pmatrix} X_1 \\ X_2 \end{pmatrix} \begin{pmatrix} \beta_1 \\ \beta_2 \end{pmatrix} + \begin{pmatrix} \varepsilon_1 \\ \varepsilon_2 \end{pmatrix}, \qquad (5)$$

where y_1^* and y_2^* cannot be observed. As usual, we observe that

$$
\begin{aligned}
y_1 &= 1 \qquad if\ y_1^* \le 0,\\
&= 2 \qquad if\ 0 < y_1^* \le \mu_1,\\
&= 3 \qquad if\ \mu_1 < y_1^* \le \mu_2,\\
&\ \ \vdots\\
&= 5 \qquad if\ \mu_3 \le y_1^*,
\end{aligned}
$$

and

$$
\begin{aligned}
y_2 &= 1 \qquad if\ y_2^* \le 0,\\
&= 2 \qquad if\ 0 < y_2^* \le \nu_1,\\
&= 3 \qquad if\ \nu_1 < y_2^* \le \nu_2,\\
&\ \ \vdots\\
&= 5 \qquad if\ \nu_3 \le y_2^*.
\end{aligned}
$$

Where y_1 represents willingness to give bribe, y_2 stands for corruption perception, v_1, v_2, v_3 and μ_1, μ_2, μ_3 are constants.

We assume that $\varepsilon = (\varepsilon_1, \varepsilon_2)'$ follow bivariate normal distribution across all observations.

For the likelihood function we need to create expressions

$$
\begin{aligned}
p_{ij} &= P(Y_{ij}) = P(y_1 = i, y_2 = j)\\
&= P(\mu_{i-1} - X_1\beta_1 < y_1^* \le \mu_i - X_1\beta_1, \nu_{j-1} - X_2\beta_2 < y_2^* \le \nu_j - X_2\beta_2).
\end{aligned}
\tag{6}
$$

$\mu_{-1} = \nu_{-1} = -\infty$, $\mu_0 = \nu_0 = 0$ and $\mu_5 = \nu_5 = +\infty$.

Note that for both first equations we have five states, that is

$i = 0,\cdots,4$ and $j = 0, ...,4.$

Denote

$q_{ij} = P(y_1^* \le \mu_i - X_1\beta_1, y_2^* \le \nu_j - X_2\beta_2)$, $i = 0,\cdots,4$ and $j = 0,...,4.$

$$
\begin{aligned}
\log(L) &= \log\Big(\prod Y_{ij} p_{ij}\Big) \\
&= \log\{\, Y_{00}p_{00} + Y_{01}p_{01} + Y_{02}p_{02} + Y_{03}p_{03} + Y_{04}[\Phi(X_1\beta_1) - p_{00} - p_{02} - p_{03}] + \\
&\quad Y_{10}p_{10} + Y_{11}p_{11} + Y_{12}p_{12} + Y_{13}p_{13} \\
&\qquad + Y_{14}[\Phi(\mu_1 + X_1\beta_1) - \Phi(X_1\beta_1) - p_{10} - p_{11} - p_{12} - p_{13}] + \\
&\quad Y_{20}p_{20} + Y_{21}p_{21} + Y_{22}p_{22} + Y_{23}p_{23} \\
&\qquad + Y_{24}[\Phi(\mu_2 + X_1\beta_1) - \Phi(X_1\beta_1 + \mu_1) - p_{20} - p_{21} - p_{22} - p_{23}] + \\
&\quad Y_{30}p_{30} + Y_{31}p_{31} + Y_{32}p_{32} + Y_{33}p_{33} \\
&\qquad + Y_{32}[\Phi(\mu_3 + X_1\beta_1) - \Phi(X_1\beta_1 + \mu_2) - p_{30} - p_{31} - p_{32} - p_{33}] + \\
&\quad Y_{40}[\Phi(X_2\beta_2) - p_{00} - p_{10} - p_{20} - p_{30} - p_{40}] + \\
&\quad Y_{41}[\Phi(\nu_1 + X_2\beta_2) - \Phi(X_2\beta_2) - p_{01} - p_{11} - p_{21} - p_{31} - p_{41}] + \\
&\quad Y_{42}[1 - \Phi(\mu_3 + X_1\beta_1) - \Phi(\nu_1 + X_1\beta_1) + q_{44}]\,\}.
\end{aligned}
\tag{7}
$$

where $X_1\beta_1$ and $X_2\beta_2$ stand for the right-hand side variables of CP and WGB equations, respectively.[9]

The outcomes of joint probit analysis are presented in Tables 5 and 6.[10]

5. Results

In this section we consider the answers to the four questions we posed in the first section of this paper plus some additional results that we found quite interesting.

5.1. Is the willingness to give bribes associated with corruption perception?

Corruption perception is positively and significantly associated with the willingness to give a bribe. Moreover, in all eleven institutional groups the relevant coefficients increase in value and significance with corruption perception, that is, the more corrupt the person perceives the institution to be, the more willing he/she is to give bribes.

[9] Estimation was computed using TSP 4.5©. TSP code for (general) bivariate ordered probit is a part of the TSP programs and is available from authors upon a request.

[10] Detailed results of the correction equations are available from authors upon request or can be found at home.cerge-ei.cz/hanousek/perception/.

5.2. Is the perceived willingness of the government to fight corruption associated with the willingness to give bribes?

As one can see from the outcome table there is almost no relationship. This result should be accepted with care since it may have been caused by the lack of variability in the explanatory variable, keeping in mind that 63 per cent of respondents stated that they "agree" or "somewhat agree" that the government does nothing to fight corruption, while only 8 per cent of respondents "disagree" or "somewhat disagree" with the statement.

5.3. Is the frequency of visits to a particular institution significantly associated with corruption perception?

In five out of eleven categories the relevant coefficients are significant at conventional levels. In the cases of local government, judicial institutions and police the more one goes to these institutions the more corrupt he/she perceives them to be. The same is true for the most frequent visitors to medical establishments (more than ten times per year), while people who visit them less often perceive them as less corrupt. The Inspection group is also close to the point when frequent visitors perceive them as more corrupt: the relevant coefficient is at the edge of significance in the analysis with town size four and is not significant without town size four. Privatization authorities are perceived as less corrupt if one goes there once or twice, but more corrupt if one goes there more than twice per year.

5.4. Is mass media influential in creating corruption perception?

People who get information about corruption from press media or television tend to perceive state institutions as less corrupt than the rest of the population who get their

information from other sources. On the other hand, people who listen to the radio perceive some state institutions to be more corrupt.

5.5. Friends, strangers and personal experience

People who learn about corruption from friends tend to perceive most state institutions as less corrupt. The effect of strangers, however, is not uniform. People who learn about corruption from strangers perceive judicial institutions and educational establishments to be more corrupt, but they think that privatization authorities are less corrupt compared to the opinion of the rest of population.

Again, as expected, people who have the information about corruption from personal experience perceive the institutions to be more corrupt.

5.6. Town size

The respondents from small towns, towns with up to 200,000 inhabitants and cities with more than 500,000 inhabitants perceive state institutions to be more corrupt, but they are less willing to give bribes. On the other hand, respondents living in towns from 200,000 to 500,000 inhabitants (town size 4) tend to perceive state institutions as less corrupt, but they are more willing to give bribes. Surprisingly, the coefficient of the town-size four dummy behaved differently than the rest of the town-size dummies: in most cases it was positive and significant, while the other coefficients were negative.

Several arguments supporting the idea that the bigger the town, the more corrupt the state institutions are perceived to be were discussed in the methodology section. The outcome from the econometric analysis generally supports this suggestion: many town size dummies are positive and significant. However, there is no trend similar to the corruption perception willingness–to–give–bribe the relationship, where the relevant coefficients increased with the

corruption dummies. Another surprising finding is that while many town-size two, three and five coefficients are positive in the corruption–perception equation, the town-size four coefficient is negative and often significant. This outcome seems spurious. The only difference between the towns-size four dummy and the rest, besides size, is that towns sized four are usually small administrative centers, while towns sized five are very big administrative centers, and all the other towns are not administrative centers at all. There are approximately fifteen size-four towns, which are situated all over Ukraine, so, it is very improbable that the difference in the results was caused by some kind of regional pattern. It might be that size-four towns have a unique culture. However, it is difficult to say what the difference is in the cultures and why it causes such a difference in the results. This seems to be a question for sociologists[11].

In the case of the willingness–to–give–bribe equation the story is opposite to that of the corruption–perception equation (see Table 6). People in towns sized two, three and five are less willing to give bribes, given their corruption perception. In size-four towns, residents are more willing to give bribes, given their corruption perception.

The lower willingness to give bribes in the large towns may be explained by the fact that the future benefits of the bribe in large towns are smaller. In big towns there are many more state officials and the probability that one meets the same official the next time he/she visits the institution is smaller than in small towns. Thus, when a person gives a bribe in the small town, he might expect that when he/she sees the official for the next time, he/she will be treated better since the official would expect to get a bribe again. On the other hand, in bigger towns, where people do not meet each other that often, the person can not expect better

[11] The problem with the town-size 4 variable may be also caused by collinearity. In order to investigate this issue we regressed town-size 4 dummies onto all other variables present in the equations. The R^2, which came out of these regressions, was around 0.3. Then, we excluded the dummy from the equations and ran the simultaneous system once more. The results appeared somewhat different in some particular institutions, but the overall pattern was consistent with the original estimates. The results of the estimation without town-size 4 dummy variable are available upon the request.

treatment in the future for bribe in the present. It could also be an income effect: people in small towns may have less income and so less to offer as a bribe.

5.7. Occupation, age and gender

Few occupational dummies are significant. Only some are worth mentioning. Businessmen and peasants are more willing to give bribes. This finding is not surprising since businessmen are those who can benefit from corruption much more than people in other occupations. We attribute peasants' willingness to give bribes to the special peasant culture, as described in the methodology section. Unemployed people perceive some state institutions to be more corrupt, which may have contributed to their resentment of the state in general.

Older people perceive state institutions to be more corrupt, but they are less willing to offer bribes than are younger members of the population. The effect of sex is unclear. Women tend to perceive central and local governments and judicial institutions as more corrupt than men do, while privatization authorities are perceived as less corrupt by women as compared to men's perception. In the willingness to give a bribe there is almost no difference.

6. Derivatives

Let us note that all the interpretations in the previous section were based on the signs of significant coefficients and related marginal effects (derivatives). While for linear regressions the coefficients also represent the derivatives of the dependent variable with respect to the explanatory one, in the case of probits the derivatives are different. In order to find exactly how the explanatory variables are associated with the dependent variable, it is necessary to study the derivatives.[12]

[12] Because of limited space, the table of derivatives is not presented here, but is available on the web or upon a request from the authors.

Let *y* be a dependent variable and *x* an explanatory variable. It is often the case that increases in *x* leads to an increase in the probabilities that *y=4* and *y=5*, while the other three probabilities (*Prob(y=1), Prob(y=2),* and *Prob(y=3)*) are reduced. In the case of the willingness-to-give-bribe equation, this implies that an increased *x* is associated with an increased probability that a person thinks that it is necessary to give bribes. An increased x is also associated with a reduced probability that he/she thinks otherwise (*Prob(y=1), Prob(y=2)*), and with a reduced probability that he/she is in between the answers "bribe is necessary" and "bribe is not necessary" (*Prob(y=3)*). In the case of the corruption perception equation this implies that a greater x is associated with an increased probability that the person perceives the institution to be mildly or very corrupt, and is associated with a reduced probability that s/he thinks otherwise (*Prob(y=1), Prob(y=2)*) and the probability that s/he is in between (*Prob(y=3)*).

In some cases the sign of the coefficient is driven by only one probability (*Prob(y=5)*)[13], while the derivative of *Prob(y=4)* is of the opposite sign. This finding suggests that people who believe that a bribe is really necessary in the case of the willingness-to-give-bribe equation (or that corruption is widespread as in the case of the corruption perception equation) react differently to the change in *x,* compared to respondents who think that the bribe might be necessary as in the case of the willingness-to-give-bribe equation (or that corruption is moderately spread, in the case of the corruption perception equation). This finding is interesting from the view of policymaking.

The outcome that the sign of the coefficient is driven by only one probability (*Prob(y=5)*)[14], while the derivative of *Prob(y=4)* is of the opposite sign, might be also caused by the unbalanced number of observations in different categories of *y.* For example, in the

[13] From the expressions for probabilities if follows that the derivative of the *Prob(y=5)* is always of the same sign as the coefficient estimated, while the derivative of *Prob(y=1)* is always of the opposite sign.
[14] From the expressions for probabilities follows that the derivative of the *Prob(y=5)* is always of the same sign as the coefficient estimated, while the derivative of *Prob(y=1)* is always of the opposite sign.

corruption-perception equation the number of observations in the category *y=5 is* substantially greater than in the other four categories (as is in the case of Central Government, Local Government, Judicial Institutions, Inspections, Police, and Medical Establishments), all the signs of coefficients are driven by only one probability: *y=5.* In other cases (Army, State TV, Privatization Authorities, Banks), when the number of respondents in each category is not that different, the signs of the significant coefficients are driven usually by more than one probability. Thus, in the case of the corruption perception equation, the interpretations of derivatives should be taken with care.

The distribution of the respondents among categories of *y* in the willingness-to-give-bribe equation is more uniform. Thus, the interpretations of the derivatives are more reliable.

7. Conclusion

This paper presents empirical evidence that in Ukraine corruption perception is significantly associated with the willingness of the population to give bribes. If one perceives an institution to be very corrupt, he/she is more willing to offer a bribe. In this way corruption perception may actually facilitate corruption.

Corruption perception, being partially a product of corruption itself, does not always reflect reality. If one assumes that those people who visit the state institutions most often have the most accurate perception of corruption, then from the econometric analysis it follows that the Ukrainian population tend to underestimate corruption in the local government, judicial institutions, and police. On the other hand, Ukrainians tend to overestimate corruption in banks. The last effect should, however, be regarded with caution because people who visit these institutions most often use a very limited set of services, and, thus, may have a clear perception of corruption only in certain departments.

Special attention should be paid to the mass media as a source of corruption perception. In countries such as Ukraine, where corruption scandals very rarely lead to legal action, the mass media might actually support corruption. If the media provides people with corruption perceptions that are higher than reality, the media may encourage people believe that they have to give bribes. In the case of five institutions out of eleven (judicial institutions, army, medical establishments, privatization authorities and banks) people who learn about corruption from the press perceive the institutions to be less corrupt. The same holds in the case of two institutions for those who learn about corruption from state TV (central government and privatization authorities). While people who learn about corruption from the radio perceive central government, medical establishments and privatization authorities to be more corrupt.

The other sources of information about corruption such as friends and personal experience are much more influential. Friends are significant for nine out of eleven institutions. Personal experience is important in all institutions. People who learn about corruption from friends tend to perceive the institutions to be less corrupt. Obviously, while people who learn about corruption from personal experience perceive the institutions to be more corrupt.

So, as it follows from the arguments above, corruption perception is widespread over a population and should be given more attention. The perception might actually facilitate the negative or positive processes that take place in society. Direction in which perception effects actual willingness to give bribes interferes with institutional setup and role of the government. Even if perception is not biased, high uncertainty in perception makes it more risky to do business.

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Table 1.
Sources of information about corruption used by respondents

Source of information	% of the respondents who used the source
Press	49,43
Television	66,16
Radio	27,52
Acquaintances and Friends	41,68
Strangers on Streets and in the Means of Transportation	15,73
Personal Experience	25,19
Difficult to Say/Do Not Know	3,71

Table 2.
List of institutions with response rates for both corruption perception and frequency of visits

No	Organizations	Response rates for both corruption perception and frequency of visits, %
1	Ministries and Other Central Executive Bodies	73
2	Presidential Administration	65
3	Parliament (Verkhovna Rada)	73
4	Local Government	78
5	Public Prosecutor	70
6	Judicial System	72
7	Customs	69
8	Tax Inspection	71
9	State Auto Inspection	77
10	Local Militia (police)	78
11	Army	65
12	Privatization Authorities	63
13	Banks	58
14	Secondary Education Institutions	76
15	Higher Education Institutions	78
16	State Medical Establishments	84
17	State Television	49

Table 3.
Groups of institutions and response rates

No.	Group of institutions	Institutions included	Response rate, %
1	Central Government	Ministries, Presidential Administration, Parliament	73
2	Local Government	Local Government	78
3	Judicial System	Courts and Prosecutors	75
4	Inspections	Customs and Tax Police	76
5	Police	Auto Inspection and Police (militia)	82
6	Army	Army	65
7	Educational Establishments	Schools and Universities	82
8	Medical Establishments	Medical Establishments	84
9	State Television	State Television	49
10	Privatization Authorities	Privatization Authorities	63
11	Banks	Banks	58

Table 4.
Mean corruption perception of institutions depending on the number of contacts during the 2 months prior to the survey
Corrected categories

Frequency of visits / Institution	Mean and No of observ[15].	Never visited during the last 12 months	Visited once or twice	Visited more than 2 but less then 10 times	Visited more than 10 times
Central Government	Mean	4.15	4.32	N/A	N/A
	N	1502	28	N/A	N/A
Local Government	Mean	4.12	4.06	4.18	N/A
	N	1220	310	130	N/A
Judicial Institutions	Mean	4.09	4.25	N/A	N/A
	N	1440	141	N/A	N/A
Inspections	Mean	4.28	4.36	N/A	N/A
	N	1267	335	N/A	N/A
Police	Mean	4.39	4.57	N/A	N/A
	N	1300	420	N/A	N/A
Army	Mean	3.54	3.67	N/A	N/A
	N	1311	57	N/A	N/A
Educational Establishments	Mean	3.90	3.84	3.91	N/A
	N	1275	276	182	N/A
Medical Establishments	Mean	4.25	4.15	4.17	4.41
	N	737	450	364	222
State TV	Mean	3.31	3.60	N/A	N/A
	N	1032	15	N/A	N/A
Privatization Authorities	Mean	3.85	3.47	3.82	N/A
	N	1114	196	22	N/A
Banks	Mean	3.65	3.22	3.29	3.12
	N	1090	72	35	26

[15] Mean in the mean corruption perception and N is the number of observations in each cell.

Table 5. Joint Estimation, Willingness–to–give–bribe equation (equation 4a)

Institution / Parameter	Central Govt.	Local Govt.	JudicialInstitutions	Inspec-tions	Police	Army	Educat. Establ.	Medic. Establ.	State TV	Privat. Author.	Banks
Constant	0.05 [.881]	**-1.55[a] [.000]**	**-1.79[a] [.000]**	0.17 [.551]	**-2.25[a] [.000]**	**-0.96[a] [.005]**	**-2.15[a] [.000]**	0.08 [.762]	**-1.58[a] [.000]**	**-2.69[a] [.000]**	**-0.91[b] [.011]**
Corruption Perception 2 (corruption is rare)	**-0.92[a] [.000]**	**1.05[a] [.000]**	**1.73[a] [.000]**	**-0.65[b] [.014]**	**1.11[a] [.000]**	**1.11[a] [.000]**	**1.55[a] [.000]**	**-0.42[b] [.028]**	**0.77[a] [.000]**	**1.95[a] [.000]**	**1.09[a] [.000]**
Corruption Perception 3 (Corrupt officials are as common as non-corrupt ones)	**-0.34[b] [.015]**	**1.50[a] [.000]**	**2.18[a] [.000]**	**-0.37[b] [.016]**	**1.96[a] [.000]**	**1.46[a] [.000]**	**1.87[a] [.000]**	-0.15 [.242]	**1.37[a] [.000]**	**2.50[a] [.000]**	**1.21[a] [.000]**
Corruption Perception 4 (Corruption is frequent)	0.14 [.344]	**1.97[a] [.000]**	**2.66[a] [.000]**	0.04 [.757]	**2.47[a] [.000]**	**1.67[a] [.000]**	**2.59[a] [.000]**	-0.02 [.845]	**1.81[a] [.000]**	**3.09[a] [.000]**	**1.34[a] [.000]**
Corruption Perception 5 (Corruption is endemic)	**0.94[a] [.000]**	**2.93[a] [.000]**	**4.02[a] [.000]**	**0.95[a] [.000]**	**3.69[a] [.000]**	**1.81[a] [.000]**	**3.53[a] [.000]**	**0.87[a] [.000]**	**2.20[a] [.000]**	**4.07[a] [.000]**	**1.62[a] [.000]**
The government does almost nothing to fight Corruption	0.05 [.523]	0.05 [.513]	0.03 [.553]	0.00 [.984]	0.10 [.128]	0.11 [.277]	0.03 [.657]	0.04 [.644]	0.10 [.356]	0.03 [.344]	-0.01 [.897]
The government fights corruption in as many cases as it does not	0.05 [.422]	0.02 [.733]	-0.01 [.758]	0.01 [.874]	0.01 [.836]	0.03 [.683]	-0.01 [.746]	0.03 [.652]	-0.02 [.825]	-0.01 [.578]	-0.07 [.444]
The government more often fights corruption than it does not	0.01 [.892]	-0.07 [.461]	**-0.08[c] [.054]**	-0.07 [.532]	0.00 [.990]	-0.01 [.954]	-0.07 [.408]	-0.07 [.503]	0.00 [.989]	-0.05 [.548]	-0.24 [.100]
The government always fights corruption	0.06 [.573]	-0.11 [.294]	-0.06 [.105]	0.09 [.487]	-0.02 [.874]	0.06 [.676]	-0.13 [.144]	-0.10 [.415]	-0.06 [.690]	**-0.13[a] [.000]**	-0.13 [.461]
Town up to 100 000 inhabitants	0.00 [.986]	-0.10 [.323]	-0.06 [.458]	-0.03 [.733]	-0.11 [.275]	-0.15 [.191]	-0.09 [.407]	-0.04 [.689]	**-0.26[c] [.087]**	0.01 [.853]	-0.06 [.636]
Town more than 100 000 less than 200 000 inhabitants	-0.14 [.174]	**-0.34[a] [.001]**	**-0.23[a] [.004]**	-0.16 [.121]	-0.15 [.101]	-0.11 [.328]	-0.14 [.164]	-0.05 [.537]	**-0.32[b] [.033]**	0.10 [.107]	-0.01 [.922]
Town more than 200 000 less than 500 000 inhabitants	**0.24[b] [.020]**	0.03 [.783]	0.06 [.373]	**0.19[b] [.041]**	**0.23[b] [.010]**	**0.23[b] [.022]**	**0.28[a] [.003]**	**0.23[b] [.010]**	0.17 [.223]	**0.47[a] [.000]**	**0.29[b] [.010]**
City bigger than 500 000 inhabitants	-0.08 [.342]	**-0.29[a] [.001]**	**-0.37[a] [.000]**	**-0.22[b] [.013]**	**-0.30[a] [.000]**	**-0.16[c] [.099]**	-0.04 [.627]	0.01 [.891]	**-0.47[a] [.002]**	-0.07 [.139]	-0.11 [.250]
Peasant	**0.73[b] [.017]**	0.40 [.140]	-0.14 [.565]	**0.48[c] [.075]**	0.08 [.770]	**0.58[c] [.061]**	**1.03[a] [.000]**	**0.64[b] [.011]**	**0.74[b] [.039]**	**0.70[a] [.002]**	**0.66[b] [.035]**
Worker	0.18 [.473]	-0.07 [.758]	**-0.46[a] [.009]**	0.10 [.656]	-0.33 [.143]	0.26 [.276]	0.12 [.558]	0.21 [.281]	0.26 [.323]	**-0.61[a] [.003]**	0.12 [.659]
Clerk	0.32 [.213]	0.08 [.719]	-0.22 [.219]	0.25 [.254]	-0.04 [.854]	**0.50[b] [.036]**	0.17 [.421]	0.29 [.143]	**0.52[c] [.051]**	**-0.51[b] [.013]**	0.38 [.158]
Specialist	**0.44[c] [.089]**	0.10 [.648]	-0.24 [.174]	0.20 [.369]	-0.08 [.724]	0.37 [.137]	**0.39[c] [.070]**	**0.34[c] [.096]**	**0.61[b] [.026]**	**-0.45[b] [.034]**	0.39 [.146]

Table 5. Continued

Parameter \ Institution	**Central Govt.**	**Local Govt.**	**Judicial Institutions**	**Inspec-tions**	**Police**	**Army**	**Educat. Establ.**	**Medic. Establ.**	**State TV**	**Privat. Author.**	**Banks**
Businessman	**0.51[c]** **[.070]**	0.23 [.354]	-0.07 [.711]	0.33 [.172]	0.01 [.960]	**0.56[b]** **[.037]**	**0.51[b]** **[.033]**	**0.63[a]** **[.005]**	**0.70[b]** **[.018]**	0.00 [1.00]	**0.77[a]** **[.010]**
Retired	**0.48[c]** **[.063]**	0.04 [.845]	-0.03 [.855]	0.23 [.311]	-0.12 [.591]	**0.53[b]** **[.038]**	**0.45[b]** **[.046]**	**0.45[b]** **[.030]**	**0.48[c]** **[.084]**	**-0.43[b]** **[.043]**	0.40 [.145]
Student	0.37 [.162]	0.15 [.537]	0.07 [.735]	0.18 [.440]	-0.12 [.628]	0.31 [.219]	0.11 [.645]	0.32 [.152]	0.33 [.247]	0.29 [.205]	0.45 [.106]
Homemaker	0.35 [.193]	0.22 [.341]	-0.22 [.256]	0.30 [.187]	-0.06 [.805]	0.42 [.115]	0.20 [.378]	0.29 [.187]	0.30 [.316]	-0.26 [.235]	**0.61[b]** **[.027]**
Unemployed	0.32 [.211]	-0.02 [.939]	-0.09 [.615]	0.13 [.562]	-0.20 [.377]	**0.44[c]** **[.069]**	0.32 [.132]	**0.42[b]** **[.035]**	**0.55[b]** **[.039]**	-0.23 [.271]	0.40 [.138]
Age	**-0.01[a]** **[.001]**	**-0.01[a]** **[.005]**	**-0.02[a]** **[.000]**	**-0.01[b]** **[.034]**	**-0.01[b]** **[.022]**	**-0.01[c]** **[.058]**	**-0.01[b]** **[.015]**	**-0.01[a]** **[.001]**	**-0.01[a]** **[.001]**	0.00 [.213]	**-0.01[b]** **[.041]**
Gender	-0.05 [.501]	**-0.13[c]** **[.085]**	**-0.11[b]** **[.018]**	-0.06 [.401]	-0.09 [.171]	-0.08 [.388]	-0.05 [.500]	-0.02 [.744]	-0.05 [.500]	-0.05 [.353]	-0.04 [.636]
Correction variable	-0.36 [.332]	**-0.69[b]** **[.045]**	-0.27 [.187]	-0.15 [.596]	-0.41 [.160]	0.00 [.991]	0.05 [.887]	-0.25 [.459]	**-1.18[a]** **[.004]**	**-0.31[b]** **[.019]**	-0.28 [.388]
Correlation coefficient	**-0.89[a]** **[.000]**	**-0.94[a]** **[.000]**	**-0.79[a]** **[.000]**	**-0.72[a]** **[.000]**	**-0.98a[a]** **[.000]**	**-0.46[a]** **[.003]**	**-0.97[a]** **[.000]**	**-0.67[a]** **[.000]**	**-0.67[a]** **[.000]**	**-0.96[a]** **[.000]**	**-0.53[a]** **[.000]**
Number of observations	1217	1421	1365	1395	1488	1170	1139	1162	900	1125	735

To assist the reader, results at the 10% significance level and above are presented in bold.
P-values are in brackets, [a] – significant at the 1% level, [b] – significant at the 5% level, [c] – significant at the 10% level

Table 6. Joint Estimation, Corruption–perception equation (equation 4b)

Institution / Parameter	Central Govt.	Local Govt.	Judicial Institutions	Inspec-tions	Police	Army	Educat. Establ.	Medic. Establ.	State TV	Privat. Author.	Banks
Constant	**2.02[a]** **[.000]**	**1.79[a]** **[.000]**	**1.73[a]** **[.000]**	**2.46[a]** **[.000]**	**1.86[a]** **[.000]**	**1.15[a]** **[.004]**	**1.72[a]** **[.000]**	**2.27[a]** **[.000]**	**1.43[a]** **[.006]**	**2.14[a]** **[.000]**	**1.13[b]** **[.013]**
Frequency of visits=1 (visited 1 or 2 times during the last 12 months)	0.00 [.982]	0.07 [.195]	**0.18[a]** **[.000]**	**0.12[c]** **[.093]**	**0.10[c]** **[.050]**	0.07 [.643]	-0.04 [.373]	-0.02 [.740]	-0.05 [.834]	**-0.10[a]** **[.000]**	**-0.22[c]** **[.099]**
Frequency of visits=2 (visited more than 2 but less than 10 times)	- -	**0.21[b]** **[.013]**	- -	- -	- -	- -	-0.02 [.772]	-0.09 [.211]	- -	**0.31[c]** **[.081]**	-0.22 [.341]
Frequency of visits=3 (visited more than 10 times during the last 12 months)	- -	- -	- -	- -	- -	- -	- -	**0.18[c]** **[.073]**	- -	- -	-0.24 [.378]
Press =1 (Learns about corruption from the press, and trusts this information completely)	-0.15 [.430]	**-0.59[b]** **[.043]**	**-0.53[a]** **[.000]**	-0.11 [.593]	-0.10 [.606]	**-0.60[b]** **[.013]**	0.05 [.706]	**-0.81[a]** **[.002]**	-0.33 [.100]	**-0.37[b]** **[.011]**	**-0.56[b]** **[.014]**
Press =2 (Learns about corruption from the press, and trust this information in most cases)	-0.03 [.905]	-0.24 [.434]	**-0.50[a]** **[.001]**	0.11 [.657]	-0.01 [.960]	**-0.59[b]** **[.033]**	0.11 [.483]	**-0.93[a]** **[.002]**	-0.02 [.924]	**-0.25[c]** **[.091]**	**-0.66[b]** **[.018]**
Press =3 (Learns about corruption from the press, and is not sure whether to trust it)	-0.16 [.445]	**-0.54[c]** **[.075]**	**-0.70[a]** **[.000]**	-0.03 [.884]	-0.20 [.349]	**-0.95[a]** **[.000]**	0.14 [.345]	**-0.49[c]** **[.095]**	-0.31 [.205]	**-0.49[a]** **[.001]**	**-0.68[b]** **[.012]**
Press = 4 (Learns about corruption from the press, and thinks that this information is often untruthful)	-0.30 [.140]	**-0.71[b]** **[.019]**	**-0.54[a]** **[.000]**	-0.11 [.625]	-0.05 [.791]	**-0.70[a]** **[.008]**	-0.03 [.813]	**-0.83[a]** **[.003]**	**-0.40[c]** **[.091]**	**-0.32[b]** **[.028]**	**-0.55[b]** **[.030]**
Press =5 (Learns about corruption from the press, and does not trust this information at all)	-0.11 [.614]	-0.43 [.155]	**-0.47[a]** **[.003]**	0.02 [.921]	0.08 [.713]	**-0.60[b]** **[.038]**	-0.05 [.761]	**-0.72[b]** **[.011]**	0.13 [.631]	**-0.39[a]** **[.008]**	-0.30 [.288]
TV=1 (Learns about corruption from TV programs, and trusts this information entirely)	**-0.53[b]** **[.010]**	-0.05 [.851]	**-0.21[c]** **[.092]**	-0.32 [.106]	0.01 [.930]	0.13 [.547]	-0.03 [.802]	0.02 [.933]	-0.04 [.844]	**-0.34[a]** **[.000]**	-0.39 [.102]
TV=2 (Learns about corruption from TV programs, and and trusts this information in most cases)	0.07 [.783]	0.11 [.700]	0.12 [.420]	-0.27 [.274]	-0.09 [.640]	0.20 [.440]	0.02 [.872]	0.06 [.806]	-0.30 [.209]	**-0.39[a]** **[.000]**	-0.07 [.815]
TV=3 (Learns about corruption from TV programs, and is not sure whether to trust it)	**-0.59[a]** **[.009]**	0.04 [.881]	-0.01 [.944]	**-0.42[c]** **[.060]**	0.16 [.398]	0.31 [.205]	-0.08 [.580]	-0.12 [.609]	-0.08 [.714]	**-0.33[a]** **[.001]**	-0.43 [.122]
TV=4 (Learns about corruption from TV programs, and in most cases does not trust it)	**-0.50[b]** **[.022]**	-0.04 [.877]	-0.15 [.230]	**-0.38[c]** **[.073]**	0.01 [.940]	0.12 [.605]	0.00 [.997]	-0.09 [.684]	0.04 [.857]	**-0.42[a]** **[.000]**	-0.35 [.185]
TV=5 (Learns about corruption from TV programs, and never trusts it)	**-0.60[b]** **[.010]**	-0.22 [.431]	-0.14 [.279]	-0.38 [.101]	-0.14 [.476]	0.16 [.532]	-0.05 [.727]	-0.09 [.695]	-0.35 [.161]	**-0.39[a]** **[.000]**	-0.39 [.166]

Table 6. Continued

Institution / Parameter	Central Govt.	Local Govt.	Judicial Institutions	Inspec-tions	Police	Army	Educat. Establ.	Medic. Establ.	State TV	Privat. Author.	Banks
Radio=1 (Learns about corruption from radio, and trusts this information entirely)	**0.44[c]** **[.061]**	0.15 [.607]	0.06 [.752]	-0.14 [.698]	-0.10 [.693]	-0.05 [.852]	0.01 [.971]	0.43 [.121]	-0.25 [.361]	**0.48[a]** **[.007]**	0.16 [.616]
Radio=2 (Learns about corruption from radio, and and trusts this information in most cases)	0.06 [.827]	-0.14 [.648]	-0.20 [.322]	-0.29 [.467]	-0.21 [.452]	-0.17 [.572]	0.05 [.752]	**0.58[c]** **[.076]**	**-0.85[a]** **[.006]**	**0.41[b]** **[.026]**	0.04 [.905]
Radio=3 (Learns about corruption from radio, and is not sure whether to trust it)	**0.49[c]** **[.059]**	-0.06 [.848]	0.01 [.940]	-0.06 [.890]	-0.26 [.318]	0.09 [.761]	0.11 [.501]	**0.68[b]** **[.030]**	-0.47 [.135]	**0.44[b]** **[.017]**	0.25 [.488]
Radio=4 (Learns about corruption from radio, and in most cases does not trust it)	**0.42[c]** **[.094]**	0.08 [.778]	-0.04 [.835]	-0.03 [.936]	-0.22 [.388]	-0.11 [.694]	0.02 [.899]	0.25 [.400]	-0.31 [.302]	**0.39[b]** **[.028]**	0.11 [.747]
Radio=5 (Learns about corruption from radio, and never trusts it)	0.16 [.538]	0.24 [.442]	-0.11 [.579]	-0.18 [.645]	-0.07 [.787]	-0.26 [.420]	0.02 [.930]	0.42 [.190]	-0.34 [.297]	0.25 [.175]	0.03 [.940]
Friends (Learns about corruption from friends)	**-0.14[a]** **[.004]**	**-0.15[a]** **[.002]**	**-0.09[a]** **[.000]**	**-0.17[a]** **[.005]**	**-0.09[c]** **[.060]**	-0.07 [.286]	**-0.08[c]** **[.050]**	-0.08 [.166]	**-0.21[a]** **[.004]**	**-0.06[a]** **[.000]**	**-0.14[b]** **[.045]**
Strangers (Learns about corruption from strangers)	0.06 [.300]	0.01 [.907]	**0.12[a]** **[.000]**	0.00 [.960]	0.03 [.528]	0.04 [.622]	**0.08[c]** **[.094]**	0.11 [.125]	0.06 [.460]	**-0.11[a]** **[.000]**	0.07 [.390]
Experience (Learns about corruption from personal experience)	**0.14[a]** **[.008]**	**0.20[a]** **[.000]**	**0.09[a]** **[.000]**	**0.23[a]** **[.000]**	**0.16[a]** **[.003]**	**0.29[a]** **[.000]**	**0.23[a]** **[.000]**	**0.24[a]** **[.000]**	**0.25[a]** **[.001]**	**0.15[a]** **[.000]**	**0.22[a]** **[.003]**
Town up to 100 000 inhabitants	0.08 [.504]	**0.22[c]** **[.054]**	**0.18[b]** **[.043]**	0.06 [.594]	0.12 [.273]	**0.20[c]** **[.081]**	**0.22[b]** **[.048]**	**0.20[c]** **[.091]**	**0.65[a]** **[.000]**	0.10 [.133]	0.11 [.389]
Town more than 100 000 less than 200 000 inhabitants	**0.57[a]** **[.000]**	**0.72[a]** **[.000]**	**0.52[a]** **[.000]**	**0.54[a]** **[.000]**	**0.24[b]** **[.016]**	**0.32[a]** **[.003]**	**0.41[a]** **[.000]**	**0.32[a]** **[.003]**	**0.80[a]** **[.000]**	**0.13[b]** **[.020]**	**0.41[a]** **[.001]**
Town more than 200 000 less than 500 000 inhabitants	-0.06 [.546]	**0.32[a]** **[.001]**	-0.03 [.691]	-0.12 [.235]	**-0.22[b]** **[.020]**	-0.01 [.912]	**-0.19[b]** **[.036]**	-0.11 [.297]	**0.32[a]** **[.006]**	**-0.28[a]** **[.000]**	**-0.25[b]** **[.025]**
City bigger than 500 000 inhabitants	**0.38[a]** **[.000]**	**0.62[a]** **[.000]**	**0.63[a]** **[.000]**	**0.61[a]** **[.000]**	**0.44[a]** **[.000]**	**0.28[a]** **[.004]**	**0.20[b]** **[.016]**	0.05 [.617]	**1.08[a]** **[.000]**	**0.16[a]** **[.001]**	**0.28[a]** **[.007]**
Peasant	0.03 [.928]	0.23 [.436]	**0.45[b]** **[.043]**	0.24 [.425]	0.26 [.338]	0.08 [.785]	-0.46 [.106]	-0.43 [.118]	-0.07 [.863]	-0.08 [.676]	-0.22 [.513]
Worker	0.22 [.441]	**0.50[b]** **[.046]**	**0.46[a]** **[.001]**	0.31 [.191]	**0.60[a]** **[.009]**	0.15 [.546]	0.17 [.447]	0.10 [.637]	-0.16 [.619]	**0.76[a]** **[.000]**	0.16 [.579]

Table 6. Continued

Clerk	-0.10 [.730]	0.32 [.220]	0.13 [.385]	0.07 [.782]	0.27 [.238]	-0.05 [.850]	0.21 [.368]	0.07 [.765]	-0.22 [.514]	**0.70[a] [.000]**	0.04 [.901]
Specialist	-0.25 [.390]	0.27 [.295]	0.12 [.366]	0.18 [.467]	0.27 [.242]	0.07 [.802]	-0.16 [.502]	-0.05 [.819]	-0.42 [.219]	**0.69[a] [.000]**	-0.08 [.795]
Businessman	0.12 [.702]	**0.49[c] [.098]**	**0.34[b] [.029]**	0.46 [.113]	0.33 [.203]	0.00 [.994]	-0.06 [.803]	-0.29 [.288]	-0.20 [.596]	**0.39[c] [.052]**	0.00 [.998]
Retired	-0.18 [.545]	0.44 [.106]	-0.02 [.921]	0.19 [.443]	0.40 [.100]	0.03 [.901]	-0.02 [.921]	-0.14 [.574]	-0.23 [.506]	**0.83[a] [.000]**	-0.26 [.396]
Student	-0.12 [.683]	0.12 [.660]	-0.20 [.166]	0.03 [.902]	0.32 [.195]	-0.06 [.819]	0.20 [.420]	-0.35 [.153]	-0.12 [.739]	0.06 [.741]	-0.06 [.846]
Homemaker	-0.14 [.644]	0.30 [.263]	0.25 [.104]	-0.14 [.567]	0.26 [.282]	0.30 [.271]	0.30 [.224]	0.23 [.354]	-0.17 [.642]	**0.59[a] [.001]**	-0.06 [.838]
Unemployed	0.24 [.403]	**0.62[b] [.018]**	**0.22[c] [.090]**	**0.49[b] [.044]**	**0.55[b] [.020]**	0.09 [.733]	0.08 [.733]	-0.04 [.847]	-0.13 [.701]	**0.47[a] [.009]**	0.02 [.937]
Age	**0.01[a] [.000]**	0.01 [.145]	**0.02[a] [.000]**	0.00 [.444]	**0.01[b] [.043]**	0.00 [.777]	**0.01[c] [.071]**	**0.01[a] [.004]**	**0.01[a] [.002]**	0.00 [.133]	**0.02[a] [.000]**
Gender	**0.16[b] [.039]**	0.08 [.322]	**0.12[a] [.007]**	0.05 [.522]	0.06 [.446]	-0.02 [.818]	0.05 [.409]	-0.09 [.224]	0.00 [.974]	**-0.11[b] [.018]**	-0.06 [.442]
Correction variable	0.22 [.562]	0.51 [.206]	0.03 [.900]	-0.32 [.293]	0.32 [.316]	**-0.83[c] [.077]**	0.01 [.984]	-0.54 [.269]	0.53 [.236]	**0.59[a] [.000]**	-0.33 [.343]

To assist the reader, results at the 10% significance level and above are presented in bold.
P-values are in brackets, [a] – significant at the 1% level, [b] – significant at the 5% level, [c] – significant at the 10% level