

# **Determinants of Subjective Corruption Perception and Assessment of Effectiveness of Anti-Corruption measures in Ukraine**

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## **Abstract**

As a post USSR country, Ukraine has had persistent problems with corruption for decades, lasting until after the most recent revolution in 2014. By using the data from the National survey of public opinion on corruption in Ukraine in 2011 and 2015, this paper analyzes the determinants of individual corruption perception in general and by institution. While confirming the findings from previous research about influence of personal characteristics, media sources, experience with corruption and cultural beliefs on corruption perception, this study also provides empirical evidence on the regional differences in perception. Moreover, the paper identifies factors shaping individual assessment of effectiveness of anti-corruption measures undertaken by the government and establishes that Ukrainian citizens are more prone in 2015 than in 2011 to evaluate anti-corruption activities as effective.

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## **1. Introduction**

Although acts of corruption are easily recognizable in practice, a conventional unequivocal definition of corruption does not exist. The simplest and most employed definition is that corruption is the misuse of public power for private benefit. It should be noted that this neither implies the absence of corruption in the private sector, nor limits it to an individual benefit (Tanzi, 1998). Furthermore, it constitutes of the notion of benefitting from an advantage, pecuniary or otherwise, without having followed a specific regulation, thereby violating official duties and the rights of others.

Despite the absence of a generally accepted definition, corruption is considered a cultural phenomenon. Its magnitude depends on how a society understands and interprets the rules and what is deemed a violation from them. The decisions to undertake a corrupt action is influenced by the individual perception of corruption (ICP) in a society (Cábelková, 2001). A high perception of corruption generates a “culture of distrust” towards some institutions. Furthermore it gives rise to a cultural tradition of gift giving. As such, corruption perception not only deteriorates the relationships between individuals and institutions, but also reinforces corruption itself, adversely affecting the economy (Melgar, Rossi, & Smith, 2010a).

Problems with corruption have always been acute in Ukraine. After the collapse of the USSR in the beginning of the 1990s, the old system was not replaced by a new functioning market economy. Instead, the country was captured by oligarchs and no reforms were introduced, leading to a corrupted system (Mikloš, 2015). There was no real political change in Ukraine until 2014. The dramatic events of Euromaidan raised the issue of corruption to a new level and citizens were no longer willing to tolerate it. As a result, several cabinet reshuffles in the Ukrainian governmental bodies occurred. Additionally, the ongoing conflict with Russia, military activities in the East of Ukraine and multiple waves of financial crises have contributed to economic disturbances and have led to a substantial decrease in life standards. These developments could affect not only people's perception of corruption but also their expectations for the fight against it.

The issue of corruption is a severe impediment to Ukraine's further cultural, political and economic development (Mikloš, 2015). As the level of corruption became intolerable, the current government introduced certain anti-corruption reforms. However, while individual corruption perception remains relatively high, the level of trust in the government and its activity remains relatively low among Ukrainian citizens. For example,

only 10.3% of the population trusts the President and his Administration and over 40% of the major sectors and institutions in Ukraine are perceived by its citizens as corrupt (ERA, USAID, & KIIS, 2015). As such, the aim of this paper is to address the following questions:

- 1) What are the determinants of subjective perception of corruption in Ukraine?
- 2) What factors influence the individual assessment of effectiveness of anti-corruption measures undertaken by the Ukrainian government?

The paper draws on previous research about the foundations of people's perception at the micro-level. In these studies individual characteristics such as age and education, exposure to various sources of knowledge about corruption, sets of personal beliefs and experiences are expected to play a significant role in shaping the individual corruption perception in the case of Ukraine (Mocan, 2004; Cábelková, 2001; Rose & Mishler, 2010). However, previous research has predominantly focused on singled-out factors influencing individual corruption perception. In contrast, this paper will gather different sets of contributing factors under the umbrella of individual corruption perception. This results in a comprehensive study of the different significant contributing variables established in previous research.

The data source used for statistical analysis is the "National survey of public opinion on corruption in Ukraine" conducted by the Kiev International Institute of Sociology in 2011 and 2015. It provides the dependent variables as measured on a Likert scale as well as relevant demographic and socio-economic characteristics of respondents. Hence, multinomial logit models are estimated in order to study the determinants of the individual perceptions.

The structure of the paper is as follows. Section 2 presents the theoretical framework, describing the concepts of corruption and corruption perception as well as hypothesizing over perception determinants. Section 3 describes the data and methodology used in this analysis. Section 4 presents the main findings and their interpretation. In Section 5 the conclusion is drawn and further recommendations and limitations to the current research are presented.

## **2. Theoretical Background**

The following section will focus on different aspects of corruption and corruption perception. Firstly, corruption in general and its effects on a country's socioeconomic situation will be elaborated on. Following this, the phenomena of corruption in post

communist countries and more specifically Ukraine will be demonstrated. Consequently, drawing on the previous research, several factors influencing subjective perception of corruption will be discussed and the hypotheses formulated. Respective explanations and connections to the case of Ukraine will be provided.

## **1. On Corruption**

The concept of corruption is multidimensional and, thus, an all-encompassing definition of it is not agreed upon. Nevertheless, corruption is commonly regarded as the misuse of public office with the purpose of making private gains (Svensson, 2005). It can also be classified into certain types: corruption as a means of achieving or accelerating materialization of some specific right that the citizen is entitled to; administrative corruption as a biased enforcement of the rules; and “state capture” – corruption as a means to manipulate the rules and regulations in a way that favors the corruptor (Begovic, 2005). There are more categorical distinctions: corruption can be bureaucratic or political, centralized or decentralized, involving cash payments or not and others (Tanzi, 1998).

Corruption distorts the fundamental role of the government in several ways. Firstly, enforcement of contracts and protection of property rights are violated, because citizens have possibilities of escaping legal commitments and obligations. According to the Coase theorem, this, in turn, negatively impacts the well-functioning of the market economy. Secondly, the government is less likely to satisfactorily perform its regulatory functions aimed at correction of market failures. In fact, governmental intervention motivated by corruption is more likely to exacerbate market imperfections rather than ameliorate the situation. Therefore, due to the existence of corruption, the legitimacy of the market economy is undermined. The incentives to add value are deformed and individuals direct their efforts toward rent seeking instead of productive activities (Tanzi, 1998).

Corruption has devastating effects on economic efficiency and growth. It creates uncertainty and increases the costs of investment. Consequently, investment rates decrease (Mauro, 1995). Foreign direct investment is also negatively affected because, in effect, corruption operates as an unpredictable tax (Wei, 2000). At the same time, the level of unproductive public investment increases as high-level officials and other influential individuals are able to use bribery as a means to manipulate the decisions on projects' realization. Moreover, due to its impact on tax administration, corruption reduces public revenue, contributing to larger fiscal deficits and unsound fiscal policies (Tanzi & Davoodi, 1997).

Interestingly, post-communist countries tend to have higher levels of corruption than non-communist countries in the same geographic regions. The command economies created structural opportunities for illicit payments, which made corruption a pervasive actuality of life in societies. As a result, corruption became a social norm and cultural practice. Besides, the process of privatization in ex-communist countries encouraged corruption to spread further, since the privatization schemes were frequently managed and advised on by the administrators of the former system (Sandholtz & Taagepera, 2005).

The case of Ukraine is a striking example of a corrupt post-communist administration. As Ukraine gained independence in 1991, institutional, structural, and macroeconomic stabilization reforms were not the priority. The old soviet system was not replaced and the country was operating according to the old nomenclature. Ukraine was captured by communist regime representatives and oligarchs, who were afraid of the political cost of reforms and citizens' dissatisfaction. The issue of oligarchization still remains one of the biggest problems for the Ukrainian economy as 50 richest Ukrainians are worth almost 50% of the country's GDP (Mikloš, 2015).

Since the fall of the USSR, the country was ruled by a series of different heads of state. However, none of the succeeding presidents managed to improve the existing situation and to impose a different structure of the country's administration. This was due to a lack of implementation of reforms. From 2010 to 2013, Yanukovich would come to power, leading the country into its most corrupt years.

In 2014, the events of Euromaidan, Ukraine's "dignity revolution", resulted in a new, pro-European leadership. Unfortunately, economic disturbances and declinations continued ravaging the country. All in all, the year of 2014 fostered a "three-way crisis" with bank, macroeconomic and balance of payment disturbances, which was aggravated by the annexation of Crimea by the Russian Federation and the effects of unbroken power of oligarchs.

## **2. On Corruption Perception**

Potentially, corruption perception has a stronger negative impact on economic indicators than corruption itself as it undermines the authority of some institutions and encourages the growth of institutional instability. High levels of corruption perception generates a "culture of distrust", deteriorating the quality of interpersonal relationships within the state (Melgar et al., 2010a). Citizens perceive a bribe as necessary whereas

public officials are likely to accept a bribe as they do not consider it an improper or high-risk activity (Cábelková, 2001).

Generally, the concept of corruption varies among societies and people. As social rules and norms are different, certain actions may be regarded as regular practice in one society and as corrupt behavior in another. Similarly, while an individual may find bribery unjustifiable under any circumstances, someone else's opinion may be influenced by his assessment of the existing level of corruption (Melgar et al., 2010b). If the belief that "everybody acts corrupt" becomes widespread in a society, both ordinary citizens and public officials are more likely to engage in illicit activity (Hankiss, 2002). Furthermore, disposition to offer a bribe may stem either from the briber's willingness to get something he is not entitled to or from his belief that the official will not provide him with his entitlements unless a bribe is paid (Pope, 2000). Such "orientations to action" are constituent of culture and are acquired through the socialization process (Eckstein, 1988). Hence, personal moral views and social practices and beliefs impact people's inclination to bribe. Accordingly, corruption perception can be considered a cultural phenomenon.

Corruption was widespread under the communist regime and the situation did not substantially change after Ukraine gained independence. Given that, it is likely that the citizens' beliefs about social norms and inclinations of the others still remain and influence the way they perceive the state of corruption in Ukraine. This leads to the following hypothesis:

*H1. Beliefs about the culture influence the individual perception of corruption in Ukraine.*

A previous study of corruption perception in Ukraine indicates that extortion to bribery is higher in eastern and southern regions than in the rest of the country (ERA et al., 2011). This finding goes in line with evidence suggesting that Ukrainian speaking regions, i.e. central and western Ukraine, have higher levels of social integration and, consequently, political participation (Vyshnyak, 2009). These imply that not only the exposure to acts of corruption, but also the public attitude towards corruption, should differ among the regions. As such, the spatial dimension of corruption in Ukraine is substantial and the following can be hypothesized:

*H2. There are regional differences in the individual perception of corruption in Ukraine.*



Intuitively, people who make use of public services are more likely to learn about institutional practices and conditions for achieving a desirable outcome. It can be argued that if an individual participates in an illegal transaction, he is more likely to have a higher perception of corruption. However, a study about the relationship between actual experience and perception of corruption in Russia reveals that neither frequency of contacts with public officials, nor encounters with acts of corruption, have significant impact on the individual corruption perception (Rose & Mishler, 2010). Since Russia and Ukraine share a common past and are culturally similar, it is of academic interest to investigate whether the results of the previous research can be extrapolated onto the case of Ukraine. As such, the following hypothesis can be formulated:

*H3. Actual experience with corruption influences the individual perception of corruption in Ukraine.*

As behavior of public officials varies, occasional first-hand experience may not be sufficient for an individual to form an unbiased opinion about the corruption level within an institution. Cábelková (2001) argues that more frequent visits to an institution might contribute to a more accurate perception of corruption. Nonetheless, the author admits that frequent visits to an institution may be misleading as they may be due to reasons other than necessity. For example, a case when a particular corrupt civil servant tries to derive illicit benefits and makes an individual return several times may not be representative of the overall state of corruption in the institution. Nevertheless, such a situation has the potential to shape one's perception of corruption.

The findings of Cábelková's research on corruption perception in Ukraine reveal that the frequency of contacts with institutions has an impact on individual corruption perception for some institutions. For instance, the more one deals with juridical and medical institutions, police or local government, the higher his perception of corruption in these institutions gets. This already being established, the current paper aims at extending the scope of findings. As such, a hypothesis about the impact of intensity of experiencing corruption - rather than frequency of dealing with institutions - on corruption perception is put forward:

*H4. Frequency of encountering acts of corruption influences the individual perception of corruption in Ukraine.*

First-hand experience is not the only relevant source of information determining perception of corruption. As individuals do not interact with officials on a constant basis,

their experience may not be sufficient to form a fully-informed opinion on the state of corruption. People learn about corruption from relatives and friends, press, mass media etc. Different sources are likely to contain differently colored information, shaping one's perception of corruption accordingly. As Cábelloková (2001) finds that people learning about corruption from the press or television tend to evaluate the state of corruption in institutions as less severe than others, this paper suggests the following:

*H5. Different sources of knowledge about corruption differently influence the individual perception of corruption in Ukraine.*

People at different life stages or of different social status are likely to be differently exposed to incidences of corruption. It has been previously hypothesized that life-course adjustments, roles in society and types of labor market activity, among others, could impact individual assessment of the corruption level. In other words, people of different age, gender and occupation are likely to perceive corruption and its extent differently. Moreover, as the level of educational attainment impacts one's capability to process information and draw conclusions, it could as well shape the way an individual perceives the state of affairs. In fact, findings from both cross-country and country-specific researches indicate that the personal characteristics mentioned above are relevant predictors of the perceived corruption at the micro level (Melgar et al, 2010a; Melgar et al, 2010b; Mocan, 2004). For example, those who are employed in the public sector tend to evaluate corruption less severe than those who are employed in the private sector (Melgar & Rossi, 2009). Hence, the following hypothesis is formulated:

*H6. Personal characteristics such as age, gender, educational attainment, income and type of occupation influence the individual perception of corruption in Ukraine.*

Furthermore, individual corruption perception may be influenced by the size of one's town of residence. One could argue that larger cities, contrary to smaller ones, are more likely to favor the factors contributing to higher degrees of corruption. The necessity of more bureaucratic positions arises as the city grows larger, serving as administrative centers for the surrounding regions. Functions such as police force and hospitals will also be more present as the size of the city increases. Thus, exist more environments where corruption can flourish. This presence might increase the perception of corruption in the larger the size of the city. Furthermore, interpersonal relations become more likely to be close, as the size of the town of residence decreases, making room for more transparency. It follows from this, that:

*H7. Town size influences the individual perception of corruption in Ukraine.*

One way to look at a country's current economic state and well-being is to focus on the extent to which people approve of its leader. High approval rates towards the current head of state's actions might also indicate a positive attitude towards the future. A prospering economy increases purchasing power, leading to more trade and ultimately an increase in the standard of living. This is rarely the case when corruption is present, due to the fact that it distorts the flow of money and increases disparities (Tanzi, 1998). As was mentioned previously, a bad state of the economy in Ukraine often comes paired with higher levels of corruption. Therefore, approval rates of the current administration may influence the individual perception of corruption. Thus follows:

*H8. Political sympathy influences the individual perception of corruption in Ukraine.*

The currently bad state of the Ukrainian economy is due to a lack of reforms now and in the past (Mikloš, 2015). The accumulation of acts of mismanagement continuously aggravated the country's affairs without avoiding previous mistakes. Since the issue of corruption is still present, the current Ukrainian administration is suffering from bad publicity. Despite the overall distrust of the citizens towards the government, 60.6% of population believes that it is the President who is responsible for overcoming corruption in the country (ERA et al., 2015). However, exactly because of their distrust, people may overlook the undertaken anti-corruption activities and get a biased perception of their effectiveness. This leads to the following hypothesis:

*H9. Personal evaluations of governmental intentions influence the individual assessment of anti-corruption measures in Ukraine.*

As mentioned before, corruption culminated during Yanukovich's administration. Hugely dissatisfied, the Ukrainian people were protesting for an increased participation and inclusion of Ukraine in the European Union and against corruption. Thus, it comes as no surprise that the events surrounding Euromaidan in 2014 became a turning point for Ukrainian politics, leading to the appointment of Poroshenko as president. Poroshenko, relative to previous presidents, is known for his standpoints against corruption and his eagerness to combat it. The political change showed that turnover of power is still possible in Ukraine. As the public now observes politicians with more scrutiny, the current situation sees relatively more competition within the government. This necessitates more credible promises made by politicians, making more and better reforms possible (Montinola & Jackman, 2002). As these changes are visible to the public eye, one may pinpoint

Euromaidan as the moment after which the individual assessment of anti-corruption measures became more positive. Thus follows the last hypothesis:

H10. *There are differences in individual assessment of anti-corruption measures before and after the change of government in Ukraine in 2015.*

### **3. Data Description and Methodology**

The data for the analysis are retrieved from the “National survey of public opinion on corruption in Ukraine” conducted by Kyiv International Institute of Sociology in 2011 and 2015 for the UNITER project. 10639 and 10173 respondents respectively, interviewed face-to-face, constitute samples which are representative for adult citizens (18 years and older) for Ukraine as a whole as well as for each of 24 regions and the city of Kyiv. The underlying sampling procedure is a multi-stage randomization with a quota selection at the last stage.

The survey mainly asks respondents for their attitudes towards the problem of corruption; experience with corruption; assessments of the effectiveness of anti-corruption measures taken by the authorities; and public willingness to engage in anti-corruption activities. Demographic and socio-economic information, such as age, gender, education, income, and others, is also recorded. All the variables to be used in the current research are categorical and all frequencies are computed based on the initial, not adjusted for the missing values or answers such as “do not know”, dataset.

#### **1. Corruption Perception**

The dataset from 2015 comprises information on perception of corruption in the country in general and in certain institutions or services. As such, it is possible to investigate whether determinants of how people perceive corruption at the aggregate level differ from those of corruption perception at the institutional level. Hence, the dependent variable, ICP, is operationalized as answers to the following questions: “How common is corruption in Ukraine?” and “How widespread is corruption in the: *<institution/service>?*”. The responses include: rather not common, rather common, very common and no corruption, rather widespread, very widespread, respectively. There are 11 institutions and services under consideration: health care, schools, universities, registration of real estate, business regulations and inspections, auto inspection, police, court system, prosecutor’s office, tax authorities and army. For the percentage distribution of the dependent variables, see Appendix 1A.

Beliefs about the culture were chosen such as to represent an individual opinion about Ukrainian mentality and ease of legal access to services. Experience with corruption is operationalized in several ways. For the analysis of the overall ICP, there are dummy variables for those who gave or were offered an unofficial payment or gift in the past 12 months. For the analysis of the perception of corruption in different institutions, there is a dummy variable for those who had to deal with a particular institution in the past 12 months.

There are two more variables to be only used in the analysis of ICP in general. They include frequency of encountering any forms of corruption and political sympathy. The latter is operationalized as supporting the party of the President, supporting any other party, or none of them. All of the other variables to be discussed in this section are employed for both overall and institution-specific ICP.

Sources of receiving information about cases of corruption include personal experience and experience of family members and friends; reports and statements of state bodies officials; non-governmental organizations; printed media; TV and radio; online news sources, blogs in Internet; and social media. All of them are included as dummy variables, which are equal to 1 if a source is one of the three mainly used by a respondent.

As for the personal characteristics, there is a dummy for gender. There are also four age groups, 18-29, 30-44, 45-59, and 60+, each constituting approximately a quarter of the sample. Three levels of educational attainment and four income groups are also included. Income is operationalized as all incomes and monetary earnings of the family during one month and is measured in Ukrainian currency *hryvnia* (UAH) as at the time of the survey conduct. For governmental employees there is an occupational dummy.

The respondents come from 24 administrative regions (*oblast*) of Ukraine and the city of Kiev. In order to investigate the regional effect on ICP without having too many categories within one variable, the oblasts are merged together into geographical regions: East, West, South and Center. The capital city is kept as a separate category. Another predictor variable is type of settlement and it includes four categories, starting from a village up to a city with more than 500,000 inhabitants.

For the list of all the independent variables and the corresponding frequency table, see Appendix 1B.

## **2. Effectiveness of Anti-Corruption Measures**

The dependent variable, assessment of anti-corruption measures, is operationalized as an answer to the following questions: “How effective are anti-corruption activities of: *<governmental body>*?”. The responses include: ineffective, sometimes effective and sometimes not, and effective. Only those respondents, who were actually aware of any undertaken anti-corruption measures (on average, 28.2% in 2015), answered the question. Therefore, it is assumed that answers were informed and the variable contains true information. There are three governmental bodies under consideration: President and Administration, Parliament, and Cabinet of Ministers. For the percentage distribution of the dependent variables, see Appendix 1C.

The evaluation of governmental intentions as a determinant of assessment of anti-corruption measures is approximated in two ways. Firstly, there is a variable that represents respondents’ opinion about government’s willingness to overcome corruption in Ukraine. Secondly, there is a variable that represents respondents’ opinion about the intensity with which the Ukrainian government, in fact, fights corruption.

To investigate whether the change of government influenced the way people perceive the effectiveness of anti-corruption measures, the datasets of 2011 and 2015 are merged and a dummy variable for the year is included in the analysis. The choice of the years was not only determined by the availability of the data but also by the fact that they each occurred exactly one year after the previous and the current governments came to power.

The list of the other predictor variables coincides with the one employed in the ICP analysis. However, some operationalizations are altered as the surveys are not identical. Thus, the belief used in this part of the research is concerned with the possibility of justification of bribery. On top of that, online news and social media as the sources of learning about corruption are merged into one variable, Internet. The type of settlement consists of three categories: village, city-type settlement, and city. Income from 2011 is adjusted and converted in UAH in 2015.

For the detailed overview of all the independent variables and the corresponding frequency table, see Appendix 1D.

## **3. Methodology**

As the data to be used as dependent variables in the analysis are measured on a Likert scale, it is sensible to use an ordinal method of analysis. However, ordinal regressions

require the fulfillment of certain assumptions, one of which being the parallel lines assumption. It states that the estimated parameters should not differ between categories. In other words, the dependent variable's categories are parallel to each other (Kleinbaum and Klein, 2010). Among others, the Likelihood Ratio Test and the Wald Chi-Square test are used to test this assumption (Long, 1997; Agresti, 2002). The hypothesis that tests the coefficients of every category for equality is:

$$H_0 = \beta_{1j} = \beta_{2j} = \dots = \beta_{(K-1)j} = \beta \quad j = 1, 2, \dots, J$$

When the assumption does not hold, the results' interpretation is wrong; thus, finding correct estimations requires the use of alternative methods. As the preliminary regressions were checked for the parallel line assumption and the null hypothesis was rejected, the paper employs a different type of multinomial analysis and treats ordinal variables as nominal. Although this choice is associated with loss of information contained in the order of categories, it is necessary within the scope of this research.

Multinomial logistic (logit) regression is an extension of binary logistic regression that allows for more than two categories of the outcome variable. It is an attractive analysis since it does not assume linearity, normality, or homoscedasticity. However, it requires the careful consideration of the sample size as well as examination of outlying cases. Sample size guidelines indicate a minimum of 10 cases per independent variable (Schwab, 2002). Besides, initial data should be checked for multicollinearity with regressions among the independent variables. Multivariate diagnostics should be employed for assessment and potential exclusion of outliers.

The multinomial logit model is used to predict the probability of category membership on a dependent variable based on multiple independent variables. The probability that the  $i$ -th response falls in the  $j$ -th category is denoted as follows:

$$\pi_{ij} = \Pr\{Y_i = j\}$$

There are several assumptions of the multinomial logistic regression. Firstly, the assumption of independence among the dependent variable choices, the independence of irrelevant alternatives (IIA), states that the membership in one response category should not be related to the membership in another response category. In other words, adding or deleting outcome categories should not affect the odds among the remaining outcomes. Secondly, there is the assumption of non-perfect separation, which implies that the outcome variable should not be perfectly separated, i.e. predicted, by the independent

variables. Otherwise, the unrealistic coefficients are computed and the scope of the effects is overestimated.

To predict probabilities, the multinomial logit first nominates one of the response categories as a reference cell and then calculates log-odds for the rest of the categories relative to the reference cell. Any choice of reference cell suffices as the conversion from one formulation to another is possible. However, a smart choice of baseline, may facilitate interpretation of the parameter estimates. The multinomial logit estimates  $J - 1$  equations for description of the variable with  $J$  categories. Each equation has its own intercept and coefficients, which means that independent variables can influence each response category differently. The parameters of the model are estimated using maximum likelihood procedures. The log-odds are assumed to be a linear function of the independent variables and are written as follows:

$$\eta_{ij} = \log \frac{\pi_{ij}}{\pi_{iJ}} = \alpha_j + \mathbf{x}_i' \boldsymbol{\beta}_j,$$

where  $\alpha_j$  is a constant,  $\boldsymbol{\beta}_j$  is a vector of regression coefficients, for  $j = 1, 2, \dots, J - 1$ , and  $x_i$  is the  $i$ -th response.

The model can also be expressed in terms of the original probabilities instead of log-odds. As such, for  $j = 1, \dots, J$ :

$$\pi_{ij} = \frac{\exp\{\eta_{ij}\}}{\sum_{k=1}^J \exp\{\eta_{ik}\}}$$

Model diagnostics for multinomial logit is not excessive. It is not possible to calculate the R-squared to approximate the fraction of variance explained by the predictors as in the linear regression model. However, there are several ways to compute the pseudo R-squared, which is technically the change from the intercept-only model to the current model in terms of log-likelihood. The statistic is assessed similarly to the R-squared: the larger it is, the better the estimated model is. Besides, the multinomial logistic regression can be evaluated by means of classification and validation, which compares the rate of correct classification of the estimated model to the one of the null model. The former can be found in cross tabulation of observed and predicted response categories, whereas the latter equals to the percentage size of the modal, or the biggest, response category. If the number is higher for the estimated model, it works better than the null model.



The Goodness-of-fit of the model is tested with the Pearson and Deviance statistics. If the significance value is smaller than the significance level (usually 0.05), then the model does not adequately fit the data. However, if there is substantial number of empty cells in cross tabulation, the Pearson statistic cannot be considered reliable, as the test is asymptotic and assumes large expected counts in the cells. Furthermore, the model fitting information is contained within a likelihood ratio test of the final model against the null model. If the significance value is smaller than the significance level, then the estimated model outperforms the intercept-only model. Besides, the likelihood ratio tests check the contribution of each effect to the model.

The individual coefficients, if statistically significant, should be interpreted as follows: negative coefficients decrease the likelihood of choosing the response category over the reference category, whereas positive coefficients work in the opposite direction.

#### **4. Results and Discussion**

Before the models were estimated, correlations between all the variables were checked and no sufficient evidence of multicollinearity was found. As the purpose of the study is to establish all possible effects of all of the hypothesized determinants of perception, the model specification did not get modified and all the variables discussed above entered the regressions.

Overall, 15 models were estimated. All of them contained more than 50% of empty cells due to the large number of categorical variables with multiple responses. Hence, goodness-of-fit of the models cannot be reliably assessed with a Pearson statistic. Nevertheless, classification tables indicate that all of the models outperform the null models at least marginally. Discussion of the research findings and interpretation of the relevant statistically significant individual coefficients will follow.

##### **1. Corruption Perception in General**

The estimated model can be found in Appendix 2A. The pseudo R-squared ranges from 7.3% to 14.3%, indicating that the hypothesized determinants of general corruption perception explain it only partially.

As it was hypothesized, having particular beliefs about the Ukrainian culture influences the individual corruption perception. People, who think that bribery is an integral part of the Ukrainian mentality and is a necessary means to get desirable outcomes

within institutions, tend to evaluate the extent of corruption in Ukraine more severely than otherwise.

The estimated model shows no significant coefficients for people having to pay bribes, meaning that the actual experience with corruption does not seem to be excessively determining one's perception of corruption. However, people who were offered an unofficial payment are less likely to perceive corruption in Ukraine as very common. As for the frequency of encountering forms of corruption, people who experience corruption at least once a year tend to have a higher corruption perception than people who never experience it.

Regarding the sources of knowledge about corruption, not all of them have a significant impact on the individual perception of corruption in Ukraine. Learning about cases of corruption mostly from the press, online news, social media or personal experience of relatives and friends do not seem to be shaping one's corruption perception significantly. Nevertheless, people who mainly receive information from official state reports or statements of non-governmental organizations are less likely to perceive corruption as very common. At the same time, people who use TV and radio as one of their main informational sources are prone to having higher corruption perception. Thus, it can partially be confirmed that different informational sources bias the individual corruption perception, by providing either different information about corruption or the same information in a different light.

Moreover, as it was expected, there are regional differences in the perception of corruption in Ukraine. People from eastern, western and central regions are less likely to evaluate the overall level of corruption in Ukraine as very high as opposed to people from Kyiv. When it comes to the type of settlement, residents of cities ranging from 50 to 500 thousand inhabitants tend to have lower level of corruption perception than those residing in larger cities.

Additionally, political sympathy is proven to impact the way an individual perceives the state of corruption in the country. Those who support the party of the President tend to perceive consistently lower levels of corruption as opposed to the rest of population. Inversely, people supporting none of the parties tend to have consistently higher levels of corruption perception.

Finally, several personal characteristics can be considered relevant perception determinants. First of all, young people aged from 18 to 29 are less likely to perceive

overall corruption in Ukraine as very high, as opposed to people over 60 years old. Other age groups show no significant differences in assessment. Second of all, women are less prone than men to evaluate the level of corruption as very high. However, the most substantial evidence was found for the level of educational attainment as a determinant of perception of corruption in Ukraine. As such, people with university degree have significantly higher levels of corruption perception than less educated people.

Findings indicate that the variables reflecting income and sector of employment are not significant. This means that regardless of household income or whether an individual is a governmental employee or not, there are no differences in the individual perception of corruption.

## **2. Corruption Perception by Institution**

The 11 estimated models can be found in Appendix 2B. For all regressions, the pseudo R-squared ranges from 4.8% to 17%, indicating that the hypothesized determinants of institution-specific corruption perception explain it only partially.

The results of the general model are mostly resembling within the estimations by institution, although some differences do exist. For all institutions under consideration, people who believe that bribery is a necessary means of getting a service tend to have a higher perception of corruption. However, for people who do and do not share the belief that bribery is an integral part of the Ukrainian mentality, there are no differences in ICP in universities, auto inspection and police.

As for the actual institution-specific experience, for 8 out of 11 institutions, having had to deal with the institution within the past 12 month does not have a significant effect on the way an individual perceives the state of corruption there. Interestingly, people who dealt with universities, prosecutor's office or army bodies tend to evaluate the level of corruption in those institutions less severe than the others.

Regarding the sources of information about corruption, the overall conclusion of the general model found support: different information providers have different influences on the individual corruption perception. However, some of the findings are different and deserve a special attention. Firstly, reports of official bodies, NGO statements, and TV and radio each have a significant effect on the individual perception of corruption in 4 out of 11 institutions only. While official governmental reports tend to lower the level of perceived corruption in business regulations, tax authorities and army bodies, they have the opposite effect in schools. Similarly, receiving information from TV and radio stimulates higher

levels of perception of corruption in universities, auto inspection, and police but has a negative effect on the levels of corruption perception in real estate. The effects of the press, online news and social media are also rather inconsistent and are only selectively significant. These findings indicate that the above-mentioned informational sources are capable of shaping one's perception of corruption in institutions, but their impact is not uniform. One possible explanation could be that different sources focus on and cover different aspects of corruption. Therefore, frequent users of different sources have different types of information at hand to process and draw conclusions about.

Secondly, the coefficients of personal experience with corruption and the experience of relatives and friends are all positive and statistically significant for all institutions. This implies that personal experience and word of mouth are the most relevant determinants of corruption perception within the informational variables. People who rely on such a source of information tend to perceive consistently higher levels of corruption in all institutions than people who do not.

Regional differences in perception are more acute when looked at within institution-specific contexts. The only institutions for which the individual corruption perception does not differ are the auto inspection, court system and prosecutor's office. One could argue that these institutions simply function in the same way regardless of the location, not leaving room for the differences in the assessment. In case of health care institutions, residents of all the regions evaluate the level of corruption significantly less severe than residents of the capital. According to the estimates, the difference in perception is tremendous and is not comparable to the results for any other institutions. The possible explanation for such an outcome can be the combination of a larger amount of medical institutions, higher price levels and, thus, substantially higher costs of bribery in Kyiv. Similar findings are established for business regulation and tax authorities and army bodies. The explanation also proceeds in a similar way due to the fact that Kyiv, as the capital and the biggest city in the country, functions as the financial center of Ukraine. As such, there is a higher concentration of people and businesses in Kyiv than in regions, which creates favorable conditions for an intense market of illicit payments. As bribery demand meets its supply, exposure to acts of corruption grows too, leading to higher levels of corruption perception. Moreover, people from central and western regions tend to have lower perception of corruption in schools and universities than residents of Kyiv. The previous reasoning may apply to this finding as well as the fact that those regions display higher levels of social integration and corruption intolerance.

Furthermore, residents of the cities with less than 500,000 inhabitants tend to have lower perception of corruption in schools, court system and prosecutor's office. This could be explained by lower degree of competition for admission to schools in smaller cities and the close proximity of the community in city-type settlements and villages. Additionally, the involvement with courts and prosecutors is more likely to be less intense in smaller towns.

Regarding personal characteristics, age seems to be a relevant determinant of corruption perception for a few institutions only. For instance, people aged 30-59 tend to have higher ICP in business regulations than the elderly. This can be explained by the fact that people of this age group are more likely to be involved in business operations than others. Similarly, gender variables are only significant for ICP in police and army bodies and women tend to evaluate the level of corruption in these institutions lower than men. Additionally, educational variables are only significant in one of the models and people with vocational or high specialized education have higher ICP in universities than people with a university degree. People from the lower tail of the income distribution tend to evaluate corruption in some institutions differently from the rest of population. For example, people with an income up to 3000 UAH have higher ICP in auto inspection and business regulations than others. However, the rest of the results is not consistent enough for a clear conclusion to be drawn. Finally, the sector of employment influences ICP in schools, auto inspection and police, and governmental employees tend to perceive these institutions less corrupt than the rest of the population.

### **3. Assessment of Effectiveness of Anti-Corruption Measures**

The 3 estimated models can be found in Appendix 2C. For all regressions, the pseudo R-squared ranges from 12.3% to 32.8%. These statistics are higher than for corruption perception models and indicate that individual assessment of effectiveness of anti-corruption measures can be better explained in terms of the hypothesized determinants than the former.

The effect of individual evaluations of governmental intentions on the assessment of effectiveness of anti-corruption measures is similar for all governmental bodies under consideration, i.e. President and Administration, Parliament and Cabinet of Ministers. People who consider the government as willing to overcome corruption in Ukraine are likely to perceive the effectiveness of the undertaken anti-corruption measures more positively. Similarly, people, who think that the government exerts sufficient effort to combat corruption in the country, are more prone than people who deem the government

reluctant to fight the issue to evaluate the anti-corruption measures as effective. Therefore, one's personal attitude towards a governmental body shapes an individual perception of the quality of its activities.

The year coefficients are all statistically significant and positive, implying that people are more prone to perceive the anti-corruption activities of the government as effective in 2015 as in 2011. This could indicate either that the latest change of the government has, in fact, led to more effective reforms, or that the positive social expectations about the quality of the new government's activities enhanced the individual assessment of the anti-corruption measures' effectiveness.

Moreover, some other relevant determinants of the individual perception of effectiveness of anti-corruption measures can be identified. Firstly, people from eastern Ukraine are less likely than the people from the central region of the country to evaluate the activities of the President and Administration, Parliament and Cabinet of Ministers as anyhow effective. Possible explanation is that people from Eastern Ukraine are concerned with and directly affected by the military actions in the area. As such, their expectations of the reforms may be higher. Secondly, governmental employees are more likely to evaluate the governmental anti-corruption measures as effective compared to people from other sectors of employment. Thirdly, people who completed high school at most tend to perceive the effectiveness of anti-corruption measures undertaken by the President and Administration higher, as opposed to people with a university degree. Besides, people believing that bribery can be at least sometimes justified tend to evaluate the effectiveness of anti-corruption measures more positively than people who disagree with such a statement. Finally, there is a tendency of people with lower household income to perceive the governmental activities as not effective. Conversely, people coming from smaller settlements are more likely than residents of larger cities to positively evaluate the effectiveness of the governmental anti-corruption measures.

## **5. Conclusion**

The subjective perception of corruption in a country is an indicator of the country's functioning on administrative, legislative and economic levels. However, it incorporates not only the actual level of corruption, but may also be biased by a set of factors. This paper empirically confirmed for the case of Ukraine some of the previous findings about the determinants of individual corruption perception. For instance, different sources of information about corruption differently affect one's perception of corruption and personal

experience and experience of relatives and friends can be considered one of the most relevant determinants. At the same time, having had to deal with a particular institution in recent past does not change one's perception about the state of corruption in the institution.

Furthermore, the paper provided new evidence. First of all, as the paper analyzed how people perceive the extent of corruption in general and in a set of institutions and services, it made learning about the differences and similarities in respective determinants possible. Second of all, the research has shown that there are regional differences in corruption perception in Ukraine, which can be attributed to the differences in the actual levels of corruption there. Besides, the paper addressed the issue of assessment of effectiveness of anti-corruption measures. It was established that Ukrainian citizens were more prone in 2015 than in 2011 to evaluate anti-corruption activities as effective. This can be attributed to the latest change of the government and associated with new, potentially more effective reforms as well as social expectations about their quality.

The conducted study implies that a deeper focus on regional and institutional adjustment of anti-corruption reforms is necessary for their successful implementation. However, Ukrainians believe that bribery has become an innate part of the Ukrainian society, which can block the beneficial effects of any reforms. Thus, it is crucial for the government to clearly state which corruption measures are to be taken when and how, and which results are aimed for and why it is reasonable to think so. This, will provide the people of Ukraine with a clearer perspective and more faith that corruption is on the decline.

The limitations of the study can be summarized as follows. First of all, as multinomial logistic regressions were estimated instead of ordinal models, some of the relevant information contained within the order of response categories in dependent variables was lost. Second of all, despite the sufficient sample size, the large amount of categorical variables used as predictor variables created empty cells in cross tabulations and made goodness-of-fit statistics unreliable. As such, there is a lot of room for improvement of methodology. Moreover, having a larger number of observations could allow for more precise evaluation of the dependent variables without contributing to the problem of empty cells. For example, list of Likert-scale responses could be extended to more than three categories. Another aspect is operationalization. Although the variables corresponding to the hypotheses were carefully considered, more accurate

correspondence between the hypothesized and the operationalized could lead to easily interpretable and more definite results.

Suggestions for further research start with addressing the limitations of the current study by means of advancing methodology and employing a dataset that is bigger in size and is more closely related to the stated hypotheses. Besides, one could continue developing the issue of assessment of anti-corruption measures and observe whether the quantity of implemented reforms has an impact on the evaluation of their quality. Assessment of the effectiveness of anti-corruption activities segregated by the sphere of implementation rather than by the institution could as well be a valuable contribution. Furthermore, it could be of academic interest to study the static relationship between subjective corruption perception and perceived effectiveness of anti-corruption measures. One could also approach the issue in terms of development over time in order to establish possible patterns of the relationship's evolution.

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## Appendix 1A. Operationalization of Dependent Variables, Corruption Perception

Description	Variable	Comments
How common is corruption in Ukraine?	Very common (63.8%)	
	Rather common (21.7%)	
	Rather not common (11.6%)	Reference category
How widespread is corruption in the: To get health care?	Very widespread (58%)	
	Rather widespread (37%)	
	No corruption (1.5%)	Reference category
How widespread is corruption in the: Schools administration and teachers?	Very widespread (58%)	
	Rather widespread (49.5%)	
	No corruption (9.7%)	Reference category
How widespread is corruption in the: Universities and their educators?	Very widespread (47%)	
	Rather widespread (37.8%)	
	No corruption (1.8%)	Reference category
How widespread is corruption in the: Real estate registration?	Very widespread (38.7%)	
	Rather widespread (30.7%)	
	No corruption (4.5%)	Reference category
How widespread is corruption in the: Business regulations and inspections?	Very widespread (37.5%)	
	Rather widespread (24.7%)	
	No corruption (2.2%)	Reference category
How widespread is corruption in the: State auto inspection?	Very widespread (66%)	
	Rather widespread (23%)	
	No corruption (1.1%)	Reference category
How widespread is corruption in the: Police?	Very widespread (63.1%)	
	Rather widespread (25.5%)	
	No corruption (1%)	Reference category
How widespread is corruption in the: Court system?	Very widespread (66%)	
	Rather widespread (23%)	
	No corruption (1.1%)	Reference category
How widespread is corruption in the: Prosecutor's office?	Very widespread (62.4%)	
	Rather widespread (24.3%)	
	No corruption (1.3%)	Reference category
How widespread is corruption in the: Tax authorities?	Very widespread (47.2%)	
	Rather widespread (27.3%)	
	No corruption (2.3%)	Reference category

## Appendix 1A. Operationalization of Dependent Variables, Corruption Perception

How widespread is corruption in the: Drafting into army bodies?	Very widespread (36.6%)	
	Rather widespread (37.9%)	
	No corruption (3.5%)	Reference category

Frequencies are computed using the initial dataset with 10173 observations, which includes missing values and responses such as “do not know” and “refuse to answer”. Thus, the frequencies may not add up to 100%.

## Appendix 1B. Operationalization of Independent Variables, Corruption Perception

Description	Variable	Comments
<b>Beliefs</b>		
Bribery is an integral part of the Ukrainian mentality	Belief 1 = 1: Agree (67%)	
	Belief 1 = 2: Disagree (25.6%)	Omitted
I will get nothing I want, like access to medical care or higher education (feel free to change examples), if I don't pay a bribe for it	Belief 2 = 1: Agree (62.5%)	
	Belief 2 = 2: Disagree (27.9%)	Omitted
<b>Experience with corruption</b>		
How frequently you encounter any form of corruption?	Frequency = 1: Monthly or more often (20.8%)	
	Frequency = 2: Once or a few times per year (47.6%)	
	Frequency = 3: Never (16.3%)	Omitted
In the past 12 months, did you give somebody an unofficial payment, gifts, or favor with any governmental officials including educational, medical or other organizations?	Bribe given = 1: Yes (41.9%)	
	Bribe given = 2: No (56.2%)	Omitted
In the past 12 months, were you been offered an unofficial payment, gifts, or favor?	Bribe received = 1: Yes (6.3%)	
	Bribe received = 2: No (92.6%)	Omitted
<b>Sources of information about corruption</b>		
Personal experience and experience of family members, friends	Experience and word of mouth (WoM)= 1: Yes (70.8%)	
	Experience and word of mouth (WoM)= 2: No (29.2%)	Omitted
Reports and statements of state bodies officials	Official reports= 1: Yes (24%)	
	Official reports= 2: No (76%)	Omitted
Non-government organizations (public or professional)	NGO = 1: Yes (11.5%)	
	NGO = 2: No (88.5%)	Omitted
Printed media	Press = 1: Yes (51.6%)	
	Press = 2: No (48.4%)	Omitted
TV and radio	TV and radio = 1: Yes (83.8%)	
	TV and radio = 2: No (16.2%)	Omitted
Online news sources, blogs in Internet	Online news = 1: Yes (20%)	
	Online news = 2: No (80%)	Omitted
Social media (Vkontakte, Facebook, Twitter)	Social media = 1: Yes (14.8%)	
	Social media = 2: No (85.2%)	Omitted
<b>Personal characteristics</b>		
4 age groups	Age = 1: 18-29 (19.2%)	

## Appendix 1B. Operationalization of Independent Variables, Corruption Perception

	Age = 2: 30-44 (26.2%)	
	Age = 3: 45-59 (23.3%)	
	Age = 4: 60+ (31.3%)	Omitted
Respondent's gender	Gender = 1: Female (56.7%)	
	Gender = 2: Male (43.3%)	Omitted
Respondent's level of educational attainment	Education = 1: High school or less (27.3%)	
	Education = 2: Vocational/High specialized (44.4%)	
	Education = 3: University degree (28.3%)	Omitted
Taking into account all incomes and monetary earnings of all members of your household during one month, to what income group does your family belong?	Income = 1: < 2000 UAH (25.6%)	
	Income = 2: 2001 - 3000 UAH (28%)	
	Income = 3: 3001 - 4000 UAH (18.8%)	
	Income = 4: > 4000 UAH (27.6%)	Omitted
Respondent's occupation	Governmental employee = 1: Yes (12.4%)	
	Governmental employee = 2: No (87.6%)	Omitted
<b>Other</b>		
Type of settlement	Town size = 1: Village (35.9%)	
	Town size = 2: Town <50K inhabitants (25.3%)	
	Town size = 3: City 50-500K inhabitants (19.9%)	
	Town size = 4: City >500K inhabitants (19%)	Omitted
In what region did interview take place?	Region = 1: East (18.9%)	
	Region = 2: West (23.7%)	
	Region = 3: South (25.5%)	
	Region = 4: Center (24.8%)	
	Region = 5: Kiev (7%)	Omitted
What political force do you sympathize with most of all?	Support = 1: President's party (8.9%)	
	Support = 2: None (30.3%)	
	Support = 3: Other (60.8%)	Omitted

## Appendix 1B. Operationalization of Independent Variables, Corruption Perception

Over the past 12 months, have you or a family member dealt with: <institution>?	Health care	Schools	Universities	Real estate	Business regulations	Auto inspection	Police	Court	Prosecutor	Tax	Army
Encounter = 1: Yes	69.7%	22%	6.1%	6.8%	1.7%	16.1%	7.3%	3.1%	1.8%	3.3%	5.2%
Encounter = 2: No (Omitted)	29.7%	78%	93.9%	93.2%	98.3%	83%	92.7%	96.9%	98.2%	96.7%	94.8%

Frequencies are computed using the dataset with 7745 observations. Data are adjusted for missing values in the predictor variables that are used in models for corruption perception both in general and by institution. Thus, some frequencies may not add up to 100%.

## Appendix 1C. Operationalization of Dependent Variables, Assessment of Anti-Corruption Measures

Description	Variable	Comments
How effective are anti-corruption activities of: President and Administration? (N = 4509)	Effective (11.2%)	
	Sometimes effective and sometimes not (31.9%)	
	Ineffective (56.9%)	Reference category
How effective are anti-corruption activities of: Parliament? (N = 3649)	Effective (8.9%)	
	Sometimes effective and sometimes not (24.4%)	
	Ineffective (66.6%)	Reference category
How effective are anti-corruption activities of: Cabinet of Ministers? (N = 3265)	Effective (5.7%)	
	Sometimes effective and sometimes not (25.8%)	
	Ineffective (68.5%)	Reference category

Frequencies are computed using the datasets that are specifically adjusted for the governmental bodies under consideration. The total number of observations is specified in the Description section.



## Appendix 1D. Operationalization of Independent Variables, Assessment of Anti-Corruption Measures

Description	Variable	Comments
<b>Beliefs</b>		
Do you believe that giving bribery, unofficial services, or gifts can be justified if it is necessary for solving the problem which is important for you?	Belief 3 = 1: Always justified (5%)	
	Belief 3 = 2: Sometimes justified (48.6%)	
	Belief 3 = 3: Never justified (46.3%)	Omitted
<b>Sources of information about corruption</b>		
Personal experience and experience of family members, friends	Experience and word of mouth (WoM)= 1: Yes (73.8%)	
	Experience and word of mouth (WoM)= 2: No (26.2%)	Omitted
Reports and statements of state bodies officials	Official reports= 1: Yes (24.2%)	
	Official reports= 2: No (75.8%)	Omitted
Non-government organizations (public or professional)	NGO = 1: Yes (8.6%)	
	NGO = 2: No (91.4%)	Omitted
Printed media	Press = 1: Yes (60.2%)	
	Press = 2: No (39.8%)	Omitted
TV and radio	TV and radio = 1: Yes (88.7%)	
	TV and radio = 2: No (11.3%)	Omitted
Internet	Internet = 1: Yes (21%)	
	Internet = 2: No (79%)	Omitted
<b>Personal characteristics</b>		
4 age groups	Age = 1: 18-29 (20.1%)	
	Age = 2: 30-44 (27.2%)	
	Age = 3: 45-59 (23.7%)	
	Age = 4: 60+ (29%)	Omitted
Respondent's gender	Gender = 1: Female (55.5%)	
	Gender = 2: Male (44.5%)	Omitted
Respondent's level of educational attainment	Education = 1: High school or less (28.6%)	
	Education = 2: Vocational/High specialized (44.1%)	
	Education = 3: University degree (27.3%)	Omitted
Taking into account all incomes and monetary earnings of all members of your household during one month, to what income group does your family belong?	Income = 1: < 2000 UAH (22.1%)	
	Income = 2: 2001 - 3000 UAH (21%)	
	Income = 3: 3001 - 4000 UAH (19.9%)	

## Appendix 1D. Operationalization of Independent Variables, Assessment of Anti-Corruption Measures

	Income = 4: > 4000 UAH (37.1%)	Omitted
Respondent's occupation	Governmental employee = 1: Yes (14.3%)	
	Governmental employee = 2: No (85.7%)	Omitted
<b>Other</b>		
Type of settlement	Town size = 1: Village (39.3%)	
	Town size = 2: City-type settlement (19%)	
	Town size = 3: (41.7%)	Omitted
In what region did interview take place?	Region = 1: East (11.4%)	
	Region = 2: West (29.7%)	
	Region = 3: South (23.8%)	
	Region = 4: Center (35.1%)	Omitted
What political force do you sympathize with most of all?	Support = 1: President's party (12.4%)	
	Support = 2: None (30.6%)	
	Support = 3: Other (57%)	Omitted
Year of conducting an interview	Year = 1: 2015 (47.2%)	
	Year = 2: 2011 (52.8%)	Omitted
<b>Evaluation of the government</b>		
In your opinion, how intensively does Ukrainian government combat the corruption?	Combat = 1: No struggle (74.4%)	
	Combat = 2: Somewhat intensive struggle (21.2%)	
	Combat = 3: Struggle enough (4.4%)	Omitted

Frequencies are computed using the dataset with 13751 observations. Data are adjusted for missing values in the predictor variables that are not governmental-body-specific.

Do you think <governmental body> is willing to overcome corruption in Ukraine?	Parliament	President	Cabinet of ministers
WTO = 1: Unwilling	62.8%	47.6%	57.6%
WTO = 2: To some extent willing	28.2%	30.7%	29.2%
WTO = 3: Willing (omitted)	9.1%	21.6%	13.2%

Frequencies are computed using the datasets that are specifically adjusted for the governmental bodies under consideration.

## Appendix 2A. Determinants of Corruption

	Rather common vs. Not common	Very common vs. Not common
Intercept	-0.427 (0.431)	<b>1.496<sup>a</sup></b> <b>(0.362)</b>
Bribe received	-0.030 (0.196)	<b>-0.467<sup>a</sup></b> <b>(0.180)</b>
Bribe given	0.183 (0.109)	0.043 (0.098)
Frequency = 1	<b>0.526<sup>a</sup></b> <b>(0.171)</b>	<b>0.841<sup>a</sup></b> <b>(0.145)</b>
Frequency = 2	<b>0.683<sup>a</sup></b> <b>(0.140)</b>	<b>0.409<sup>a</sup></b> <b>(0.119)</b>
Belief 1	<b>0.193<sup>c</sup></b> <b>(0.108)</b>	<b>0.600<sup>a</sup></b> <b>(0.096)</b>
Belief 2	<b>0.187<sup>c</sup></b> <b>(0.108)</b>	<b>0.698<sup>a</sup></b> <b>(0.095)</b>
Experience and word of mouth	0.100 (0.142)	0.113 (0.121)
Official reports	0.129 (0.147)	<b>-0.263<sup>b</sup></b> <b>(0.127)</b>
NGO	-0.204 (0.171)	<b>-0.852<sup>a</sup></b> <b>(0.150)</b>
Press	0.104 (0.134)	-0.147 (0.113)
TV and radio	<b>0.383<sup>b</sup></b> <b>(0.165)</b>	0.212 (0.141)
Online news	0.100 (0.165)	-0.108 (0.142)
Social media	0.191 (0.182)	0.062 (0.158)
Region = 1	0.352 (0.310)	<b>-0.806<sup>a</sup></b> <b>(0.274)</b>
Region = 2	-0.111 (0.313)	<b>-0.472<sup>c</sup></b> <b>(0.274)</b>
Region = 3	-0.055 (0.293)	-0.269 (0.255)
Region = 4	-0.344 (0.317)	<b>-0.680<sup>b</sup></b> <b>(0.276)</b>
Support = 1	<b>-0.631<sup>a</sup></b> <b>(0.146)</b>	<b>-0.947<sup>a</sup></b> <b>(0.128)</b>
Support = 2	<b>0.226<sup>c</sup></b> <b>(0.123)</b>	<b>0.556<sup>a</sup></b> <b>(0.110)</b>
Governmental employee	-0.022 (0.154)	-0.040 (0.138)
Age = 1	-0.050 (0.160)	<b>-0.430<sup>a</sup></b> <b>(0.143)</b>
Age = 2	-0.029 (0.152)	-0.083 (0.135)

## Appendix 2A. Determinants of Corruption

Age = 3	-0.008 (0.147)	-0.124 (0.130)
Gender	-0.085 (0.103)	<b>-0.180<sup>b</sup></b> <b>(0.092)</b>
Education = 1	<b>-0.280<sup>c</sup></b> <b>(0.152)</b>	<b>-0.253<sup>c</sup></b> <b>(0.135)</b>
Education = 2	<b>-0.334<sup>a</sup></b> <b>(0.127)</b>	<b>-0.197<sup>c</sup></b> <b>(0.114)</b>
Income = 1	0.096 (0.160)	0.038 (0.141)
Income = 2	0.090 (0.145)	-0.200 (0.129)
Income = 3	-0.031 (0.150)	-0.140 (0.133)
Town size = 1	0.167 (0.193)	-0.009 (0.173)
Town size = 2	0.268 (0.191)	0.247 (0.172)
Town size = 3	<b>-0.426<sup>b</sup></b> <b>(0.192)</b>	<b>-0.425<sup>b</sup></b> <b>(0.171)</b>
N	5604	
Nagelkerke R <sup>2</sup>	0.143	
McFadden R <sup>2</sup>	0.073	

The individual coefficients are significant at <sup>a</sup>1%, <sup>b</sup>5% or <sup>c</sup>10% significance level.

## Appendix 2B. Determinants of Corruption Perception by Institution

	Health care		Schools		Universities		Real estate		Business regulations	
	RW/NC	VW/NC	RW/NC	VW/NC	RW/NC	VW/NC	RW/NC	VW/NC	RW/NC	VW/NC
Intercept	<b>16.060<sup>a</sup></b> <b>(0.837)</b>	16.407 (0.844)	<b>1.834<sup>a</sup></b> <b>(0.429)</b>	<b>2.366<sup>a</sup></b> <b>(0.442)</b>	1.166 (0.744)	<b>2.055<sup>a</sup></b> <b>(0.737)</b>	<b>2.597<sup>a</sup></b> <b>(0.617)</b>	3.685 (0.608)	<b>2.822<sup>a</sup></b> <b>(0.967)</b>	<b>3.771<sup>a</sup></b> <b>(0.959)</b>
Encounter	0.142 (0.234)	0.167 (0.234)	0.004 (0.116)	0.161 (0.124)	<b>-0.691<sup>b</sup></b> <b>(0.301)</b>	<b>-0.544<sup>c</sup></b> <b>(0.298)</b>	-0.118 (0.192)	-0.155 (0.192)	0.746 (0.741)	0.894 (0.736)
Belief 1	<b>0.869<sup>a</sup></b> <b>(0.222)</b>	<b>1.048<sup>a</sup></b> <b>(0.222)</b>	0.082 (0.095)	<b>0.260<sup>b</sup></b> <b>(0.105)</b>	0.020 (0.199)	0.223 (0.198)	0.082 (0.125)	<b>0.350<sup>a</sup></b> <b>(0.125)</b>	<b>0.751<sup>a</sup></b> <b>(0.166)</b>	<b>0.929<sup>a</sup></b> <b>(0.165)</b>
Belief 2	<b>0.944<sup>a</sup></b> <b>(0.234)</b>	<b>1.855<sup>a</sup></b> <b>(0.233)</b>	<b>0.168<sup>c</sup></b> <b>(0.092)</b>	<b>0.839<sup>a</sup></b> <b>(0.104)</b>	<b>0.702<sup>a</sup></b> <b>(0.192)</b>	<b>1.463<sup>a</sup></b> <b>(0.192)</b>	<b>0.442<sup>a</sup></b> <b>(0.120)</b>	<b>0.944<sup>a</sup></b> <b>(0.121)</b>	0.270 (0.166)	<b>0.828<sup>a</sup></b> <b>(0.165)</b>
Experience & WoM	<b>0.515<sup>b</sup></b> <b>(0.253)</b>	<b>0.850<sup>a</sup></b> <b>(0.253)</b>	<b>0.613<sup>a</sup></b> <b>(0.111)</b>	<b>0.539<sup>a</sup></b> <b>(0.121)</b>	<b>1.345<sup>a</sup></b> <b>(0.206)</b>	<b>1.182<sup>a</sup></b> <b>(0.204)</b>	<b>0.694<sup>a</sup></b> <b>(0.157)</b>	<b>0.671<sup>a</sup></b> <b>(0.155)</b>	<b>0.668<sup>a</sup></b> <b>(0.222)</b>	<b>0.785<sup>a</sup></b> <b>(0.221)</b>
Official reports	0.243 (0.293)	0.052 (0.294)	<b>0.406<sup>a</sup></b> <b>(0.128)</b>	<b>0.250<sup>c</sup></b> <b>(0.137)</b>	0.296 (0.238)	-0.074 (0.236)	-0.181 (0.173)	-0.214 (0.171)	<b>-0.395<sup>c</sup></b> <b>(0.238)</b>	-0.318 (0.235)
NGO	<b>1.138<sup>c</sup></b> <b>(0.591)</b>	<b>1.312<sup>b</sup></b> <b>(0.591)</b>	<b>0.579<sup>a</sup></b> <b>(0.183)</b>	<b>0.644<sup>a</sup></b> <b>(0.191)</b>	<b>0.944<sup>b</sup></b> <b>(0.379)</b>	0.444 (0.378)	<b>0.532<sup>b</sup></b> <b>(0.254)</b>	0.258 (0.254)	-0.182 (0.293)	-0.349 (0.291)
Press	0.119 (0.250)	0.133 (0.250)	0.037 (0.106)	<b>-0.189<sup>c</sup></b> <b>(0.114)</b>	<b>0.412<sup>b</sup></b> <b>(0.206)</b>	0.096 (0.204)	-0.115 (0.154)	<b>-0.423<sup>a</sup></b> <b>(0.152)</b>	-0.094 (0.221)	<b>-0.420<sup>c</sup></b> <b>(0.219)</b>
TV and radio	-0.398 (0.398)	-0.573 (0.397)	0.075 (0.154)	-0.234 (0.162)	<b>0.563<sup>b</sup></b> <b>(0.288)</b>	0.134 (0.285)	<b>-0.418<sup>b</sup></b> <b>(0.213)</b>	<b>-0.365<sup>c</sup></b> <b>(0.212)</b>	-0.028 (0.269)	0.057 (0.267)
Online news	0.216 (0.324)	0.089 (0.324)	<b>0.310<sup>b</sup></b> <b>(0.137)</b>	0.004 (0.149)	<b>0.650<sup>b</sup></b> <b>(0.266)</b>	0.271 (0.264)	-0.100 (0.185)	<b>-0.394<sup>b</sup></b> <b>(0.183)</b>	-0.329 (0.254)	<b>-0.473<sup>c</sup></b> <b>(0.252)</b>
Social media	0.020 (0.339)	0.204 (0.338)	<b>0.304<sup>b</sup></b> <b>(0.146)</b>	-0.026 (0.158)	<b>0.501<sup>c</sup></b> <b>(0.284)</b>	0.249 (0.282)	-0.101 (0.197)	-0.200 (0.195)	-0.047 (0.275)	-0.138 (0.273)
Region = 1	<b>-13.809<sup>a</sup></b> <b>(0.355)</b>	<b>-14.177<sup>a</sup></b> <b>(0.383)</b>	0.395 (0.424)	0.009 (0.426)	-0.050 (0.731)	-0.303 (0.729)	-0.233 (0.551)	-0.847 (0.542)	<b>-1.481<sup>c</sup></b> <b>(0.863)</b>	<b>-2.069<sup>b</sup></b> <b>(0.855)</b>
Region = 2	<b>-14.422<sup>a</sup></b> <b>(0.268)</b>	<b>-14.050<sup>a</sup></b> <b>(0.305)</b>	<b>-0.838<sup>b</sup></b> <b>(0.411)</b>	<b>-1.321<sup>a</sup></b> <b>(0.413)</b>	<b>-1.893<sup>a</sup></b> <b>(0.653)</b>	<b>-1.476<sup>b</sup></b> <b>(0.650)</b>	<b>-2.104<sup>a</sup></b> <b>(0.510)</b>	<b>-2.818<sup>a</sup></b> <b>(0.501)</b>	<b>-2.626<sup>a</sup></b> <b>(0.852)</b>	<b>-3.399<sup>a</sup></b> <b>(0.845)</b>
Region = 3	<b>-13.437<sup>a</sup></b> <b>(0.365)</b>	<b>-13.299<sup>a</sup></b> <b>(0.391)</b>	0.503 (0.408)	0.220 (0.409)	<b>-1.236<sup>b</sup></b> <b>(0.626)</b>	-0.795 (0.623)	<b>-1.382<sup>a</sup></b> <b>(0.497)</b>	<b>-1.822<sup>a</sup></b> <b>(0.488)</b>	<b>-1.605<sup>c</sup></b> <b>(0.839)</b>	<b>-2.067<sup>b</sup></b> <b>(0.832)</b>
Region = 4	-14.209 (0.000)	<b>-13.946<sup>a</sup></b> <b>(0.158)</b>	<b>-0.766<sup>c</sup></b> <b>(0.415)</b>	<b>-0.805<sup>c</sup></b> <b>(0.418)</b>	<b>-2.248<sup>a</sup></b> <b>(0.663)</b>	<b>-2.126<sup>a</sup></b> <b>(0.660)</b>	<b>-2.168<sup>a</sup></b> <b>(0.516)</b>	<b>-3.024<sup>a</sup></b> <b>(0.507)</b>	<b>-1.660<sup>c</sup></b> <b>(0.864)</b>	<b>-2.684<sup>a</sup></b> <b>(0.858)</b>
Governmental	0.152	-0.043	<b>-0.263<sup>b</sup></b>	<b>-0.422<sup>a</sup></b>	-0.077	-0.196	0.087	0.062	0.283	0.244

## Appendix 2B. Determinants of Corruption Perception by Institution

employee	(0.339)	(0.339)	<b>(0.128)</b>	<b>(0.141)</b>	(0.267)	(0.266)	(0.180)	(0.179)	(0.257)	(0.255)
Age = 1	-0.099 (0.329)	-0.264 (0.328)	-0.089 (0.137)	-0.177 (0.150)	0.299 (0.305)	0.402 (0.304)	0.022 (0.186)	0.170 (0.185)	0.204 (0.249)	0.379 (0.247)
Age = 2	0.150 (0.321)	0.061 (0.321)	<b>0.284<sup>b</sup></b> <b>(0.139)</b>	0.169 (0.150)	0.164 (0.275)	0.237 (0.274)	<b>0.362<sup>b</sup></b> <b>(0.175)</b>	<b>0.446<sup>b</sup></b> <b>(0.175)</b>	<b>0.550<sup>b</sup></b> <b>(0.241)</b>	<b>0.622<sup>a</sup></b> <b>(0.239)</b>
Age = 3	<b>0.597<sup>c</sup></b> <b>(0.356)</b>	0.581 (0.355)	0.132 (0.124)	-0.022 (0.136)	0.137 (0.276)	0.323 (0.275)	0.074 (0.167)	0.179 (0.166)	<b>0.497<sup>b</sup></b> <b>(0.243)</b>	<b>0.471<sup>c</sup></b> <b>(0.241)</b>
Gender	-0.202 (0.225)	-0.240 (0.224)	-0.129 (0.089)	-0.113 (0.097)	-0.130 (0.192)	-0.216 (0.192)	-0.187 (0.120)	<b>-0.326<sup>a</sup></b> <b>(0.119)</b>	0.005 (0.163)	-0.147 (0.162)
Education = 1	-0.051 (0.315)	-0.107 (0.314)	-0.113 (0.129)	-0.139 (0.140)	0.262 (0.269)	0.233 (0.268)	-0.177 (0.177)	-0.170 (0.175)	-0.061 (0.243)	0.110 (0.240)
Education = 2	0.295 (0.279)	0.101 (0.278)	0.053 (0.112)	-0.078 (0.121)	<b>0.513<sup>b</sup></b> <b>(0.232)</b>	<b>0.410<sup>c</sup></b> <b>(0.231)</b>	-0.155 (0.147)	<b>-0.260<sup>c</sup></b> <b>(0.147)</b>	0.039 (0.197)	0.015 (0.196)
Income = 1	0.338 (0.322)	0.143 (0.322)	-0.019 (0.136)	<b>-0.336<sup>b</sup></b> <b>(0.148)</b>	0.231 (0.278)	-0.037 (0.277)	0.195 (0.178)	0.040 (0.176)	<b>0.599<sup>b</sup></b> <b>(0.258)</b>	<b>0.637<sup>b</sup></b> <b>(0.255)</b>
Income = 2	<b>0.713<sup>b</sup></b> <b>(0.322)</b>	0.505 (0.321)	-0.040 (0.129)	<b>-0.296<sup>b</sup></b> <b>(0.139)</b>	<b>0.528<sup>c</sup></b> <b>(0.272)</b>	0.240 (0.271)	<b>0.363<sup>b</sup></b> <b>(0.170)</b>	0.092 (0.169)	<b>0.474<sup>b</sup></b> <b>(0.223)</b>	0.274 (0.222)
Income = 3	0.320 (0.319)	0.199 (0.318)	-0.064 (0.136)	-0.175 (0.146)	0.386 (0.282)	0.113 (0.281)	0.143 (0.176)	-0.041 (0.174)	0.115 (0.226)	0.219 (0.223)
Town size = 1	-0.729 (0.540)	<b>-1.241<sup>b</sup></b> <b>(0.539)</b>	<b>-1.211<sup>a</sup></b> <b>(0.252)</b>	<b>-2.071<sup>a</sup></b> <b>(0.258)</b>	0.507 (0.352)	0.036 (0.349)	<b>0.398<sup>c</sup></b> <b>(0.227)</b>	0.041 (0.222)	-0.156 (0.335)	-0.506 (0.330)
Town size = 2	-0.313 (0.559)	-0.652 (0.558)	<b>-0.740<sup>a</sup></b> <b>(0.256)</b>	<b>-1.295<sup>a</sup></b> <b>(0.260)</b>	<b>0.773<sup>b</sup></b> <b>(0.368)</b>	0.435 (0.365)	<b>0.520<sup>b</sup></b> <b>(0.230)</b>	0.370 (0.225)	0.174 (0.342)	-0.010 (0.336)
Town size = 3	-0.864 (0.542)	<b>-1.413<sup>a</sup></b> <b>(0.540)</b>	<b>-0.483<sup>c</sup></b> <b>(0.263)</b>	<b>-1.290<sup>a</sup></b> <b>(0.268)</b>	<b>0.623<sup>c</sup></b> <b>(0.368)</b>	0.230 (0.365)	<b>0.529<sup>b</sup></b> <b>(0.238)</b>	0.006 (0.234)	-0.200 (0.336)	-0.486 (0.331)
N	6470		5903		5944		5170		4512	
Nagelkerke R <sup>2</sup>	0.121		0.170		0.106		0.123		0.117	
McFadden R <sup>2</sup>	0.067		0.082		0.056		0.061		0.061	

## Appendix 2B. Determinants of Corruption Perception by Institution

	Auto inspection		Police		Court		Prosecutor		Tax		Army	
	RW/NC	VW/NC	RW/NC	VW/NC	RW/NC	VW/NC	RW/NC	VW/NC	RW/NC	VW/NC	RW/NC	VW/NC
Intercept	<b>2.415<sup>b</sup></b> <b>(1.114)</b>	<b>3.567<sup>a</sup></b> <b>(1.099)</b>	<b>2.861<sup>a</sup></b> <b>(0.861)</b>	<b>3.550<sup>a</sup></b> <b>(0.847)</b>	<b>2.690<sup>a</sup></b> <b>(0.924)</b>	<b>4.414<sup>a</sup></b> <b>(0.904)</b>	<b>2.993<sup>a</sup></b> <b>(1.021)</b>	<b>4.820<sup>a</sup></b> <b>(1.003)</b>	<b>3.537<sup>a</sup></b> <b>(0.953)</b>	<b>4.484<sup>a</sup></b> <b>(0.947)</b>	<b>4.033<sup>a</sup></b> <b>(0.906)</b>	<b>4.838<sup>a</sup></b> <b>(0.903)</b>
Encounter	0.099 (0.446)	0.305 (0.442)	-0.104 (0.440)	-0.028 (0.434)	-0.119 (0.576)	0.038 (0.564)	<b>-1.085<sup>b</sup></b> <b>(0.477)</b>	<b>-1.097<sup>b</sup></b> <b>(0.459)</b>	-0.509 (0.331)	-0.490 (0.328)	<b>-0.419<sup>c</sup></b> <b>(0.230)</b>	-0.322 (0.231)
Belief 1	-0.559 (0.353)	-0.277 (0.350)	-0.245 (0.260)	0.120 (0.257)	<b>0.444<sup>b</sup></b> <b>(0.225)</b>	<b>0.783<sup>a</sup></b> <b>(0.221)</b>	0.215 (0.206)	<b>0.590<sup>a</sup></b> <b>(0.203)</b>	<b>0.450<sup>a</sup></b> <b>(0.162)</b>	<b>0.643<sup>a</sup></b> <b>(0.161)</b>	<b>0.598<sup>a</sup></b> <b>(0.139)</b>	<b>0.513<sup>a</sup></b> <b>(0.140)</b>
Belief 2	0.253 (0.310)	<b>0.947<sup>a</sup></b> <b>(0.307)</b>	0.135 (0.243)	<b>0.951<sup>a</sup></b> <b>(0.240)</b>	0.240 (0.223)	<b>0.914<sup>a</sup></b> <b>(0.220)</b>	<b>0.384<sup>c</sup></b> <b>(0.203)</b>	<b>1.075<sup>a</sup></b> <b>(0.200)</b>	<b>0.392<sup>b</sup></b> <b>(0.160)</b>	<b>1.131<sup>a</sup></b> <b>(0.160)</b>	0.092 (0.140)	<b>0.556<sup>a</sup></b> <b>(0.142)</b>
Experience & WoM	<b>1.087<sup>a</sup></b> <b>(0.336)</b>	<b>1.070<sup>a</sup></b> <b>(0.331)</b>	<b>0.910<sup>a</sup></b> <b>(0.272)</b>	<b>0.932<sup>a</sup></b> <b>(0.267)</b>	<b>0.861<sup>a</sup></b> <b>(0.284)</b>	<b>0.852<sup>a</sup></b> <b>(0.278)</b>	<b>1.052<sup>a</sup></b> <b>(0.251)</b>	<b>0.926<sup>a</sup></b> <b>(0.245)</b>	<b>0.762<sup>a</sup></b> <b>(0.210)</b>	<b>0.894<sup>a</sup></b> <b>(0.209)</b>	<b>1.172<sup>a</sup></b> <b>(0.175)</b>	<b>1.056<sup>a</sup></b> <b>(0.174)</b>
Official reports	0.477 (0.402)	0.611 (0.397)	0.414 (0.321)	0.369 (0.315)	-0.182 (0.306)	-0.416 (0.301)	0.033 (0.278)	-0.383 (0.273)	<b>-0.395<sup>c</sup></b> <b>(0.234)</b>	-0.234 (0.232)	<b>-0.435<sup>b</sup></b> <b>(0.189)</b>	<b>-0.488<sup>a</sup></b> <b>(0.189)</b>
NGO	0.283 (0.469)	0.011 (0.463)	0.326 (0.403)	0.090 (0.397)	-0.172 (0.367)	-0.449 (0.361)	-0.363 (0.339)	-0.495 (0.332)	0.132 (0.323)	-0.043 (0.321)	-0.153 (0.261)	-0.206 (0.261)
Press	-0.426 (0.349)	<b>-0.624<sup>c</sup></b> <b>(0.344)</b>	-0.288 (0.275)	<b>-0.593<sup>b</sup></b> <b>(0.271)</b>	0.258 (0.283)	-0.014 (0.279)	0.223 (0.252)	-0.185 (0.247)	-0.254 (0.210)	<b>-0.472<sup>b</sup></b> <b>(0.208)</b>	-0.218 (0.173)	<b>-0.471<sup>a</sup></b> <b>(0.172)</b>
TV and radio	<b>1.011<sup>b</sup></b> <b>(0.391)</b>	<b>0.844<sup>b</sup></b> <b>(0.383)</b>	<b>0.874<sup>a</sup></b> <b>(0.317)</b>	<b>0.803<sup>a</sup></b> <b>(0.310)</b>	0.108 (0.340)	0.094 (0.334)	-0.203 (0.334)	-0.235 (0.329)	-0.021 (0.263)	-0.039 (0.261)	-0.180 (0.241)	-0.324 (0.241)
Online news	<b>1.448<sup>a</sup></b> <b>(0.522)</b>	<b>1.417<sup>a</sup></b> <b>(0.517)</b>	<b>0.621<sup>c</sup></b> <b>(0.353)</b>	0.529 (0.347)	-0.493 (0.314)	<b>-0.767<sup>b</sup></b> <b>(0.307)</b>	0.058 (0.295)	-0.348 (0.289)	<b>-0.602<sup>a</sup></b> <b>(0.235)</b>	<b>-0.828<sup>a</sup></b> <b>(0.233)</b>	-0.304 (0.211)	<b>-0.570<sup>a</sup></b> <b>(0.211)</b>
Social media	-0.386 (0.406)	-0.430 (0.398)	-0.136 (0.337)	-0.310 (0.330)	-0.296 (0.336)	-0.377 (0.329)	-0.139 (0.315)	-0.383 (0.308)	-0.303 (0.251)	<b>-0.517<sup>b</sup></b> <b>(0.250)</b>	-0.286 (0.220)	<b>-0.554<sup>b</sup></b> <b>(0.221)</b>
Region = 1	-0.643 (0.963)	-0.606 (0.952)	<b>-1.260<sup>c</sup></b> <b>(0.699)</b>	-0.648 (0.688)	<b>1.689<sup>c</sup></b> <b>(0.869)</b>	0.366 (0.857)	1.455 (1.031)	0.307 1.022	-0.497 (0.913)	-0.465 (0.907)	-1.045 (0.866)	<b>-1.541<sup>c</sup></b> <b>(0.864)</b>
Region = 2	-0.430 (0.954)	-0.870 (0.944)	<b>-1.205<sup>c</sup></b> <b>(0.685)</b>	<b>-1.129<sup>c</sup></b> <b>(0.676)</b>	0.513 (0.828)	-0.491 (0.815)	-0.039 (0.964)	-0.901 (0.954)	<b>-2.202<sup>a</sup></b> <b>(0.852)</b>	<b>-2.690<sup>a</sup></b> <b>(0.846)</b>	<b>-3.576<sup>a</sup></b> <b>(0.819)</b>	<b>-4.142<sup>a</sup></b> <b>(0.817)</b>
Region = 3	-1.303 (0.881)	-1.249 (0.871)	<b>-1.217<sup>c</sup></b> <b>(0.635)</b>	-0.972 (0.626)	0.976 (0.794)	-0.098 (0.781)	-0.192 (0.937)	-1.100 (0.928)	<b>-1.949<sup>b</sup></b> <b>(0.835)</b>	<b>-2.040<sup>b</sup></b> <b>(0.830)</b>	<b>-2.077<sup>a</sup></b> <b>(0.809)</b>	<b>-2.408<sup>a</sup></b> <b>(0.807)</b>
Region = 4	-0.551	-0.876	<b>-1.178<sup>c</sup></b>	<b>-1.180<sup>c</sup></b>	0.904	-0.476	-0.197	-1.390	<b>-2.099<sup>b</sup></b>	<b>-2.602<sup>a</sup></b>	<b>-3.468<sup>a</sup></b>	<b>-3.864<sup>a</sup></b>

## Appendix 2B. Determinants of Corruption Perception by Institution

	(0.964)	(0.953)	<b>(0.702)</b>	<b>(0.693)</b>	(0.840)	(0.827)	(0.966)	(0.956)	<b>(0.858)</b>	<b>(0.853)</b>	<b>(0.826)</b>	<b>(0.825)</b>
Governmental employee	<b>-0.736<sup>c</sup></b> <b>(0.385)</b>	-0.547 (0.379)	<b>-0.661<sup>b</sup></b> <b>(0.302)</b>	<b>-0.680<sup>b</sup></b> <b>(0.296)</b>	-0.296 (0.299)	-0.282 (0.293)	0.263 (0.317)	0.224 (0.312)	0.064 (0.231)	0.040 (0.230)	-0.005 (0.212)	0.172 (0.212)
Age = 1	-0.190 (0.449)	-0.166 (0.443)	-0.306 (0.366)	-0.309 (0.361)	-0.272 (0.365)	-0.346 (0.361)	-0.179 (0.317)	-0.326 (0.313)	0.300 (0.254)	0.356 (0.252)	0.162 (0.212)	0.236 (0.213)
Age = 2	0.135 (0.439)	0.214 (0.434)	-0.109 (0.351)	-0.021 (0.347)	-0.319 (0.358)	-0.075 (0.353)	-0.112 (0.310)	0.093 (0.305)	0.386 (0.236)	0.325 (0.235)	<b>0.341<sup>c</sup></b> <b>(0.199)</b>	0.323 (0.200)
Age = 3	0.517 (0.477)	0.593 (0.473)	0.039 (0.358)	0.121 (0.354)	<b>-0.714<sup>b</sup></b> <b>(0.337)</b>	-0.522 (0.333)	-0.312 (0.294)	-0.189 (0.290)	0.246 (0.234)	0.115 (0.233)	0.044 (0.191)	-0.014 (0.192)
Gender	-0.129 (0.310)	-0.214 (0.306)	<b>-0.615<sup>b</sup></b> <b>(0.257)</b>	<b>-0.686<sup>a</sup></b> <b>(0.254)</b>	0.031 (0.220)	-0.043 (0.216)	0.113 (0.202)	0.019 (0.199)	-0.023 (0.159)	-0.146 (0.158)	<b>-0.241<sup>c</sup></b> <b>(0.136)</b>	<b>-0.297<sup>b</sup></b> <b>(0.137)</b>
Education = 1	-0.277 (0.469)	-0.227 (0.464)	-0.356 (0.361)	-0.289 (0.357)	-0.098 (0.338)	-0.074 (0.333)	0.315 (0.314)	0.282 (0.310)	0.266 (0.251)	0.312 (0.249)	-0.184 (0.194)	-0.275 (0.194)
Education = 2	-0.401 (0.368)	-0.405 (0.364)	-0.297 (0.292)	-0.277 (0.288)	-0.220 (0.266)	-0.166 (0.262)	-0.217 (0.246)	-0.115 (0.242)	-0.017 (0.188)	-0.115 (0.186)	0.199 (0.172)	0.166 (0.172)
Income = 1	<b>1.028<sup>b</sup></b> <b>(0.448)</b>	<b>0.963<sup>b</sup></b> <b>(0.443)</b>	0.194 (0.357)	0.095 (0.352)	-0.059 (0.317)	-0.286 (0.311)	-0.309 (0.279)	-0.372 (0.273)	0.170 (0.238)	-0.050 (0.236)	-0.196 (0.213)	-0.169 (0.213)
Income = 2	<b>1.483<sup>a</sup></b> <b>(0.489)</b>	<b>1.412<sup>a</sup></b> <b>(0.485)</b>	0.438 (0.351)	0.318 (0.347)	0.161 (0.314)	0.082 (0.309)	<b>0.694<sup>b</sup></b> <b>(0.314)</b>	<b>0.576<sup>c</sup></b> <b>(0.310)</b>	0.298 (0.221)	-0.069 (0.219)	-0.319 (0.198)	<b>-0.434<sup>b</sup></b> <b>(0.199)</b>
Income = 3	0.340 (0.381)	0.263 (0.375)	-0.248 (0.324)	-0.171 (0.319)	0.025 (0.321)	0.108 (0.314)	0.110 (0.303)	0.286 (0.298)	0.187 (0.231)	0.124 (0.229)	-0.272 (0.210)	-0.200 (0.210)
Town size = 1	0.113 (0.503)	-0.169 (0.494)	<b>0.918<sup>b</sup></b> <b>(0.390)</b>	0.431 (0.380)	<b>-1.134<sup>c</sup></b> <b>(0.601)</b>	<b>-1.132<sup>c</sup></b> <b>(0.598)</b>	<b>-1.390<sup>b</sup></b> <b>(0.550)</b>	<b>-1.516<sup>a</sup></b> <b>(0.546)</b>	-0.259 (0.345)	<b>-0.701<sup>b</sup></b> <b>(0.340)</b>	0.419 (0.257)	0.225 (0.257)
Town size = 2	0.049 (0.483)	-0.105 (0.474)	<b>1.210<sup>a</sup></b> <b>(0.405)</b>	<b>0.837<sup>b</sup></b> <b>(0.397)</b>	<b>-1.564<sup>a</sup></b> <b>(0.585)</b>	<b>-1.396<sup>b</sup></b> <b>(0.581)</b>	<b>-1.368<sup>b</sup></b> <b>(0.545)</b>	<b>-1.450<sup>a</sup></b> <b>(0.541)</b>	-0.331 (0.342)	<b>-0.632<sup>c</sup></b> <b>(0.336)</b>	<b>1.112<sup>a</sup></b> <b>(0.273)</b>	<b>0.966<sup>a</sup></b> <b>(0.273)</b>
Town size = 3	0.673 (0.551)	0.220 (0.543)	<b>0.838<sup>b</sup></b> <b>(0.396)</b>	0.365 (0.387)	<b>-1.213<sup>b</sup></b> <b>(0.609)</b>	<b>-1.023<sup>c</sup></b> <b>(0.605)</b>	<b>-1.218<sup>b</sup></b> <b>(0.569)</b>	<b>-1.146<sup>b</sup></b> <b>(0.565)</b>	-0.310 (0.349)	<b>-0.881<sup>b</sup></b> <b>(0.345)</b>	<b>1.083<sup>a</sup></b> <b>(0.287)</b>	<b>1.045<sup>a</sup></b> <b>(0.287)</b>
N	6060		6118		6122		6005		5303		5380	
Nagelkerke R <sup>2</sup>	0.080		0.091		0.083		0.095		0.130		0.106	
McFadden R <sup>2</sup>	0.048		0.053		0.048		0.054		0.069		0.053	

The individual coefficients are significant at <sup>a</sup>1%, <sup>b</sup>5% or <sup>c</sup>10% significance level.



## Appendix 2C. Determinants of assessment of anti-corruption measures

	Parliament		President and Administration		Cabinet of ministers	
	SE/I	E/I	SE/I	E/I	SE/I	E/I
Intercept	-0.045 (0.377)	<b>0.960<sup>b</sup></b> <b>(0.472)</b>	0.431 (0.339)	0.619 (0.452)	0.491 (0.401)	<b>1.325<sup>b</sup></b> <b>(0.627)</b>
Belief 3 = 1	<b>0.522<sup>b</sup></b> <b>(0.210)</b>	<b>0.789<sup>a</sup></b> <b>(0.261)</b>	<b>0.423<sup>b</sup></b> <b>(0.182)</b>	<b>0.763<sup>a</sup></b> <b>(0.252)</b>	0.232 (0.218)	0.110 (0.426)
Belief 3 = 2	<b>0.557<sup>a</sup></b> <b>(0.089)</b>	<b>0.540<sup>a</sup></b> <b>(0.132)</b>	<b>0.446<sup>a</sup></b> <b>(0.077)</b>	<b>0.447<sup>a</sup></b> <b>(0.117)</b>	<b>0.333<sup>a</sup></b> <b>(0.094)</b>	<b>0.395<sup>b</sup></b> <b>(0.187)</b>
Combat = 1	<b>-0.667<sup>a</sup></b> <b>(0.200)</b>	<b>-1.480<sup>a</sup></b> <b>(0.229)</b>	<b>-1.138<sup>a</sup></b> <b>(0.199)</b>	<b>-1.696<sup>a</sup></b> <b>(0.227)</b>	<b>-0.975<sup>a</sup></b> <b>(0.224)</b>	<b>-1.823<sup>a</sup></b> <b>(0.295)</b>
Combat = 2	-0.251 (0.203)	<b>-1.134<sup>a</sup></b> <b>(0.236)</b>	<b>-0.612<sup>a</sup></b> <b>(0.204)</b>	<b>-1.056<sup>a</sup></b> <b>(0.230)</b>	<b>-0.502<sup>b</sup></b> <b>(0.226)</b>	<b>-1.162<sup>a</sup></b> <b>(0.286)</b>
WTO = 1	<b>-1.590<sup>a</sup></b> <b>(0.155)</b>	<b>-1.677<sup>a</sup></b> <b>(0.191)</b>	<b>-1.823<sup>a</sup></b> <b>(0.112)</b>	<b>-2.573<sup>a</sup></b> <b>(0.157)</b>	<b>-1.877<sup>a</sup></b> <b>(0.151)</b>	<b>-2.900<sup>a</sup></b> <b>(0.248)</b>
WTO = 2	<b>-0.335<sup>b</sup></b> <b>(0.154)</b>	<b>-1.260<sup>a</sup></b> <b>(0.201)</b>	<b>-0.442<sup>a</sup></b> <b>(0.106)</b>	<b>-1.555<sup>a</sup></b> <b>(0.146)</b>	<b>-0.726<sup>a</sup></b> <b>(0.146)</b>	<b>-2.371<sup>a</sup></b> <b>(0.244)</b>
Year	<b>0.409<sup>a</sup></b> <b>(0.099)</b>	<b>0.316<sup>b</sup></b> <b>(0.144)</b>	<b>0.352<sup>a</sup></b> <b>(0.085)</b>	<b>0.924<sup>a</sup></b> <b>(0.132)</b>	<b>0.465<sup>a</sup></b> <b>(0.103)</b>	<b>0.614<sup>a</sup></b> <b>(0.209)</b>
Experience and word of mouth	-0.074 (0.121)	<b>-0.364<sup>b</sup></b> <b>(0.166)</b>	0.068 (0.104)	-0.010 (0.151)	-0.124 (0.124)	<b>-0.607<sup>a</sup></b> <b>(0.215)</b>
Official reports	0.036 (0.128)	<b>-0.314<sup>c</sup></b> <b>(0.183)</b>	<b>0.281<sup>a</sup></b> <b>(0.109)</b>	0.062 (0.164)	-0.205 (0.129)	-0.366 (0.233)
NGO	0.159 (0.171)	-0.102 (0.247)	0.012 (0.156)	<b>0.526<sup>b</sup></b> <b>(0.208)</b>	-0.116 (0.177)	<b>-0.610<sup>c</sup></b> <b>(0.350)</b>
Press	0.131 (0.116)	0.189 (0.158)	<b>0.229<sup>b</sup></b> <b>(0.101)</b>	0.241 (0.146)	0.003 (0.117)	-0.260 (0.209)
TV and radio	0.003 (0.162)	<b>-0.497<sup>b</sup></b> <b>(0.214)</b>	-0.102 (0.145)	<b>-0.462<sup>b</sup></b> <b>(0.198)</b>	-0.092 (0.170)	<b>-0.716<sup>b</sup></b> <b>(0.308)</b>
Internet	<b>0.283<sup>c</sup></b>	0.179	<b>0.396<sup>a</sup></b>	<b>0.579<sup>a</sup></b>	0.082	0.129

### Appendix 2C. Determinants of assessment of anti-corruption measures

	<b>(0.149)</b>	(0.205)	<b>(0.131)</b>	<b>(0.190)</b>	(0.154)	(0.277)
Region = 1	<b>-0.540<sup>a</sup></b> <b>(0.161)</b>	<b>-0.740<sup>a</sup></b> <b>(0.265)</b>	<b>-0.548<sup>a</sup></b> <b>(0.133)</b>	<b>-1.241<sup>a</sup></b> <b>(0.222)</b>	<b>-0.367<sup>b</sup></b> <b>(0.168)</b>	<b>-0.804<sup>b</sup></b> <b>(0.340)</b>
Region = 2	0.032 (0.107)	0.131 (0.156)	<b>-0.173<sup>c</sup></b> <b>(0.095)</b>	<b>-0.454<sup>a</sup></b> <b>(0.137)</b>	<b>0.205<sup>c</sup></b> <b>(0.116)</b>	-0.274 (0.222)
Region = 3	-0.129 (0.121)	-0.013 (0.173)	-0.053 (0.101)	<b>-0.595<sup>a</sup></b> <b>(0.152)</b>	<b>0.281<sup>b</sup></b> <b>(0.124)</b>	-0.257 (0.249)
Support = 1	<b>0.447<sup>a</sup></b> <b>(0.122)</b>	0.119 (0.179)	<b>0.371<sup>a</sup></b> <b>(0.110)</b>	<b>0.777<sup>a</sup></b> <b>(0.147)</b>	<b>0.565<sup>a</sup></b> <b>(0.128)</b>	<b>0.987<sup>a</sup></b> <b>(0.211)</b>
Support = 2	<b>-0.236<sup>b</sup></b> <b>(0.105)</b>	<b>-0.401<sup>b</sup></b> <b>(0.159)</b>	<b>-0.179<sup>b</sup></b> <b>(0.090)</b>	0.005 (0.144)	-0.140 (0.111)	<b>-0.803<sup>a</sup></b> <b>(0.298)</b>
Governmental employee	-0.021 (0.121)	<b>0.334<sup>b</sup></b> <b>(0.164)</b>	0.010 (0.106)	<b>0.315<sup>a</sup></b> <b>(0.150)</b>	0.072 (0.130)	<b>0.520<sup>b</sup></b> <b>(0.236)</b>
Age = 1	0.093 (0.136)	0.027 (0.199)	<b>0.253<sup>b</sup></b> <b>(0.119)</b>	-0.150 (0.181)	0.094 (0.143)	0.020 (0.300)
Age = 2	-0.124 (0.125)	-0.075 (0.180)	0.034 (0.107)	-0.223 (0.161)	-0.095 (0.129)	0.326 (0.257)
Age = 3	-0.078 (0.123)	<b>-0.332<sup>c</sup></b> <b>(0.185)</b>	0.009 (0.107)	-0.158 (0.158)	-0.128 (0.129)	0.019 (0.261)
Gender	<b>-0.014<sup>b</sup></b> <b>(0.087)</b>	0.151 (0.128)	-0.041 (0.075)	-0.012 (0.113)	-0.023 (0.091)	0.154 (0.180)
Education = 1	<b>0.209<sup>c</sup></b> <b>(0.121)</b>	0.222 (0.182)	<b>0.271<sup>b</sup></b> <b>(0.107)</b>	<b>0.454<sup>a</sup></b> <b>(0.159)</b>	0.210 (0.130)	-0.151 (0.260)
Education = 2	-0.031 (0.106)	0.230 (0.154)	0.068 (0.092)	0.178 (0.139)	0.052 (0.112)	-0.220 (0.217)
Income = 1	<b>-0.313<sup>b</sup></b> <b>(0.130)</b>	-0.064 (0.184)	-0.042 (0.112)	-0.238 (0.169)	<b>-0.272<sup>b</sup></b> <b>(0.137)</b>	0.398 (0.267)
Income = 2	<b>-0.224<sup>c</sup></b> <b>(0.124)</b>	-0.191 (0.183)	0.125 (0.108)	-0.106 (0.160)	-0.091 (0.131)	0.176 (0.264)
Income = 3	<b>-0.328<sup>a</sup></b>	<b>-0.320<sup>c</sup></b>	-0.071	<b>-0.340<sup>b</sup></b>	-0.027	0.116

### Appendix 2C. Determinants of assessment of anti-corruption measures

	<b>(0.127)</b>	<b>(0.190)</b>	(0.106)	<b>(0.162)</b>	(0.129)	(0.251)
Town size = 1	<b>0.285<sup>a</sup></b> <b>(0.108)</b>	-0.234 (0.155)	<b>0.451<sup>a</sup></b> <b>(0.092)</b>	<b>0.459<sup>a</sup></b> <b>(0.138)</b>	<b>0.469<sup>a</sup></b> <b>(0.112)</b>	<b>0.507<sup>b</sup></b> <b>(0.215)</b>
Town size = 2	<b>0.318<sup>a</sup></b> <b>(0.120)</b>	<b>-0.323<sup>c</sup></b> <b>(0.181)</b>	<b>0.245<sup>b</sup></b> <b>(0.105)</b>	<b>0.365<sup>b</sup></b> <b>(0.158)</b>	<b>0.278<sup>b</sup></b> <b>(0.126)</b>	-0.006 (0.264)
N	3649		4509		3265	
Nagelkerke R <sup>2</sup>	0.228		0.328		0.328	
McFadden R <sup>2</sup>	0.123		0.174		0.193	

The individual coefficients are significant at <sup>a</sup>1%, <sup>b</sup>5% or <sup>c</sup>10% significance level