What Do Corruption Indices Measure?[*]

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Abstract

Evidence from the International Crime Victimization Survey and the World Business Environment Survey suggests that actual corruption experience is a weak predictor of reported corruption perception, and that some of the factors commonly found to "reduce" corruption, such as economic development, democratic institutions or Protestant traditions, systematically bias corruption perception indices downward from corruption experience. In addition, perception indices are influenced by absolute (as opposed to relative) levels of corruption, which tends to penalize large countries, and they exhibit diminishing sensitivity to both absolute and relative corruption, indicating that they may better capture differences among countries with low levels of corruption than among highly corrupt ones. Individual characteristics such as education, age, or employment status, and firm-level characteristics such as the number of competitors are also found to influence corruption perceptions holding experience constant.

"Of almost equal concern as the danger of actual quid pro quo arrangements is the impact of the appearance of corruption..." (US Supreme Court, 1976, p27)

1 Introduction

Country-level corruption indices, based on firm and household surveys and expert assessments, have received much attention from researchers, commentators, and policy-makers alike. These corruption *perception* indices, such as the World Bank's Control of Corruption index (WB), the Transparency International's Corruption Perception Index (CPI), or the corruption index of the International Country Risk Guide (ICRG), are routinely interpreted as measures of corruption *experience*.[1] Is such an interpretation warranted? Could these indices be affected by individual or country characteristics holding corruption experience constant? How well do measures of corruption experience predict measures of corruption perception?

A recent literature (reviewed in Section 2) has begun to emphasize that perceptions can deviate from experience in systematic ways. However, most studies consider specific countries, and their findings are thus not directly applicable to the most widely used corruption indices. A comprehensive analysis of the indices used for cross-country comparisons is missing from the literature, and the current paper attempts to fill this gap.

Our analysis is guided by a simple conceptual framework (Section 3). This highlights that some deviations of perceptions from experience are consistent with Bayesian rationality, while others suggest the presence of various psychological biases. To study these deviations, we use data from the United Nations' Interregional Crime and Victimization Survey (ICVS) that includes information on individuals' experience with, and perceptions of corruption. The data is

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[1] For example, based on results obtained using a corruption *perception* index, Mauro (1995) concludes that "if Bangladesh were to improve the integrity and efficiency of its bureaucracy to the level of that of Uruguay […] its investment rate would rise by almost five percentage points, and its yearly GDP growth rate would rise by over half a percentage point." (p705). Using similar indices, Wei (2000) argues that "an increase in the corruption level from that of Singapore to that of Mexico would have the same negative effect on inward FDI as raising the tax rate by fifty percentage points." (p1).

obtained through standardized surveys administered in a total of 58 countries in the periods 1996-97 and 2000-01. It allows us to perform both aggregate country-level analysis, as is common in the literature, and micro-level comparisons across individuals.[2] We supplement the ICVS with information from the World Business Environment Survey (WBES) on firms' experience with corruption. This allows us to create country-level measures of firms' corruption experience, as well as analyze the determinants of firm-level corruption perceptions.

Our country-level regressions in Section 5 suggest that some of the factors commonly found to "cause" corruption explain corruption perception indices holding experience constant. In particular, economic development, Protestant traditions, and to some extent democratic institutions and centralized (non-federal) governments lead to a country being perceived as less corrupt for a given level of corruption experience. In this sense, cultural, economic and political factors bias corruption perception away from corruption experience. Moreover, controlling for these factors, corruption experience is found to be a weak and in most cases statistically insignificant determinant of all three corruption perception indices. Our largest point estimate implies that a one standard deviation (10 percentage points) increase in corruption experience increases the perception indices by less than a half standard deviation (or the difference between Finland and Austria).[3] These results hold with measures capturing different "types" of corruption experience, including the experiences of both households and firms.

We also find evidence that corruption perception indices are sensitive to absolute levels of corruption (number of occurrences) rather than relative corruption levels (percentage of population affected). This is problematic for cross-country comparisons because it implies that

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[2] Details on our data are in Section 4. Cross-country studies seeking to explain the consequences and causes of corruption abound. Mauro (1995) and Treisman (2000) are classic papers. See Jain (2001) and Svensson (2005) for surveys.

[3] All corruption measures used here are rescaled so that higher values represent more corruption.

perceptions will tend to be biased upward for larger countries. Furthermore, perception indices exhibit diminishing sensitivity to corruption experience, implying that they may be a better proxy for actual corruption in low-corruption countries than in high-corruption ones.

Results at the individual and firm level reinforce our country-level findings (Section 6). Several individual characteristics, including education, age, income, and employment status affect corruption perceptions over and above experience. Controlling for individual characteristics, personal experience with corruption adds only 1 point on a 12 point scale to the perceived likelihood of corruption. At the firm level, the extent of competition, whether a firm exports, and recent experiences such as layoffs influence corruption perceptions holding experience constant.

Our data prevents us from making strong claims regarding causality. Nevertheless, the correlations we document suggest various factors that can cause perceived quality of governance to differ between two countries even if actual quality does not. As we discuss in Section 7 below, this has implications for the interpretation of previous findings in the literature as well as for policy.

To be clear, this paper does not claim that corruption perception indices are somehow flawed. Our analysis rests on the assumption that the data we use was produced in a methodologically sound manner, and we are simply concerned with its *interpretation*.[4] Thus, we accept the premise that the "level of corruption" in a country is meaningfully captured by a single number. This assumption is central to the corruption perception indices which aggregate surveys and assessments of different populations (households, firms, country experts), asked about different aspects of corruption (from petty bribery to grand corruption). The underlying idea is that

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[4] In this sense, we ignore previous criticisms of the perception indices focusing on methodological questions. On these issues, see Knack (2007), Kurtz and Schrank (2007), and Kaufmann et al. (2007).

corruption is highly correlated across different levels of government (e.g., among bureaucrats and politicians) and across different sectors, and therefore all these surveys measure the same latent factor.[5] This assumption is also reflected in the academic literature using these indices as the same measures are often interpreted to capture different types of corruption.[6] As we demonstrate formally below, this assumption implies that it makes sense to compare perception and experience measures derived from different surveys.[7]

We also assume that the data measures what it intends to measure. In particular, we assume that each survey results in representative samples of carefully collected, truthful responses *to the question being asked*, and therefore questions on perceptions measure perceptions, and questions on experience measure experience. Similarly, we assume that perception indices compiled on a yearly basis reflect corruption perceptions for a given year, and not perceptions for previous years or the long run. All of these are minimal methodological requirements that perception indices should satisfy to be meaningful. We assume that they hold in order to focus on the important issue of their interpretation.

2 Related literature

Our paper is related to the voluminous literature using aggregate governance indicators. A small fraction of these studies have dealt with concerns regarding the construction and interpretation of

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[5] Kaufmann et al. (2004) provide an explicit statistical model based on this assumption, which forms the basis of the *WB* aggregation methodology.

[6] For example, in Mauro (1998), *ICRG* measures the extent to which government policy favors sectors more susceptible to rent-extraction over education. In Wei (2000), *ICRG* and *CPI* raise the costs of foreign direct investment. In Fredriksson and Svensson (2003), *ICRG* measures the weight that the government puts on transfers from industrial and environmental lobbies relative to social welfare. In Fisman and Miguel (2007), *WB* measures a general "culture of corruption" which translates into parking violations by diplomats.

[7] Below, we explore the robustness of our findings using information on different types of corruption experience from both the ICVS household survey and the WBES firm survey. However, by design, none of these exercises can refute the alternative hypothesis that corruption is a multidimensional phenomenon that cannot be captured by a scalar. If that is the case, there are methodological concerns regarding the perception indices that are outside the scope of this paper.

these measure but do not deal at any length with the issue of perceptions vs. experience addressed here. [8]

The need for objective, experience-based measures of corruption is emphasized in a growing literature constructing such measures.[9] A subset of this literature explicitly examines the differences between perceptions and experience. Olken (2009) constructs an objective measure of corruption in road construction projects among Indonesian villages. He finds that a higher corruption experience raises perceptions only slightly. He also finds that controlling for experience, individual characteristics such as education and gender affect corruption perceptions. Gonzales et al. (2007) find that in a sample from African and Latin American countries, firms that enter a particular transaction (e.g., request a permit) and are not asked for a bribe perceive corruption to be less problematic than firms who do not enter the transaction, while firms who are asked for a bribe have the same perceptions. A related paper by Razafindrakoto and Roubaud (2010) finds a variety of biases in the perceptions of country experts relative to the experiences of ordinary citizens in eight African countries.[10]

A common characteristic of these studies is that they cover a specific geographical area, activity, or industry. Thus, while these studies show that there might be differences between perceptions and experience, and illustrate the progress that can be achieved using objective measures, their analyses are not directly relevant for the use of the most widespread corruption

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[8] Glaeser et al. (2004) point out that one must exert care when using governance indicators to capture long-term institutional constraints rather than short-term policy outcomes. Kaufmann et al. (2007) and Kaufmann and Kraay (2008) provide a good survey of methodological objections and responses, focusing on the WB indicators. Among other things, they argue that these indicators are unlikely to be biased towards the views of the business community or reflect the political attitudes of the rating experts.

[9] See Goel and Rich (1989), Seligson (2002), Svensson (2003), Clarke and Xu (2004), Golden and Picci (2005), Glaeser and Saks (2006), Gorodnichenko and Sabirianova Peter (2007).

[10] In a related paper, Soares (2004) uses data from the ICVS on crimes other than corruption to study the determinants of crime-reporting behavior for given experience.

indices, and for the interpretation of the large number of empirical studies building on them. By contrast, the ICVS and WBES data allow direct comparison with the perception indices.[11]

To our knowledge, Svensson (2005) was the first to suggest comparing the ICVS and WBES data to subjective corruption indices. He provides some evidence that subjective and objective indices are explained by different factors, and mentions that controlling for GDP the correlation between ICVS and the subjective indices is insignificant (footnote 7). These points are also made in a survey on corruption research by Treisman (2007), who speculates that there may be important differences between perceptions and experience and calls for further research in this direction. In work independent of ours, Mocan (2009) also presents regressions of perceived corruption using the ICVS index as an explanatory variable. However, he does not use all available data, and omits GDP from the regression, which our results below imply will lead to biased estimates.[12] Apart from fixing these issues, our work goes well beyond Mocan's: we study several determinants of perceptions besides "institutions" both at the country and individual level, find strong evidence of diminishing sensitivity and the effect of absolute corruption, and establish our findings using individual-level data on perceptions as well as measures of firms' corruption experience.

3 Conceptual framework

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[11] Dreher et al. (2007) create a cross-country measure of corruption based on a structural model, while Mocan (2008) studies the determinants of corruption experience using the ICVS data. Neither of these papers focuses on the comparison with the perception measures. Weber Abramo (2008) finds a weak bivariate correlation between perceptions and experience in Transparency International's Global Corruption Barometer survey, but stronger correlations with the perceptions of other institutions.

[12] Comparing Table 3 in our Online Appendix and his Table 1 shows that out of the 28 countries for which the ICVS is available for multiple years, Mocan only included 8, all of them from Europe or North America. At the same time, his regressions use pooled data from multiple years, giving more weight to countries with multiple observations. This is also problematic because corruption perception indices are by construction not comparable across years (Knack, 2007).

This section presents the conceptual framework guiding our empirics. Following Kaufmann et al. (2004), suppose that the level of corruption in a country is a one-dimensional latent variable C. To fix ideas, assume that C is the number of times an average individual will be asked for a bribe in a given year. Assume that an individual i's experience E_i with corruption is given by $E_i = C + \varepsilon_i$, where ε_i is drawn from a distribution with mean 0 i.i.d. across individuals. Suppose that the relationship between individual perceptions of corruption ($\hat{C}_i$) and individual experience can be described by the following model:[13]

$$\hat{C}_i = \beta_0 + \beta_1 E_i + \beta_2 X_i + u_i,\qquad (1)$$

where X_i is a vector of individual characteristics and u_i is a mean zero error term. In this model, if $\beta_1 > 0$ and $\beta_2 = 0$, then (a linear transformation of) corruption perception is an unbiased measure of the underlying level of corruption in the sense that the expectation $E[(\hat{C}_i - \beta_0)/\beta_1] = C$. By contrast if $\beta_1 = 0$ or $\beta_2 \neq 0$, then corruption perception is biased away from C.

The parameters β_1 and β_2 can be estimated from individual level data on corruption experience and corruption perceptions, as in Section 6 below. Alternatively, one can aggregate perceptions and experience to the country level and estimate (1) using cross-country data. Clearly, $\hat{\bar{C}}_j = \beta_0 + \beta_1 \bar{E}_j + \beta_2 \bar{X}_j + \bar{u}_j$, where upper bars denote averaged values for country j. This approach, which we follow in Section 5, also allows the inclusion of country characteristics in the vector X.

A practical concern with this approach is that perceptions and experience data often come from different sources and may relate to different types of corruption (e.g., petty corruption affecting individuals or grand corruption affecting businesses). However, this is not too

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[13] We discuss various theories that can give rise to such a model below.

problematic under the assumption that corruption is captured by a scalar C. (As argued in the Introduction, this assumption is central to the methodology of creating the perception indices, and is reflected in the literature using them.) To see this, imagine that the population is made up of two groups, $k = 1, 2$, such as firms experiencing grand corruption and individuals subject to petty corruption. Assume that the respective experiences are given by $E_i^k = C + \varepsilon_i^k$, where ε_i^k is i.i.d. with mean 0 and variance σ_k^2. At the country level, our model is now

$$\hat{\overline{C}}_j^k = \beta_0 + \beta_1 \overline{E}_j^k + \beta_2 \overline{X}_j + \overline{u}_j.$$ What happens if we estimate this model using $\overline{E}_j^l$ instead of $\overline{E}_j^k$?

Because both of these variables proxy for the same latent factor C, this simply introduces a measurement error $\overline{E}_j^k - \overline{E}_j^l = \overline{\varepsilon}_j^k - \overline{\varepsilon}_j^l$ into the experience variable. Although this biases the coefficients, aggregating large samples within countries implies that this bias will be small.[14]

Why might perceptions differ systematically from experience (β_1 close to 0 and / or β_2 different from 0 in Eq. (1))? Consider a fully rational individual who forms beliefs and updates them in a Bayesian manner. He combines his prior with his experience (signal) to form perceptions (posterior beliefs) regarding the extent of corruption in the country. Any variable affecting the individual's prior (e.g., the strength of democratic institutions) will affect his perceptions holding experience constant. For example, suppose that the level of corruption is believed to be determined by $C = X + \mu$ where X includes (some function of) observable country characteristics such as historical circumstances, economic development, institutions, etc., and μ is a normally distributed shock with mean 0 and variance σ_μ^2. Suppose also that the experience shock ε_i is normally distributed. Then, given their experience, Bayesian individuals' posteriors regarding corruption will be determined exactly by the linear specification in (1), with

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[14] If aggregation is based on samples of size N_1 and N_2, respectively, then the variance of this measurement error is $\sigma_1^2 / N_1 + \sigma_2^2 / N_2$, which vanishes as N grows large.

$\beta_0 = 0$, $\beta_1 = \sigma_\mu^2 / (\sigma_\mu^2 + \sigma^2)$ and $\beta_2 = 1 - \beta_1$. The lower σ_μ^2 relative to σ^2, the lower the weight

of experience and the larger the weight of the prior X in determining perceptions.

Deviations from Bayesian rationality can further lower the weight β_1 of experience in perceptions. For example, individuals may not realize that the lack of personal experience with corruption is an informative signal. They may instead rely exclusively on their priors, shaped, e.g., by specific events publicized in the media. This would cause perceptions to reflect such events, rather than individuals' true experience. Perceptions may also exhibit diminishing sensitivity to experience, with low levels of corruption experience being especially salient and having a disproportionate impact on perceptions.[15] Conversely, low levels of corruption may go unnoticed and not affect perceptions as much as high levels, resulting in increasing sensitivity (Ferraz and Finan, 2008). When comparing countries, as experts are often asked to do, a respondent might focus on the absolute level of corruption (number of corrupt acts) or the relative level of corruption (likelihood of encountering a corrupt official). In the former case, larger countries could be perceived as more corrupt for given experience.

Survey responses might also be affected by attitudes (Bradburn, 1983; Bertrand and Mullainathan, 2001), which in turn will depend on individual and country characteristics. For example, younger, more educated respondents living in an urban area might be better informed and more critical of certain behaviors, making them more likely to report a higher corruption perception. At the same time, a respondent who benefits from a corrupt climate (e.g., an entrepreneur with political ties) may not refer to these practices as "corruption". Attitudes will also be influenced by country characteristics, including the norms about the behavior of political

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[15] This could be the case, e.g., if under low levels of corruption (stable democracies), specific instances of corruption become widely known and affect perceptions, while at high levels of corruption information is less readily available and people rely more on their own experience.

leaders or officials, and the political culture more generally. Respondents from rich and stable democracies might be more satisfied with their leaders and the functioning of their bureaucracies. Alternatively, they could be more sensitive to corruption scandals. Some people might form their attitudes based on the "theory" that countries with certain characteristics "should" be more corrupt than others.[16] Rich democracies may be perceived as less corrupt simply for this reason. Countries may also differ in more subtle cultural dimensions, e.g., regarding whether it is acceptable to criticize one's government, by calling it corrupt, to a (possibly foreign) interviewer. If attitudes matter, individual and country characteristics may have a significant impact on perceptions even if they do not affect corruption experience.

4 Data

This section summarizes our data. Detailed summary statistics and sources are in the Online Appendix.

4.1 Corruption perception indices

We consider the three most widely used cross-country corruption perception indices, the Control of Corruption measure from the World Bank's Governance Indicators database (*WB*), the Corruption Perception Index of Transparency International (*CPI*), and the corruption index of the Political Risk Services International Country Risk Guide (*ICRG*). The first two of these compile information from various surveys and polls, using a somewhat different set of sources and aggregation methodologies. The Online Appendix provides a detailed discussion of these components. *ICRG*, which is a component of both *WB* and *CPI*, is produced by a team of country

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[16] Psychologists have noted that people's "theories" can influence their perceptions and how memories are remembered (Nisbett and Wilson, 1977; Ross, 1989).

experts. We rescale all perception indices to have zero mean and unit standard deviation, with higher values corresponding to higher corruption.

4.2 International Crime Victims Survey

The International Crime Victims Survey (ICVS), conducted by the United Nations Inter-regional Crime and Justice Research Institute (UNICRI), provides information on crime and victimization through a standard questionnaire, the results of which are internationally comparable. We use the 1996 and 2000 rounds of the survey, with 57,394 and 82,662 individual observations, respectively. The measure of corruption experience is based on the responses to the following question: *"During [the past year] has any government official, for instance a customs officer, police officer or inspector in your own country, asked you or expected you to pay a bribe for his services?"* Not only does this question directly ask about personal experience with corruption, it should be noted that it is asked in the context of a survey dealing with crime experiences. In previous and subsequent questions, the same respondents were asked about instances of bicycle theft, armed robbery, sexual assault, and the like. Therefore – in contrast to perception surveys – both the wording and the context of the question warrant interpreting the answers as measures of corruption experience. We let *VICTIM* = 1 if the respondent answered 'yes' to the question above, and take a simple weighted average (using the survey weights provided by the ICVS) to obtain a country-level measure of corruption experience. This index, *ICVS*, measures the fraction of individuals who experienced corruption during the previous year.

Below, we focus our analysis on the 2000 data because this yields the largest sample sizes, and use the 1996 round to discuss the robustness of our findings. In 2000, on average 10.4% of respondents had personal experience with corruption, with countries ranging between 0.1% (UK)

and 36% (Uganda). The standard deviation of *ICVS* is 0.1. Figure 1 plots the corruption perception measures against the *ICVS* index. As can be seen, the relationship appears to be non-linear, and there are some striking discrepancies in the rankings of the countries with respect to perceptions or experience. For example, Argentina (ARG) and Colombia (COL) have neighboring ranks in the *WB* index, while the *ICVS* index ranks them 14 places apart. Conversely, Latvia (LVA) and the Ukraine (UKR) are ranked consecutively in the *ICVS*, but the *WB* perception index puts Latvia 15 places ahead of the Ukraine. Our empirical work below explores the sources of such discrepancies.

In several countries those individuals who answered affirmatively to the corruption experience question were further prompted to specify the type of official that was involved. In the 1996 version of the survey, the available options were government official, customs officer, police officer, inspector, and "other."[17] Almost everyone who indicated having been a victim of corruption also specified the type of corruption experience. We again take weighted averages to obtain country scores. The most commonly mentioned category was the police (3.8%) and government officials (2.7%). The Online Appendix contains the detailed data.

For 21 countries (11,248 individuals) we can also use information from the 2000 survey about individual *perceptions* of corruption.[18] The question asked was: *"Imagine a person who needs something that is entitled to him/her by law. Is it likely or not likely that this person would have to offer money, a present or a favor (i.e., more than official charge), to get help from parliament / ministerial officials / elected municipal councilors / municipal officials / customs officers / police officers / tax-revenue officials / doctors-nurses / inspectors / teachers-professors*

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[17] The 2000 survey included six more categories, resulting in many zeros at the country level, which makes that data harder to interpret.

[18] The sample for this exercise contains mostly developing countries and new democracies (see the Online Appendix). We lose all observations from 22 countries due to missing values. In the remaining sample, the average attrition relative to the cross-country exercise is 60%.

/ officials in courts / private sector / other." For each of these 12 categories the answers are coded 1 and 0 for "likely" and "not likely" and we create a simple measure of individual corruption perception, *LIKELY*, by summing up all answers. We interpret this as measuring the respondent's perception of how widespread corruption is in her society.[19] The mean of *LIKELY* is 6.95 on a scale from 0 to 12, with a standard deviation of 4.8. We also create two supplementary perception variables, which attempt to capture perceptions of "grand" (or political) vs. "bureaucratic" corruption. *LIKELY_GRAND* is the sum of perceived corruption indicators for parliament, ministers, and municipal councilors, while *LIKELY_BUREAUCRATIC* sums municipal officers, police, customs officer, tax-revenue officials, inspectors, and court officials. We use these variables to investigate the determinants of individual corruption perceptions and their relation to individual corruption experience.

Finally, the ICVS survey includes individual characteristics such as gender, age, marital status, place of residence, employment status, schooling, etc. of the respondents, and we will use this information in the micro-level regressions below.

4.3 World Business Environment Survey

Finding a measure of corruption experience for the business sector is a challenge as surveys typically ask for business executives' and investors' perceptions rather than experience. The measure that, in our opinion, is most likely to reflect experience comes from World Business Environment Survey carried out by the World Bank and the European Bank for Reconstruction and Development in 1999-2000. The question asks senior firm executives *"On average, what percent of revenues do firms like yours typically pay per annum in unofficial payments to public officials?"* and gives seven possible categories from 0% to "over 25%." Although this question

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[19] We also use a dummy, *LIKELY0/1*, equal to 1 if *LIKELY* > 0 and 0 otherwise.

indirectly asks about "firms like yours" rather than "your firm", it is specific enough that a senior executive would base her answer on her own experience or say that she doesn't know, rather than venture a general guess. Svensson (2003) uses similar wording to measure corruption experience in Uganda.

We take the midpoint of each category and average across firms to obtain *BRIBES%*, the average ratio of bribes to sales revenues for each country. We are able to obtain this measure for 58 countries with data on the relevant controls, representing a total of 5193 firms. 27 of these countries are also in the 2000 ICVS sample. The range of *BRIBES%* is 0 % (Sweden) to 7.9 % (Georgia), with a mean of 2.8 % and a standard deviation of 2.0%.

The WBES survey also contains a question on corruption perceptions that we can use to study the determinants of individual firms' perceptions. For this exercise, our sample contains 1734 firms from 26 countries, mostly from Eastern Europe and the former Soviet Union.[20] Respondents are asked to rate "*How problematic different factors are for the operation and growth of your business*" on a scale of 1 (*No Obstacle*) to 4 (*Major Obstacle*), and one of these factors is "*Corruption*." This is particularly relevant for our purpose, since the corruption indices aggregate several surveys using this exact wording to measure corruption perceptions (see Section 4.1 in the Online Appendix). We let *CORRPROBLEM* take the value of 1 if the firm views corruption to be a "moderate" or "major" obstacle and 0 otherwise. The mean of this variable is 0.6.

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[20] In the WBES, these countries were surveyed separately by the European Bank for Reconstruction and Development and the data on various firm characteristics is more consistently available than for other parts of the world. For these 26 countries, the attrition rate for the firm-level analysis relative to the cross-country sample is 11%.

The WBES survey also contains self-reported firm characteristics including information on sales revenue, ownership, the number of competitors, etc. which we will use to explain corruption perceptions at the firm level in Section 6 below.

4.4 Other data

The discussion in Section 3 suggests that factors believed to affect corruption could bias corruption perceptions away from corruption experience. For potential correlates of corruption, we turn to Treisman's (2000) extensive study on the causes of corruption. That paper gives a good summary of many existing theories and the corresponding variables. We provide a brief summary below and refer the reader to Treisman's paper for details.

Corruption is thought to be lower in countries with British legal origins (*LEGOR_UK*) because the emphasis on the protection of property rights and on procedural aspects of the law makes prosecution of corruption more likely. Culture more broadly is also thought to influence corruption, and Treisman includes an indicator for countries who were never colonized (*NEVERCOLONY*) as well as the fraction of Protestants (*PROTESTANT*). In particular, Protestant traditions are viewed as more conducive to challenging (corrupt) office-holders and authority than other religions. More fragmented societies (*ETHLINGFRAC*) are believed to have more political clientelism, and countries with more natural resources (*FUEL/OM*) more rents for corrupt officials to capture. Rich, democratic countries are thought to have lower corruption (*LGDPPC*, *DEMOCRATIC*), while federal governments (*FEDERAL*) may have lower or higher corruption because rents may be larger but different levels of government might monitor each-other.[21]

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[21] Unfortunately, no country-level measure of education is available with appropriate coverage for our sample. We are able to confirm the role of education in the individual level regressions below.

5 Country-level results

In the main text, we focus our country-level analysis on the *WB* index, which provides the broadest coverage. To conserve space, the corresponding results for *CPI* and *ICRG* are relegated to the Online Appendix.

5.1 Economic, institutional and cultural influences on perceptions

In this section, we regress the corruption perception indices on measures of corruption experience and other country characteristics. In Column 1 of Table 1 the *ICVS* measure of corruption experience has a large and significant effect on the *WB* perception index. Following Treisman's (2000) logic, Columns 2-4 sequentially add the controls, starting with those that are most likely to be exogenous. As expected based on the discussion in Section 3, we find that several country characteristics are significant determinants of corruption perceptions for given level of experience. GDP, Protestantism, a democratic past, and a common law system reduces perceived corruption, while natural resource endowments increase it. Once controls are added, the point estimate of the effect of experience drops dramatically. In particular, adding GDP yields a negative coefficient on corruption experience. In the most extensive specification, experience has a positive but insignificant effect on perceptions. This is not merely due to a large standard error: The upper end of the 95% confidence interval implies that a one standard deviation increase in experience increases perceptions by little over one fifth of a standard deviation. This is comparable to, e.g., the point estimate on legal origins: it means that common law countries are perceived as having the same level of corruption as civil law countries with 10 percentage point lower corruption experience, holding everything else constant.

Section 5.1 in the Online Appendix contains a variety of robustness checks, some of which we illustrate in Table 2. We find that the *CPI* perception index behaves very similarly to *WB*, while only Protestantism is a robust predictor of the *ICRG* index (Columns 1 and 2 in Table 2). We check whether the *WB* and *CPI* results might be affected by uncertainty in these aggregate perception measures (captured by the variance of their components): we repeat the regressions weighting each observation by the inverse of the variance of the perception measure for that country, and obtain even stronger results (the *WB* results are in Column 3 in Table 2). We also present results for 1996 and find that the economic, cultural, and political determinants of perceptions show a similar picture. The point estimate on experience continues to be small; it is mostly statistically significant, but not always robust to outliers (Column 4 in Table 2). The Online Appendix contains more details on these and other robustness checks. We present variation inflation factors which indicate that there is no severe multicollinearity that could be responsible for the low explanatory power of the experience measure. We show that our findings are robust to instrumenting GDP with distance from the equator, allowing us to rule out a form of reverse causality. Finally, we show that the findings are not driven by influential outliers.

Overall, our results indicate that country level corruption perceptions are determined mainly by economic, cultural and institutional factors rather than by corruption experience. These results may help explain some of the discrepancies between countries' perception and experience scores in Figure 1. The Ukraine and Latvia had almost identical *ICVS* scores while the *WB* perception index was almost a standard deviation higher in the former. Based on Column 4 in Table 1 most of this difference in perceptions can be explained by the fact that Latvia had more than a standard deviation higher GDP per capita, its population is 14.1% Protestant (compared to 0% for the Ukraine), and its export share of natural resources is only half of the Ukraine's. Similarly,

the above results can explain why Colombia and Argentina, which are similar in terms of most explanatory variables considered here, can have virtually identical *WB* scores, even though Argentina has 1.3 standard deviations lower corruption experience according to the *ICVS* measure.

5.2 Experience with different types of corruption

To check the robustness of our findings we turn to measures of different types of corruption experience. This is important because the perception indices aggregate surveys of different populations (general public, business executives, experts) while the ICVS only covers the general public. As discussed in Section 3, under the assumption that the level of corruption is meaningfully represented by a scalar, the different experience measures should give us similar results. Conversely, if we find that perception indices reflect some forms of corruption but not others, this might question the existence of an underlying one-dimensional "corruption-factor."

Households' experience with different types of corruption. We first use the information on different types of corruption experience contained in the ICVS. The five categories are government officials, police officers, customs officials, inspectors, and "other". The first four of these categories may all correspond to experiences that businessmen and country experts encounter in their professional lives. Thus, these may correspond more closely to the types of experiences on which the perception indices are based. The interpretation of the "other" category is less clear – it may contain experiences that are less relevant to firms (such as doctors, nurses, or teachers), but it may also be a way for a respondent to avoid specifying the type of official involved.

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Table 3 replicates Column 4 from Table 1 replacing the *ICVS* measure with its decomposition to the different experience-types. As the results immediately show, it does not appear to be the case that the *WB* perception index is an unbiased measure of some specific type of corruption experience: The magnitudes and significance of the controls are similar to our previous results. The experience measures *POLICE*, *CUSTOMS OFFICIALS*, and *OTHER* have positive, significant, but small effects on the perception indices. The largest point estimate, on *OTHER*, implies that a one standard deviation increase in this category raises the *WB* index by about one sixth of a standard deviation. Column 6 includes all experience measures simultaneously, in which case only *OTHER* remains significant. This may suggest that the *WB* perception index is actually driven by experiences *less* relevant for firms (such as with doctors or teachers), although the above caveats in interpreting the *OTHER* measure must be kept in mind. The hypothesis that the coefficients of the different type-measures are equal (which is the implicit assumption behind Table 1) is not rejected.[22]

Firms' corruption experience. Next, we turn to our measure of firms' corruption experience from the World Business Environment Survey. Table 4 reproduces the regressions from Table 1 with *ICVS* replaced by *BRIBES%*, firms' average unofficial payments as a fraction of sales revenue. The general pattern of the results using firm experience is remarkably similar to those obtained with household experiences, despite the different samples. This also gives us some confidence that measurement error in a particular experience survey is not driving the results. GDP, Protestantism and legal origins have a robust significant effect on perceptions holding experience constant, and adding the controls leads to a considerable drop in the estimated effect of experience on perceptions. In Column 4, the 95% confidence interval around the point estimate

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[22] See the Online Appendix for similar findings using *CPI* and *ICRG*.

rules out effects larger than 0.121. This implies that a 2 percentage points (one std. deviation) increase in the average ratio of bribes to sales revenue increases the *WB* corruption perception index by less than a quarter standard deviation.

In sum, it does not seem to be the case that our findings on the various sources of bias in the corruption perception indices and the weak relation between perceptions and experience change if we consider different types of corruption experience.

5.3 Other biases

We have provided evidence suggesting that factors commonly cited as determinants of corruption may in fact bias perceived corruption levels away from corruption experience. As argued in Section 3, while this is consistent with fully rational survey respondents, there are several other potential sources of bias. We investigate these below.

Absolute vs. relative level of corruption and diminishing sensitivity. A given level of relative corruption (percentage of population exposed to corruption) implies a higher level of absolute corruption (occurrences of corruption) in a larger country. Since the purpose of the perception indices is to enable cross-country comparisons, they presumably try to focus on relative corruption. But it may not be obvious whether a respondent does in fact control for the size of the country when forming his perception. A closely related issue is how sensitive perceptions are to changes in the level of experience. As discussed in Section 3, respondents' perception might display increasing or decreasing sensitivity to experience.

The first column of Table 5 confirms the diminishing sensitivity of perceptions to relative corruption suggested by Figure 1: the coefficient on $ICVS^2$ is negative and highly significant.

Column 2 tests for the effect of absolute corruption ($ICVS \times POP$) and shows that it has a positive effect on corruption perceptions for given relative corruption. Perceived corruption appears to be higher for larger countries where the number of corrupt acts is higher. The significant negative coefficient on ($ICVS \times POP$)^2 provides evidence of diminishing sensitivity to absolute corruption. Columns 3 and 4 ask whether diminishing sensitivity and the effect of absolute corruption remains robust when the economic and cultural effects identified earlier are controlled for. Although the coefficient estimates are considerably reduced, the effects remain fairly robust.[23] Note that our previous sources of bias also retain their sign and significance in these regressions.

The corresponding results for the *CPI* and *ICRG* indices and the 1996 sample are in the Online Appendix. We also confirm the presence of diminishing sensitivity using the measure of firms' corruption experience, *BRIBES%*. These results indicate that the perception indices are particularly unresponsive to corruption experience among highly corrupt countries, regardless of the type of experience (firms or general public) considered. For all three indices, we confirm the importance of cultural, economic, and institutional factors in shaping perceptions even after controlling for the diminishing sensitivity to experience.

Explaining corruption experience and corruption perceptions. In a framework with Bayesian survey respondents, only country characteristics that explain corruption experience can affect perceptions. As argued in Section 3, this may not be the case if attitudes also matter in forming perceptions. The following question therefore seems warranted: Do the above country characteristics explain corruption experience, rather than merely perceptions?

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[23] In Column (3), *ICVS*^{2} just loses significance with a p-value of 0.12.

The results in Table 6 suggest that this might not be the case. As the first three columns of the table show, when the dependent variable is corruption experience (*ICVS* or *BRIBES%*) rather than perceptions, only GDP per capita remains robustly significant with the right sign. Colonial past, religion, resource endowments, federal structure, and ethno-linguistic fractionalization are all insignificant determinants of corruption experience, while democracy sometimes changes signs compared to the perception regressions.

As a comparison, the last three columns show the corresponding regressions for perceptions. We see that the explanatory power of this specification is considerably higher for perceptions than it is for experience. Collectively, our general measures of culture, economic development, and political institutions explain 15-30% more of the variation in corruption perceptions than of the variation in corruption experience. This suggests that corruption perception indices are also affected by country characteristics that do not explain corruption experience.

6 Micro-level results

6.1 Households

Because the ICVS is a micro-level survey and asks both about individual perceptions and experience, we can use the data to shed some light on the relationship between the two at the individual level. As described in Section 4, the *LIKELY* measure of individual corruption perception is constructed by adding up the number of categories for which a respondent finds corruption "likely". The first feature of the data to note is that people overwhelmingly tend to think that corruption is likely for at least some types of officials. On average, 84% of respondents think that corruption is likely for at least one of the categories mentioned. At the same time, the average victimization rate is only 18%. As a consequence, the correlation between the *LIKELY*

measure of individual corruption perceptions and corruption experience is extremely low (0.09).[24]

To explore the determinants of individual corruption perceptions, Column 1 of Table 7 regresses *LIKELY* on individual corruption experience and individual characteristics. As the results show, more educated respondents report more widespread corruption for given experience. Each additional level of education adds about 1 point to the *LIKELY* measure on the 12 point scale. Students also report corruption to be significantly more widespread, by 2.5 points. Age has a non-linear impact on perceptions, with a positive effect for younger people that steadily declines and becomes negative around the age of 50. In this regression, individual corruption experience adds less than 1 point to the individual perception index, and this is not statistically significant.

Column 2 adds country-level variables.[25] Although some of these are imprecisely estimated, the sign of the coefficients tends to be consistent with our earlier results, confirming the role of country characteristics in shaping individual perceptions.[26] The individual determinants of perceptions remain robust, and higher income now has a significant positive impact on the perceived likelihood of corruption, while individuals from larger cities perceive lower corruption. While the individual experience measure becomes significant in Column 2, the estimated effect remains very small. Having had personal experience with corruption during the previous year increases the *LIKELY* measure by little more than 1 point on the 12-point scale.

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[24] The correlation between *VICTIM* and the *LIKELY*0/1 dummy is similarly low (0.14). One possible explanation is that *LIKELY* also reflects past corruption experience, but simple back-of-the-envelope calculations in the Online Appendix show that this is unlikely to provide a full explanation.

[25] *FEDERAL* is not included because it is not identified if *NEVERCOLONY* is included, and *DEMOCRATIC* is not included because it is 0 for all countries in this sample.

[26] Here, GDP has a *positive* effect on perceptions. This could be due to the fact that GDP also proxies for individual income, since the included household income variables only measure relative income within each country.

Column 3 replaces the country-level variables with country fixed-effects. The magnitudes of the coefficient estimates are now smaller, but the previous effects tend to hold. Column 4 shows that the small estimated effect of experience is not due to the refined 12-point scale by having a dummy as the dependent variable. Here, the lack of personal corruption experience reduces the probability of reporting that corruption is likely for at least one category by only 6%.[27] Columns 5 and 6 show that restricting attention to the perceived likelihood of particular types of corruption does not increase the estimated effect of *VICTIM*. Corruption experience adds an estimated ½ point on a 6-point scale (0.2 std. dev.) to the perception of bureaucratic corruption, and an estimated 1/5 point on a 3-point scale (0.15 std. dev) to the perception of grand corruption. This suggests that, at least in this population, a survey of corruption perceptions will yield a poor measure of underlying corruption experience even if it focuses on a particular type of corruption.

6.2 Firms

The WBES survey allows one to get a sense of factors which might influence firms' corruption perceptions. To this end, we regress firms' corruption perception, *CORRPROBLEM*, on the firm-level *BRIBES%* measure of corruption experience, controlling for various firm characteristics.

In Column 1 of Table 8, a 1 percentage point increase in bribes as a fraction of sales revenue raises the likelihood that a firm views corruption as being problematic by slightly more than 1%.[28] This is statistically significant, but the effect is small: it implies that going from no corruption to the 90th percentile of *BRIBES%* raises this probability by about 12 percent. Firms

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[27] Estimating this specification with Probit shows a similar picture (see Online Appendix). We also present an Ordered Probit specification for *LIKELY* in the Online Appendix.

[28] We estimate these regressions with OLS. The results using Probit are very similar and reported in the Online Appendix.

with higher sales revenue (*SALES*) view corruption as being less problematic for given experience, which is consistent with the idea that the marginal cost of corruption declines with firm size. Alternatively, it might be that less successful firms blame the "corrupt" government for their lack of growth (we explore this possibility further below). Firms facing more than three competitors also perceive a given level of corruption to be significantly more problematic, perhaps because of their smaller profits. This effect is particularly large in magnitude: it increases the likelihood that a firm views corruption as problematic by 15 percent. Note that this effect is not due to state monopolies, since we control for state ownership (*STATE*).

Column 2 adds country dummies which leads to little change in most point estimates. In Column 3 we ask whether recent changes in a firm's operation might affect corruption perceptions. *PLANT_RED* measures whether in the past 3 years an existing plant was closed and *PLANT_INC* whether a new plant was opened. Similarly, *WORK_RED* measure a large (at least 10%) reduction in the workforce, while *WORK_INC* a corresponding increase. Opening a new plant, or a large reduction in the workforce (without a corresponding increase) leads to higher perceived corruption. Since these two changes indicate changes in firm size in opposite directions, they cannot be explained by firm size. Instead one possible explanation is that opening a new plant involves close interaction with public officials (e.g., in the process of obtaining permits), making the respondent especially aware of the obstacles that corruption presents to firm growth.[29] The effect of reducing the workforce could be explained by employee morale: pessimistic managers might blame the need to downsize on "corrupt" government policies. In this regression, *EXPORTER* is significant with a negative sign: exporting firms are

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[29] Note that closing a plant has no significant countervailing effect on perceived corruption, which is consistent with this explanation.

less likely to view corruption as problematic, perhaps because their operations abroad are sheltered from domestic corruption.

In Column 4, we test for the presence of diminishing sensitivity to corruption experience at the firm level. The significant negative coefficient on $(BRIBES\%)^2$ confirms the presence of this effect. While starting from no corruption a small increase in corruption experience raises the likelihood of viewing corruption as problematic by 4.3%, at the mean corruption experience this effect is only 3%. Overall, the effect of experience on perception remains small relative to other variables. These findings confirm that, similarly to household surveys, measures of perceptions obtained from firms are likely to be biased proxies of corruption experience.[30]

7 Conclusion

We have offered a systematic comparison between experience measures from both households' perspective (ICVS) and the business sector (WBES) and the standard corruption perception indices. The data also allowed us to investigate the determinants of corruption perceptions at the individual and firm level. We found that a number of factors commonly thought to cause corruption seem to bias perceptions away from experience, that perceptions exhibit diminishing sensitivity to experience, and that they are influenced by absolute levels of corruption. Some of these biases are consistent with Bayesian respondents updating their perceptions based on experience, while others suggest the presence of psychological biases in forming perceptions. Overall, the results imply that using corruption *perception* indices as a measure of corruption experience may be more problematic than suggested by the existing literature.

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[30] Our individual and firm level results also suggest factors which may be responsible for the variance of individual perceptions within a country. For example, our findings suggest that countries with more heterogeneity in age or educational attainment will tend to have higher variance in corruption perceptions. Exploring further the factors that may lead to cross-country differences in the variance of perceptions is an interesting avenue for future research.

Our findings have several broad implications. First, corruption perception indices might have to be reevaluated as measuring corruption perceptions, but not necessarily corruption experience. This does not necessarily diminish their importance or usefulness. Corruption perceptions are an important part of people's attitude towards political systems and leaders, and affect the level of political trust in a society (Seligson, 2002, Anderson and Tverdova, 2003). It is well known that, in turn, this trust can be an important determinant of investment decisions, political participation, and other behaviors with real consequences. This seems to be recognized by the US Supreme Court, who views anti-corruption legislation as a means of reducing *both* the "reality and appearance of corruption" (US Supreme Court, 1976, p58; see also the opening quote). Viewed in this light, many of the previous studies using corruption perception indices might be usefully rethought as informing us about the determinants and implications of corruption perceptions, and political trust more generally.[31]

Second, some of the concerns raised here about the interpretation of corruption indices seem relevant for other widely used measures of governance. Empirical work using concepts such as democratic institutions, freedom of press, or government stability often relies on measures that are based on the perceptions of country experts, firms, or the general population. As in the case of corruption, perceptions and experience might differ systematically regarding other aspects of governance as well.

Finally, distinguishing perceptions from experience may yield interesting areas for further inquiry. Which policies are most effective at changing perceptions of a country's level of corruption and what is their impact on real variables? Do corruption perceptions influence actual corruption (e.g., through more permissive social norms)? To what extent is the persistence of

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[31] A recent paper by Djankov et al. (2010) explicitly studies corruption perceptions and argues that accountability rules will affect the information on which such perceptions are based. See also Tavits (2007). Kaplan and Pathania (2010) study how GDP growth affects firms' perceptions of infrastructural and institutional constraints.

measured institutions due to the persistence of perceptions? These are interesting questions for future research.

References

Anderson, C.J., and Y.V. Tverdova (2003): "Corruption, Political Allegiances, and Attitudes toward Government in Contemporary Democracies," *American Journal of Political Science* 47(1), 91-109.

Bertrand, M., and S. Mullainathan (2001): "Do People Mean What They Say? Implications for Subjective Survey Data," *American Economic Review (P & P)* 91(2), 67-72.

Bradburn, N.M (1983): "Response Effects," *in*: Rossi, P.H., J.D. Wright, and A.B. Anderson (eds): *Handbook of Survey Research*, Academic Press, NY.

Clarke, G.R.G., and L.C. Xu (2004): "Privatization, competition, and corruption: how characteristics of bribe takers and payers affect bribes to utilities," *Journal of Public Economics* 88, 2067-97.

Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer (2010): "Disclosure by Politicians," *American Economic Journal: Applied Economics* 2, 179-209.

Dreher, A., C. Kotsogiannis, and S. McCorriston (2007): "Corruption around the World: Evidence from a structural model," *Journal of Comparative Economics* 35, 443–466.

Ferraz, C., and F. Finan (2008): "Exposing corrupt politicians: The effects of Brazil's publicly released audits on electoral outcomes," *Quarterly Journal of Economics* 123(2), 747-793.

Fisman, R., and E. Miguel (2007): "Corruption, Norms, and Legal Enforcement: Evidence from Diplomatic Parking Tickets", *Journal of Political Economy* 115(6), 1020-1048.

Fredriksson, P.G., and J. Svensson (2003): "Political Instability, Corruption and Policy Formation: The Case of Environmental Policy," *Journal of Public Economics* 87(7-8), 1383-1405.

Glaeser, E.L., and R.E. Saks (2006): "Corruption in America," *Journal of Public Economics* 90(6-7), 1053-1072.

Glaeser, E.L., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer (2004): "Do Institutions Cause Growth?" *Journal of Economic Growth* 9, 271-303.

Goel, R.K., and D.P. Rich (1989): "On the Economic Incentives for Taking Bribes," *Public Choice* 61(3), 269-275.

Golden, M.A., and L. Picci (2005): "Proposal for a New Measure of Corruption, Illustrated with Italian Data," *Economics and Politics* 17(1), 37-75.

Gonzales, A., J.E. López-Cordóva, E.E. Valladares (2007): "The Incidence of Graft on Developing-Country Firms," World Bank Policy Research Working Paper 4394.

Gorodnichenko, Y., and K. Sabirianova Peter (2007): "Public sector pay and corruption: Measuring bribery from micro data," *Journal of Public Economics* 91, 963–991.

Jain, A. K. (2001): "Corruption: A Review," *Journal of Economic Surveys* 15(1), 71-121.

Kaplan, D., and V. Pathania (2010): "What influences firms' perceptions?" *Journal of Comparative Economics* 38, 419–431

Kaufmann, D., A. Kray, and M. Mastruzzi (2004): "Governance Matters III: Governance Indicators for 1996, 1998, 2000, and 2002," *World Bank Economic Review* 18(2), 253-287.

Kaufmann, D., A. Kray, and M. Mastruzzi (2007): "The Worldwide Governance Indicators Project: Answering the Critics," World Bank Policy Research Working Paper 4149.

Kaufmann, D., and A. Kray (2008): "Governance Indicators: Where Are We, Where Should We Be Going?" *The World Bank Research Observer* 23(1), 1-30.

Knack, S. (2007): "Measuring Corruption in Eastern Europe and Central Asia: A Critique of the Cross-Country Indicators," *Journal of Public Policy* 27(3), 255-291.

Kurtz, M., and A. Schrank (2007): "Growth and Governance: Models, Measures, and Mechanisms," *Journal of Politics* 69(2), 538-554.

Mauro, P. (1995): "Corruption and Growth," *Quarterly Journal of Economics* 110(3), 681-712.

Mauro, P. (1998): "Corruption and the Composition of Government Expenditure," *Journal of Public Economics* 69, 263-279.

Mocan, N. (2008): "What Determines Corruption? International Evidence from Micro Data," *Economic Inquiry* 46(4), 493-510.

Mocan, N. (2009): "Corruption, Corruption Perception, and Economic Growth," *in*: S. Sayan (ed.), *Economic Performance in the Middle East and North Africa: Institutions, Corruption, and Reform*, Routledge: New York, NY.

Nisbett, R. E., and T. D. Wilson (1977): "Telling More Than We Can Know: Verbal Reports on Mental Processes," *Psychological Review* 84(3), 231-259.

Olken, B.A. (2009): "Corruption Perceptions vs. Corruption Reality," *Journal of Public Economics* 93(7-8), 950-964.

Razafindrakoto, M., and F. Roubaud (2010): "Are international databases on corruption reliable? A comparison of expert opinion surveys and household surveys in sub-Saharan Africa," *World Development* 38(8) 1057-1069.

Ross, M. (1989): "Relation of Implicit Theories to the Construction of Personal Histories," *Psychological Review* 96(2), 341-357.

Seligson, M.A. (2002): "The Impact of Corruption on Regime Legitimacy: A Comparative Study of Four Latin American Countries," *The Journal of Politics* 64(2), 408-33.

Soares, R.R. (2004): "Development, crime and punishment: accounting for the international differences in crime rates," *Journal of Development Economics* 73, 155-184.

Svensson, J. (2003): "Who must pay bribes and how much? Evidence from a cross section of firms," *Quarterly Journal of Economics* 118, 207-230.

Svensson, J. (2005): "Eight Questions about Corruption," *Journal of Economic Perspectives* 19(3), 19-42.

Tavits, M. (2007): "Clarity of Responsibility and Corruption," *American Journal of Political Science* 51(1), 218-229.

Treisman, D. (2000): "The causes of corruption: a cross-national study," *Journal of Public Economics* 76, 399-457.

Treisman, D. (2007): "What have we learned about the causes of corruption from ten years of crossnational empirical research?" *Annual Review of Political Science* 10, 211-244

US Supreme Court (1976): *Buckley v. Valeo*, 424 U.S. 1.

Weber Abramo, C. (2008): "How Much Do Perceptions of Corruption Really Tell Us?" *Economics: The Open-Access, Open-Assessment E-journal* 2, 2008-3.

Wei, S. J. (2000): "How Taxing Is Corruption on International Investors?" *Review of Economics and Statistics* 82(1), 1-11.

Table 1 Determinants of corruption perceptions

	(1)	(2)	(3)	(4)
ICVS	7.731***	4.854***	-0.071	0.669
	(0.986)	(1.229)	(0.880)	(1.118)
LEGOR_UK		-0.271	-0.299*	-0.275*
		(0.217)	(0.161)	(0.146)
NEVERCOLONY		-0.523**	-0.308	-0.241
		(0.236)	(0.221)	(0.240)
PROTESTANT		-0.010***	-0.009***	-0.006***
		(0.003)	(0.002)	(0.002)
ETHLINGFRAC		0.002	-0.002	-0.003
		(0.005)	(0.004)	(0.004)
FUEL/OM		0.008*	0.007**	0.006**
		(0.004)	(0.003)	(0.003)
LGDPPC			-0.449***	-0.346***
			(0.071)	(0.106)
DEMOCRATIC				-0.559**
				(0.255)
FEDERAL				0.227
				(0.227)
R-squared	0.60	0.76	0.86	0.89
Observations	43	43	43	43

Notes. The dependent variable is the *WB* perception index. 2000 sample. OLS estimates. Robust standard errors in parentheses. All regressions include a constant. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 2 Determinants of corruption perceptions: robustness

Dep. Var:	*CPI*	*ICRG*	*WB*	*WB* 1996
	(1)	(2)	(3)	(4)
ICVS	0.718	0.184	0.395	1.644
	(0.837)	(1.114)	(0.901)	(1.013)
LEGOR_UK	-0.310**	0.001	-0.363**	-0.320*
	(0.133)	(0.259)	(0.136)	(0.159)
NEVERCOLONY	-0.277	0.114	-0.183	-0.017
	(0.219)	(0.382)	(0.235)	(0.175)
PROTESTANT	-0.008***	-0.013**	-0.006***	-0.006*
	(0.002)	(0.005)	(0.002)	(0.003)
ETHLINGFRAC	-0.001	0.003	-0.002	0.000
	(0.005)	(0.008)	(0.004)	(0.004)
FUEL/OM	0.004	0.006	0.005**	0.000
	(0.003)	(0.005)	(0.002)	(0.005)
LGDPPC	-0.289	-0.253	-0.420***	-0.385***
	(0.173)	(0.192)	(0.105)	(0.078)
DEMOCRATIC	-0.640**	-0.439	-0.467*	-0.649***
	(0.302)	(0.445)	(0.247)	(0.155)
FEDERAL	0.221	0.295	0.324	0.142
	(0.210)	(0.354)	(0.218)	(0.126)
R-squared	0.90	0.72	0.90	0.91
Observations	40	39	43	40

Notes. OLS estimates. In Column (3) observations are weighted by the inverse variance of the components of the perception index. Column (4) is for the 1996 sample, excluding Mongolia. Robust standard errors in parentheses. All regressions include a constant. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 3 Determinants of corruption perceptions: different types of experience

	(1)	(2)	(3)	(4)	(5)	(6)
GOVT OFFICIAL	2.617					-0.115
	(3.432)					(2.660)
POLICE		3.696*				2.128
		(1.850)				(1.486)
CUSTOMS OFFICIAL			9.941**			7.960
			(3.937)			(4.827)
INSPECTOR				6.106		3.370
				(3.973)		(4.075)
OTHER					12.433**	12.353**
					(5.961)	(5.126)
LEGOR_UK	-0.377**	-0.315*	-0.331**	-0.313*	-0.432**	-0.294
	(0.164)	(0.165)	(0.161)	(0.159)	(0.188)	(0.201)
NEVERCOLONY	0.044	0.055	0.046	0.136	-0.013	0.037
	(0.206)	(0.208)	(0.223)	(0.227)	(0.203)	(0.222)
PROTESTANT	-0.007**	-0.007**	-0.007**	-0.008**	-0.007**	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
ETHLINGFRAC	0.001	0.002	0.002	0.004	0.001	0.001
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
FUEL/OM	-0.006	-0.009	-0.005	-0.006	-0.009	-0.009
	(0.008)	(0.008)	(0.009)	(0.008)	(0.007)	(0.006)
LGDPPC	-0.370***	-0.404***	-0.367***	-0.365***	-0.371***	-0.317***
	(0.097)	(0.072)	(0.082)	(0.090)	(0.075)	(0.084)
DEMOCRATIC	-0.839***	-0.678***	-0.734***	-0.832***	-0.717***	-0.636***
	(0.231)	(0.179)	(0.216)	(0.216)	(0.168)	(0.184)
FEDERAL	0.267*	0.123	0.242	0.163	0.315*	0.161
	(0.150)	(0.164)	(0.164)	(0.162)	(0.164)	(0.175)
R-squared	0.87	0.89	0.88	0.88	0.89	0.91
Observations	41	41	41	41	41	41
F-test: equal type-coefficients [p-value]						1.7 [0.18]

Notes. The dependent variable is the *WB* perception index. 1996 sample. OLS estimates. Robust standard errors in parentheses. All regressions include a constant. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4 Firm experience and corruption perceptions

	(1)	(2)	(3)	(4)
BRIBES%	0.340***	0.228***	0.045	0.041
	(0.048)	(0.052)	(0.042)	(0.040)
LEGOR_UK		-0.601**	-0.378**	-0.411**
		(0.291)	(0.156)	(0.178)
NEVERCOLONY		-0.404*	-0.019	0.026
		(0.237)	(0.200)	(0.218)
PROTESTANT		-0.022***	-0.011***	-0.009***
		(0.004)	(0.004)	(0.003)
ETHLINGFRAC		0.007	0.004	0.002
		(0.005)	(0.003)	(0.003)
FUEL/OM		0.004	0.006*	0.005*
		(0.004)	(0.003)	(0.003)
LGDPPC			-0.520***	-0.545***
			(0.084)	(0.079)
DEMOCRATIC				-0.264
				(0.265)
FEDERAL				0.378**
				(0.178)
Observations	0.47	0.69	0.83	0.85
R-squared	58	58	58	58

Notes. The dependent variable is the *WB* perception index. OLS estimates.
Robust standard errors in parentheses. All regressions include a constant. *
significant at 10%; ** significant at 5%; *** significant at 1%

Table 5 Absolute vs. relative corruption and diminishing sensitivity

	(1)	(2)	(3)	(4)
ICVS	17.943***	16.897***	5.786*	5.328*
	(2.383)	(2.328)	(3.064)	(2.813)
ICVS^2	-37.131***	-39.378***	-15.507	-17.106*
	(8.504)	(8.316)	(9.663)	(8.794)
ICVS × *POP*		1.122**		0.880***
		(0.433)		(0.282)
(*ICVS* × *POP*)^2		-0.242**		-0.189**
		(0.107)		(0.075)
LEGOR_UK			-0.202	-0.128
			(0.150)	(0.149)
NEVERCOLONY			-0.121	-0.278
			(0.222)	(0.189)
PROTESTANT			-0.007***	-0.006**
			(0.002)	(0.002)
ETHLINGFRAC			0.000	0.000
			(0.004)	(0.004)
FUEL/OM			0.005*	0.004
			(0.003)	(0.003)
LGDPPC			-0.302***	-0.258***
			(0.108)	(0.090)
DEMOCRATIC			-0.440*	-0.416*
			(0.253)	(0.221)
FEDERAL			0.223	0.039
			(0.218)	(0.241)
Observations	0.73	0.78	0.90	0.92
R-squared	43	43	43	43

Notes. The dependent variable is the *WB* perception index. 2000 sample. OLS estimates. Robust standard errors in parentheses. All regressions include a constant. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 6 Determinants of corruption experience

Dependent variable:	ICVS 1996	ICVS 2000	BRIBES%	WB 1996	WB 2000	WB 2000
	(1)	(2)	(3)	(4)	(5)	(6)
LEGOR_UK	-0.045	-0.020	-0.124	-0.393**	-0.289*	-0.416**
	(0.028)	(0.023)	(0.498)	(0.159)	(0.145)	(0.177)
NEVER COLONY	-0.009	-0.003	0.341	0.048	-0.243	0.040
	(0.029)	(0.016)	(0.531)	(0.212)	(0.240)	(0.230)
PROTESTANT	-0.001	-0.000	0.008	-0.008**	-0.006***	-0.008**
	(0.000)	(0.000)	(0.009)	(0.003)	(0.002)	(0.003)
ETHLINGFRAC	0.001	-0.000	0.013	0.002	-0.003	0.002
	(0.001)	(0.001)	(0.011)	(0.004)	(0.004)	(0.003)
FUEL/OM	0.001	0.000	0.013	-0.006	0.006**	0.005**
	(0.001)	(0.001)	(0.009)	(0.009)	(0.003)	(0.002)
LGDPPC	-0.028**	-0.063***	-1.278***	-0.406***	-0.389***	-0.597***
	(0.011)	(0.010)	(0.208)	(0.080)	(0.082)	(0.075)
DEMOCRATIC	-0.013	0.052**	0.575	-0.786***	-0.524**	-0.240
	(0.032)	(0.022)	(0.590)	(0.206)	(0.249)	(0.275)
FEDERAL	0.051	0.004	0.327	0.264	0.230	0.391**
	(0.040)	(0.026)	(0.415)	(0.157)	(0.224)	(0.183)
R-squared	0.56	0.76	0.58	0.87	0.89	0.85
Observations	41	43	58	41	43	58

Notes. OLS estimates. The samples are identical for columns 1 and 4, 2 and 5, 3 and 6. Robust standard errors in parentheses. All regressions include a constant. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 7 Determinants of households' corruption perceptions (2000)

Dependent var.:	LIKELY	LIKELY	LIKELY	LIKELY 0/1[a]	LIKELY BUREAUCRAT[b]	LIKELY GRAND[c]
	(1)	(2)	(3)	(4)	(5)	(6)
VICTIM	0.800	1.066***	0.908***	0.061***	0.508***	0.200***
	(0.658)	(0.316)	(0.094)	(0.007)	(0.049)	(0.029)
INCOME TOP75%	1.576	1.225**	0.168	0.017*	0.144**	0.021
	(1.043)	(0.511)	(0.122)	(0.010)	(0.065)	(0.036)
INCOME TOP50%	1.291	0.734	0.080	0.017*	0.122*	-0.022
	(1.037)	(0.534)	(0.124)	(0.010)	(0.066)	(0.037)
INCOME TOP25%	1.084	0.751	0.183	0.003	0.183***	0.029
	(1.015)	(0.590)	(0.128)	(0.011)	(0.067)	(0.038)
EDUC PRIMARY	1.318***	0.788**	0.377*	0.009	0.204*	0.124*
	(0.333)	(0.293)	(0.224)	(0.023)	(0.124)	(0.068)
EDUC SECOND	2.568***	1.308***	0.587***	0.029	0.321***	0.195***
	(0.505)	(0.458)	(0.208)	(0.022)	(0.117)	(0.064)
EDUC HIGHER	3.600***	1.501***	0.616***	0.040*	0.328***	0.242***
	(0.695)	(0.513)	(0.216)	(0.022)	(0.120)	(0.066)
$AGE \times 10^{-1}$	1.081**	0.725***	0.706***	0.005	0.417***	0.124**
	(0.469)	(0.245)	(0.173)	(0.013)	(0.092)	(0.053)
$AGE^2 \times 10^{-2}$	-0.106**	-0.092***	-0.106***	-0.003*	-0.060***	-0.022***
	(0.043)	(0.032)	(0.020)	(0.001)	(0.010)	(0.006)
MALE	0.060	-0.053	-0.057	0.003	-0.032	-0.002
	(0.197)	(0.128)	(0.080)	(0.006)	(0.042)	(0.024)
MARRIED	0.109	0.061	0.070	0.009	-0.004	0.039
	(0.386)	(0.241)	(0.092)	(0.008)	(0.049)	(0.028)
WORKING	0.376	0.297	0.118	0.018**	0.064	0.042
	(0.356)	(0.216)	(0.094)	(0.008)	(0.050)	(0.028)
STUDENT	2.482**	1.243**	0.606***	0.054***	0.310***	0.146***
	(1.017)	(0.461)	(0.156)	(0.013)	(0.083)	(0.048)
CITY	-0.642	-1.696**	0.191	-0.087***	0.060	0.097**
	(1.131)	(0.702)	(0.162)	(0.028)	(0.084)	(0.046)
LEGOR_UK		-3.793**				
		(1.651)				
NEVER COLONY		-4.106**				
		(1.786)				
PROTESTANT		-0.068				
		(0.041)				
ETHLINGFRAC		0.011				
		(0.025)				
FUEL/OM		0.131***				
		(0.040)				
LGDPPC		1.071**				
		(0.390)				
Country FE	No	No	Yes	Yes	Yes	Yes
R-squared	0.09	0.29	0.39	0.32	0.40	0.31
Observations	11,248	11,248	11,248	11,248	11,248	11,248
No. of countries	21	21	21	21	21	21

Notes. [a] Dummy: 1 if *LIKELY* > 0, 0 o/w. [b] Contains municipal officers, police officers, customs officers, tax-revenue officials, inspectors, and court officials. [c] Contains parliament, ministers and municipal councilors. Countries in the sample are Azerbaijan, Belarus, Bulgaria, Cambodia, Colombia, Croatia, Czech Republic, Georgia, Hungary, Latvia, Lithuania, Mongolia, Mozambique, Panama, Philippines, Poland, Romania, Russia, South Korea, Uganda, Ukraine. OLS estimates. Robust standard errors reported in parentheses. Standard errors clustered by country in (1) and (2). All regressions include a constant. * significant at 10%; ** significant at 5%; *** significant at 1%

Table 8 Determinants of firms' corruption perceptions (2000)

	(1)	(2)	(3)	(4)
BRIBES%	0.011***	0.011***	0.011***	0.043***
	(0.002)	(0.002)	(0.002)	(0.005)
$(BRIBES\%)^2$				-0.001***
				(0.000)
SALES	-0.020***	-0.011	-0.014*	-0.011
	(0.007)	(0.008)	(0.008)	(0.008)
STATE	0.012	-0.014	-0.027	-0.019
	(0.040)	(0.040)	(0.041)	(0.041)
EXPORTER	-0.033	-0.045	-0.054*	-0.047
	(0.033)	(0.032)	(0.033)	(0.032)
IMPORTER	0.008	-0.007	-0.007	-0.011
	(0.028)	(0.029)	(0.029)	(0.028)
COMPETITOR 1-3	0.042	0.040	0.043	0.049
	(0.060)	(0.059)	(0.058)	(0.057)
COMPETITOR >3	0.153***	0.146***	0.146***	0.138***
	(0.053)	(0.053)	(0.052)	(0.051)
PLANT_INC			0.062**	0.067**
			(0.031)	(0.030)
PLANT_RED			0.038	0.018
			(0.055)	(0.055)
PLANT_INC × *PLANT_RED*			0.093	0.087
			(0.083)	(0.082)
WORK_RED			0.050*	0.048*
			(0.029)	(0.028)
WORK_INC			0.008	0.011
			(0.030)	(0.029)
WORK_RED × *WORK_INC*			-0.152*	-0.165**
			(0.083)	(0.080)
Country FE	No	Yes	Yes	Yes
Observations	1,734	1,734	1,734	1,734
No. of countries	26	26	26	26
R-squared	0.04	0.12	0.12	0.15

Notes. The dependent variable is *CORRPROBLEM*. Countries in the sample are Albania, Armenia, Azerbaijan, Belarus, Bosnia, Bulgaria, Croatia, Czech Republic, Estonia, Macedonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey, Ukraine, Uzbekistan. OLS estimates. Robust standard errors reported in parentheses. All regressions include a constant. * significant at 10%; ** significant at 5%; *** significant at 1%.
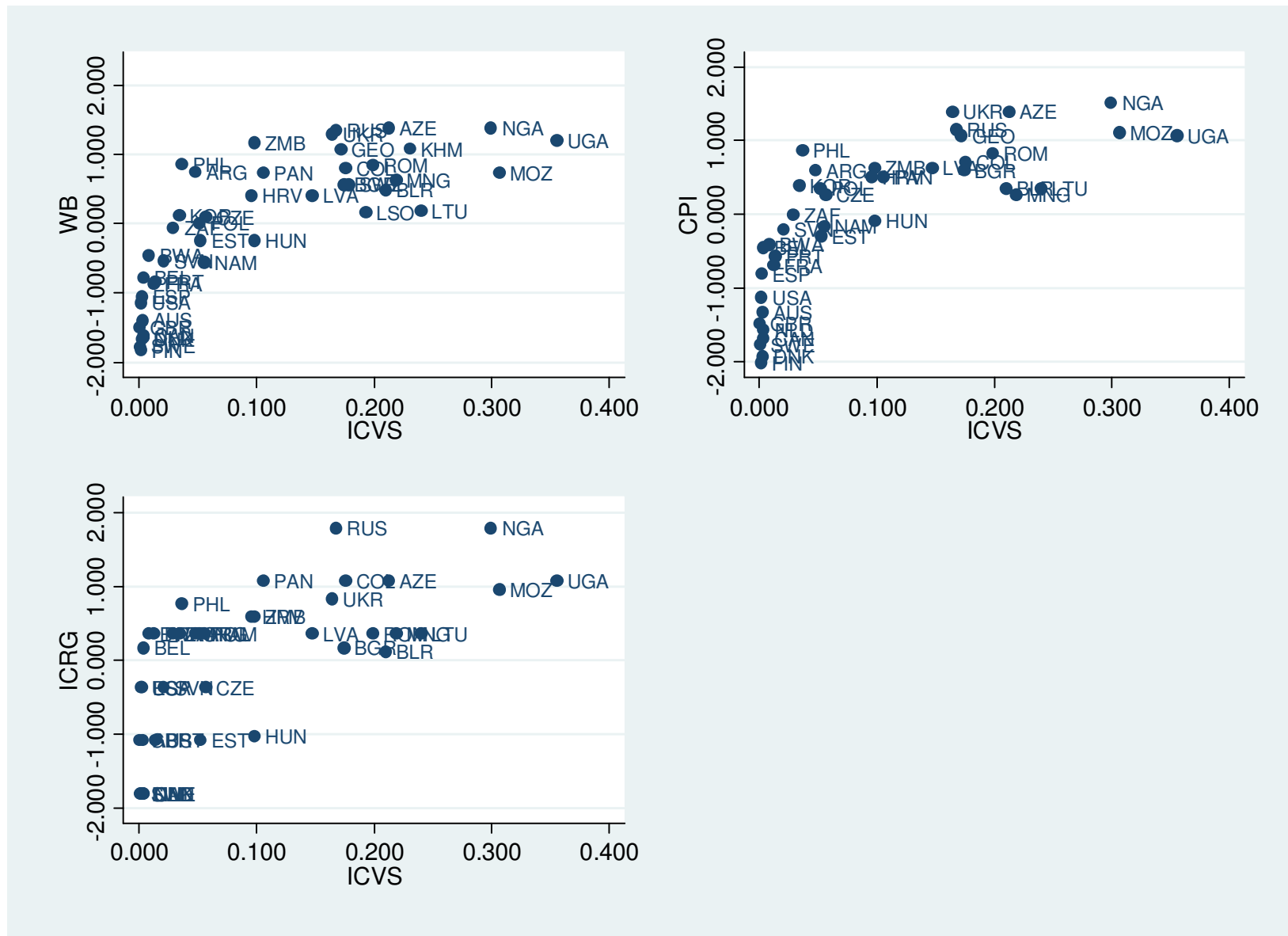
Figure 1 Perception indices and *ICVS* (year = 2000).