

Report on the data “Voice of the People”, question Q.5: In the past 12 months, have you or anyone living in your household paid a bribe in any form?

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Introduction

Transparency International has started to derive a measure on the extent of corruption by focusing on experienced bribery, as reported by the general public. This dataset, as provided by Gallup International on behalf of Transparency International, presents a complement to the annual Corruption Perceptions Index. I discuss here how the data on question Q.5 should be processed and how the results relate to the CPI.

Compressing Data

There are four alternative reactions of respondents to question Q.5. In addition to “YES” and “NO” respondents may not know, “DK”, or fail to provide an answer, “NA”. The information contained in the resulting table for 64 countries and 4 alternative responses can be compressed to one single dimension by help of principal component analysis. The results are in table 1.

Table 1: Principal components analysis
Sample: 1 64
Included observations: 64
Correlation of YES NO DK NA

	Comp 1	Comp 2	Comp 3
Eigenvalue	2.493146	0.956310	0.549835
Variance Prop.	0.623286	0.239077	0.137459
Cumulative Prop.	0.623286	0.862364	0.999823

Eigenvectors:

Variable	Vector 1	Vector 2	Vector 3
YES	-0.542159	-0.414290	0.432376
NO	0.625676	0.117638	-0.137300
DK	-0.494498	0.124584	-0.826367
NA	-0.264700	0.893870	0.333642

The first vector suggests that “YES” and “DK” are similar in weight. This can arise if those who paid bribes (“YES”) dislike truthful admittance and prefer to opt for lack of knowledge (“DK”). Failing to provide an answer also obtains the same sign, albeit being closer to zero.

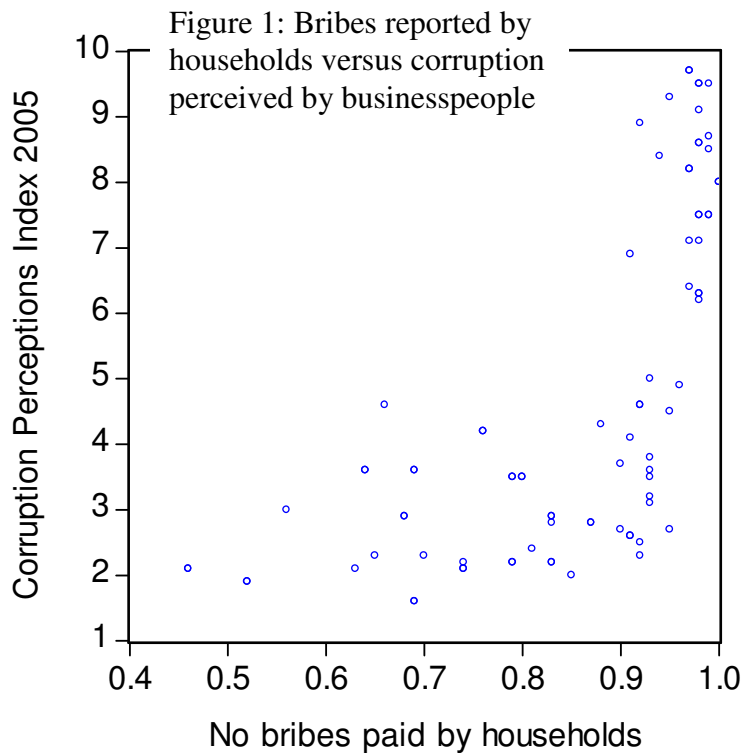
The weights of vector 1 should not be used for presenting the final results, because the coefficients are difficult to explain to the layman. A feasible approach that comes close to the weights from vector 1 would be to assess the percentage of “NO” responses relative to all valid responses (without “NA”). This would result in the data as presented in table 2:

Table 2: Household’s payments of bribes

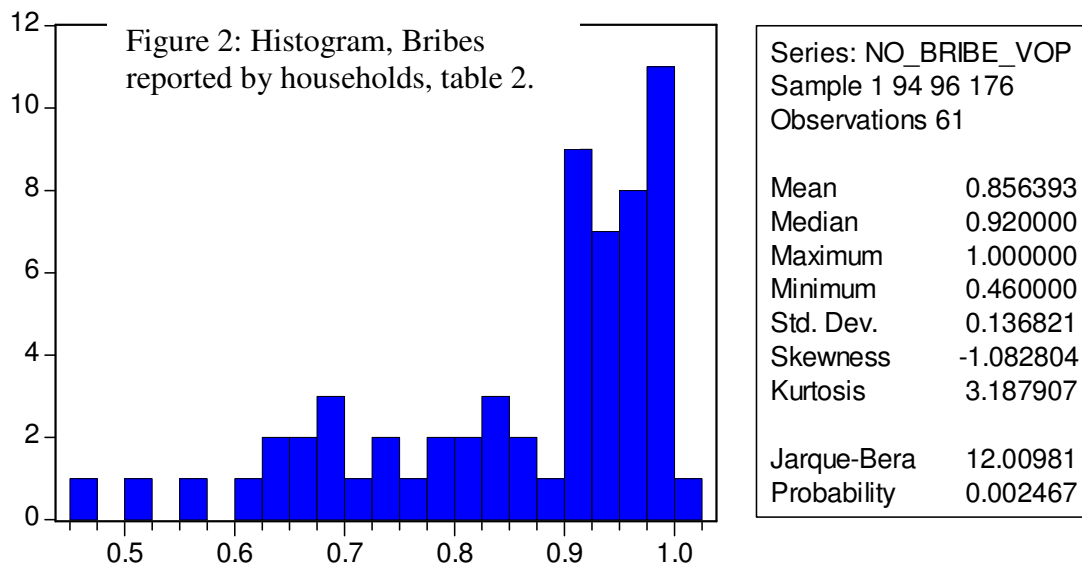
Country	Share of “NO” out of valid responses	Country	Share of “NO” out of valid responses
Hong Kong	1.00	Philippines	0.91
Denmark	0.99	Japan	0.91
USA	0.99	Bulgaria	0.91
Canada	0.99	Panama	0.90
Netherlands	0.99	Macedonia	0.90
UK	0.98	Kosovo	0.89
Ireland	0.98	Greece	0.88
Iceland	0.98	India	0.87
Portugal	0.98	Indonesia	0.85
Switzerland	0.98	Dominican Republic	0.83
Uruguay	0.98	Ukraine	0.83
Spain	0.98	Russia	0.83
Germany	0.97	Ecuador	0.81
Israel	0.97	Poland	0.80
France	0.97	Bolivia	0.79
Finland	0.97	Peru	0.79
Costa Rica	0.96	Czech Republic	0.76
Taiwan	0.96	Serbia	0.76
Nicaragua	0.95	Pakistan	0.74
South Korea	0.95	Guatemala	0.74
Singapore	0.95	Ethiopia	0.70
Austria	0.94	Nigeria	0.69
Bosnia and Herzegovina	0.93	Ghana	0.69
Croatia	0.93	Romania	0.68
Colombia	0.93	Lithuania	0.66
Thailand	0.93	Moldova	0.65
Malaysia	0.93	Mexico	0.64
Turkey	0.93	Kenya	0.63
Norway	0.92	Togo	0.60
Argentina	0.92	Senegal	0.56
South Africa	0.92	Paraguay	0.52
Venezuela	0.92	Cameroon	0.46

Interpreting Results

At first glance, data from table 2 well correlate with the Corruption Perceptions Index, providing mutual support for both sets of data. This is also revealed by the scatterplot, figure 1.



Statistical analysis of this relationship is not trivial, because the underlying distribution of the datasets differs considerably. A histogram of the data in table 2 is provided in figure 2.



Due to this, determination of an adequate functional form is essential. Prior to carrying out OLS regressions I test different distributions for the dependent variable, the data from table 2. Criteria for selection are whether the original data of the dependent variable (table 2) were close to a normal distribution and whether the R2 of the regressions was large. In light of this, the functional form chosen for the regression is the following:

$$-\ln(1.01 - no_bribe_i) = \beta_0 + \beta_1 CPI2005_i + \beta_2 X_i + \varepsilon_i,$$

where i is the country subscript. “no_bribe” is the data from table 2, CPI2005 is the TI Corruption Perceptions Index from 2005, X is a vector of all the control variables other than corruption, β_0 is a constant, β_1 is the coefficient for the impact of the CPI, β_2 is a vector of the coefficients corresponding to X and ε is a random error term. As explanatory variables I include GDP per capita and the growth of population. I start with a simple specification in which further explanatory variables are disregarded. As shown in regression 1, there is a strong association between the CPI and the transformed data from table 2.

Table 3. OLS, ^{a)}

Dependent Variable: No bribes paid by households, transformed, table 2.

Independent Variables	1.	2.	3.	4.	5.	6.
Constant	0.891 (5.3)	-1.144 (-1.1)	-2.373 (-2.0)	-1.257 (-1.2)	-1.498 (-1.4)	-0.581 (-0.5)
GDP per head, log.		0.280 (2.0)	0.403 (2.7)	0.219 (3.5)	0.224 (3.5)	0.187 (3.3)
Absence of Corruption, CPI 2005	0.303 (9.7)	0.204 (3.5)	0.186 (3.3)	0.313 (2.2)	0.337 (2.2)	0.241 (1.7)
Growth of Population			0.187 (2.1)			
Law and Order (ICRG), 1998				-0.059 (-0.6)		
Bureaucratic Quality (ICRG), 1998					-0.098 (-0.7)	
Absence of Civil Liberties, Freedom House, 2000/2001						-0.055 (-0.7)
Obs.	60	60	60	55	55	59
R ²	0.62	0.64	0.67	0.68	0.68	0.64
Jarque-Bera of Resid.	2.0	1.0	1.1	0.5	1.2	2.1

a) White corrected t -statistics are in parenthesis.

GDP per capita (as taken from the World Development Indicators) aims to capture effects resulting from differences in a country’s level of development. As shown in regression 2, the impact of the CPI withstands the inclusion of this variable.

Another concern with the data in table 2 relates to the fact that households tend to differ in size from one country to another. Countries with a high growth of population tend to have larger households. This might have an impact on the data. I test this by controlling for population growth. As revealed in regression 3, this variable obtains an unexpected positive impact and is even significant. The hypothesis that the data on absence of reported bribes is driven by household size can be rejected.

Mocan [2004] uses data on experienced corruption by the United Nations Interregional Crime and Justice Research Institute (<http://www.unicri.it/icvs>). She shows that a relationship with the CPI breaks down once controlling regressions for the quality of institutions in a country. She concludes that perceived corruption relates more to such indicators rather than to “real” levels of corruption. This conclusion, however, is easily overemphasized. Individual confrontation with corruption is likely to relate more to the

street-level, petty type of corruption as observed by households, Svensson [2005: 23-24]. The Corruption Perceptions Index includes also the extent of grand corruption and focuses on the impact of corruption on the costs of doing business. These differences might explain part of Mocan's findings. Another aspect is that Mocan processed only the "YES" responses to the survey. It may happen that countries score too well if systematically respondents felt better by opting for lack of knowledge, "DK".

I have added some standard institutional variables to the regressions in table 3. Bureaucratic Quality and Law and Order are from the International Country Risk Guide 1998 and Absence of Civil Liberties from the Freedom in the World publication of Freedom House. None of these variables is significant. None of these variables had an impact on the significance of the CPI in the regressions. Further regressions have been carried out taking the CPI as the dependent variable. The CPI was regressed on reported bribes by households and the various further variables used in table 3. In all of these regressions, reported bribes by households were significant.

It can thus be concluded that there exists a solid relationship between household's reported level of bribes and the level perceived by businesspeople. This relationship is not a spurious artifact of unobserved variables such as institutional quality or the level of development.

Outlook

Notwithstanding the strong relationship identified in table 3, some questions about the validity of the findings remain. That Nicaragua performs better than Norway is a challenging finding – and hard to reconcile with intuition. At this stage, the data must be interpreted at face value: These are reports on payments *perceived* by households to be bribes. Standards of definition may vary from one country to another. Minor gifts may already be termed a bribe in Norway, while in Nicaragua facilitation payments may be considered to be legitimate. In Norway, already a payment to a public servant's distant relatives may be considered illegitimate, whereas in Nicaragua only favors going directly to an official may qualify as a bribe. Above all, in Nicaragua the widespread use of "tramitadores" may imply to households that they did not pay a bribe but had someone arrange the deal on the basis of a regular commission.

The differences found in the Barometer thus reveal two things: differences in real levels of petty corruption as well as differences in what is considered to be a bribe. Further research is needed in order to quantify to what extent differences in definitions are relevant to the findings.

References

- Mocan, N. (2004), "What determines corruption? International evidence from micro data", *NBER working paper* 10460.
- Svensson, J. (2005), "Eight Questions about Corruption", *The Journal of Economic Perspectives*, Vol. 19 (3): 19-42.