



How to Determine Vulnerability to Grass-Roots Corruption

A Two-step Approach Using Survey Data on Bribery

Methods & Methodology

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This note describes methodological considerations for researchers examining vulnerability to bribery.¹ Bribery has been estimated to directly impact more than 1.6 billion people around the world each year (Rose & Peiffer, 2015a), and many studies have found that the poor and otherwise disenfranchised are more often targeted for bribes (Hunt, 2007; Fried, Lagunes & Venkataramani, 2010; Choe, et al., 2013; Justesen & Bjornskov, 2014). Poor bribe-payers also tend to pay a larger percentage of their income in bribes than the non-poor (Hunt and Laszlo, 2012). Understanding what makes some more vulnerable to grass-roots corruption is important for informing how anti-corruption interventions should target reform efforts.

In order to understand who in society is most vulnerable to requests for bribes, researchers must rely on data from sample surveys that ask specifically about two types of experience with the state—what contact there has been with the bureaucracy, and whether a bribe was paid as a result of that contact. This is because any examination of bribery vulnerability should use a two-step methodological treatment that inherently acknowledges that contact with the state is a prerequisite for paying a bribe. Otherwise it will be unclear whether people escape grass-roots corruption because fewer bribes are demanded of them or because they avoid contact with the state altogether. The distinction is important for informing an effective policy response.

The benefits and limitations of surveys on corruption

Empirical tests on the causes and consequences of corruption are overwhelmingly dominated by statistical analyses that use country-level measures of corruption. The most widely used country-level measures of corruption are perception-based, such as Transparency International's Corruption Perception Index (CPI) or the World Bank's Control of Corruption Indicator. These datasets are compiled from indices that rely on the perceptions of business consultants, experts and rating agencies and occasionally from national surveys. To construct the 2014 CPI, for example, Transparency International

used data from 12 independently gathered or compiled perception-based indices, ratings and surveys. Examples include the Economist Intelligence Unit Country Risk Rating and the World Economic Forum Executive Opinion Survey (Transparency International, 2014).

Perception measures have drawn much criticism and are widely acknowledged to suffer from several limitations (Sampford et al., 2006; Olken, 2009; Heywood and Rose, 2014, as just a few of many examples). In particular, many critics question the utility of these measures; not only are expert opinions subjective, as are the numbers assigned by them, but country-level measures of corruption lump together everything from knowledge about high-profile corruption scandals to anecdotal accounts about whether a bribe is required to get medical attention in a given village. If interested in bribery patterns, or any other specific type of corruption, reliance on country-level measures of corruption makes it impossible to identify the particular public services that are in greatest need of targeted reforms.

Survey, qualitative, and experimental analyses of bribery patterns move away from a general account of how serious the problem of corruption is in a country and home in on the experiences of grass-roots corruption. Anthropological studies and other qualitative field research on bribery offer the most detailed data on the contexts within which grass-roots corruption is conceptualised and occurs. Analyses of responses to standard survey questions are inherently limited in this respect, as they are unable to offer this rich contextual information. By comparison, experimental analyses of bribery offer the most robust way of testing causal relationships; they are able to test clear models of what specifically might influence whether a bribe is offered, demanded and/or paid. They are therefore valuable for testing how abstract theoretical ideas of reform or behaviour pan out under a controlled setting. Survey analyses of bribery are limited here; analyses of survey data on bribery can reveal who is most likely a bribe payer and for which services. However, because people are surveyed at one point in time, survey analyses are less able to reveal whether and how different changes to policy will impact upon those patterns.

In contrast, generalizability is the sample-survey's greatest strength. One cannot construct a more generalizable picture of bribery patterns in a single country or across countries without relying on surveys that interview a representative cross-section of a country's or region's citizens about their experiences with the state. By definition, the findings of anthropological and experimental studies cannot be generalised within a country, let alone outside of the lab or cross-nationally (Rothstein and Torsello, 2013; Serra and Wantchekon, 2012).² They therefore remain unable to tell us much about who is most systemically vulnerable in the wider society.

Surveys that ask about corruption

Using the latest wave of survey data from the most popular regional barometers as an estimate, it can be said that more than a quarter of a million people have been surveyed in 119 countries about their experiences with and perceptions of grass-roots corruption (Rose & Peiffer, 2015, xi). Transparency International's Global Corruption Barometer covers more countries than any other, with its latest wave (2013) spanning more than 100 countries across six continents.

Table 1: Regional barometers that ask about corruption

Barometer	Region	# of Countries	Latest Wave
Global Corruption Barometer	Global	107	2013
Eurobarometer	Europe	28	2013
Latin American Public Opinion Project (LAPOP)	Latin America ³	24	2012
Life in Transition Survey (LITS)	Post-Communist ⁴	29	2010
Afrobarometer	Africa	29	2012

All of the barometers in Table 1 ask their respective respondents whether they have paid a bribe for specific services in the last year. As Table 2 shows, the same five services—healthcare, education, police, courts and permits—are covered by almost all of them, with some barometers asking about many more.

Table 2: Payment of bribes by services

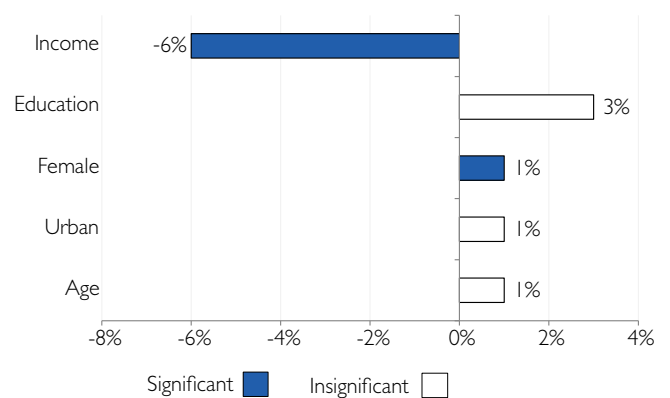
	GCB	LITS	LAPOP	Afro	EuroB
	(as percentage of all respondents)				
Health	10	18	5	15	2
Education	7	6	5	10	<0.5
Police	9	6	10	14	1
Courts	4	1	2	-	<0.5
Permits, documents	6	4	3	16	<0.5
Public utilities	5	-	-	9	-
Tax	3	-	-	-	<0.5
Customs	-	-	-	-	1
Land	3	-	-	-	-

Source: Rose and Peiffer (2015b:38)

A methodological approach to determining vulnerability to bribery

Given the quantitative nature of survey data, regression analyses are relied on to determine who is most likely to be a victim of grass-roots corruption. More specifically, in most analyses of survey data on bribery patterns a single-step multivariate regression is taken to determine vulnerability. Multivariate regressions—regressions that include multiple independent variables—are used to estimate whether and what impact each of the independent variables included in the analysis has on the dependent variable of concern. Here a 'single-step' approach refers to an analysis that focuses solely on bribery as a dependent variable.

Figure 1: Determining education bribery with a single-step approach
(changes in predicted probabilities with minimum to maximum shifts)



Note: Results from logit analysis of whether or not paid a bribe for education. Analysis uses survey weights and clusters the standard errors by country of residence. Data source: 2012 LAPOP; 38,496 respondents from 29 Latin American countries. Significance is at the 5% error level.

Using data from the 2012 Latin American Public Opinion Project (LAPOP) survey, Figure 1 displays the results of an illustrative single-step multivariate regression approach to determining how different demographic variables predict vulnerability to education-related bribery. The estimated impacts of the independent variables are expressed in how much the predicted probability of paying a bribe changes with a minimum to maximum shift in the associated demographic variable. For example, a minimum to maximum shift in income is associated with a 6% decrease in the likelihood that a respondent has paid a bribe for education. This supports the notion that the poor are disproportionately targeted for education-related bribes in Latin America. Likewise, being female is associated with being significantly more likely to pay a bribe for education services, although the impact of gender is quite small (being female is associated with a 1% change in the likelihood of bribe payment). The single-step analysis finds that all other demographic variables are insignificantly associated with bribery for educational services in Latin America.

A single-step approach to analysing corruption divides the population into either those that have paid or not paid a bribe for a service. This proves to be a serious limitation, but one that is addressed by a two-step approach. A two-step approach recognises that an analysis of bribery must consider three groups of people: those who have had no contact with the state, those who have had contact but did not pay a bribe, and those who have had contact and have had to pay a bribe to receive services.

Without acknowledging the step of contact, single-step analyses distort our understanding of what influences whether bribes are paid or not paid. A single-step approach conflates those who do not pay a bribe because they had no contact with the state with those who have had contact and did not pay a bribe.

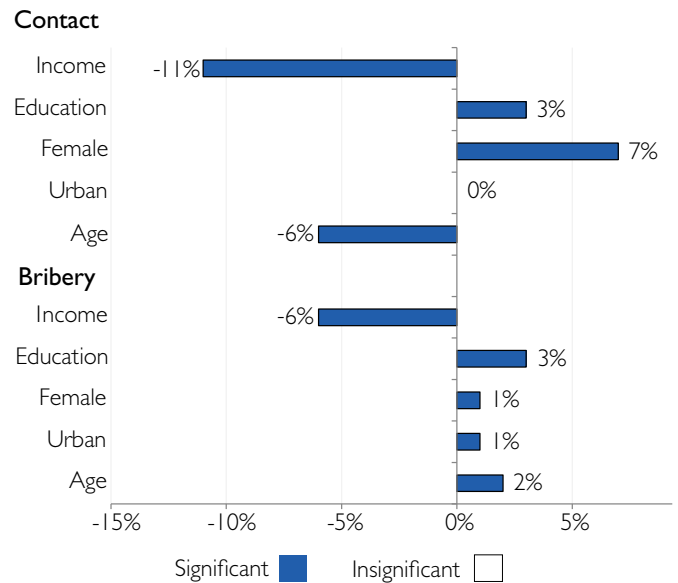
The benefits of taking the two-steps—contact and bribery—into account in regression analyses are borne out by a comparison of the results from using the single-step approach of Figure 1 and a two-step approach. Figure 2 illustrates a Heckman regression analysis⁵ used to model the two-step approach, again expressed in minimum to maximum predicted probability shifts. Statistically, the Heckman model estimates how the independent variables in question impact the chances of making contact with the state, and then accounts for those effects on contact when it estimates how they impact the chances of paying a bribe. The results demonstrate that women are not only more likely to come into contact with the education system than men, but that once this greater likelihood of having contact is accounted for, they are also more likely to have to pay a bribe (being female is significantly and positively related to both contact and bribery).

The results of the single-step analysis (Figure 1) suggested the poor are disproportionately targeted for bribes. The two-step analysis shows that once the impact of income on the likelihood of contact with state-provided educational services is accounted for, the poor are not more or less likely to be targeted for bribes from education officials. Income is found to be negatively and significantly related to having contact with education institutions—indicating that poorer Latin Americans come into contact with state-provided education much more than the non-poor. However, income is not statistically significantly related at all to paying a bribe for educational services.

This insight is incredibly important. While it would be a mistake to say that the poor are not more vulnerable requests for bribes from education officials, the two-step analysis reveals the mechanism through which the poor remain more vulnerable. The combined results of Figures 1 and 2 show that once in contact with the bureaucracy, bribes are not demanded of the poor at a higher rate than the non-poor; instead, the poor end up paying a higher rate of bribes for education services because they come into contact with state-provided education services more frequently than the non-poor. Ostensibly, more wealthy Latin Americans can afford to avoid paying bribes by avoiding state education and its officials altogether by paying for private education.

One prominent policy response to corruption has been to promote the privatisation of state-provided services. However, this finding illustrates that such a response may have serious unintended consequences. With wealthier citizens more able to take advantage of private alternatives, policy makers who encourage the privatisation of some state-provided services may only be relieving the wealthy of the burden of bureaucratic corruption, leaving poorer citizens to fend for themselves with a broken state system. Moreover, in giving the better off a viable exit from the state system, the only voices of users left to express discontent to policy makers about the depressed condition of some public services will be poorer citizens, who already face many obstacles to organising politically and engaging in the political system. Such patterns are not only fundamentally unfair, but work to exacerbate inequality rather than ease it. Without taking this methodological consideration seriously, analyses of vulnerability to bribery are in danger of missing this and risk getting the policy response wrong.

Figure 2: Determining education bribery with a two-step approach
(changes in predicted probabilities with minimum to maximum shifts)



Note: Results from Heckman-probit analysis of whether or not contact was made and a bribe paid for education. Analysis uses survey weights and clusters the standard errors by country of residence. Data source: 2012 LAPOP; 38,496 respondents from 29 Latin American countries. Significance is at the 5% error level.

Summary

This methodological note has discussed the benefits and limitations of using sample survey data to gauge vulnerability to grass-roots corruption. It has offered a methodological tip to help identify more accurately which groups are more likely to be vulnerable and why this might be so. While survey data may not be able to offer rich detail about when and how bribery occurs, its comparative advantage is that it offers a generalizable picture of how often bribery is experienced and by whom, and is therefore the tool that should be used to draw inferences about who is most vulnerable to grass-roots corruption. This note also explains why enquiries into bribery vulnerability should follow a two-step methodological approach rather than the commonly used single-step approach. A two-step approach illuminates how variables influence whether someone has contact with the state, and is also able to reveal why some people are more vulnerable to grass-roots corruption than others. Understanding both is important to informing an effective policy response.

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Endnotes

1. This note draws extensively on two publications by Rose and Peiffer (2015a; 2015b).
2. The validity of survey level data on bribery has also been criticised. This argument and rebuttals defending the validity of the data can be found in Rose and Peiffer (2015a).
3. LAPOP also surveys the US and Canada.
4. LITS also surveys Turkey and five Western European countries for comparison.
5. The Heckman model addresses sample selection bias. Sample selection issues arise when a researcher is limited to information on a non-random sub-sample of the population of interest. In the case of bribery, the sample of people who will bribe is not independently selected, instead it is dependent on the sample of those that have contact with the state; this type of selection effect is known to lead to statistically biased inferences if not accounted for properly.

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