



Rose, R., & Peiffer, C. (2016). Integrating institutional bribery and behavioral measures of bribery. *European Journal on Criminal Policy and Research*, 22(3), 525–542. <https://doi.org/10.1007/s10610-016-9309-y>

Publisher's PDF, also known as Version of record

License (if available):  
CC BY

Link to published version (if available):  
[10.1007/s10610-016-9309-y](https://doi.org/10.1007/s10610-016-9309-y)

[Link to publication record in Explore Bristol Research](#)  
PDF-document

## University of Bristol - Explore Bristol Research

### General rights

This document is made available in accordance with publisher policies. Please cite only the published version using the reference above. Full terms of use are available:  
<http://www.bristol.ac.uk/red/research-policy/pure/user-guides/ebr-terms/>

# Integrating Institutional and Behavioural Measures of Bribery

Richard Rose<sup>1</sup> · Caryn Peiffer<sup>2</sup>

Published online: 23 April 2016

© The Author(s) 2016. This article is published with open access at Springerlink.com

**Abstract** Bribery involves individuals exchanging material benefits for a service of a public institution. To understand the process of bribery we need to integrate measures of individual behaviour and institutional attributes rather than rely exclusively on surveys of individual perceptions and experience or macro-level corruption indexes of national institutions. This paper integrates institutional and behavioural measures to show that where you live and who you are have independent influence on whether a person pays a bribe. The analysis of 76 nationwide Global Corruption Barometer surveys from six continents provides a data set in which both institutional and individual differences vary greatly. Multi-level multivariate logit analysis is used to test hypotheses about the influence of institutional context and individual contact with public services, socio-economic inequalities and roles, and conflicting behavioural and ethical norms. It finds that path-determined histories of early bureaucratization or colonialism have a major impact after controlling for individual differences. At the individual level, people who frequently make use of public services and perceive government as corrupt are more likely to pay bribes, while socio-economic inequality has no significant influence. While institutional history cannot be changed, changing the design of public services is something that contemporary governors could do to reduce the vulnerability of their citizens to bribery.

**Keywords** Bribery · Contact · Institutions · Public services · Surveys

Studies of bribery need to distinguish between institutional and behavioural approaches because their theoretical rationales and measures differ with their level of analysis (for reviews, see Heidenheimer and Johnston 2001; Heywood 2015: 1–55; Dahlström 2015: 111ff). At the macro-level, bribery is an integral part of theories of corruption that offer explanations in terms of national institutions and corruption is measured by reference to institutions and processes

---

✉ Richard Rose  
prof\_r\_rose@yahoo.co.uk

<sup>1</sup> University of Strathclyde, Glasgow, UK

<sup>2</sup> International Development Department, University of Birmingham, Birmingham, UK

characterizing society as a whole. The Corruption Perception Index of Transparency International aggregates multiple indicators of national institutions and elite evaluations of these indexes to create a single national index score as does the World Bank Governance Index and a variety of rule of law indexes ([www.transparency.org](http://www.transparency.org); [www.worldbank.org/](http://www.worldbank.org/)). The behaviour of individuals is assumed to be determined by incentives and constraints imposed by national institutions (Rose-Ackerman and Soreide 2011). The lack of differentiation in national indexes masks variations in corruption within a society, even though this is implicit in Index scores that describe most countries as neither completely corrupt nor completely free of corruption. The evidence and methods of constructing macro-level indexes of corruption have been subject to many methodological criticisms (for reviews, see Knack 2007; Rose and Peiffer 2015). Nonetheless, both proponents and critics of macro-level indexes agree in theorizing about corruption by characterizing institutions of a society as a whole.

At the micro-level bribery involves an exchange between an individual wanting a public service to which he or she is not entitled and a public employee wanting a material benefit to exercise their discretion to deliver it. The individuals using services vulnerable to bribery are the mass of a country's population. The services for which bribes may be paid, such as health, education and policing, are not delivered in the national capital but nationwide wherever people live. It is an ecological fallacy to project on to everyone living in a society conclusions drawn from the analysis of macro-level institutions (cf. Robinson 1950). It is an individualist fallacy to analyse individual behaviour solely in terms of personal characteristics and disregard the extent to which institutions affect what individuals do (Scheuch 1966).

Differences in theoretical approaches and measurement imply major differences in policy prescriptions too. Insofar as institutions are identified as a major cause of bribery, it is logical to prescribe changing institutions in order to reduce bribery. However, recommendations that countries where bribery is high should adopt the best practices of a country where it is low are vulnerable to failure because they ignore the importance of national context in making institutions work. Recommendations to change laws or institutions at the national level can be positively verified, but given the hierarchical, geographical and status distance between heads of government departments and the grass roots delivery of services, where petty bribes are paid, the effectiveness of such actions is problematic.

Bribery involves a cross-level interaction between public institutions supplying services and individuals making use of them. Therefore, any explanation of the circumstances in which bribes are paid should take into account both cross-national differences between nations and within-nation differences between individuals. Empirical measures of national corruption invariably show great cross-national differences between countries. Consistent with theories of institutions making a difference (North 1990; Rhodes et al. 2008), on the 100 point CPI scale, the range is between 92 for Denmark and 8 for North Korea and Somalia. The mean score is 43 and the standard deviation 20. In a complementary manner, surveys consistently show that within every country citizens subject to the same national institutions are divided. In the surveys analysed herein, there is a national average of 23 % reporting having paid a bribe and 77 % who have not. The standard deviation of 19 percentage points around the cross-national mean for the individual payment of bribes confirms the effect of differences in both national institutions and individual characteristics.

The purpose of this paper is to demonstrate how the integration of measures of political institutions and individual characteristics can provide a meaningful and policy relevant understanding of who does and does not pay bribes for public services. It does so by testing hypotheses through the statistical analysis of 76 nationwide sample surveys in the 2013 Global

Corruption Barometer (GCB) of Transparency International. The results of multi-level logit analysis of individual bribery show that institutional and individual characteristics each remain significant after controlling for the other. Since it is easier for a government to change how it delivers public policies than to change the attitudes and attributes of its citizens, the conclusion discusses ways in which service delivery may be changed to reduce bribery that directly affects an estimated 1.6 billion people annually (Rose and Peiffer 2015: 1ff).

## The Extent to Which Individuals Pay Bribes

Conceptualization is the first challenge in the measurement of bribery. By definition bribes cannot be paid for collective public goods such as the rate of inflation or national security policy, for everyone is affected by the non-excludable policies (Samuelson 1954). Bribes can be and are paid for two different types of excludable goods, those produced at the micro-level and at the meso-level. At the meso-level, contracts for building bridges and airports or licenses for exploiting natural resources are capital-intensive. A large sum of money is required to fulfil the terms of the contract, a large profit is expected and any bribe paid will be on the grand scale. Because the activity is capital intensive, grand bribes are paid by business corporations and the recipient may be an institution too, such as a political party or a group who decide capital-intensive public policies. Any individuals involved will be acting as an agent of the institution paying the bribe and of a corrupt government department financing the contract. Hence, the appropriate measure of grand bribery does not involve the characteristics of individuals but meso-level characteristics of enterprises and the public sector institutions dealing in contracts involving millions. The amount of money paid in bribes for big bucks contracts is far beyond the resources of an ordinary citizen.

At the micro-level, excludable services are delivered directly to individuals and households, such as health care or fines for motoring offences. At this level bribery is a retail activity, since it involves an exchange between a particular individual wanting a benefit for their use and a public employee, e.g. a doctor or a policeman who delivers the service. By comparison with capital-intensive services, retail services involve petty bribes. The amount can be adjusted by a public employee to whatever the claimant can pay, since the employee does not have to meet the cost of producing the service; that is borne by the public purse. Hence, the appropriate way to study micro-level bribery is with data about individuals. For example, anthropologists living in a rural community or urban neighbourhood can observe how individuals around them interact with public officials. But however insightful their interpretation, such narrowly based observations suffer from problems of reliability and national representativeness (cf. Olivier de Sardan 1999; Torsello 2015). Carefully designed experimental studies of individual behaviour can test the influence of differences in incentives and constraints that affect individual behaviour in a laboratory, but paying a notional bribe in an experiment is not the same as being under pressure to do so from a public official. Nor are those who participate in experiments representative of a national population (Serra and Wantchekon 2012).

That familiar social science tool, a sample survey, can collect behavioural data from a national population about their experiences in dealing with public services. Moreover, because a survey collects much information about each respondent, it provides data for testing explanations of why some people in a country may pay bribes while others do not. The Global Corruption Barometer (GCB) of Transparency International is unique in asking people on six continents about the payment of bribes (<http://www.transparency.org/research/gcb/>

overview). Its multi-continental coverage offers far greater variations in institutions than does the Eurobarometer or the Afrobarometer, which cover many countries on a single continent. The GCB is also unique in asking about specific services for which bribes may be paid. By contrast, the World Values Survey (2010–2012: V228M-Q) asks only one generic question about the payment of bribes. The International Crime Victimization Survey, no longer in the field, asks about two services in fewer countries.

Because Transparency International uses the Barometer to support the work of more than 90 national chapters, in 2013 it commissioned Gallup International in Montreal to co-ordinate surveys in 107 countries in the northern and southern hemispheres between September, 2012 and March, 2013 (Transparency International 2013: 27ff). However, the quality of samples varied between European countries where institutes are well established and some developing countries where limited time and money has been invested to build up comparable capability. After comparing results from the 2013 round with previous GCB surveys, Transparency International staff ruled out bribery data from 12 national surveys. We have additionally evaluated the representativeness of each national survey according to official statistics of gender, age, education, rural residence and telephones. On these criteria, 14 countries were excluded because of major disparities between national statistics and the representation of women, the less educated and illiterates and/or rural populations. An additional five countries were excluded because Computer Assisted Telephone Interviewing was used even though national statistics indicated less than half the country had telephones (Rose and Peiffer 2015: 81ff). Given the size of the initial pool, these exclusions substantially raise the quality of the 76 nationally representative samples that collectively provide a pool of 82,449 respondents. In reporting mean values for the pooled GCB data set, we weight each national sample equally as having 1000 respondents.

**The Contingency of Bribery** The GCB module of questions approaches the payment of bribes by first asking individuals about their perception of corruption in 12 different political and social institutions (full text at [www.transparency.org/research/gcb/overview](http://www.transparency.org/research/gcb/overview)). This is followed by the following question: In the past 12 months, have you or anyone living in your household had a contact or contacts with one of the following: education system, judicial system, medical and health services, police, registry and permit services, utilities, tax, land services? If the answer is yes for a service, a follow up question is asked: *In your contact or contacts, have you or anyone living in your household paid a bribe in any form in the past 12 months?* The reference to the past year limits problems of recall and links individual experience to what happens under the current government. The focus on the household takes into account the fact that when a bribe is required for education, only one parent need pay on behalf of a child and a seriously ill person often needs another family member to deal with their health care. For these reasons, questions that are limited to individual experience tend to understate the impact of bribery (Rose and Peiffer 2015: 37).

Globally, 23 % report that someone in their household paid a bribe in the past year. It is therefore misleading to characterise all users of public services as invariably being compelled to pay bribes. While a fraction of public officials take bribes, many do not. It is also misleading to describe people who do pay a bribe for a particular service as chronic bribe-payers (cf. Table 1). Instead, behaviour varies with circumstances. Sometimes an individual must pay a bribe to get a service and sometimes not. The more frequently people use public services, the

**Table 1** Bribery for services controlling for contact

	No contact	Contact, no bribe	Contact, bribe	Bribe % contact
Police	74	17	9	35
Courts	85	11	4	27
Permits	70	23	7	23
Land	82	15	3	17
Health	37	53	10	16
Education	53	40	7	15

Source: Global Corruption Barometer 2013, Q7A & B. Pooled replies from 76 countries. Total number of interviews: 82,450

more services they receive without bribery.<sup>1</sup> Among those using two services and reporting the payment of a bribe, 64 % receive the other service free of bribery. Among those using three services, only one in six report paying bribes for all three services and the proportion of consistent bribe-payers drops further as greater use occurs.

Although the Barometer has a worldwide reach, it is not a random sample of the world's countries. Nonetheless, by the standard of TI's aggregate Corruption Perception Index (CPI), the GCB countries are a fair cross-section of countries with different levels of corruption. The average CPI score is 43 for the 177 countries rated by TI and it is 46 for the countries analysed here. Because we weight each country equally when pooling national GCB surveys, the omission of any one country does not have a significant effect on our analysis.

There is great cross-national variation in the extent of bribery; the range is from 77 % in Liberia to a low of 1 % in Japan. There are also large variations within each continent. Among EU member states, the proportion paying a bribe ranges from 1 % in Finland to 24 % in Lithuania. Among former Communist countries, it ranges from 3 % in Croatia to 29 % in Moldova. Among post-colonial states the range is from 2 % in Malaysia to 69 % in Kenya. While these sample survey data are estimates, the statistical margin of error of a few percentage points is far less than the magnitudes of difference in the national percentages of GCB respondents who do and do not report paying a bribe.

Conducting surveys in dozens of languages risks changes in the meaning of the term bribery in different cultural contexts. The 2009 GCB survey addressed this issue by describing two scenarios in which public officials behaved in ways that invited money to be given. A total of 81 % said that it was a bribe if a cash payment was made in response to an official raising difficulties in dealing with a request for a service; 8 % regarded it as acceptable; and the rest were don't knows (Rose and Peiffer 2015: 20). Studies in Russia, Nepal, the Afrobarometer and the World Values Survey have similarly found that there is a high level of cross-cultural agreement about what constitutes a bribe. Most people regard it as unacceptable to give officials money to get what you want regardless of bureaucratic rules (Kurer 2015: 36ff).

Because it is illegal for a public official to pocket a bribe, sceptics of survey research question whether people will admit to paying a bribe. The simplest way for a respondent to conceal payment when asked if a bribe was paid, is to answer 'don't know'. This response

<sup>1</sup> Since people are prepared to report paying bribes for some services but not others this is further evidence that they do not hide their involvement in corruption. As and when they are made to pay a bribe, they will tell this to a GCB interviewer.

avoids a person telling what they know to be a lie while also avoiding the admission of committing an illegal act. Don't know replies are rare in bribery surveys. Among GCB respondents who reported contact with a public service, in response to a question about paying a bribe, an average of less than one per cent refused to answer or replied don't know. This is substantially less than the percentage who do not give a don't know answer when asked about their income.

A second issue is whether people who think it wrong to pay a bribe will falsely deny having done so when questioned. If this were so, then people who think it wrong to pay a bribe would be less likely to admit doing so. There was no direct question about the morality of bribery in the 2013 GCB questionnaire, but such questions have been asked in other Barometer surveys. In the 2010 survey of post-Communist countries sponsored by the European Bank for Reconstruction and Development (2011), there is no significant difference between the 23 % paying a bribe even though they think it wrong and the 25 % doing so who do not regard bribery as wrong. Nor are more educated people more likely to deny paying a bribe because they are more aware that doing so is socially undesirable (cf. Karp and Brockington 2005: 826).

## Macro and Micro-Level Theories of Who Pays Bribes

Because the problem of bribery involves a diverse combination of elements, it is studied by social scientists in many different disciplines. For example, Heywood's *Handbook of Political Corruption* (2015) has contributions from authors who are political scientists, sociologists, economists, anthropologists, historians and developing economies specialists. Consistent with our problem-focussed public policy discipline (Shapiro 2005), we integrate macro-level and micro-level theories from multiple social science disciplines in formulating four hypotheses about influences on bribery: institutions matter and so do three individual attributes: contact, socio-economic resources and informal norms.

Institutions matter. Abstract theories of the importance of institutions leave open to further specification which national institutions matter for bribery. The GCB's global coverage guarantees very substantial variation in the national institutions that affect the delivery of services to individuals. Moreover, many institutional characteristics such as the Freedom House measures of democracy and of freedom of the press are strongly correlated ( $r: 0.73$ ). Multicollinearity thus rules out the separate use of highly correlated measures. Due to the limited degrees of freedom at the country level, we must be particularly selective when choosing the macro-level measures we test. To maximize the potential for significant results, our model concentrates on three different types of influence: historical paths of development, the institutional supply of services and accountability to a free press.

Theories of path dependence emphasize that the extent of corruption in a country, whether high or low, will reflect its past institutional history (Pierson 2004; Norad 2011; Pérez-Liñán and Mainwaring 2013). While every state has some form of public administration, bureaucratic institutions in Weber's sense (1948), institutions in which public employees impartially deliver public services in accord with the rule of law, have been rare until relatively recently (Finer 1997). European states were distinctive in early bureaucratization, developing rule-based systems delivering public services a half century or more before providing health, education and other public services to citizens on a large scale (Anderson and Anderson 1967; Rothstein 2011: 111ff). In non-European colonies, bureaucratic institutions were introduced much later

by Imperial powers (Bleich 2005). Since experienced bureaucrats were few, imperial authorities often relied on indigenous leaders and traditional institutions to deliver services (LaPalombara 1963; Mamdani 1996) and nationalists often resisted bureaucratization on political and cultural grounds (Ekeh 1975; Bratton et al. 2005: 38). After independence new rulers, whether democratic or undemocratic, have presided over regimes that have delivered public services through a mixture of traditional personalistic and bureaucratic procedures (Acemoglu et al. 2001; Mungiu-Pippidi 2013). In Communist countries, institutions were expected to deliver services in accord with Marxist-Leninist dictates of Socialist legality rather than the rule of law (Bernard 1994: 369). The behavioural norm was not to follow bureaucratic rules but to use *blat* (corruption in various forms) in order to get services. Although Communist regimes have fallen, the legacy of corruption can still be found (Ledeneva 2008; Rose 2009).

The bureaucratization hypothesis (1a) is: *In countries that bureaucratized early, individuals are less likely to pay bribes than in late bureaucratizing colonies or in countries that experienced Marxist-Leninist Socialist legality.* Early bureaucratization is measured as institutionalization of a Weberian-style bureaucracy having begun prior to 1914; 14 GCB countries are in this category. In addition, 21 are former colonies and 17 were ruled by a Communist regime for four decades or longer.

The distribution of economic resources within a national society is unequal. Political economy theories postulate that greater income inequality will result in an unequal distribution of power within a society (cf. Dahl 1989; Piketty 2013). Insofar as this is the case, in societies with greater inequality, equality of treatment is less likely and bribery more likely. People at the top may use their greater power to get public services without paying a bribe while those with few resources will be more vulnerable to exploitation by bribe-seeking bureaucrats. Hypothesis 1b predicts: *The greater the inequality of economic resources within a society, the more likely its citizens are to pay bribes.*

The Gini index is a standard measure of inequality in the distribution of income within a society. It also has the statistical advantage of not correlating highly with other national measures.<sup>2</sup> Among GCB nations, the Gini index averages 37; it ranges from the most unequal, South Africa 63, to a low of 25 in Denmark and Japan. In modern welfare states, social services benefits such as health care and education are meant to be equally available to all citizens. Universal benefits are the ambitious intention in many developing countries too, but whether they are supplied depends on how much a government collects in taxes and how it allocates public revenue between social services, the military and other policies. If there is a shortage of a service, everyone cannot receive the benefits that are their just desserts and bribery can determine who gets whatever is available. For example, an individual in a queue for hospital treatment may pay a bribe to avoid months of painful waiting for an operation or to get a place in a good school for their child. The UNICEF measure of the percentage of youths of secondary school age actually in education provides a rough and ready measure of variation in the supply of school places. It ranges from 28 % in Uganda to 100 % of the age group in many countries. The World Health Organisation measures the proportion of live births attended by skilled health workers; it ranges from 33 % in Bangladesh to 100 % in many OECD countries.

<sup>2</sup> The Gini Index correlates 0.26 with former colonial countries and -0.26 with countries that began bureaucratizing early.



The problem with regulations is the opposite: the greater the number of regulations, the greater the burden of complying with them and the greater the discretion of public officials in deciding how promptly and fairly regulations are enforced. If an individual needs a passport delivered in order to make a trip or a motorist wants to avoid paying a fine on a trumped up charge of speeding, public officials can collect a 'rent', that is, a bribe for delivering a document promptly or not enforcing a lawful obligation. Since businesses tend to be disproportionately affected by government regulations, to differentiate countries we use a World Bank (2014) index that reflects both the quantity and the quality of government regulations that burden businesses ([info.worldbank.org/governance/wgi/index.aspx/home](http://info.worldbank.org/governance/wgi/index.aspx/home)). Here too there is a great variation among GCB countries from Libya and Zimbabwe, where burdens are greatest, to Australia, New Zealand, Denmark and Finland. Since measures of education, health and regulations are significantly correlated with each other, we combine them in a single index of the supply of government services that weights them equally, thus giving greater importance to services that individuals make more use of. Hypothesis 1b predicts: *The scarcer the supply of social services and the greater the supply of regulations that institutions administer, the more likely individuals are to pay bribes.*

Because bribery involves public officials exploiting citizens, the more governors are accountable to citizens, the lower the level of bribery. Accountability can be direct through free competitive elections that enable citizens to eject corrupt governors (Johnston 2014). However, votes can also be determined by economic conditions or other issues and in countries where corruption is high, the extent to which elections are free is limited (Diamond 1999; Winters and Weitz-Shapiro 2013). Institutions of civil society offer an alternative means of holding corrupt governors to account (Mungiu-Pippidi 2013). The press can publicize examples of corruption if it is free to do so (Norris 2014). Unlike protest groups, which involve a relatively small number of activists, the press circulates to the mass of citizens. Rational choice theory predicts that fear of exposure by a free press will reduce bribery because public officials do not want to be caught committing illegal or shameful acts (Becker 1968; Jacquet 2015). Hypothesis 1c predicts: *The greater the freedom of civil society institutions to hold governors to account, the less likely individuals are to pay bribes.*

Since a free press can hold specific government agencies and officials accountable by targeting their involvement in bribery, we use the Reporters without Borders Index of World Press Freedom to measure this independent variable. It aggregates indicators covering everything from legal and economic constraints on the press to physical threats to journalists ([http://en.rsf.org/press-freedom-index-2013\\_1054.html](http://en.rsf.org/press-freedom-index-2013_1054.html)). Among GCB countries, there is a great range in press freedom from Vietnam and Bahrain at the bottom to Finland and Norway as the countries with the freest press.

National institutions provide constraints and incentives that socialize individuals in their use of public services but the effect of these cues vary within a country, some citizens pay bribes while others do not. Theories of political behaviour account for within-country differences by identifying individual attributes that create differences in the socializing effect of institutions (Dalton 2013). In turn, these differences influence whether individuals are likely to pay bribes.

In order to pay a bribe for a public service, it is necessary for an individual to have contact with a public official. GCB respondents divide into three groups: 15 % could not pay a bribe because they had no contact with any of eight services in the past year; 62 % had contact and did not pay a bribe; and 23 % paid a bribe for at least one public service with which they came into contact. This distribution shows that contact is a necessary but not sufficient condition for paying a bribe. The probability of paying a bribe for at least one public service is likely to

increase the more services that an individual contacts. While the median GCB respondent reported two contacts, two-fifths report three or more contacts. Hypothesis 2: *The more contacts that individuals have with public services, the more likely they are to pay a bribe.*

Individual economic and social resources can informally affect relations with public officials. In economic theory, if public officials are profit-maximisers, they will extract bribes from those whose higher income makes them most able to pay (Becker 1968). Alternatively, Hirschman's (1970) theory of exit assumes that people with more income will be less likely to contact corrupt services and pay a private-sector provider for an equivalent service. Class theories add to this the idea that education can reinforce the advantages of higher income, providing status that enables more educated individuals to use their knowledge and skills to obtain their entitlements without paying a bribe, leaving poorer and less educated people more vulnerable to exploitation by public officials (see, e.g. Kaufmann et al. 2008). In consequence, 'Corruption hits people when they are down' (Hunt 2007). Hypothesis 3a postulates: *The less the socio-economic resources of individuals, the more likely they are to pay bribes.*

To avoid the many difficulties inherent in comparing measures of income in countries with different currencies and standards of living, the GCB asks respondents to say whether they see their annual household income from all sources is low, average or above average. The largest group, 41 %, describe their income as below average, a third are in the average group and 25 % describe their income as above average.

Gender and age can give individuals unequal resources when contacting public officials. In many countries the status of women tends to be lower than that of men, thus making them more vulnerable to paying bribes (for a review, see Wängnerud 2015; Kevane 2014). On the other hand, age can bring more social respect and more experience in securing rights to public services (Boesten 2010). Since the institutions supplying public services such as hospitals and courts are usually located in urban areas, rural residents should be at a handicap in dealing with officials located there. Hypothesis 3b: *If an individual has a lower status, he or she is more likely to pay a bribe.*

When individuals come into contact with public officials, their behaviour is influenced by norms that they hold about how public officials behave and how they ought to behave. If there is a widespread perception that officials behave corruptly, then people will expect bribes to be solicited and accept that it is normal to pay a bribe. As Gunnar Myrdal (1968: 409) put it, 'If everybody seems corrupt, why shouldn't I be corrupt?' (see also Fehr and Fischbacher 2005: 259; Karklins 2005). Hypothesis 4a predicts: *The more public officials are perceived as behaving corruptly, the more likely individuals are to pay a bribe.*

The GCB survey measures the perception of corruption by asking: *To what extent do you see the following categories to be affected by corruption in this country? Please answer on a scale from 1 to 5, where 1 means 'not at all corrupt' and 5 means 'extremely corrupt'.* A dozen different groups are covered, some an integral part of government and some are non-governmental civil society institutions such as the media. The institutions perceived as most corrupt are political parties, the police and parliament. Those perceived as least corrupt are the military, health services and education. In a factor analysis of perceptions of corruption, seven political institutions—parties, Parliament, public officials, police, the judiciary, education and health—form a single underlying dimension accounting for 54 % of the variance and an eigen value of 3.79. In countries in which bureaucracies are weak, there can be a perception that it is desirable to have a personal relationship with a public official in order to obtain a public service without regard to bureaucratic entitlements (Rothstein 2011). In such circumstances, those lacking personal relations may have to pay bribes to get what they are entitled to

(Torsello 2015: 263ff). To assess the extent to which individuals expect public employees to give priority to such ties, the GCB asks: *In your dealings with the public sector, how important are personal contacts and relationships to get things done?* In all, 65 % think informal personal contacts important or very important.

In the abstract, big majorities of people characterize public employees soliciting bribes as wrong (Rose and Peiffer 2015: 21f). For an ethical value to have an effect, it must be translated into a behavioural norm. Hypothesis 4b: *The more individuals believe bribery is wrong, the less likely they are to pay a bribe.* Instead of asking people whether they think bribery wrong in principle, the 2013 GCB survey assessed the willingness of individuals to put principles into practice. It asked people: *There are different things people could do to fight corruption and I am now going to ask whether you would be willing to report an incident of corruption?* Sixty-three per cent on average said they would report official wrongdoing.

Consistency between norms about corruption can create two very different equilibria. If individuals think bribery as wrong and perceive most institutions as unaffected by corruption, there will be a high level of integrity. However, if there is a widespread perception that officials take bribes and they are not reported, then bribery will be regarded as the normal way to behave and there will be a low level equilibrium trap (Hellman 1998). If the two norms are in conflict, then this will create a natural experiment testing whether individuals are more likely to give priority to the view that paying a bribe is normal and do so, or give priority to the ethical norm that you shouldn't pay a bribe and not do so.

## Both Institutions and Individual Behaviour Matter

Our integrated model of bribery postulates that the likelihood of an individual paying a bribe is subject to both individual and societal influences. In its simplest form this can be summarized in the formula— $B(f) I, C, R, NB$  in which B represents bribery; I the influence of institutions; C the frequency of individual contacts; R the socio-economic resources of an individual; and N stands for conflicting norms. Initially we undertake two separate logit analyses that test the influence of institutional variables and of individual characteristics on the likelihood of individuals paying a bribe (Table 2). Comparing the resulting pseudo R<sup>2</sup> will show the extent to which each type of influence affects bribery on its own (Freese and Long 2006). We then combine both institutional and individual influences in a single multi-level logit analysis using STATA (Rabe-Hesketh and Skrondal 2012). If the integrated model is superior, institutional influences will remain significant after controlling for individual differences and vice versa.

To account for the multi-level structure of our model, countries are treated as cluster variables. Since contextual variables can only differ between 76 national cases, degrees of freedom are limited; therefore, statistical significance is set at  $P < .10$  for country-level variables. Given 82,449 respondents,  $P < .001$  is the level of significance for individual influences. To compare the impact on bribery of significant variables, we report shifts in predicted probabilities (PP). These estimate the percentage change in the probability of paying a bribe among individuals who have a given nominal characteristic, e.g. gender, or the effect of moving from the lowest to the highest rank for an ordinal variable, such as level of education (for a full list of variables and their codings, see the Appendix).

**Institutions Matter** The logit analysis strongly supports the importance of institutions. In the logit analysis confined to institutional variables, three are statistically significant and have a

**Table 2** Institutional, individual and combined logit models of paying bribes

	Institutional		Individual		Combined	
	PP shift	<i>P</i> -value	PP shift	<i>P</i> -value	PP shift	<i>P</i> -value
<b>Institutions</b>						
Early bureaucratization	-.146	0.000			-.107	0.000
Former colony	.068	0.019			.080	0.001
Former communist	.044	0.274			.044	0.143
Gini index of inequality	.038	0.552			-.050	0.277
Supply of services	-.470	0.000			-.359	0.000
Free press	.002	0.970			-.100	0.105
Contacts: number			.553	0.000	.051	0.000
<b>Socio-economic resources</b>						
Income			-.015	0.534	-.007	0.653
Education			-.066	0.063	.029	0.071
Urbanization			-.030	0.129	.010	0.368
Age			-.183	0.000	-.037	0.073
Female			-.032	0.000	-.026	0.000
<b>Behavioural, ethical norms</b>						
Perceived corruption			.280	0.000	.209	0.000
Bribery should be reported			-.074	0.000	-.057	0.000
Personal connections			.038	0.064	.046	0.002
Pseudo R <sup>2</sup>	0.134	0.173	0.264			
Wald's chi <sup>2</sup>	296.6	578.4	1140.0			
Prob chi <sup>2</sup>	0.000	0.000	0.000			
Log pseudolikelihood	-35204	-33598	-29913			

Source: Transparency International's 2013 Global Corruption Barometer; 82,449 respondents in 76 countries

pseudo R<sup>2</sup> of 13.4 %. Moreover, they remain significant after controlling for the effect of within-country differences between individuals.

In countries in which bureaucratic practices began to be institutionalized long before the growth of government became a major provider of services, the probability of paying a bribe is 15 % less than the overall average (Table 2). In ex-colonies where the introduction of bureaucratic institutions came later and was subject to modification by traditional practices, the probability of paying a bribe is 7 percentage points higher. While controlling for individual differences reduces the size of these impacts, they remain substantial (Table 2). These complementary effects emphasize the risk of democratization backwards, that is, introducing free elections before the rule of law is institutionalized (Rose and Shin 2001). The Communist legacy of delivering services in accord with party's idea of Socialist legality replacing the rule of law will fail to have a significant effect. This may be due to differences in the extent of corruption among post-Communist regimes (Rose 2009: 194ff) and in their pre-Communist experience of Central European bureaucracy rather than traditional Tsarist practices.

As predicted in hypothesis 1b, the supply of services has a significant and strong effect on whether individuals pay a bribe. The more extensive the provision of social benefits and the higher the quality of regulations, the less likely individuals are to pay bribes because they can

get what they are entitled to, such as health and education care and freedom from onerous regulations, without doing so. After controlling for individual differences, in the combined model there is a 36 percentage point difference in the predicted probability of paying a bribe in the country supplying the fewest desirable services, Bangladesh, and the country that is highest, Australia. While this finding is consistent with standard economic logic, it contradicts Gary Becker's (1997: 210) obiter dictum, 'To root out corruption, boot out big government' (see also, Alesina and Angeletos 2005). While reducing scarcity reduces the inequality between individuals who do and do not get social services, the extent of inequality in income in a society has no significant effect on bribery. Those at the top of the income pyramid in a society where income is very unequally distributed may enable them to get better services or even scarce services, but insofar as this happens it is not because they pay bribes but because they have superior political connections.

Contrary to expectation, freedom of the press has no significant effect on the payment of bribes in the logit analysis that tests for the exclusive effect of institutional influences. However, when individual characteristics are also taken into account, press freedom approaches our standard for statistical significance. The payment of bribes is estimated to be 10 % less where freedom is greater than in countries that impose strict constraints on what the press reports about what governors do. While this statistical association is consistent with the theory that publicizing corruption discourages officials from taking bribes, it may also affect exogenous influences not included in our model.

**Individual Characteristics Matter** The logit analysis confined exclusively to individual attributes identifies five influences that significantly affect whether people using the same national services do or do not pay bribes and four are significant when institutional controls are included. Collectively, they have a pseudo R<sup>2</sup> of 17.3 % (Table 2).

Contact with a public service is both a necessary and a substantial influence on the payment of bribes. Five-sixths of GCB respondents report that at least one member of their household has had contact with a public service during the past 12 months. The greater the number of contacts, the greater the likelihood that at least one bribe has been paid. The predicted probability of paying a bribe rises by 50 percentage points in the range from having no contacts to having contact with six or more services. However, having a contact is not sufficient to result in bribery. Among the five-sixths having at least one contact in a year, almost three-quarters report that they have not paid a bribe for any service.

To evaluate whether influences on bribery reported here are actually due to their determination of contact, we have conducted a separate logit analysis in which contact with a public service is the dependent variable and the independent variables are the same as in Table 2. It shows that none of the institutional influences, not even the extent to which services are supplied, has a significant effect on whether people contact a public service.<sup>3</sup> Of the individual characteristics that significantly influence bribery, only one, a readiness to report corruption, was statistically significant for contact. The pseudo r<sup>2</sup> for contact was 3.3 %, far less than that when the same influences are used to account for individuals paying a bribe (cf. Table 2).

Socio-economic resources have virtually no effect on the payment of bribes. Public officials do not use evidence of a person's ability to pay when targeting people for bribes; those who have an above-average income are not significantly more likely to pay a bribe than more vulnerable lower-income people who lack the income to exit to the private sector if a bribe is

<sup>3</sup> The logit analysis is available from the authors on request.

demanded (cf. Hirschman 1970). Nor are individuals with less education and capacity to deal with public services more likely to be made to pay a bribe. Likewise, living in an urban area, where money can replace the informal non-monetized relationships of rural areas, does not give a boost to bribe-paying.

The contrast between these findings and the claim of Transparency International (2013: 9) that those with more income are more likely to pay a bribe is readily explained. Its generalization is based on a five percentage point difference in bribery between those with higher and lower incomes. Controlling for other influences through multivariate analysis shows that this small bivariate difference is not significant (Table 2). Since education and income can re-enforce an individual's status, we tested the effect on bribery of an interaction term for education and income. This too was not significant. Of course, this finding says nothing about the actions of high-income people when dealing with high-ranking policymakers about the award of large capital-intensive contracts.

Gender is the only social role that affects bribery: women are significantly less likely to pay a bribe than are men. This is not due to the fact that women are less likely to contact public services than men. Among the services included in the GCB survey are two which women are more likely to deal with, health and looking after the education of children, and two which are more likely to be a man's role, dealing with police and courts. The relationship indicates that women are not victimized by public officials and, if anything, are a little more likely to be treated fairly. Moreover, fairer treatment is not confined to widows, for age is not significant.

Both behavioural and ethical norms have significant influences on bribery, but in opposite directions. If individuals perceive public officials as very corrupt, they are significantly more likely to pay a bribe than if they think there is no corruption, thus confirming hypothesis 4a. However, perceptions are usually not based on firsthand experience but drawn from media accounts of grand bribes. Moreover, most people who use a service without paying a bribe see public services as to some extent tainted with corruption. In other words, perceiving services as corrupt is not sufficient to result in people paying a bribe. This is likely to be an endogenous relationship; people who have paid bribes in the past are intuitively more likely to perceive the government as marred with corruption. People who endorse the ethical norm that bribery ought to be reported are significantly less likely to pay a bribe, as predicted in hypothesis 4b. However, the impact of these countervailing influences is not equal. Whereas those who see officials as very corrupt are 20 % more likely to pay a bribe, those who think an incident of bribery should be reported are only 6 percentage points less likely to do so (Table 2).

The belief that informal personal contacts are important to get public services at most supplements formal procedures rather than subverting them. Consistent with the association of personal contacts with more traditional forms of governance found in former colonies, their influence becomes significant when institutional controls are introduced and the predicted probability of colonial experience increases its impact.

The logit analyses confirm the value of integrating institutional and behavioural influences on the payment of bribes. Even though we test the influence of national institutions on individuals whose behaviour varies within every national context, they demonstrate a substantial impact on individual behaviour. In other words, where you live is important in determining whether you pay a bribe. While this confirms findings from macro-level analyses that use national indicators as their dependent variable, it offers only a partial account of the payment of bribes. Who you are is equally important, but also incomplete. Integrating the two theoretical approaches in a multi-level analysis results in a pseudo R<sup>2</sup> for their combined effects of

26.4 %. Moreover, introducing cross-level controls does little to alter the significance of both types of independent variables. In sum, institutional and behavioural influences offer complementary rather than conflicting explanations of when and where some people pay bribes for public services while others do not.

## Implications for Policymakers

Institutions endorsed by international agencies as models for emulation are not universal in their application but constructs depending to a significant degree on historical conditions that have been absent in many countries where bribery is a major problem (Norad 2011; Mungiu-Pippidi 2013). In the short run, there is little that a government can do to change pervasive effects of historical legacies. In countries where early bureaucratization has resulted in a low level of petty bribery today, there is little bribery to reduce. Where petty bribery is high, the inertia of the past creates substantial institutional and political resistance to systemic change in governance. Other types of reform are required (see below).

Governments do have the power to reduce scarcity by altering the supply of public services. Significant correlations between Gross Domestic Product and the public provision of health (0.34) and education (0.55) support the assumption that services will be scarcer where GDP is lower. Nonetheless, the association leaves a lot of variance unexplained by national income. Low spending can also be explained by weak or corrupt institutions failing to collect all taxes due or by government giving priority to spending on military equipment rather than the human capital of its citizens. It would also be possible to bring entitlements and services more into balance by introducing charges for their use. Doing so would generate earmarked revenue for increasing supply and reduce the sums that public employees could additionally extort as bribes. Another reform, increasing press freedom, does not make a significant claim on public expenditure. However, a free press imposes political costs on those whom it exposes as engaging in corrupt activities.

The perception of corruption, a major attitudinal influence on bribe payment, is not easily changed if there is no reduction in the actual occurrence of bribery. Although the logit analysis supports the claim that reducing contact with services would reduce the incidence of bribery, changing the rules to reduce entitlement to health and education services would also reduce their social benefit.

From the bottom up perspective of individuals, the priority is to change the way in which services are delivered at the grass roots by changing the design of public services. The actions that need to be taken to deal with grassroots bribery differ from those appropriate to stop grand bribery, the object of most proposals for institutional change by scholars (see, e.g. Rose-Ackerman 1999; Lambsdorff 2007) and by intergovernmental anti-corruption agencies (see, e.g. [www.acauthorities.org](http://www.acauthorities.org); [www.U4.no](http://www.U4.no)). The behaviour of teachers, health workers and police scattered in locations far from the national capital is not easily influenced by international advisors. Effective action requires changing procedures that give opportunities for bribery when services are delivered locally and to abolish official posts that offer the greatest opportunity for extracting bribes (Rose and Peiffer 2015: chapter 8). The supply of regulations is not determined by national income.<sup>4</sup> It is determined by national legislation that

<sup>4</sup> Although there is a 0.52 correlation between the World Bank measure of national regulatory quality and Gross Domestic Product per capita, the direction of causation can be from regulation to GDP rather than the reverse.

establishes regulations and how they are enforced. Regulations that encourage bribery can be altered to reduce opportunities for rent-seeking. For example, computers can deliver services on line around the clock according to impersonal algorithms that eliminate the need for contact with officials who deliver permits slowly face-to-face and sometimes under the counter. Some forms of policing, such as monitoring traffic violations, can be replaced by computer monitoring of motorists and issuing and collecting fines by computerized links between violations and car registration. Since bribery is more likely when services are scarce, it can be reduced by making the supply of services match individual entitlements.

By contrast with proposals for collective action such as changing national cultures or retraining officials who have been accustomed to taking bribes, the foregoing principles emphasize actions that are within the power of a national government to enact (cf. Mungiu-Pippidi 2015). Political opposition to change is inevitable among those who have a vested interest in practices from which they profit. However, the low-level public officials who deliver the public services analysed in this paper have less political power than ministers at the top of government. Corruption reduces mass support for political institutions on which democratic and undemocratic leaders depend for their power (cf. Seligson 2002; Clausen et al. 2009; Johnston 2014). A national leader who can effectively reduce the extent to which ordinary people are subject to bribery may thereby gain political support, while ignoring the persistence of corrupt practices that affect almost one in four households every year may store up resentments that lead to mass demonstrations that undermine a leader's power.

**Acknowledgments** This paper is written with the support of funding from the British Economic Social & Research Council for The Experience of Corruption: a Comparative Global Analysis (Reference: ES/103482X/1). The research data associated with this paper is available at <http://www.transparency.org/research/gcb/>.

## Appendix

**Table 3** List of variables

Va variable	Notes on construction	Mean	Std dev.	Values
Any bribe paid	1 paid bribe for any of seven services	0.23	0.42	0.1
Institutions				
Early bureaucratization	1 institutionalization started before 1914	0.18	0.38	0.1
Former colony	1 if colony in 1946	0.32	0.47	0.1
Former communist	1 if a Communist regime before 1989	0.21	0.41	0.1
Index of inequality	Gini index; 0 total equality, 100 inequality	37.0	7.7	24.7–63.1
Supply of services	Average scores: births attended, secondary enrolment, regulatory quality	6.6	2.1	1.5–10
Free press	RSB index rescaled to 1 to 10	6.5	1.9	0–10
Contacts: number	Number of services contacted in past year	2.76	1.87	0–6
Socio-economic resources				
Income	1 low to 5 high	2.7	1.11	1–5
Education	1 no education to 4 university	3.0	0.8	1–4
Urbanization	1 urban area; 0 rural	0.58	0.49	0,1
Age	Age in years	40.7	15.87	16–100



**Table 3** (continued)

Va variable	Notes on construction	Mean	Std dev.	Values
Female	1 female	0.50	0.50	0,1
Behavioural, ethical norms				
Perceived corruption	Factor score for parties, parliament, police, education, judiciary, health, public officials	0.00	1.00	-2.6 to 1.6
Bribery should be reported	1 would report bribe payment	0.62	0.49	0,1
Personal connections	1 not at all important for public services to 5 very important	3.7	1.2	1-5

Notes: Supply of services combines 2013 % births attended by trained health personnel (<http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>); per cent age group in secondary education from the World bank's World Development Indicators (ibid.) and the Institute Index of Regulatory Quality (<http://info.worldbank.org/governance/wqi/>). All variables scaled as 0 to 10. Press Freedom: Reporters without Borders score (<http://en.rsf.org/press-freedom-index-2013,1054.html>) rescaled as 0 to 10

**Open Access** This article is distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

## References

- Acemoglu, D., Johnson, S., & Robinson, J. (2001). The colonial origins of comparative development. *American Economic Review*, 91(5), 1369–1401.
- Alesina, A., & Angeletos, G. M. (2005). Corruption, inequality and fairness. *Journal of Monetary Economics*, 52(7), 1227–1244.
- Anderson, E., & Anderson, P. (1967). *Political institutions and social change in continental Europe in the nineteenth century*. Berkeley: University of California Press.
- Becker, G. (1968). Crime and punishment: an economic approach. *The Journal of Political Economy*, 76, 169–217.
- Becker, G. (1997). *The economics of life*. New York: McGraw-Hill.
- Bernard, R. (1994). Constitution. In A. Brown, M. Kaser, and G. S. Smith, (Eds.), *The Cambridge encyclopedia of Russia and the former Soviet Union* (pp 366–373). Cambridge: Cambridge University Press.
- Bleich, E. (2005). The legacies of history. *Theory and Society*, 3(4), 171–195.
- Boesten, J. (2010). *Intersecting inequalities: women and social policy in Peru*. University Park: Pennsylvania State U. Press.
- Bratton, M., Mattes, R., & Gyimah-Boadi, E. (2005). *Public opinion, democracy and market reform in Africa*. New York: Cambridge University Press.
- Clausen B., Kraay, A. and Nyiri, Z. (2009). *Corruption and confidence in public institutions*. World Bank Policy Research WP 5157.
- Dahl, R. A. (1989). *Democracy and its critics*. New Haven: Yale University Press.
- Dahlström, C. (2015). Bureaucracy and corruption. In P. M. Heywood (Ed.), *Routledge handbook of political corruption* (pp. 110–120). Abingdon: Routledge.
- Dalton, R. J. (2013). *Citizen politics*. Washington DC: CQ Press.
- de Sardan, J. O. (1999). A moral economy of corruption in Africa? *The Journal of Modern African Studies*, 37(1), 25–52.
- Diamond, L. (1999). *Developing democracy: toward consolidation*. Baltimore: Johns Hopkins University Press.
- Ekeh, P. (1975). Colonialism and the two publics in Africa: a theoretical statement. *Comparative Studies in Society and History*, 17(1), 91–112.

- European Bank for Reconstruction and Development. (2011). *Life in transition*. London: EBRD.
- Fehr, E., & Fischbacher, U. (2005). The economics of strong reciprocity. In H. Gintis, S. Bowles, R. Boyd, & E. Fehr (Eds.), *Moral sentiments and material interests* (pp. 151–191). Cambridge: MIT Press.
- Finer, S. E. (1997). *The history of government* (Vol. 3). Oxford: Oxford University Press.
- Freese, J., & Long, J. S. (2006). *Regression models for categorical dependent variables using Stata*. College Station: Stata Press.
- Heidenheimer, A., & Johnston, M. (2001). *Political corruption* (3rd edn.). New Brunswick, NJ: Transaction.
- Hellman, J. (1998). Winners take all: the politics of partial reform in postcommunist transitions. *World Polit*, 50, 203–234.
- Heywood, P. M. (Ed.). (2015). *Routledge handbook of political corruption*. Abingdon: Routledge.
- Hirschman, A. (1970). *Exit, voice and loyalty*. Cambridge: Harvard University Press.
- Hunt, J. (2007). How corruption hits people when they are down. *Journal of Development Economics*, 84, 574–589.
- Jacquet, J. (2015). *Is shame necessary?* New York: Pantheon.
- Johnston, M. (2014). *Corruption, contention and reform: the power of deep democratization*. Cambridge: Cambridge University Press.
- Karklins, R. (2005). *The system made me do it*. Armonk, Sharpe.
- Karp, J., & Brockington, D. (2005). Social desirability and response validity. *Journal of Politics*, 67(3), 825–840.
- Kaufmann, D., Montoriol-Garriga, J., & Recanatini, F. (2008). How does bribery affect public service delivery? *Policy research working paper* No. 4492. Washington DC: World Bank.
- Kevane, M. (2014). *Women and development in Africa* (2nd edn.). Boulder: Lynne Rienner Publishers.
- Knack, S. (2007). Measuring corruption: a critique of indicators in Eastern Europe and central Asia. *Journal of Public Policy*, 27(3), 255–92.
- Kurer, O. (2015). Definitions of corruption. In P. M. Heywood (Ed.), *Routledge handbook of political corruption* (pp. 30–41). Abingdon: Routledge.
- Lambsdorff, J. G. (2007). *The institutional economics of corruption and reform*. Cambridge: Cambridge University Press.
- LaPalombara, J., ed. (1963). *Bureaucracy and political development*. Princeton: Princeton University Press.
- Ledeneva, A. (2008). Blat and Guanxi: informal practices in Russia and China. *Comparative Studies in Society and History*, 50(1), 118–144.
- Mamdani, M. (1996). *Citizen and subject*. Princeton: Princeton University Press.
- Mungiu-Pippidi, A. (2013). Controlling corruption through collective action. *Journal of Democracy*, 24(1), 101–115.
- Mungiu-Pippidi, A. (2015). *The quest for good governance*. Cambridge: Cambridge University Press.
- Myrdal, G. (1968). *Asian drama: an inquiry into the poverty of nations*. New York: Pantheon.
- Norad. (2011). *Contextual choices in fighting corruption: lessons learned*. Oslo: Norwegian Agency for Development Cooperation Report 4.
- Norris, P. (2014). Watchdog journalism. In: M. Bovens, R. E. Goodin and T. Schillemans, (Eds.), *Oxford handbook of public accountability* (pp 525–544). Oxford U. Press.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press.
- Pérez-Liñán, A., & Mainwaring, S. (2013). Regime legacies and levels of democracy: evidence from Latin America. *Journal of Comparative Politics*, 45, 4.
- Pierson, P. (2004). *Politics in time: History, institutions, and social analysis*. Princeton: Princeton University Press.
- Piketty, T. (2013). *Capital in the twenty-first century*. Cambridge: Harvard University Press.
- Rabe-Hesketh, S., & Skrondal, A. (2012). *Multilevel and longitudinal modelling using Stata* (3rd edn.). College Station: Stata Press.
- Robinson, W. S. (1950). Ecological correlations and the behaviour of individuals. *American Sociological Review*, 15, 350–357.
- Rhodes, R. A. W., Sarah, B., & Bert, R. (2008). *The oxford handbook of political institutions*. Oxford: Oxford University Press.
- Rose, R. (2009). *Understanding post-communist transformation: a bottom up approach*. London: Routledge.
- Rose, R., & Peiffer, C. (2015). *Paying bribes for public services*. Basingstoke: Palgrave Macmillan.
- Rose, R., & Shin, D. C. (2001). Democratization backwards. *British Journal of Political Science*, 31(2), 333–354.
- Rose-Ackerman, S. (1999). *Corruption and government: causes, consequences and reform*. Cambridge: Cambridge University Press.
- Rose-Ackerman, S., & Soreide, T. (Eds.). (2011). *International handbook on the economics of corruption, vol 2*. Cheltenham: Edward Elgar.

- Rothstein, B. (2011). *The quality of government: corruption, social trust and inequality*. Chicago: University of Chicago Press.
- Samuelson, P. A. (1954). The pure theory of public expenditure. *The Review of Economics and Statistics*, 36(4), 387–389.
- Scheuch, E. K. (1966). Cross-national comparisons using aggregate data. In R. L. Merritt & R. Stein (Eds.), *Comparing nations* (pp. 131–168). New Haven: Yale University Press.
- Seligson, M. (2002). The impact of corruption on regime legitimacy. *Journal of Politics*, 64(2), 408–433.
- Serra, D., & Wantchekon, L. (Eds.). (2012). *New advances in experimental research on corruption*. Bingley: Emerald Books.
- Shapiro, I. (2005). *The flight from reality in the human sciences*. Princeton: Princeton University Press.
- Torsello, D. (2015). The ethnographic study of corruption. In P. M. Heywood (Ed.), *The Routledge handbook of corruption* (pp. 183–196). Abingdon: Routledge.
- Transparency International. (2013). *Global corruption barometer 2013*. Berlin: Transparency International.
- Wängnerud, L. (2015). Gender and corruption. In P. M. Heywood (Ed.), *Routledge handbook of political corruption* (pp. 288–299). Abingdon: Routledge.
- Weber, M. (1948). *From Max Weber: essays in sociology*. London: Routledge.
- Winters, M. S., & Weitz-Shapiro, R. (2013). Lacking information or condoning corruption? *Journal of Comparative Politics*, 45(3), 418–436.
- World Bank. (2014). *World Bank governance indicators*. Washington DC: [info.worldbank.org/governance/wg/index.asp](http://info.worldbank.org/governance/wg/index.asp).