

World Bank Researchers and the Study of Corruption

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AS A GRADUATING ECONOMIST WANTING to work for an international institution, I was a bit worried that my job market paper analyzed the relationship between corruption and economic growth in a cross section of countries. I was not sure how places like the World Bank and the International Monetary Fund would react to an unconventional topic that at the time (late 1993) might have been perceived as outside the institutions' areas of interest. I knew that some professionals within the institutions were becoming more interested in political economy, but others preferred a more traditional interpretation of the institutions' mandates, and the internal debate could get pretty heated at times.

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Only after I happily began working at the IMF did I realize these institutions did not view corruption as a taboo or irrelevant topic. The World Bank and the IMF were indeed less comfortable discussing corruption openly then than they are today. However, in their operational work they had long faced and addressed—often implicitly—issues related to corruption, to a greater extent than would have been obvious to outside observers. One set of examples relates to the international institutions' traditional support for removing or simplifying “textbook” sources of rents and thus of rent-seeking behavior such as trade restrictions, exchange rate restrictions, multiple currency practices, subsidies, tax exemptions, or customs exemptions.¹ Other examples relate to the attention that was paid (particularly in natural resource-rich countries) to limiting extra-budgetary funds and off-balance sheet fiscal transactions, or to the composition of fiscal spending (to promote health and education rather than, say, military expenditures).

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What was becoming different in the mid-1990s, however, was the international community's willingness to discuss issues of corruption in an open and transparent manner. This more public stage began in 1996 with well-known speeches by James Wolfensohn, then-president of the World Bank (who talked about "the cancer of corruption") and Michel Camdessus, then-managing director of the IMF. The Board of Governors of the Bretton Woods institutions also requested promotion of good governance in all its aspects—including by ensuring the rule of law, improving the efficiency and accountability of the public sector, and tackling corruption—as essential elements of a framework within which economies can prosper. This stage of the process culminated in 1997 with the issuance (and posting on the institutions' external web sites) of the World Bank's anticorruption strategy and the IMF's guidelines on governance.² Since then, the World Bank has enhanced its work on governance and corruption in an effort to pursue its mandate to reduce poverty. Under President Wolfowitz's tenure, the World Bank has further emphasized the need to improve governance and fight corruption as crucial elements toward successful development and poverty reduction.³ Across the street, the IMF's role in promoting good governance has also expanded considerably over the past decade, and includes focusing on the transparency of government accounts, the effectiveness of public resource management, and the stability and transparency of the economic and regulatory environment for private sector activity.

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On the research front, during the mid-1990s, a number of studies estimating the impact of corruption on economic growth and investment began appearing in scholarly journals.⁴ With the international community's interest in the topics of governance and corruption, a much broader effort has since been made by researchers—particularly in international institutions—to analyze these issues in a systematic manner. New data sets have been collected and analyzed in creative ways, yielding a host of fascinating analytical results and important policy lessons.

The following is a selective review of the World Bank researchers' contributions to the empirical study and measurement of corruption. I only mention articles by researchers who are either currently working at the World Bank or have had an affiliation with it at some point in their careers.⁵ Nevertheless, this article provides a fairly broad overview of the field, because this is an area where researchers in the international institutions have often taken the lead, and because a substantial share of progress has been made at the World Bank or within a few blocks. In discussing the various studies and summarizing their results, I group the studies by the type of data set they utilize and broadly follow a chronological order as such data sets have become increasingly detailed and sophisticated over time.

CROSS-COUNTRY STUDIES AND DATA SETS

Early studies relied on cross-country regressions of economic growth or other macro-economic variables on corruption indices produced by private rating agencies that sell them to international investors. The indices were based on the views of these firms' consultants, who were often located in the countries in question. The subjective nature of the indices made it especially important for researchers to address concerns about the possibility reverse causality: did the empirically estimated relationship between economic growth and corruption ratings reflect a true causal impact of corruption on growth, or simply a tendency for the consultants to rate countries as corrupt where they observed weak economic performance? A proposed solution was to use instrumental variables, a standard econometric trick in which variables related to the explanatory variable (corruption in this case) but otherwise unrelated to the dependent variable (economic growth) can be used to more accurately demonstrate the effect of the explanatory variable on the dependent variable. Examples of instrumental variables that have been used include a country's degree of ethnolinguistic fractionalization and its colonial history, both correlated with corruption but otherwise unrelated to economic growth.⁶ (The main idea here is that past colonization and ethnolinguistic divisions tend to lead to worse corruption and weaker institutional quality more generally, but they were determined a long time ago and are thus exogenous—they cannot have been affected by recent economic growth.) Using increasingly sophisticated data sets, the ensuing literature has extended the analysis and confirmed the presence of a statistically and economically significant negative effect of corruption (and other related aspects of bureaucratic inefficiency, such as burdensome red tape, or a weak judiciary) on economic growth, investment, and development outcomes.⁷

Indeed, further cross-country work has analyzed a wide range of other consequences of corruption, including lower foreign direct investment and a smaller share of public spending on health and education.⁸ It has also been shown that emerging market funds systematically invest less in countries that fail to provide sufficiently transparent information to investors.⁹ Using broader concepts of institutional quality (including low corruption, but also other related elements of bureaucratic efficiency) studies have found that sound institutional quality helps to persuade non-residents to invest in emerging market countries—through foreign direct investment and equity holdings, as well as debt—and facilitates a more equity-based form of external financing.¹⁰

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corruption. The evidence suggests that higher corruption may result from barriers to international trade, the degree of fiscal decentralization, excessively low civil service wages, constraints on freedom of the press, and the type of banking sector supervisory policies.¹¹

HOW RELIABLE ARE THE CROSS-COUNTRY DATA?

Beyond the possibility of reverse causality mentioned above, an additional problem with the country-level indices is the potential for different private rating agencies to rate countries differently. In practice, the degree of consensus across rating agencies is reasonable but far from complete. To resolve this problem, World Bank researchers have constructed governance measures for essentially all countries in the world, based on all available indices from a host of sources.¹² The methodology essentially assigns each country a governance index which is a weighted average across all available data sources, where the weights are optimally chosen by a statistical technique known as the unobserved components model. In my opinion, these are the best available cross-country comparisons of governance because they use essentially all available information and put it together in a way that is designed to extract a consensus view. A further advantage of the approach is that it provides an explicit measure of the degree of confidence surrounding the rating. By comparing the ratings provided by different agencies, it is possible to gauge whether there is a good degree of consensus on a particular country's rating, or whether the discrepancies across sources should lead one to view the average rating with more caution.

These improvements notwithstanding, the reliability of the cross-country indices depends on the use one wishes to make of them. If the indices are used in cross-country regressions, as in the papers mentioned above, the possibility remains of reverse causality as well as some residual measurement error, but there are well developed statistical means of handling these problems or at least understanding the ways in which they could bias the results. Other uses of such indices, however, require additional caution. To illustrate, suppose one wishes to determine whether the origin of a country's legal system is correlated with corruption. The World Bank researchers have made an admirable effort to use all available data sources, including some from international institutions that are located in other parts of the world (e.g., the African Development Bank). However, the majority of sources, while of course reputable, remain based in the United States or other English-speaking countries. Thus, extreme caution would have to be exercised if the views of the consultants rating the various countries systematically favored countries with British legal origins, as these are usually former British colonies where English is spoken, offering greater cultural proximity to the consultants

that produce the ratings.

The point generalizes to other uses of indices of institutional quality that have major policy and practical implications. In particular, using such indices becomes particularly complicated when one wishes to make fine comparisons between individual countries—a crucial exercise now that aid and loans are increasingly disbursed on that basis. The World Bank researchers again carefully estimate standard errors (that is, the degree of precision) around the best estimates of the degree of corruption in a given country, and find that some countries are clearly considered to be more corrupt than others by the vast majority of observers. Yet, if the various rating agencies keep a close

eye on each other, the genuinely independent sources of information may be fewer than one would ordinarily think.¹³ (In a loose analogy, think of how macroeconomic forecasters often try to avoid deviating from the consensus forecast.) When important decisions rely on close calls—whether

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to provide funding to a given country, for example—the existing indices need to be treated with great caution. Does this amount of inherent ambiguity render the indices useless? Not necessarily. Using indices that rely on the views of many may in the end impose greater discipline than relying on one's own subjective judgment. But there is no easy solution here. A possible way to address these concerns is to have more graduated policy responses. Decision makers could, for example, allot slightly less funding where the indices suggest problems but remain somewhat inconclusive, rather than cutting it off altogether.

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OBJECTIVE VERSUS SUBJECTIVE DATA—COMPLEMENTS NOT SUBSTITUTES

In light of possible concerns related to subjective indices and the well-established theoretical links between red tape and corruption, much can be learned by considering objective measures on regulatory practices around the world. A prominent example of such an approach is the World Bank's "Doing Business" database, which provides information on business regulations and their enforcement for nearly all countries in the world. This helps gauge the regulatory costs of business and can be used to analyze specific regulations that enhance or constrain investment, productivity, and growth. Objectivity is a clear advantage of such measures. However, a plethora of measures are objective (e.g., how long it takes to obtain various kinds of permits), and it is not im-

mediately clear which ones are the most relevant or how they should be weighted. By contrast, subjective measures cut through many of these complications, letting investors provide their own summary view of what really matters to them. Moreover, distinguishing between objective measures as legally stipulated and as actually enforced is often challenging, while a subjective survey approach can help assess actual enforcement by soliciting information from experts or, even better, service users.

Indeed, in the end there may be no need to choose between subjective and objective measures. Recently developed and more sophisticated subjective measures tend to rely on questions such as: "For the typical firm in your sector, how often is it necessary to pay a bribe?" or "how long does it take to obtain a permit?" Thus, while the information continues to be based on individuals' responses to surveys, it is aimed at soliciting quantitative, factual information. Conversely, objective measures are often based on expert analyses, but they also draw most valuable information from user surveys. Thus, the subjective and objective approaches may eventually converge to a common approach relying on people's responses regarding regulations as they are applied in practice, and a focus on the people to whom such regulations matter. Ultimately, for policy analysis, both regulations on the books (which governments control directly) and their enforcement (which governments can affect, but less immediately) are critical elements, as are subjective perceptions of corruption and other aspects of bureaucratic efficiency (which are sensible objectives for improvement, but less directly affected by governments' actions).

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IN-DEPTH SURVEYS OF INDIVIDUALS AND FIRMS FOR SEVERAL COUNTRIES

A further limitation of the country-level subjective indices is that the ultimate sources of information for each agency are, in some cases, a small number of experts or consultants. More comprehensive surveys of large numbers of individual respondents may provide a more accurate picture, but due to resource constraints, these wider surveys have often been conducted for a limited set of countries, or only for a few years.

A notable example of this approach is the World Bank's Business Environment and Enterprise Performance Survey (BEEPS), aimed at examining a wide range of interactions between firms and the state.¹⁴ Based on face-to-face interviews with thousands of firm managers and owners, BEEPS was designed to generate comparative measurements in such areas as corruption, state capture, lobbying, and the quality of the business environment, which researchers subsequently related to specific firm characteristics and firm performance. This data set has led to much influential research on transition economies, documenting some facets of corruption that became especially relevant in the transition process, such as the phenomenon of oligarchs "capturing the

state”—shaping the policy and legal environment to their own firms’ advantage at the expense of the rest of the enterprise sector.¹⁵

Early worldwide firm surveys also led to important results—for example, making it possible to present empirical evidence that corruption is intrinsically linked with red tape. One might argue that “grease money” or “speed money” makes it easier to get around regulations, but that argument takes the regulatory burden as given. Instead, clever bureaucrats may realize that it is in their interest to increase red tape, if investors are willing to pay to facilitate, say, the granting of permits. Indeed, it has been found that firms that pay more in bribes are also likely to spend more, not less, management time with bureaucrats in negotiating regulations.¹⁶

This type of approach has been recently expanded to cover many more countries in the World Bank’s rich and influential database on the Investment Climate, based on surveys of more than 41,000 firms in 84 countries.¹⁷ The surveys measure business perceptions of the investment climate, including aspects related to corruption and red tape. This is a crucial input for the understanding of firm-level decision making, and the constraints under which such decisions are made, with important implications for macroeconomic performance and economic growth.¹⁸

IN-DEPTH INDIVIDUAL-LEVEL SURVEYS AND CASE STUDIES

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Going in much further depth on individual country conditions is another fruitful avenue for learning how corruption works and how it can be contained. A series of studies on Uganda provides a good example of this. A study of Ugandan firms shows that firms are more likely to pay bribes when their activities bring them into contact with the bureaucracy (that is, when firms make substantial use of infrastructure, engage in trade, and pay more types of taxes).¹⁹ The amount of the bribes depends on the firms’ profitability (i.e., their ability to pay).

Another study sought to track the extent to which public expenditure on education actually reached its intended recipients.²⁰ Using a public expenditure tracking survey of 250 schools in Uganda in the early 1990s, the study found that, on average, schools received only 13 percent of central government spending on the program, with the remainder presumably leaking to corrupt officials: most schools got nothing, and schools that received some funds seemed to be in better-off communities. A follow up study showed that, when a newspaper campaign provided schools and parents with information on monthly transfers, leakage of funds declined, and did so more steeply in communities that were closer to a newspaper outlet.²¹ Although it is difficult to know

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the extent to which the results of such individual case studies generalize beyond the specific settings they examine, the findings suggest that leakage can be very large and improved information and "client power" may be effective in reducing corruption.

At the same time, a study based on a randomized field experiment in Indonesia suggests that traditional top-down monitoring can also play an important role in reducing corruption.²² Missing expenditures were measured in over 600 village road projects by having engineers independently estimate the prices and quantities of all inputs used in each road, and then comparing these estimates to villages' official expenditure reports. Announcing an increased probability of a government audit reduced missing expenditures by more than enough to make these audits cost-effective. By contrast, increasing grass-roots participation in the monitoring process only reduced missing wages, with no effect on missing materials expenditures.

On the whole, these studies based on individual level data are promising, and when a critical mass of results is accumulated, it may be possible to draw broader policy lessons with the confidence that the pattern of results will hold up in a number of different countries, sectors, and institutional setups.

One area where systematic in-depth evidence is being accumulated involves surveys of the efficiency of public agencies themselves. At the request of country authorities, comprehensive governance and anticorruption diagnostic surveys of public agencies have been conducted. Such surveys cover the employees working inside each public agency, as well as customers of the agency (both households and firms), making it possible to cross-check the opinions expressed by different parties. Early analysis of the data collected for eight developing countries yields interesting results.²³ Corruption is more prevalent among agencies that provide services to firms (rather than households) and that provide an exclusive service for which there is no alternative. The agencies' internal organization also matters: corruption is lower in agencies where audits take place regularly, procedures are more transparent, and personnel decisions are based on merit and professional competence.

Case studies, including those based on practical experience in specific economic sectors, go in the direction of perhaps less quantitative, but in-depth, on-the-ground analysis, and are of great value in providing messages of interest to both researchers and practitioners.²⁴ Indeed, the specific institutional setup and economic sector plays an important role in practice. While a number of broad economic principles (such as the need to contain the emergence of rents related to government regulation) apply generally to all sectors, ultimately the way that practitioners will seek to reduce the scope for corruption will likely differ across sectors depending on factors such as the degree of government intervention and regulation, the level of technology, and the size of the market.

WHERE IS EMPIRICAL RESEARCH ON CORRUPTION GOING?

International institutions in general and the World Bank in particular have long faced and addressed operational issues related to corruption, and there is a consensus on the importance and relevance of such issues for economic development. Beginning in the mid-1990s in particular, these institutions' involvement in corruption issues has become more prominent. Simultaneously, there has been an increase in the interest paid by researchers to these issues, and World Bank researchers have made a number of notable contributions. Moreover, the study of corruption, notably through the collection of novel data sets and—perhaps even more important—their systematic updating, has become somewhat institutionalized at the World Bank, generating a steady flow of interesting research results and providing important policy lessons, many of which have fed into the institution's operational work.

On the research front, the collection of survey information, in-depth case studies, and other types of data from the field is yielding interesting and potentially important results. This is also a costly endeavor, especially when it involves comprehensive surveys of many individuals. There may also be a cost in terms of risk to the personal safety of those conducting the surveys, which implies the need for utmost care when designing and conducting these studies. Such costs may call for difficult assessments of the value of funds used for research purposes, compared with the value of alternative uses—say, the provision of aid for the vaccination of children—whose benefits are uncontroversially high. At the same time, if surveys or other mechanisms for assessing the effectiveness of programs (particularly those arranged or financed by the World Bank) are built into the program's design upfront, information may be collected—at limited cost—that could be crucial to tracking the program's effectiveness. More generally, if one believes that the economic costs of corruption are as high as estimated in existing studies, and that progress can be made in learning how to control corruption, then the cost of collecting new information seems limited in comparison to the potential benefits. Ultimately, the collection and analysis of new information is a key ingredient to develop better approaches to contain corruption and to alleviate its adverse impact. 

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NOTES

1. Anne Krueger, "The Political Economic of the Rent-Seeking Society," *American Economic Review* 64, no. 3 (1974): 291–303.

2. World Bank, *Helping Countries Combat Corruption: The Role of the World Bank* (Washington, DC: World Bank, 1997); International Monetary Fund, *Good Governance: The IMF's Role* (Washington, DC: International Monetary Fund, 1997); see also "The IMF and Good Governance," <http://www.imf.org/external/np/ext/facts/gov.htm>.

3. See World Bank "Strengthening Bank Group Engagement on Governance and Anticorruption" (Washington, DC: The World Bank, 2006).

4. Phillip Keefer and Stephen Knack, "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures," *Economics and Politics* 7, no. 3 (1995): 207-27; Phillip Keefer and Stephen Knack, "Why Don't Poor Countries Catch Up? A Cross-National Test of Institutional Explanation," *Economic Inquiry* 35, no. 3 (1997): 590-602; Paolo Mauro, "Corruption and Growth," *Quarterly Journal of Economics* 110, no. 3 (1995): 681-712.

5. Even so, the sheer quantity of World Bank work on the topic makes it impossible to provide a comprehensive review. A number of World Bank web sites provide excellent entry points to the literature. See www.enterprisesurveys.org; www.worldbank.org/wbi/governance; www.worldbank.org/anticorruption.

6. Mauro, "Corruption and Growth," *Quarterly Journal of Economics* 110, no. 3 (1995): 681-712.

7. Daniel Kaufmann, Aart Kraay, and Pablo Zoido-Lobaton, "Governance Matters," World Bank Working Paper No. 2196 (1999).

8. Shang-Jin Wei, "How Taxing Is Corruption on International Investors?" *Review of Economics and Statistics* 82, no. 1 (2000): 1-11; Mauro, "Corruption and the Composition of Government Expenditure," *Journal of Public Economics* 69 (1998): 263-279.

9. Gaston Gelos and Shang-Jin Wei, "Transparency and International Portfolio Holdings," *Journal of Finance* 60, no. 6 (2005): 2987-3020.

10. Paolo Mauro, Andre Faria, Martin Minnioni, and Aleksander Zaklan, "The External Financing of Development: Evidence from Two Eras of Financial Globalization," IMF Working Paper 06/205 (2006); Paolo Mauro and Andre Faria, "Institutions and the External Capital Structure of Countries," IMF Working Paper 04/236 (2004); Shang-Jin Wei, "Domestic Crony Capitalism and International Fickle Capital: Is There a Connection?" *International Finance* 4, no. 1 (2001): 15-45.

11. Roberta Gatti, "Explaining Corruption: Are Open Countries Less Corrupt?" *Journal of International Development* 16, no. 6 (2004): 851-61. Raymond Fisman and Roberta Gatti, "Decentralization and Corruption: Evidence across Countries," *Journal of Public Economics* 83, no. 3 (2002): 325-45. Caroline Van Rijckeghem and Beatrice Weder, "Bureaucratic Corruption and the Rate of Temptation: Do Wages in the Civil Service Affect Corruption, and by How Much?" *Journal of Development Economics* 65, no. 2 (2001): 307-31. Aymo Brunetti and Beatrice Weder, "A Free Press is Bad News for Corruption," *Journal of Public Economics* 87, no. 7-8 (2003): 1801-24. Thorsten Beck, Asli Demirguc-Kunt, and Ross Levine, "Bank Supervision and Corruption in Lending," NBER Working Paper No. 11498 (2005).

12. Daniel Kaufmann, Aart Kraay, and Massimo Mastruzzi, "Governance Matters V: Governance Indicators for 1996-2005" (Washington, DC: The World Bank, 2006). More generally, see "Governance and Anticorruption," www.worldbank.org/wbi/governance.

13. Steven Knack, "Measuring Corruption in Eastern Europe and Central Asia: A Critique of the Cross-Country Indicators," World Bank Policy Research Paper No. 3968 (2006).

14. This survey was developed jointly by the World Bank and the European Bank for Reconstruction and Development. It covered over 4000 firms in 22 transition countries and was conducted in 1999-2000. See "State Capture and Influence," www.worldbank.org/wbi/governance/pubs_statecapture/.

15. Joel Hellman, Geraint Jones, and Daniel Kaufmann, "Seize the State, Seize the Day: State Capture, Corruption and Influence in Transition," *Journal of Comparative Economics* 31, no. 4: (2003): 751-73.

16. Daniel Kaufmann and Shang-Jin Wei, 1999, "Does 'Grease Money' Speed Up the Wheels of Commerce?" NBER Working Paper No. 7093 (1999).

17. See Enterprise Surveys, www.enterprisesurveys.org.

18. World Bank, *World Development Report 2005: A Better Investment Climate for Everyone* (Washington, DC: The World Bank, 2004).

19. Jakob Svensson, "Who Must Pay Bribes and How Much? Evidence from a Cross Section of Firms," *The Quarterly Journal of Economics* 118, no. 1 (2003): 207-30. See also Ritva Reinikka and Jakob Svensson, "Confronting Competition: Investment, Profit, and Risk," in Reinikka and Paul Collier, eds., *Uganda's Recovery: The Role of Farms, Firms, and Government* (Washington, DC: The World Bank, 2001).

20. Ritva Reinikka and Jakob Svensson, "Local Capture: Evidence from a Central Government Transfer Program in Uganda," *The Quarterly Journal of Economics* 119, no. 2 (2004): 679-705.

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21. Ritva Reinikka and Jakob Svensson, "Fighting Corruption to Improve Schooling: Evidence from a Newspaper Campaign in Uganda," *Journal of the European Economic Association* 3, no. 2-3 (2005): 259-67.

22. Benjamin Olken, "Monitoring Corruption: Evidence from a Field Experiment in Indonesia," NBER Working Paper No. 11753 (2005). This project is supported by a UK Development for International Development-World Bank grant. For a broader overview of the project and the practical aspects of fighting corruption in this interesting case study, see Andrea F. Woodhouse, "Village corruption in Indonesia: Fighting Corruption in the World Bank's Kecamatan Development Program," World Bank Working Paper No. 34224 (2005).

23. Francesca Recanatini, Alessandro Prati, and Guido Tabellini, "Why Are Some Public Agencies Less Corrupt Than Others? Lessons for Institutional Reform from Survey Data," Paper presented at the Sixth Jacques Polak Annual Research Conference, International Monetary Fund (2005).

24. See J. Edgardo Campos and Sanjay Pradhan, eds., *The Many Faces of Corruption: Tracking Vulnerabilities at the Sector Level* (Washington, DC: The World Bank, 2006).

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