

Grand Corruption in Utilities

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Abstract

This paper discusses mechanisms of grand corruption in private sector utility provision in developing countries. By the term “grand corruption,” the authors abstract from the petty corruption that consumers experience—for example, when firms and individuals pay bribes to get water delivery or an electricity connection. The paper focuses on decisions made at the government level involving private sector management, ownership, and provision of utility services. Corruption at that

level may influence the pace and nature of private sector involvement and competition in utilities, as well as the level and form of investments, subsidies, and prices. On the basis of a literature review and interviews with firms and regulating authorities in two countries, Tanzania and the Philippines, this paper discusses the levels and determinants of grand corruption in utilities. The paper concludes by discussing a research program to extend this knowledge through a cross-country survey instrument.

This paper—a product of the Economics Division, Finance, Economics and Urban Department—is part of a larger effort in the department to analyze the extent and impact of corruption in infrastructure. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at tsoreide@worldbank.org.

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1 Introduction

The poor performance of utility services in low and middle-income countries has been a concern for the development community for decades. Engineers, economists and lawyers have suggested a range of methods to optimize performance by tackling institutional weaknesses, reducing incentive problems, and addressing the challenge of multiple government objectives. The privatization of utility provision was one approach widely used in the 1990s. Unfortunately, the performance of privatized industries has not always lived up to expectations. One potential reason underlying this poor performance record and stymieing further efforts towards reform is corruption.

This paper discusses corruption in private infrastructure provision as a development issue. After a brief clarification of terminology, it examines the nature of utility provision and the sources of rents that the sector generates. It turns to existing evidence on the size, nature and causes of grand corruption in private infrastructure provision before proposing a survey-based strategy to increase our understanding of the extent and causes of such corruption in private utility provision.

2 Grand Corruption in Private Infrastructure—An Important Development Issue

Access to basic infrastructure services has expanded over the past few decades in developing countries. At the same time, there is a widespread sense of disappointment in the reach, quality and sustainability of utility provision. For example, in low-income countries only a little more than a third of the population had access to electricity in 2000, transmission and distribution losses accounted for an average of one-quarter of production, and firms involved in the sector frequently operated at a significant loss.

In the 1990s, the most common answer to this poor performance was to introduce greater private sector participation in the management and ownership of infrastructure. And although the overall efficiency benefits of private participation have been positive, fiscal costs have remained high and rollout of new services slow. Furthermore, the extent of the liberalization has been limited in many countries (Estache and Goicoechea, 2005). The popularity of private participation has also fallen. The private sector only accounted for about 22 percent of investments in infrastructure between 1984 and 2003, and in water and sanitation this proportion drops to 5 percent (Estache, 2006). The disappointing status of private infrastructure provision in many countries still suggests the need for a critical review of the implementation of these policies (Estache, 2006).

Explanations for the weak performance of private provision include weak design of reform efforts, over-inflated initial hopes, and unexpected real-world obstacles to reform. Major challenges are rooted in weak access to capital and difficulties in attracting private sector investments due to high fixed costs and long pay-back periods, few potential competitors, weak ability of governments to enter into long-term contracts, and the low capacity of governmental and regulatory institutions (Estache, 2006; Laffont, 2005; Kessides, 2004).

Related to these concerns is the issue of governance. Because of the natural monopoly characteristics of utility provision, regulation is required to bring performance closer to an economically efficient outcome. At the same time, the sectors represent services that are essential to a broad range of users, making their provision and pricing politically sensitive (Kessides, 2004:30). These characteristics make utilities a continuing and natural target for government intervention, be they in private or public hands.

And while private participation in infrastructure changes the opportunities to extract rents from a sector which involves high sunk costs, natural monopolies and considerable government financing, it does not necessarily diminish the size of those rents. Indeed, given the extensive transfer of assets that increased private participation entails, it may considerably increase the opportunities for rent extraction, at least in the short term. Evidence suggesting widespread corruption related to privatization processes is considerable (Black et al., 2000). There is also a growing body of anecdotal evidence (discussed at greater length in later sections of the paper) suggesting that corruption contributes to sub-optimal public-private investment decisions and high costs to government for privately generated electricity supply (Kenny, 2007).

At the same time, it is difficult to estimate the full impact of corruption on the sector because of the multiple channels through which it can affect outcomes. We do not have data on the scale of bribe payments in infrastructure, but even if we did, the indirect or long-term effects (such as the choice of projects and technical solutions, the level of competition prescribed and the nature of concession contracts) will usually be more harmful than the direct financial costs associated with such payments.² Again, the impacts of corruption may not be observable in the form of lower levels of private investments in infrastructure,³ but may instead influence the type of investments selected (Smarzynska and Wei, 2000; Uhlenbruck et al., 2005), with knock-on effects in terms of quality on services, accessibility and prices (Estache, Goicoechea and Trujillo, 2006).

These circumstances underscore the importance of gathering data and analysis not just on the scale of payments, but what payments are made for -- how corruption may influence operational contract terms, the contents of concessions, and opportunities for firms to exercise market power through higher prices. In turn, it would be valuable to have a considerably greater empirical understanding of the factors which foster (or at least accompany) corrupt payments —for example renegotiation of terms after contract signature (Guasch, 2004).

Despite potentially very severe consequences, grand corruption in utilities is an under-researched phenomenon, compared to other forms of corruption and also compared to other governance challenges in infrastructure. We do not have a clear picture of the mechanisms at play; i.e. how corruption influences public-private interactions, competition in the sector, policy and regulatory issues, as well as decisions regarding large contracts and concessions.

In order to understand the perspectives of different players involved in the private provision of utility services, a pilot study was undertaken by the authors which included interviews of business leaders, representatives of the government and regulatory authorities, as well as other relevant actors, in two countries, Tanzania and the Philippines. Around 25 interviews were conducted, with questions relating to the business environment, regulation, decision-making processes at government and regulatory level, the bidding procedures, responses in cases of unfair treatment or corruption, and issues related to governance and corruption in general. Results of the study will be referred to in following sections, although these are qualitative data provided under a strong commitment to preserve confidentiality and anonymity of individual responses and may not allow for generalizations (Box 2 outlines the study). The study, a literature review and analysis carried out in subsequent sections of this paper form the

² For discussions about the various indirect adverse effects of corruption, see for example, Rose-Ackerman (1978, 2006), Tirole (1986), de Soto (1990), Andvig and Moene (1990), Besley and McLaren (1993), Bardhan (1997), Shleifer and Vishny (1998), Gupta et al. (2001). There is also a number of relevant rent-seeking results, see Congleton, et al. (2007) for a good overview.

³ Whereas several studies find corruption to have a negative impact on foreign direct investment in general (Wei, 2000), the impact on domestic private investments is found to be significantly weaker (Habib and Zurawicki, 2002). There is, however, strong evidence for a negative association between infrastructure quality and FDI attractiveness.

basis for a proposal to carry out a cross-country survey analysis of grand corruption in utilities outlined in the last section of this paper.

Box I: Examples of governance failures potentially related to grand corruption in utilities

Biased decision in favor of incompetent electricity provider

In Tanzania the president dissolved the cabinet in February after accepting the resignation of the prime minister and two cabinet ministers. It is alleged that the Prime Minister's office improperly awarded a contract to a US-based electricity company. A parliamentary inquiry, launched in November, found that the generators failed to arrive on time, and that when they did, they did not work as required. Despite these alleged failings, the government was contracted to pay the company \$140,000 a day. The inquiry alleges that the Prime Minister's office later influenced the government's decision to extend the company's contract despite advice to the contrary from the state-run energy company Tanesco. *Source: Transparency International Reports.*

Transfers made to influence the award of water contracts

In Milan, Italy in 2002 a senior executive of Vivendi (now Veolia) was convicted of planning to bribe local politicians in both the majority and opposition parties of Milan city council in order to win the IT£200bn tender for a wastewater treatment plant in the south of Milan, Italy. The executive planned to pay total IT£ 4bn bribes to politicians. In July 1997, a junior French minister was jailed for two years, with a further two suspended, and fined one million francs (£94,800) for taking bribes from companies bidding in public tenders. The minister reportedly had received fees of 327,000 francs (\$48,000) for a fictitious job by Compagnie Generale des Eaux (renamed Vivendi and now Veolia) in exchange for giving the utility a water distribution contract in Angouleme. *Source: Friends of the Earth and UNICORN.*

Allegations of political corruption in too expensive power project

Enron's Dabhol Power Corporation (DBC) signed a deal on power provision in 1993 in India, despite warnings from the World Bank that the project was too expensive. It was later alleged that local politicians had been paid off with bribes, while it was also claimed that local police and thugs had been hired to terrorize the opponents of the deal into silence. In 1999 DBC produced power at a price pegged to the world oil price, seven times higher than other electricity costs in India. *Sources: Various newspapers and Common Dreams NewsCenter.*

Alleged corruption behind power plant deal

In the Philippines, corruption was alleged behind a \$470 million build-rehabilitate-operate-transfer contract for the Caliraya-Botocan-Kalayaan hydroelectric power plant, which was awarded in 2001. This award was made on the strength of a legal opinion by the then justice secretary, allegedly rendered in exchange for a \$2-million bribe. *Sources: Manila Mail and UNICORN.*

Allegations of bribery for telecom and railway contracts

Alcatel, the French multinational company, has been linked to bribery allegations in Costa Rica, Taiwan and Africa. Alcatel allegedly transferred \$15 million to a consulting firm between 2000 and 2003 to obtain cellular networks contracts with Costa Rico's national carrier, ICE. Costa Rican prosecutors allege that some of this money was used to pay bribes. A former Costa Rican power and telecommunications director was quoted as saying that he and the Costa Rican president at the time had received a \$2.4 million bribe from Alcatel in 2001. In the Taiwan case executives from Alcatel's Taiwanese subsidiary (along with Siemens AG's) are being investigated because of allegations that they bribed officials in \$27.4 million worth of railway contracts awarded in 2003, according to an Alcatel filing with the SEC in November (2004). Alcatel's Taiwan Chief Executive was arrested in June as part of the probe. *Source: UNICORN.*

2.1 Terminology

As in other industries, corruption might influence the performance of utilities occurs in different ways. Bribes in the delivery of services are one category, often called *petty corruption*; they are a huge

challenge in many countries. Utility managers or their staff may restrict delivery to extort customers or offer illegal connections in return for payments. The consequence is poorer performance of the industries, often facilitated through corruption in monitoring mechanisms. This form of corruption, between service-providers and end-users, is reported in several surveys. Fairly reliable data have been generated, and the phenomenon has become more accessible for research (Clarke and Xu, 2004).

Grand corruption, which involves higher decision-levels in a country, is conceptually quite different from petty corruption. It includes cases when politicians or high-ranking civil servants manipulate a country's management or regulation of infrastructure industries to gain exclusive benefits (see Box 1 for examples). It can be a 'purely' public sector phenomenon or involve both public and private agents. In the first case, state-owned public service providers serve as tools for politicians, who benefit in the form of personal revenues, bolstered positions, or party contributions. In the case of public-private interactions, private sector actors use bribes to influence the form of the market or contractual terms at the cost of consumer welfare. Sometimes these phenomena are described as *crony capitalism*, in which political networks dominate important private assets, or *state capture*, in which private firms are able to influence public power to their own benefit.⁴

These categories are simplifications. Various forms of corruption will often be interlinked, or made possible, through other forms of crime. The dividing line between petty and grand corruption can become blurred, for instance if utility management abuse their status as principals within the institution of the utility to overlook petty corruption in return for payments from staff.

With that caveat, grand corruption as opposed to petty corruption, frequently involves changing rather than breaking rules and institutional structures. For example, petty corruption may involve theft of electricity with the collusion of utility staff. Grand corruption may involve altering bid rules to ensure that a particular firm is selected.⁵ Of course, both cases may involve breaking laws, but grand corruption may be more difficult to delineate because officials act within their authority when altering institutional structures or outcomes.

For a conceptual explanation of the difference, consider the principal-agent framework versus political agency: Petty corruption refers to officials (agents) who profit personally from making choices that deviate from the goals of the institution that they represent. Such corruption is possible because the managers of the institution (principals) have insufficient capacity or incentive to monitor decisions made in the institution that they administer.⁶

With grand corruption it is the "managers" (politicians) who deviate from the goal of the country and a welfare-enhancing track, while the electorate are the "principals" who have insufficient information about their politicians and the choices they make. A main contrast between petty and grand corruption thus relates to the monitoring mechanisms, which can be far better organized when petty corruption is the problem. With grand corruption, elected politicians are often directly or indirectly controlling supposed monitoring mechanisms, including the media as well as the judicial system.

⁴ The state capture terms was introduced by Hellman et al. (2003). Michael Johnston (2005) is more precise about political corruption, when suggesting a distinction between what he calls "power chasing wealth" and "wealth chasing power". See Rose-Ackerman (2007) for a discussion.

⁵ When it comes to corruption in general, it is important to distinguish between legal forms of influence, such as lobby-groups, and illegal corruption, because it can be shown that these are characteristically different mechanisms with different consequences (Harstad and Svensson, 2008).

⁶ Accordingly, the principal-agent framework is much applied to understand corruption; see for instance Mishra (2006), Acemoglu and Verdier (2000), Olsen and Torsvik (1998) and Laffont and Martimort (1997). This literature separates importantly between benevolent and non-benevolent principals (Aidt, 2003). In political economy models, the politicians are often thought of as agents while the voters are the principals, and this too is a useful approach (see Besley (2006), for instance).

2.2 The Nature of the Utility Sector and Sources of Rents

There are reasons to believe that infrastructure provision is particularly prone to grand corruption. Many infrastructure services are natural monopolies, involving significant fixed costs. Related to this, competition in these sectors is seldom subject to antitrust control to the same degrees as other industries.⁷ The level of technical complexity, combined with complex financial contracting, provides numerous ways of hiding corrupt transactions. Governments play a significant role in construction, supply and regulation of utilities. Regulatory decisions and the awards of concessions are often based on non-transparent decision processes which provide significant latitude to officials, and corruption can easily be hidden behind discretionary bureaucratic judgments or populist political decisions. During the pilot survey, some reported experiences of “informal award criteria.” In one of the countries, although the formal rules and criteria appeared professional, the companies competing for a concession often reportedly had informal meetings with very senior government officials – an arrangement that might facilitate ‘grand corruption.’ Box 1 suggests some cases of governance failure in the private provision of infrastructure, some of which have involved allegations of corruption.

In addition to the presence of considerable rents which can provide financing for corrupt payments, the high sunk costs of infrastructure investments provides additional incentives to bribe to reduce political uncertainty. In all infrastructure provision, with the partial exception of mobile telephony, there are long pay-back periods associated with sunk-cost investments. Alongside the political sensitivity of infrastructure pricing and access, the long payback period makes the pricing of risk a significant part of any investment decision. Negotiation of pricing (of services or infrastructure) or related factors that will determine the rate of return of the investment, will hinge on political risk calculations. Attempts to preserve that rate of return from direct or indirect expropriation may involve a mitigation strategy involving payoffs to decision-makers.⁸

Infrastructure services vary in terms of the contributions of the public and private sectors (See Tables 1 and 2). At one end of the spectrum, mobile telecommunications services are provided privately and under a competitive regime in the vast majority of countries. There is comparatively little pressure to provide services at below cost or to subsidize access. Although some telecommunications sub-sectors frequently remain in government hands and subsidy mechanisms for access exist in a number of countries, the predominant roles for government in the sector are to (i) distribute rights to limited spectrum and (ii) ensure fair competition between providers. This suggests that the largest opportunities for rent extraction involve the issuance of spectrum licences and the process for setting interconnection prices (which is technically complex with no one obviously superior approach). In addition, in countries that retain public ownership of the fixed operator and/or limited international rights, the privatization and license issuance processes in these sub-sectors will also provide opportunities to extract rents.

At the other extreme, very few water and sanitation firms worldwide operate under full private ownership, with concession and management models predominant. Competition *in* the market is

⁷ See Cave and Crother (2004) and Harker and Waddams Price (2004) for discussion about the link to collusion, and Celentani and Ganuzab (2002) and Comte, Lambert-Mogiliansky and Verdier (2005) on corruption and collusion in procurement, whereas Rose-Ackerman (1978), Shleifer and Vishny (1993) and Ades and Di Tella (1999) all suggest a greater role for corruption in environments of limited competition.

⁸ See Wells and Ahmed (2007) for examples of bribery to reduce political risk in infrastructure investments. See Harstad and Svensson (2008) for an analysis of rent seeking versus corruption, and the importance of hold-up problems. During interviews as part of the pilot study it was claimed that arbitration is no solution to hold-up problems. According to one respondent: “*Verdicts can be made in foreign courts but they are not enforced in this country.*”

effectively absent, focusing attention on the design of competition *for* the market (from direct negotiation models to transparent international bidding). Concession contracts and related regulatory oversight involve a considerably larger role for government negotiation or imposition of terms with significant consequences on rates of return for private utility companies. These can include decisions regarding investment requirements, employment levels, service quality, pricing and rates of return. The sensitivity of water pricing increases the political risk associated with such contracts and with the regulation of implementation.

Like water and sanitation, electricity distribution remains a natural monopoly where full private provision remains comparatively rare, and similar sources of rents are likely to emerge. Electricity production—at least in larger markets—is notably different in that it can be comparatively competitive. Having said that, many developing countries are too small to allow for truly competitive power production given market size. This raises concerns regarding service reliability and over-dependence on a single power source. In such countries power purchase agreements are frequently negotiated directly by governments or with a government guarantee and involve numerous conditions that can alter rates of return –including pricing schedules, take-or-pay conditions, and purchase or pricing agreements related to fuel inputs. Given the limited role for competition in the market in these cases, there are considerable rents to be generated through the design of competition for the market. Power producers are also subject to regulation. Alongside rents attached to the avoidance or payment of environmental externalities, the political complexity of cost-recovery and a frequent overlap in government oversight of pricing between regulator and ministry can create further opportunities for rent creation.

The (largely) non-rival monopoly nature of toll roads suggests that the monopoly profit-maximizing toll could be substantially different from the economic benefit-maximizing toll, suggesting, in turn, the potential for particularly large rents in the negotiation of road-pricing agreements. In addition, the considerable proportion of road costs accounted for by land procurement opens up the opportunity for rent associated with the eminent domain process.

The impact of these different sector and contracting characteristics of different utility services is likely to translate into different opportunities for corruption. These differences are examined later in the text.

Table 1: Characteristics, Contracting and Rents in Infrastructure Provision

	Electricity Production	Electricity Distribution	Toll roads	Water and Sanitation	Telecoms
<i>Economic characteristics</i>	Rival, public good elements (environment)	Rival, network economies, natural monopoly	Non-rival, public good elements (land), natural monopoly	Rival, public good elements (health), network economies), natural monopoly	Rival, network economies
<i>Political complexity of cost recovery</i>	Medium	Medium	Medium	High	Low
<i>Common contractual arrangements for private provision</i>	License/service, concession, lease	Management, lease, concession	Concession	Management, lease, concession	License
<i>Opportunities for rent-extraction</i>	Limiting competition, price setting Guarantees/investment support Environmental and pricing regulation	Price setting Guarantees/investment support Pricing regulation	Price setting Guarantees/investment support Pricing regulation	Price setting Guarantees/investment support Pricing and quality regulation	Price setting Spectrum license issuance/terms

Table 2: Contract Forms and Responsibilities

	Management Contract	Leasing Contract	Concession Contract	Private Licensed Provision	Private Licensed (service) Provision
<i>Investment planning</i>	Government	Negotiated	Negotiated	Private	Private
<i>Capital financing</i>	Government	Government	Private	Private	Private
<i>Bearer of commercial risk</i>	Mainly government	Mainly private	Private	Private	Private
<i>Guarantee (supply price, political risk)</i>	NA	NA	Frequent	No	Frequent

3 Evidence on the Extent of Corruption versus *Grand Corruption* in Utilities

Matching theoretical approaches and assumptions, there is considerable evidence that corruption is a significant issue in infrastructure provision. At the operational level, Gulati and Rao (2006) find that, in Bangladesh and Orissa, in India, around 55 percent of generated power is paid for; the rest is lost to technical and commercial losses. Of this, perhaps 15-18 percent is accounted for by 'true technical' losses, suggesting leakage due to illegal connections or underbilling accounts for as much as 30 percent of generated power. Davis (2004) suggests that unaccounted for water accounts for 35 percent of total flows in India.

At the statistical level across countries, we have mounting survey evidence regarding petty corruption related to utility provision. Global evidence on the extent of payments for connections to energy, water and electricity are provided by the World Bank's enterprise surveys, and this can be used to uncover correlations with sector characteristics and outcomes (Clarke and Xu, 2002; Kenny, 2006).

Regarding grand corruption in utility provision, existing data provide an ample basis for case-study analysis of grand corruption throughout the infrastructure cycle –from policy through construction to operation (see, for example Davis, 2004; Gulati and Rao, 2006; and Cross and Plummer, 2006). For one element of this process –construction—we also have survey evidence. The Business Environment and Enterprise Performance Survey (BEEPS), which covered 4,000 firms in 22 transition countries, provides information about firms' expenses in various forms of bribery (Hellman et al., 2000). Analysis of these data suggest that construction firms pay considerably more than the average firm in bribes, with a focus on bypassing regulation and obtaining government contracts (Kenny, 2007).

At the same time, existing enterprise surveys have excluded infrastructure providers on the grounds that, at the country level, there are too few firms to guarantee response anonymity or to ensure statistical confidence in answers. This has left analyses of the extent and impact of grand corruption in infrastructure relying on proxy or general measures of corruption. Most widely used in such studies have been general perceptions indices such as Transparency International's Corruption Perceptions Index (for example Estache, Goicoechea and Trujillo, 2006; Tanzi and Davoodi, 1998).

Cross-country perception indices of corruption have played an important role in raising awareness of corruption and emphasizing the importance of institutions in development. There are strong correlations between governance indices and GDP growth (Kaufmann et al., 2006), and numerous empirical studies point to (perceived) corruption as an important reason for slow economic development (Mauro, 1997; Leite and Weidemann, 1999; Poirson, 1998; Mo, 2001). Studies utilizing general perceptions measures have also provided some interesting suggestive evidence regarding impacts on infrastructure. –Tanzi and Davoodi (1998) find that general corruption perceptions scores are correlated with lower quality infrastructure provision and low expenditures on maintenance. Using a dataset covering 80 electricity distribution firms in 13 Latin American countries in 1994-2001, Bo and Rossi (2007) find corruption to be the most important explanatory factor behind variation in efficiency among the companies. Guasch and Straub (2005) find that perceptions of corruption are linked to an increased likelihood of infrastructure firm-led contract renegotiation in the presence of weak regulatory bodies, also this study was based on data from Latin-America. Estache, Goicoechea and Trujillo (2006) find perceived corruption correlated with lower energy use, and interaction effects between sector policies and the impact of corruption.

Nonetheless, there are significant concerns with using general perceptions measures for analysis of grand corruption in infrastructure. Where we can compare perceptions measures with audited levels of corruption at the micro level, perceptions appear to be weakly related to audited measures and to contain significant biases (Olken, 2006). Knack (2006) demonstrates how corruption perception indices correlate far better with data on petty corruption than procurement-related corruption in Eastern Europe and Central Asia, and also that petty corruption appears to be only weakly correlated to levels of grand corruption. Donchev and Ujheliyi (2008) find perceptions-based corruption indices exposed to systematic biases away from actual experience with the problem, and influenced by other governance characteristics, such as democracy, and country size. Langbein and Knack (2008) explain and prove the problem of separating between governance indicators, such as those presented by the Worldwide Governance Indicators project. The extent of corruption in a country can not be estimated without running into problems of multicollinearity. Furthermore, country-level perceptions appear to be weakly related to surveyed levels of corruption in particular sectors. For example, there is no significant relationship between Transparency International's CPI and surveyed levels of corruption amongst construction firms in Eastern Europe and Central Asia. And finally, the lack of specificity in general corruption measures allows us to learn nothing about how the nature of corruption differs across countries within infrastructure provision. These problems with using general perceptions measures as a proxy for grand corruption in infrastructure may help to account for the limited robustness of results in the existing literature on corruption and infrastructure outcomes (Kenny, 2006).⁹

The lack of sector-specific survey data on the extent and nature of grand corruption in infrastructure is a significant impediment to evaluating measures designed to reduce the development impact of poor governance and corruption, then. Existing policy and regulatory advice can only be based on case studies, examination of weak general proxies or global results (see for example Gulati and Rao, 2006; Cross and Plummer, 2006; Clarke and Xu, 2002, Cavill and Sohail, 2007; Lederman et. al., 2005). Whilst it is plausible to imagine, based on this work, that transparency, participation, competition, reduced regulatory and licensing discretion, deregulation, improved financial management and extended auditing may all have a role to play, the relative role of specific interventions on the level and impact of grand corruption in infrastructure cannot be evaluated (Kenny, 2006).

⁹ See Weber (2007) for a discussion about severe problems with composite perception based indices and Cooksey (2007) about the low value of this information for individual countries –Tanzania being the case.

Box II A Pilot Survey of Utilities Corruption

To date, utilities have been excluded from firm surveys on corruption because of the small number of such firms operating in each country. By working with a global sample covering energy, water, telecoms and transport, a survey piloted in two countries in 2007 was designed to overcome this problem while generating data on the nature and extent of corruption. During the pilot, a considerable number of firms were willing to take part and answer sensitive questions in a manner that did not suggest reticence to highlight cases of corruption under these circumstances. Nonetheless, because all pilot survey conversations were conducted with promises of strict anonymity and confidentiality, only a very limited report of the actual results of the interviews can be presented at this stage.

Many of the firms claim that they have probably lost a tender because of corruption. In one of the pilot countries, it was repeatedly alleged that competitive tender procedures were rigged to fit with the offer of one specific firm and collusion was rampant. In the other pilot country, it was alleged that the initial contract competition might be fair, but the winning bidder would corrupt officials in order to avoid penalties for non-delivery of services. Firms do not report or complain about alleged cases of corruption for fear of losing future business.

4 Determinants of Corruption and Economic Theory

The complexity of society, the number of stakeholders and actors involved in political and important bureaucratic decisions suggest numerous potential determinants of corruption.¹⁰ Even when concentrating on grand corruption and contracts between utility firms and government, the number of relevant factors is substantial. A firm's propensity to be involved in corruption to obtain a certain contract will depend on the following characteristics:

- i. *Personal characteristics of involved agents* including (potentially) the nationality and gender of main management.
- ii. *Firm specific characteristics*: company size, local or foreign ownership, location of headquarters, ownership structure and role in lobbying efforts.
- iii. *Deal characteristics*: the tender offer process, prices and other terms. It is important to note that a purpose of the corrupt act itself may often be to influence the nature of the transacting process; i.e. what the particular transaction involves (the investing opportunity, the form of contract, the nature of the bid process, information available). As such, the relationship between particular deal characteristics and corrupt activities will be bi-directional.
- iv. *Sector characteristics*: general cross-country factors including technical complexity, financing scale, common contract characteristics and so on. Some sector characteristics will be highly dependent on country, however, such as the existing extent of competition, standard selection procedures, sector ownership criteria, regulatory institutions (their capacity and independence), and the perceived extent of corruption in the sector.

¹⁰ This has been tested in many statistical studies during the last decade. Examples of recent contributions with very different focus are Mocan (2004), Glaeser and Saks (2005), Knack and Azfar (2002) and Treisman (2000). Most statistical studies of corruption are based on weak data on corruption, as discussed in chapter 2, and findings are not necessarily valid despite significant results.

v. *Country specific factors*: perceived and actual capacity of government and legal institutions, cultural aspects, general level of education and so on.

A firm's involvement in corruption also requires corruptible officials, who will face their own incentives based on personal characteristics, employment characteristics, the nature of the deal and the oversight and sanctions regimes under which they operate. Because these characteristics may vary within particular ministries or regulatory bodies, it may be that of two deals in the same sector and country that are similar in terms of the firms and deal involved, one is corrupt and one is not. Hence, these categories will not cover all factors that are relevant to explain corruption; there will be an error term.

The literature on corruption explains and categorizes determinants of corruption and associated mechanisms in different ways. In particular, economic theory explains corruption at four different "levels":

i. At the individual level and incentive theory

Economic incentive theory predicts that an agent, the briber as well as the target of the bribe, is assumed to gauge potential rewards of the involvement in corruption against the potential consequences thereof, in terms of a cost-benefit analysis at the individual decision-making level.¹¹

The goals of corrupt officials will usually be to make money for themselves or their political party. Goals for firms involved in corruption, while all connected to the maximization of profits or personal gain, appear more diverse and include a long list of potential benefits. These include guaranteeing license or contract award, adjustments in tender specifications, secret information about bids and the evaluation process, license or contract renegotiation and adjustment, avoidance or reduction of penalties or termination for breach of licenses or contracts, changes in legal directives and regulations, tax concessions and avoidance, subsidy award and so on. At the individual level, the briber (the executive in the firm, for instance) is expected to evaluate personal costs and benefits, which may be quite straightforwardly connected to the firms' profit. Beyond the price of the bribe, these costs include potential fines, imprisonment, dismissal and associated loss of income, as well as informal sanctions, such as injury to reputation.¹²

ii. At the company level and theory of industrial organization

Theories of industrial organization predict that reduced competitive pressure is an important driver of business corruption, suggesting that more corruption may be associated with less competition (as both cause and effect).¹³ There will thus be more corruption when there are

¹¹ For an overview of the literature, see Aidt (2003) or Bardhan (1997).

¹² Some factors are difficult to categorize as either benefits or costs. For instance, reputation and status are associated with the achievement of important contracts, and can actually improve in the propensity to be corrupt. Loyalty is another aspect with consequences that are difficult to predict, since agents with apparently strong moral values will sometimes place loyalty to the firm above loyalty to a country or broader moral system. If their loyalty is placed at the owners or the employees of the firm, and less with the society at large, corruption might be considered a 'moral' solution. See Rose-Ackerman (2002, 2007) for relevant discussion, and also a review of relevant experimental work on the propensity to become involved in corruption.

¹³ See Beato and Laffont (2002) for a discussion regarding corruption and competition in regulated industries. Ades and Di Tella (1999); Bliss and Di Tella (1997) and Shleifer (2004) offer results on the relationship between corruption and competition. See Benitez and Estache, (2005) for a survey of market concentration in the utilities sectors.

opportunities to obtain market power, for instance because of regulatory intervention or entry restriction. The relationship between competition and corruption is particularly interesting when it comes to infrastructure, because competition is often *for* rather than within the market. Even competition for infrastructure contracts is often limited, with only a few firms involved in the tender processes. Complicating the calculus is the fact that the decision to corrupt is likely to depend significantly on the perception of the likelihood of corrupt behaviour amongst competitors. The theory predicts more corruption when there is asymmetric information about the way tender rules are being practiced and when the strategies of rivals are hard to observe. A connection between cartel-behaviour and corruption is another implication and also supported empirically (Søreide, 2008); collusion (including bid-rigging) is easier to carry out if supported by corruption.¹⁴ The pilot survey included questions about collusion. Respondents' attitudes differed significantly in the two countries. What we usually consider bid-rigging strategies were defended by several respondents in one of the countries, suggesting that such practices may occur in wide scales in some environments in the utility sectors.

Factors described by theory as important to understand firms' incentives to influence through corruption are the size of obtainable rents, regulatory choice, incentive designs, and procurement or privatization-related issues. It is nevertheless difficult to come to general conclusions from the industrial organization literature regarding corruption in utilities since utility industries vary significantly in their economic characteristics, as we have seen in Chapter 2. Electricity and Water concessions often involve long-term pricing agreements and subsidy payments to private providers --both factors may increase the opportunities for corruption (Shleifer and Vishny, 1994). On the other hand, the significant profits which can accrue to holders of mobile spectrum licences create a large incentive to corrupt during the license award process. The role of interconnection pricing on competitiveness and profits is another opportunity to extract rents, especially given that it is an extremely complex process frequently carried out in secrecy.¹⁵ Different deal structures --from management contracts to full privatization--carry significantly different sunk and up-front costs, again altering the potential payoffs to different corrupt acts.

iii. At the sector level and regulation theory

The extent and impact of (grand) corruption will depend on the nature of regulation, and of regulatory institutions, in a number of ways. An important proposal, based on regulation theory, relates to the independence of regulatory institutions. If not sufficiently independent, politicians might influence regulatory decisions, for populist benefits, clear-cut corruption or for patronage (i.e. to secure benefits to clan members, elite groups and other supporters). Of course, independent regulation may merely change the structure rather than the extent of corrupt payments unless the regulatory body is transparent, well managed and under effective oversight. Regardless, ensuring the independence of regulatory bodies has proven difficult in many countries, since politicians will hold the monopoly on jurisdiction, and regulatory independence will depend on political benevolence. According to one of the respondents interviewed for this survey, the financial situation of a formally independent regulatory body may depend heavily on how the institution's decisions have corresponded to political signals.

¹⁴ The risk of losing cartel profits may explain the low propensity among firms to respond proactively if losing contracts because competitors are involved in corruption; firms may not want to risk the potential of obtaining future cartel profits.

¹⁵ It is also relevant to ask how the form of influence on regulators might depend on the organization of regulation and the prioritizing of political goals. Consumer surplus has not always been priority number one, see Auriol (2007) for discussion.

The selection of a service provider to operate under a concession contract is perhaps the decision-making process that is most vulnerable to corruption. The selection will often take place through competitive bidding, while the concession contract will contain many regulatory elements in order to meet various welfare goals. A multiplicity of regulatory goals may open for corrupt or populist political influence, however.¹⁶ Contracts that are supposed to meet multidimensional achievements – on price, various components of quality, reliability, speed, reputation for honesty, financial stability of the contractor and more are difficult to evaluate in terms of performance (Tirole, 1994:15). The more criteria included in decision-making processes, the more opportunity for discretion, and the easier it will be to influence the processes, including through corruption.¹⁷

The nature of corruption will be causally linked in both directions to the process of awarding concessions or licenses, negotiations between governments and firms during that process, and also firms' influence on regulatory decisions during operation. In particular, information about *ex post* operational terms will have impacts on *ex ante* choices in the award of licences, and in terms of incentives and vulnerability to corruption in the two processes are interlinked. The problem of contractual incompleteness in regulatory law has been much debated, by lawyers as well as economists. Disputes and questions without a solution offered by the contracts are and should be subject to renegotiation. On the basis of data from Latin America, however, Guasch, Laffont and Straub (2003) point to significant risk of manipulation of the renegotiation processes in infrastructure concession contracts.

iv. At the government level – political economy and rent-seeking literature

Political risk and lower trust in legal institutions are viewed as common consequences of corruption, and important constraints for firms that wish to invest in and operate a utility. With infrastructure in particular, long-term contracts are considered less secure, and firms bear the risk of facing changes in operational terms once investments are sunk (Svensson, 2003). In turn, informal agreements and corruption may themselves be ways in which firms try to reduce political and institutional risk, and bribery itself may be part of a strategy to reduce the overall impact of corruption on outcomes (Wells and Ahmed, 2007).

Because grand corruption in utilities involves very large transactions and senior government officials, the question of how political decisions are made and how political parties retain power is important to understand corruption in relation to private sector utility provision. Political agency models predict that the accountability to voters is stronger when politicians can be re-elected, and honest procedures and welfare-enhancing results are more likely in the first period of a political regime than in the second (Besley, 2006; Drazen, 2005).¹⁸

¹⁶ Consequences of a multiplicity of goals are well described by Tirole (1994), including in the context of regulation of utilities.

¹⁷ Simple award criteria and strict focus on industry performance are the often suggested tools for reducing the risk of corruption in face of weak regulatory institutions. In real life the advice is difficult to follow, however. Rather than a strict focus on the quality of services and prices, regulators are often asked to consider 'the best package' for the society at large, and encouraged to make assessments of other factors than prices and service provision, such as employment issues, district politics, environmental concerns, and so on. It is difficult to know what works when it comes to regulatory complexity: Simple regulation is presented as a tool to combat corruption in utilities. Scandinavian countries are characterized by heavy regulation combined with low levels of corruption, however. See Estache, Goicoechea and Trujillo (2006) for results of liberalization reform and impacts on corruption in utilities.

¹⁸ On the basis of audit reports in Brazil, Ferraz and Finan (2005) find the incidence of corruption and fraud to be significantly higher municipalities with political leadership in their second term; i.e. when the

Grand corruption may also be part of an international political game, however, because large infrastructure contracts – and the regulation of performance - often involve influence from the home-country government of the potential operator.¹⁹ As discussed in the introduction, the difference between legal political decisions and corruption may be blurred when it comes to grand corruption, since decision-makers have significant discretionary authority. Since they are often in a position to change details in the legal framework, they can alter the definition of what is legal.²⁰ The question of how firms are allowed to gain market advantage must thus be considered in a broader perspective, including the role of influence from foreign governments. Various incentives including promises of biased court decisions, inside information and superior access to finance may provide firms with benefits that resemble those obtained through clear-cut corruption. We have very limited information about such forms of influence peddling. A challenge for research is thus to better understand the role of consultants, banks, and foreign governments in the process of manipulating infrastructure contracts and engaging in corruption.

4.3 Hypotheses

Given this discussion based on the relevant literature and status when it comes to empirical research on grand corruption in utilities, we list hypotheses that might be tested. Table 3 highlights some selected theorized relationships between firm, sector and country characteristics and corruption outcomes.

Different types of corruption can be substitutes for each other, suggesting the potential for interactions between variables and bribe levels. For example, a corrupt relationship can be developed before the tender procedure begins, during the tender procedure, or as part of renegotiations – perhaps years after the initial tender procedure is concluded. By changing the rules of the game, corruption conducted prior to tendering can ensure the desired outcome while tender procedures themselves are not corrupt.²¹ In cases where concession contracts substitute for explicit regulation in the life of the given contract, the criteria for concession bids which are determined by the regulator or policymaker in advance of the award process will be key to both the profitability of the concession and the likely bid winner, and will represent an important target for bribery. A successful corrupt act upstream of the bid process may be far more effective than a bribe made during bid evaluation in this case. This suggests that the relationships proposed will be dependent, an issue that will need to be further addressed in research on the hypotheses.

mayors could not be re-elected. Second-term mayors on average divert, R\$188,431.4 more than first-term mayors (approximately 4 percent of the total amount transferred to municipalities).

¹⁹ For instance, this was the case behind the IMPSA deal in the Philippines, see examples Box 1.

²⁰ As a result of this limited evidence on the extent and nature of grand corruption in infrastructure, we have an incomplete basis for making assumptions about who initiates grand corruption in various settings in infrastructure (the briber or the decision-maker), and what other players are involved. We are unable to differentiate between the impacts of illegal corruption, on the one side, and legal rent-seeking, diplomatic pressure, and regulatory incompetence, on the other.

²¹ Tender corruption is usually carried out either in the form of a violation of formal rules, some form of misuse of exemption rules, or influence on the design of the rules, see Rose-Ackerman (1999), Della Porta and Vannucci (1999), Moody-Stuart (1997) and Søreide (2005) for more information.

Table 3: Theorized Relationships on the Propensity to Bribe

Characteristic	Theorized Relationship to Propensity to Bribe*
<i>Individual Characteristics</i>	
Citizenship	Citizen of the country: more likely
Gender	Female: less likely
Colleagues with recent work exp in public sector	More public sector exp: more likely
<i>Firm Characteristics</i>	
Firm size	Global size: less likely. Local size: uncertain
Firm ownership structure	Publicly listed: less likely
Firm ownership location	Low corruption country: less likely
Sunk cost of total investment	Higher sunk cost: more likely
No reactions if lost contract due to corruption	No responses: more likely
Firm anti-corruption codes of conduct	Stronger codes: less likely
<i>Deal Characteristics</i>	
Sector local partnership requirements	Local ownership requirements: more likely
Award process	ICB: less likely
Criteria for award	More criteria: more likely. Subjective criteria: more likely
Size of bid	Larger bid: more likely
Sunk cost of bid investment	Higher sunk cost: more likely
Potential for renegotiation	Higher potential: more likely
<i>Sector Characteristics</i>	
Competing firms in sector	More competition: less likely
Subsidy extent in sector	Larger subsidies: more likely
Perceived level of sector corruption	Higher perception: more likely
Perceptions about bid-rigging	More bid-rigging: more likely
Share of state-owned entity in the sector	Larger share: uncertain
<i>Regulation</i>	
Regulatory independence	More independence: less likely
Regulatory capacity	Higher capacity: less likely
Regulatory discretion	More discretion: more likely
Competing regulatory agencies	More agencies more likely
Level of regulation	More areas (pricing, quality...): more likely
<i>Alternate Approaches to Influence</i>	
Influence on laws and regulations	More informal influence on regulations: more likely
Lobbying (including legal party contributions)	Greater lobbying effort: less likely Greater membership of industry groups: less likely
<i>Investment Country Governance</i>	
Press freedom	Greater freedom: less likely
Access to information	Greater access: less likely
Parliamentary oversight	More oversight: less likely
Competition authority	In function: less likely
<i>Home Country Governance</i>	
Home country corruption	Less home country corruption: less likely
Home country OECD Convention signatory	Signatory: less likely
* “more/less likely” refer to risk of corruption.	

Potential for empirical verification

The listed hypotheses refer to practices that will most often be hidden and illegal, and support or rejection requires information that the agents involved have every incentive to hide. Robust verification or rejection will be difficult, but even limited progress towards better evidence for or against such hypotheses will provide a stronger basis for analysis of policy choices.

The methodological challenges are significant, however. A first challenge is the quality of data that can be collected. Evidence from analysis of existing surveys suggests that even where large enterprise samples are available, the signal to noise ratio in answers regarding the level of corruption in a particular sector can be very low (Kenny, 2006). Corruption is a secret activity, and few respondents may have direct experience and accurate information regarding the nature and extent of bribery.

Such issues will be even more acute in a survey of infrastructure providers. There are a limited number of firms involved in private provision of infrastructure worldwide, and the number involved in contract bidding or operation in any one country is very small. As noted, this challenge has led previous enterprise surveys focusing on corruption to exclude infrastructure providers altogether. Stricter anonymity and confidentiality procedures which limit ability to share underlying data from a survey report will be necessary, but statistical confidence in country-level answers will (surely) remain very low regardless. Ensuring a wide geographic, sectoral and firm coverage will be key to increasing the robustness of any results.

It is worth noting that the data quality issue will extend to control variables in areas such as the level of competition, performance and sector regulatory structures which can be very weak. Including some questions regarding such performance and characteristics within the survey instrument may help to improve this situation, but, if the instrument is to remain a reasonable length, such questions will be necessarily limited.

A further challenge is the presence of numerous bi-causal and interlinked relationships between different types of corrupt and legal transaction as well as institutional forms. This complex causal environment, not significantly analyzed to date and likely to vary significantly by country and sector, will be difficult to unpack.

Despite these obstacles, a survey with wide geographic, sectoral and firm coverage, including a number of questions which overlap to measure the extent of consistency across answers, may play some role in increasing our (currently limited) knowledge about the nature and extent of corruption in the private provision of utility services.

5 Conclusion

The nature of private provision of infrastructure suggests that governance will be key to outcomes. This is confirmed by available evidence –poorly governed sectors perform poorly in terms of pricing, quality and access. There is considerable anecdotal evidence linking poor governance to greater corruption, and suggesting that private provision of infrastructure is a particular target of grand corruption.

At the same time, and despite a range of hypotheses that could be tested using such evidence, we have almost no survey evidence to analyze the nature or extent of grand corruption in the private provision of infrastructure. Available perceptions evidence and broader non-sector-specific survey evidence both appear ill-designed as a proxy measure. But lack of survey evidence to date reflects the particular nature of private provision of infrastructure and suggests

the need for an infrastructure-specific survey instrument to examine the extent of corruption in private provision across sectors and countries.

The nature of corruption surveys and the nature of the sector should dampen expectations of highly robust data being produced by such a survey, particularly at the sector/country level, where confidentiality issues may not allow the publication of any data at all for many countries. Nevertheless, the pilot study referred to suggests that it will be possible to obtain important indicative evidence and insights. Many respondents are willing to inform about their experiences and frustrations. Even if precise quantification of grand corruption may be difficult, a broad survey may reveal important mechanisms and offer insights about the efficiency of current anti-corruption measures. Such understanding is needed to develop better policy advice on how to prevent challenges associated with grand corruption and curb its influence on the performance of utility provision.

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