14 Evidence from the firm: a new approach to understanding corruption

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1. Introduction

Due to its clandestine nature, most of what we understand about corruption comes from survey evidence and self-reported perceptions of corruption. This limits both the range of questions that can be asked and the precision of answers that can be provided. This chapter proposes a new lens to understand corruption, using internal records collected from firms that pay bribes. We examine widespread corruption in three industries in an Asian developing country: procurement, pharmaceutical sales, and construction. Using data of real bribes, we provide new estimates of corruption and study its relationship with organizational ownership.

Most current evidence of corruption comes from survey data, in which individuals and firms are asked about extra-legal payments made in the course of business and life. Survey data have a range of advantages: the harmonization of the phrasing of questions across surveys facilitates temporal and international comparisons; and surveyors have wide latitude in the type and nature of questions they ask (Kaufmann and Kraay, 2002). Surveys can also target representative samples: Svensson (2003), for example, found that a large fraction of Ugandan firms pay bribes, but that there was substantial variation in the size of bribe paid, even within industries.

However, there are also well-known limitations to survey data, as recall is not perfect (Rose-Ackerman, 2006). Moreover, there is convincing evidence that individuals underreport the frequency and magnitude of their misdeeds (for example, Harrison and Hughes, 1997). Producers of survey-based data have taken these criticisms seriously: Kaufmann et al. (2006), for example, point out that ‘objective’ measures are noisy as well. Finally, we note that surveys are well-suited for impressionistic data and simple characterizations, but poorly suited for obtaining detailed, transaction-level data necessary to answer specific questions about the magnitude and functioning of corruption.

Over the past several years, we have carried out a research program that collects information from those who are among the most knowledgeable about corruption: the firms that pay bribes. We have conducted interviews
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with business executives and in some cases obtained their internal records on bribery transactions, under the condition that their identity is protected. The first output of this research program is presented in Tran (2010), which demonstrates the impact of different procurement auction rules on the extent and depth of bribery.

In this chapter, we investigate the difference between corruption in public and in private organizations using the internal records of three bribe-paying firms. In theory, although both types of organizations are susceptible to misgovernance, the existence of corruption makes a strong case for private ownership, as the owners have a stronger incentive to fight corruption (Shleifer, 1998). Nevertheless, Rose-Ackerman (2008) points out that corruption in private organizations is an important and understudied issue, and ‘ought to be the object of future work’. There has been very little empirical evidence in this area. Our study focuses on this question; we find that public organizations are indeed plagued by corruption. At the same time, private organizations are also highly vulnerable to corruption. This is especially true for private organizations whose ownership and control is separated or diluted. We also show how bribing firms exaggerate their cost claims to cover up bribery expenses in their official accounting books.

To provide a context for and enrich the quantitative analysis, we provide qualitative descriptions of the exact nature of the mechanisms and practices of corruption, which in our setting is an integral part of normal business processes. This information was gained via interviews with the CEO or other responsible parties within bribe-paying firms, and represents a somewhat more systematic description than is typically obtained in journalistic or other narratives.

Firms carefully track bribe payments for the same reasons that they track other business expenses. They represent a significant cost of doing business. Because they are typically paid in cash, without a receipt, they may represent a temptation target for employee theft. Tran (2010) shows that bribes are often paid in stages as contract conditions are fulfilled, requiring a firm to keep track of what has been paid, and what must be paid. Finally, because firms cannot deduct the cost of bribes from their official income statements, tracking the cost of corruption provides firms with guidance on how much to inflate other expenses, to avoid paying income taxes on the amount paid as bribes.

The data we present here come from ‘internal’ accounting books provided by firms. In addition to recording bribes, the internal books are used to reconcile actual revenue and expenses with the set of books that is shared with the tax inspector. These hand-collected data were provided to the authors on the condition that they not reveal any information that
could identify either the payer or the payee of extra-legal payments. This data collection represents what we hope will become a new approach to understanding the economics of corruption.

2. Public and private procurement: which one is more corrupt?
Procurement is an area known to be susceptible to corruption. Corruption in procurement is frequently discovered and surfaces on the news. A notable and recent case is that of Siemens, which admitted paying billions of dollars in bribery in many countries to obtain procurement contracts. Although much has been said about corruption in public procurement, we know little about its prevalence.

This section exploits the records of kickbacks paid by an industrial supplier, across 1,737 procurement contracts from January 2003 to July 2007. This supplier imports several types of industrial parts from Europe and sells them to firms in the northern region of an Asian country. It has been in this business for more than 10 years and is currently one of the leading national suppliers in this competitive market. There are 372 buyers with a range of ownership structures: the military, state-owned enterprises (SOEs), and private and foreign firms. Because the equipment is used across a wide variety of industries, it provides a good laboratory in which to compare the prevalence and level of corruption across different types of organization.

Process
The marketing and sales process of this supplier consists of five main steps: identifying potential clients; approaching them; negotiating for a contract; entering into a contract; and receiving payment and paying kickbacks. In the first step, to identify potential clients, the supplier looks for information in business directories, particularly in areas related to its products (heavy industries). It also has stalls at industrial exhibitions. The supplier tries to determine which firms are likely to buy its products.

In the second step, the supplier’s sales force approach potential clients. For a new client, this is a lengthy process. Initially the salespeople contact the potential client to request a meeting. If the client agrees to meet, the salespeople make a presentation about the products to the CEO or head engineer. After this meeting, the salespeople follow up with several phone calls and possibly further meetings. Many of these efforts do not succeed because these firms already buy from other suppliers. After several contacts, some firms may agree to consider an offer from the supplier.

It might take a few rounds of offers before the client agrees to enter the third step – negotiating a procurement contract. They negotiate the price, quality, and post-sales services, as well as a kickback if the client shows interest. The selling firm does not offer kickbacks on its own – rather,
clients request a kickback; this request typically includes an indication of the size of the kickback sought. The supplier gives its salespeople a minimum price list and allows them to pay kickbacks up to 5 percent of the value of the contract. For any price lower than the listed prices, or for a kickback greater than 5 percent of the contract’s value, the salespeople are required to ask the CEO of the supplier for authorization. Competition in the market makes the suppliers’ offers very similar in quality, price, and kickback levels.

If an agreement is reached, the parties typically enter into a contract through the following process. After signing the contract, the client makes a deposit of roughly 30 percent of the contract value, and the supplier orders the product from overseas (a deposit is usually necessary because these products are customized and would be difficult to sell to other clients). It takes about 1–2 weeks for the supplier to deliver the product, and the client usually pays the rest of the contract’s value at delivery. In some cases, the supplier allows the client to hold back roughly 20 percent of the contract value until one month after delivery, until the client is satisfied that the product meets the specified quality. The kickback is paid only after all contract payments have been made. This is quite different from the kickback-payment method used by other firms that deal with larger contract values (Tran, 2010). If contract values are large, selling firms usually pay kickbacks as a percentage of the actual payment; that is, they do not wait until all payments have been made. Even this supplier mentioned that in a few cases where contract values were high, it had to pay part of the kickback before all payments had been made.

The supplier allowed the use of this dataset, which includes detailed information about: contract values, costs and profits, dates of deposit, invoices, payments and kickbacks, and product name. It also includes client information: name, ownership, industry, address, tax code, size category, and position of contact person.

The 1,737 contracts yielded total sales revenue of US$3,648,000. Contract values were small: The median contract value was $351; the average contract value was $2,114. Kickbacks were demanded by a quarter (121 of 372) of client companies. The median kickback among contracts with corrupt clients was 7.0 percent. Almost all kickbacks are paid in cash. Even though these deals take place in an Asian country with a very strong tradition of exchanging gifts at important holidays (for example, on New Year’s Eve), this supplier has only a modest budget for gifts and fancy dinners. Rather, the supplier provides kickbacks following sales with cash stuffed in an envelope, with the amount clearly written on the outside of the envelope. Surprisingly, the supplier sometime wires the kickback money through the post office to recipients in remote areas.
Table 14.1 reports which buyers take kickbacks and how much. The first column shows the type of ownership. The second column shows the fraction of the contracts in which a kickback is demanded. The third column shows the kickback as a percentage of contract values, only for contracts with a kickback. The fourth column shows the kickback as a percentage of contract values for all contracts.

Forty-six percent of the contracts involve a kickback. Corruption is widespread among government and military contracts (72 and 70 percent, respectively). If the buying firm is jointly owned by the government and private investors, the percentage of contracts with a kickback falls to 56 percent. The least corruptible group is firms owned by a single private investor – only 24 percent of contracts with these firms involve a kickback. This percentage increases to 37 percent when firms are owned by multiple private owners. Multiple-investor ownership seems to provide the incentive for the management to be corrupt. The most surprising fact is that firms with foreign ownership are highly corrupt. 77 percent of contracts procured by foreign firms (based in the country) involve a kickback, and this increases to 90 percent when the foreign buying firms are jointly owned by domestic investors. This makes foreign-invested firms the most corruptible group. In terms of the level of kickback, the military buyers demand the highest bribes (27.2 percent of contract value). In this country, the police and civil inspectors are not allowed to investigate the military, thus giving the military great freedom to take bribes. Foreign-invested firms demand kickbacks more frequently but take lower kickbacks compared to SOEs (12.2 versus 14.8 percent). Firms owned by a single, private

Table 14.1 Procurement kickbacks taken by different buyers

<table>
<thead>
<tr>
<th>Ownership type</th>
<th>Kickback is demanded (%)</th>
<th>Kickback as % of contract value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contracts with kickback</td>
<td>All contracts</td>
</tr>
<tr>
<td>Government (SOEs)</td>
<td>72</td>
<td>14.8</td>
</tr>
<tr>
<td>Military</td>
<td>70</td>
<td>27.2</td>
</tr>
<tr>
<td>Government private joint</td>
<td>56</td>
<td>10.5</td>
</tr>
<tr>
<td>Single private owner</td>
<td>24</td>
<td>9.2</td>
</tr>
<tr>
<td>Multiple private owner</td>
<td>37</td>
<td>10.4</td>
</tr>
<tr>
<td>Foreign</td>
<td>77</td>
<td>12.2</td>
</tr>
<tr>
<td>Foreign domestic joint</td>
<td>90</td>
<td>8.5</td>
</tr>
<tr>
<td>Overall</td>
<td>46</td>
<td>11.8</td>
</tr>
</tbody>
</table>
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investor are least likely to take a kickback, and when they do, they take the lowest one (9.2 percent). When we put both corrupt and non-corrupt contracts together (column 4), the military is still the worst group, with the average kickback accounting for 19.0 percent of contract value. The foreign-invested firms do slightly better than SOEs (9.4 versus 10.6 percent). Firms with one private owner are the best group, with only 2.2 percent of contract value leaked due to corruption.

One interesting question is whether the amount paid as a kickback increases the price paid, or crowds out the selling firm’s profits. If the firm and the procuring officers are simply colluding to defraud the company, we might expect the price to increase dollar for dollar (or even more) as the bribe increases. In contrast, if the market is fairly ‘competitive,’ with the correct price approximately known, we might expect kickback payments to come from the firm’s profit. Unfortunately, we do not have a source of exogenous variation in the size of the bribe. We can, however, look at the simple correlation. Figure 14.1 plots the profit margin (as a percentage of the sales revenue) on the y-axis, and the size of the bribe (again measured as a percentage of the sales revenue) on the x-axis. We observe a clear and positive relationship between profit margin and kickback. The correlation coefficient is 0.29. If we regress profit margin on kickback

Figure 14.1 Profit margins and kickbacks
alone, the coefficient on kickbacks would be 0.979. That is, a 1 percent increase in kickback is associated on average with a 1 percent increase in profit margin. Because these two variables have the same denominator, this implies a dollar-for-two-dollar relationship between the bribe and the price paid. This provides evidence for the collusion hypothesis and against the competitive-market hypothesis mentioned above.

In sum, the analysis shows that kickbacks are widespread in this procurement market. Although government and military firms are significantly more corrupt, private firms are often corrupt too, especially those with multiple owners. Most intriguingly, privately owned foreign-invested firms are among the most corruptible.

3. Public and private healthcare: to whom do pharmaceuticals pay a higher kickback?

In this section, we discuss the private-versus-public question in the context of healthcare and investigate the susceptibility of pharmaceutical firms to bribery. Pharmaceutical manufacturers are known for persuading doctors to prescribe their drugs through different incentives, including research funding and conference sponsorship. In many developing countries, firms simply pay doctors (illegal) cash kickbacks, potentially leading both to increased public expenditure and to serious health problems for patients. In China, the problem was so serious that the chief of China’s Food and Drug Watchdog was executed for taking bribes from a pharmaceutical firm to approve an antibiotic that killed at least 10 people (Olesen, 2007). Corruption in healthcare and pharmaceuticals was perceived as such a problem that Transparency International devoted its 2006 Global Corruption Report to a discussion of the situation and solutions for it.

We shall present a brief analysis using internal data from a firm that imports drugs from the US and sells them in the developing country we study. This firm specializes in drugs that treat joint ailments. This work builds on a chapter from the previous volume of this series. Meagher (2006) presents an institutional analysis of the pharmaceutical market in Bulgaria and shows that this system encourages corruption. In particular, the chain of drug selection and gate keeping approvals provides a fertile ground for abuses. He takes a qualitative approach partly because ‘no statistically valid survey was feasible.’ (p.592). Cohen et al. (2007) develop a more general framework that helps to identify vulnerabilities in the pharmaceutical value chain. They also use qualitative stories of abuses and reforms in the Mekong region, India, Azerbaijan, Brazil, the Balkans, Uganda, and Costa Rica to highlight their framework. Our work complements this research with a quantitative analysis.
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Process

The firm sells both generic and branded drugs, which are distributed through hospitals. To do so, the firm needs to get through two main gatekeepers (or agents): the hospital and the doctor. Each of these two gatekeepers generally demands a bribe as a percentage of the drug sales. In addition, there are several other parties that also participate and take their shares in the sales of medicines.

- **The hospital (1st gatekeeper)** Each hospital maintains a list of allowable drugs. Pharmaceutical firms must apply for approval from the hospital’s Drug Department in order to include their drugs on the list. To obtain approval, pharmaceutical firms face a two-tiered tariff: a fixed initial bribe to be included in the list, and an ongoing fraction of sales revenue. Currently, the initial bribe is typically around US$100 and the sales-based bribe is 10 percent (this percentage is a general rule for many hospitals in the country.) The head of the Drug Department usually takes bribes directly. The only exception comes when he or she is still young and would like further promotion in the hospital hierarchy. In such cases, the head delegates staff to take bribes on his or her behalf.

- **The doctor (2nd gatekeeper)** In order to incentivize doctors to prescribe their drugs, pharmaceutical firms often kick back 25–35 percent of their revenue to doctors. When asked how the percentage kickback is determined, the firm owner said that she would pay up to the level that is profitable for her, which depends on the demand, supply, and competition. Doctor may earn up to US$10 thousand per month from pharmaceutical firms, which is about 30 times their official salary.

- **The department of examination or treatment** Each specialty department within a hospital may also maintain its own list of allowable drugs, which is approved by the department’s head. Pharmaceutical firms may have to pay a bribe of 5–10 percent of sales revenue to the head of the department in order to be on this list.

- **The drug store** When patients receive a prescription, they go to the hospital’s drug store to buy drugs. Pharmaceutical firms usually pay 10 percent of revenue as a commission to drug stores. Pharmaceutical firms pay the drug store $5–10 each month for recording the drug volume prescribed by each doctor. There are even reports of pharmaceutical firms refusing to pay kickbacks to doctors, and instead offering large kickbacks (25–35 percent) to hospital drug stores to lie to patients, telling them that a prescribed drug from a competitor is unavailable and switching the patient to the firm’s drug.
● **The sales force** Each pharmaceutical firm maintains a sales force to approach the gatekeepers, record the sales made through them and pay bribes. Salespeople visit the doctors frequently, and they may sit right outside doctors’ offices every day to encourage doctors to prescribe and to record the volume prescribed. The average commission of the sales force is around 10 percent of revenue.

The total bribes and commissions for the above groups amount to around 60 percent of the drug firm’s revenue. The remaining 40 percent includes the pharmaceutical firms’ imported cost and profit. Without corruption, the intermediary cost would probably be only around 10 percent (5 percent for drug stores and 5 percent for the sales force). Firms with patented drugs have negotiating power with doctors and face less competition. Therefore, they are not compelled and generally do not pay cash bribes to doctors or hospitals. They may pay in-kind incentives such as sponsoring conferences or overseas study trips for doctors. Also, they tend to be large multinationals, while firms selling generic drugs tend to be domestic.

**Analysis**
The pharmaceutical firm that provided us with the data is a small firm that imports medicines from the US and sells them though doctors in hospitals. Such drug-importing firms are growing rapidly in number and size in the country. We have access to this firm’s monthly sales to 10 hospitals for one drug from January 2008 to June 2010. The reason why the firm keeps monthly data is that it pays kickbacks to doctors and hospitals monthly. There are 300 transactions in the dataset.

Among the 10 hospitals, six are public, three are private, and one is a public–private partnership. In this country, although public hospitals and clinics have been dominating the market, private healthcare providers are also setting up in urban areas. Most of these private hospitals and clinics are owned and operated by doctors retired or moonlighting from public hospitals. Regardless of ownership, all hospitals and doctors take kickbacks from pharmaceutical sales. Somewhat surprisingly, private hospitals take higher kickbacks than public ones (11 versus 8 percent of sales revenue, on average).

However, doctors’ kickbacks show the opposite picture. On average, doctors from private hospitals take 24 percent of pharmaceutical sales as kickbacks. Doctors from public hospitals take on average 30 percent. It appears that private hospitals take higher kickbacks but let their doctors take lower ones, compared to public hospitals. Note that the retail price of this drug is the same, whether it is sold through private or public
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That suggests that the corruption of hospitals and doctors is more in the nature of a substitute than a complement. Regarding doctors’ income, by selling this drug alone, each doctor receives on average US$3,036 in kickbacks per year, which is higher than their formal salary in the public hospitals. The total kickback income for each doctor should be many times higher since they prescribe dozens of other drugs for their patients.

This dataset is distinguished by the fact that it allows us to observe a repeated relationship between bribe payer and bribe takers. The other two datasets record one-shot or short-term relationships. In repeated games, monopolistic bribe-taking gatekeepers tend to have more negotiation power and might be able to extract higher kickbacks than in one-shot games. Indeed, the relative level of kickbacks in this doctor–pharmaceutical relationship is much higher than in procurement or construction relationships. Of course, this difference may be due to a range of other factors as well.

One pattern that appears consistently in the history of kickback payments in long-term relationships is that the kickback amount is fixed as a percentage of sales. During the course of 30 months, among 10 hospitals, only one demanded an increase in kickbacks from 5 to 10 percent of sales; this was due to a personnel change. The percentage of kickbacks to all 10 doctors remained constant throughout this period.

Table 14.2 shows kickbacks to hospitals and doctors regressed on hospital ownership and various control variables. All regressions include year-fixed effects, and standard errors are clustered at the doctor-year level. Models (1) and (2) show that kickbacks to public hospitals are lower than kickbacks to private ones by 4.25 percentage points. Drug stores take less than hospitals by around 2.7 percentage points, probably because they have less control over patients’ prescriptions. The volume of sales has no effect on the percentage of kickback taken by hospitals.

Model (3) shows that kickbacks to doctors in public hospitals are higher than kickbacks to doctors in private hospitals by 7.03 percentage points. Doctors who have higher monthly sale volumes seem to take lower kickbacks – this is different from the pattern observed in the procurement data above. Older doctors seem to take significantly higher kickbacks. Interestingly, consistent with what we heard from interviews, male doctors receive on average kickbacks that are 2.3 percentage points smaller than those for female doctors. However, we note that all drug sales representatives are women – this effect could be driven, for example, by a reluctance of individuals to negotiate with members of the opposite sex, and does not necessarily suggest that women are more corrupt than men. As we have seen, public hospitals take lower kickbacks for themselves, but their
doctors take higher kickbacks, compared to private hospitals. Adding the kickbacks paid to both hospitals and doctors together, model (4) shows that the total kickback for public hospitals is 3.66 percent higher than for private ones.

Although we know that public organizations are susceptible to corruption, the analysis in this section shows that private healthcare providers can be highly corrupt too. Most interestingly, private hospitals demand higher kickbacks and let their doctors take lower ones, compared to public hospitals. Note an important difference between public and private hospitals: kickbacks to private hospitals go to their owners while kickbacks to public hospitals go to their managers. Putting the kickbacks to hospitals and doctors together, the pharmaceutical firm has to pay significantly more to sell through public hospitals than through private ones. However, it is important to note that both groups are highly corrupt and their kickback roughly doubles the retail price of the drug.

Table 14.2 Kickbacks to hospitals and doctors (as ratio of sales)

<table>
<thead>
<tr>
<th></th>
<th>Kickback to hospital</th>
<th>Kickback to doctor</th>
<th>Kickback to doctor and hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Public hospital</td>
<td>−0.0425*** (0.0123)</td>
<td>−0.0425*** (0.0123)</td>
<td>0.0703*** (0.0121)</td>
</tr>
<tr>
<td>Drug store</td>
<td>−0.0250** (0.0107)</td>
<td>−0.0273** (0.0109)</td>
<td>−0.0461*** (0.0150)</td>
</tr>
<tr>
<td>Log monthly sales</td>
<td>−0.000296 (0.000341)</td>
<td>−0.000806** (0.000294)</td>
<td>−0.000976** (0.000425)</td>
</tr>
<tr>
<td>Male doctors</td>
<td>−0.0232** (0.00859)</td>
<td>0.00607 (0.0107)</td>
<td></td>
</tr>
<tr>
<td>Doctor age</td>
<td>0.00114 (0.00118)</td>
<td>0.000215* (0.000118)</td>
<td>0.00202*** (0.000689)</td>
</tr>
<tr>
<td>Year</td>
<td>0.000114 (0.00570)</td>
<td>0.000882 (0.00578)</td>
<td>−0.000696 (0.00432)</td>
</tr>
<tr>
<td>Constant</td>
<td>−2.160 (11.46)</td>
<td>−1.644 (11.62)</td>
<td>1.560 (8.690)</td>
</tr>
<tr>
<td>Observations</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.304</td>
<td>0.310</td>
<td>0.789</td>
</tr>
<tr>
<td>Average kickback</td>
<td>0.09</td>
<td>0.09</td>
<td>0.28</td>
</tr>
</tbody>
</table>

Note: Robust standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1.
4. Construction: how are kickbacks covered up?

Bribing entities, regardless of their ownership, must manipulate their financial records to hide bribe expenditures. This section documents corruption in a construction company and shows how the company covers up misdeeds. Construction is an important industry globally, typically comprising between 5 and 7 percent of GDP (Kenny, 2007). Construction is also commonly described as one of the industries most vulnerable to corruption. Rose-Ackerman (1997) describes a number of cases of high corruption in this area in Pakistan, Thailand, and Brazil. In China, about one-fourth of all prosecutions for corruption involve construction. Nor is corruption in construction limited to developing countries. Surveys show that people working in construction in the UK believe that corruption is a serious problem in this sector (CIOB, 2006). Recently, Halliburton agreed to pay $559 million to the US to settle charges that it bribed Nigerian officials in a construction project (Gold, 2009).

Why is construction so prone to corruption? Transparency International (2006) points out several reasons. First, construction projects are typically very expensive and quite complicated, making it relatively easy to inflate claims to allow for payment of bribes. Construction designs often vary, making it difficult to compare and benchmark costs. Second, a significant fraction of construction projects are paid for from public funds: therefore, with dispersed residual claimants, incentives to monitor may be weaker. Third, construction projects require a range of permits, allowing officials at various levels to exact bribes. Finally, a large portion of the project output is concealed, making it difficult to verify the quantity and quality of construction input.

We interviewed a former accountant of a medium-sized construction firm. This accountant described the construction process and how corruption affects it, based on his experience with hundreds of construction projects. He also provided two datasets. The first covers the revenue and kickbacks in 83 construction projects that the company implemented in the northern part of the country. The second dataset details how the firm inflates input claims to cover up kickbacks and evade tax in 13 projects.

Process

Each construction project comprises six main stages, each involving a number of organizations and people. In the country we study, construction firms may pay kickbacks and ‘grease money’ to nearly everyone involved in this process. Although many of these informal payments are small, together they represent a significant fraction of the cost of the project.
Stage 1: Project formulation  In this stage, the investing organization prepares a project proposal (including budget) and seeks approval from the supervisory administrative agency. Construction firms must start lobbying for business at this stage, as many organizations select the contracting firm internally well before the formal request for proposals is announced. Construction firms often identify opportunities through relationships with members of the investing organization, or through a consulting firm. Selection is usually based on relationships or introduction (by supervisory agencies). Interestingly, at this stage potential suppliers do not compete on the level of kickback. Kickback sizes are determined by the project size and range from 5–10 percent, depending on the project’s value. In some cases, if the investing organization does not have funding for a particular project, construction firms may help to secure funding from the government. In such cases, they may divide the standard kickback between the investing organization and politicians and government employees who are responsible for making the project happen. The selected construction firm usually specifies the kickback amount in advance but typically does not start paying until the first deposit is made.

Stage 2: Selection of a consulting firm  The investing organization selects a consulting firm to help it design a master plan and estimate the cost. The selection of the consulting firm for large projects is usually made through auctions, which are usually rigged. Consulting firms pay quite high levels of kickbacks (25–35 percent of consulting fees); this is because the quality and expenses are difficult to judge, leaving substantial scope for overcharging. The materials and unit costs prepared by the consulting firm are based on government construction and cost guidance, which greatly exceed actual construction costs, creating room for theft and corruption. This detailed cost estimate is again approved by the supervisory administrative agency.

Stage 3: Auctions  The investing organization puts together an auction team, which includes its staff and experts from the consulting firm. The auction team prepares the bidding documents, which specify technical requirements and budget limit. This is typically an open auction, which in theory allows any eligible construction firms to submit a bid. However, in practice the winning firm has typically been informally selected at the previous stage. The auction evaluation committee is led by the head of the investing organization and consists of representatives from departments of planning, finance, technical and project management. The informal pre-selection notwithstanding, the firm that was informally pre-selected typically pays a speed
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money’ to members of the auction evaluation committee to speed up the process. The investing organization makes a final decision, following the recommendation of the auction evaluation committee.

- **Stage 4: Construction** The construction firm usually receives a deposit of 30 percent of the budget before it starts building. It will give the investing organization the kickback equal to the promised percentage times the advanced money. The construction is monitored by the investing organization and the supervising firm hired by the investing organization. ‘Grease money’ to monitoring parties during the construction may account for up to 1 percent of the project’s total budget.

- **Stage 5: Evaluation and reimbursement** After the construction project is complete, the monitoring parties evaluate whether construction has met the specified technical requirements. The investing organization then reviews and approves the actual reimbursement request. This request is passed to the financial department of the supervisory administrative agency for review. Once the request has passed this series of approvals, it is passed to the treasury of the supervisory administrative agency for payment. Government funding usually arrives during the second half of the fiscal year. Construction firms thus engage in competition to get paid as quickly as possible. To speed settlement of bills, they pay speed money.

- **Stage 6: Audit and inspection** Large projects are usually audited. If there are ‘signs’ of misconduct, projects will be inspected by sectoral inspectors, state inspectors or citizen inspectors. Subprojects within a large project are more likely to be audited and inspected than small projects. If an auditor or inspector discovers a ‘fault’ in the project (such as a quantity or quality lower than specified, or fake claims), the construction firm is typically obliged to pay a bribe equal to one-third of the misused amount, which roughly equals the income tax they have evaded.\(^{10}\)

Because this contracting and auditing process is complicated, costly and uncertain, construction firms usually maintain a specialized unit with the needed expertise (the planning and business department). Construction firms cover up bribes by inflating input prices and volumes in the design stage and reducing the actual material inputs, particularly for underground sections of the project, which are more difficult to inspect.

**Analysis**

This firm specializes in constructing a few specific components of larger construction projects. Our dataset includes 86 projects conducted by this
firms during two years in the early 2000s. About half of the projects are related to road construction; the rest are related to other types of construction. The investing organizations are either the government (central or local) or SOEs. Twenty-nine percent of the projects were constructed in the capital city; most of the rest are in northern provinces of the country. The average value of the projects is $101,683. The average kickback is 7.7 percent of the projects’ value.

Figure 14.2 plots the relationship between project value and kickback amount (as measured by percentage of the contract value). All 86 projects involve some kickbacks. Although many people believe that the percentage kicked back decreases as the project’s value increases, such a relationship is not evidenced in this sample. Kickbacks vary between 2 and 12 percent of the project’s value, with the greatest density in the 7-8 percent band.

It is commonly believed that many firms inflate their input costs in order to cover up kickbacks, which cannot be reported on official books or deducted for corporate income tax purposes. These firms often maintain two sets of accounting books: the official book is to report to the tax authority, and the internal book is to keep track of their real transaction and performance. However, to date we are aware of no evidence on how firms do this.

Table 14.3 reports the official and the internal books of 13 construction
Evidence from the firm

Projects conducted by this firm in the early 2000s. The total pre-income-tax value of these projects is $US 1,476,888. According to the official book, construction materials are the largest cost item, comprising 74.8 percent of the total revenue. Labor and machinery expenses account for a further 8.3 and 2.9 percent, respectively, while average overheads and profits are 5.3 and 5.0 percent.

The internal book reveals that 7.4 percent of the projects’ revenue has been paid as kickbacks; moreover, the real profit is approximately 9.7 percent, rather than the reported 5.0 percent. To cover up these items, the firm inflated materials claims by 15.7 percent, and machinery cost by 10.0 percent. It is interesting to note that the labor, transport, and overhead claims were virtually unchanged. This suggests that cost claims vary in their scope for manipulation: for example, it might be difficult or risky to ask many employees to receive an amount lower than their contractual salary. This result has some implications for anti-corruption policy: auditors would be best served by focusing on categories that can be easily manipulated.

The fact that profits are much higher in the internal books means that the firms are engaged in systematic tax evasion, above and beyond their efforts to hide the cost of the kickbacks. The marginal tax rate for firms in this industry is approximately 35 percent. Of course, this begs the question of why the firms show any profit at all – while we do not have hard data to answer this question, our understanding based on conversations with other firms is that, at the end of the tax year, the firm’s management meets

Table 14.3 Double-book accounting for corrupt activities

<table>
<thead>
<tr>
<th>Cost item</th>
<th>Official book</th>
<th>Internal book</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amount ($)</td>
<td>% of Total</td>
<td>Amount ($)</td>
</tr>
<tr>
<td>Materials</td>
<td>1,104,288</td>
<td>74.8</td>
<td>931,050</td>
</tr>
<tr>
<td>Transport</td>
<td>508</td>
<td>0.0</td>
<td>508</td>
</tr>
<tr>
<td>Labor</td>
<td>122,238</td>
<td>8.3</td>
<td>121,737</td>
</tr>
<tr>
<td>Machinery</td>
<td>42,906</td>
<td>2.9</td>
<td>38,595</td>
</tr>
<tr>
<td>Overhead</td>
<td>78,881</td>
<td>5.3</td>
<td>78,357</td>
</tr>
<tr>
<td>Profit</td>
<td>74,312</td>
<td>5.0</td>
<td>143,431</td>
</tr>
<tr>
<td>VAT</td>
<td>53,754</td>
<td>3.6</td>
<td>53,754</td>
</tr>
<tr>
<td>Kickback</td>
<td>–</td>
<td>0.0</td>
<td>109,457</td>
</tr>
<tr>
<td>Total*</td>
<td>1,476,887</td>
<td>100</td>
<td>1,476,889</td>
</tr>
</tbody>
</table>

Note: * Percentages rounded up.
with the tax collector to negotiate over the amount of income tax to pay, and the amount of bribe to be paid to the tax collector.

5. Conclusion and discussion
We have presented a new way to study a problem that has been challenging empiricists since the early studies of corruption (for example, Rose-Ackerman, 1975). In their recent research on corruption, Banerjee et al. (2010) identify several important challenges to obtaining good measurements of corruption: individuals are reluctant to report truthfully for shame (or fear of legal action); it is particularly difficult, even with thoroughly cooperative survey respondents, to quantify who bribed who; and even methods such as direct audits or government wiretaps or sting operations are subject to a ‘Heisenburg indeterminacy’ critique: a well-run audit program may change bureaucrats’ behavior, precluding the measurement of ‘normal’ levels of corruption.

The approach we use has several advantages. The setting is important, as many firms report paying bribes: 81 percent of Ugandan firms in Svensson (2003); in Søreide (2006) two-thirds of Norwegian firms report that they have lost a contract because of corruption. The data quality is likely very good (the firms we study have strong incentives to track these cash outlays), and it is possible to identify to whom, what, where, and when bribe payments were made, for hundreds of transactions. The firms we study interact with a broad range of buyers and sellers – although we cannot claim that our data are statistically representative, we do know that the firms providing data are not atypical, and that they interact with a very broad range of customers and government employees. The setting – commercial transactions – is one that facilitates the comparison between different organizational forms.

Our chapter uses actual records of bribes paid by firms to show several patterns of corruption. One of the most surprising results is that corruption is not only pervasive among public organizations but is also widespread among private entities. We do not see a bright line between standard principal–agent problems and ‘corruption.’ Banerjee et al. (2010) identify corruption as distinct from standard principal–agent problems found in a firm by arguing that, in the latter, all agents would want to maximize the firm’s income, and inefficiencies occur because the principal and agent disagree over how that surplus should be split. Giving the agent sufficient residual cash-flow rights, they argue, would alleviate the problem of corruption. However, we note that the problem of extra-legal payments to private doctors working in private clinics, to persuade them to prescribe the wrong pharmaceuticals to private patients who pay from their own pockets, would not be solved even by
Evidence from the firm

giving entire ownership of the firm to the doctors. Patients would still be harmed.

We do confirm that, in terms of magnitude, public organizations tend to be more corrupt than private ones. At times this does not come as a surprise – our approach is a uniquely apples-to-apples comparison. For example, we consider public and private entities interacting with exactly the same firm and purchasing exactly the same type of equipment, and we observe large differences in kickbacks paid. Third, a challenge for bribing firms is to explain this illegal expense in their accounting system. We document how government contracts are inflated both to hide bribes and to evade corporate income tax. These results may be of separate interest for the literature on tax evasion.

Of course, our approach has several important limitations, which we acknowledge. First, the data may be difficult to obtain in other contexts, requiring trust between the firm and the researchers. The data in this chapter were obtained after one of the authors had spent considerable time interacting with each of the firms and establishing a relationship – though we note that because nearly every firm in these industries pays bribes, the perception of risk from the data-providing firms may in fact have been quite low. In fact, the typical ‘punishment’ for being caught paying a bribe is to pay an even larger bribe to the bureaucrat who caught you.

A second potential limitation is that firms that are willing to provide data may not be representative. However, this limitation is somewhat mitigated by the fact that we observe hundreds of market transactions, in which the data-providing firms compete with the rest of the market. Finally, as in any observational study, the ability to infer causal relationships is severely limited, as it is difficult to rule out the possibility that omitted variables may be driving observed correlations.

We end with suggestions for further applications of this approach. First, research on corruption can benefit from exploiting business sources for actual bribe data, including better-designed surveys and interviews with firms; tax records of OECD countries before the enforcement of the Anti-Bribery Convention; and data from amnesty programs. Second, on the organizational economics side, obtaining data about how bribes are distributed within an organization could shed light on the degree to which relational contracts exacerbate or ameliorate private and public incentive problems. Third, a more detailed analysis of how delegation, ownership, and information asymmetries affect the size of kickbacks demanded in the procurement process may improve our understanding of the degree to which the public nature of employees’ work is to blame for apparently corrupt behavior, as against standard incentive problems. Fourth, and most promisingly, micro-level variation in agents and institutions may
help identify a range of causal relationships that have heretofore eluded us. For example, in the healthcare sectors, the ability to determine which drugs a hospital will use is periodically rotated among bureaucrats of equal seniority. Such exogenous variation, combined with accurate informal payment information, may help clarify the quantitative importance of variations in (dis)taste for corruption on observed levels of corruption and on allocative efficiency.

Notes
1. Two well-known corruption measures based on surveys are Transparency International’s Corruption Perception Index (Lambsdorff, 2006) and the World Bank’s Governance Indicators (Kaufmann et al., 2006).
2. Questionnaires of corruption surveys typically include questions such as ‘How frequently do you think corruption is part of the business culture in your country of operation?’ (Søreide, 2006: 389).
3. Vagliasindi (Chapter 6 in this volume provides a comparison between private and public firms in infrastructure service provision, and identifies important corporate governance tools.
4. Doctors who take bribes in private hospitals are not the ones who own these hospitals in this sample.
5. The investing organization is the firm or public entity that commissions the project. For example, a school would be the investing organization if it plans to have a new building.
6. The supervisory administrative agency is usually the local government which supervises the investing organization. Depending on the size of the project, this could be the commune, district, or provincial or national governments.
7. Tran (2010) shows that some corrupt officials avoid looking for firms willing to pay higher kickbacks because it increases competition and reduces the room for corruption.
8. Note that the percentage of kickbacks in construction and industry is much lower than in pharmaceutical markets. Construction and industrial products studied in this chapter are much more homogeneous than drugs. Consumers in the construction and industrial supplies markets know much more about the quality and price of the products than patients know about the effectiveness and price of drugs. This explains, at least partly, the percentage of kickback difference across markets.
9. Some particularly impatient organizations do require payment of kickbacks in advance.
10. See Kenny and Musatova (Chapter 18 in this volume) for the ineffectiveness of the ‘red flag’ audit method applied to a sample of World Bank projects.
11. Svensson (2003), intended to be a representative survey, was able to collect corruption data from 176 of 243 surveyed corruption firms.

References


Tran, Anh (2010), ‘Which regulations reduce corruption? Evidence from the internal records of a bribe-paying firm’, mimeo, Indiana University, Bloomington, IN.