

WHO BRIBES?

Evidence from the United Nations' Oil-for-Food Program

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Abstract

How do managers react in an environment where bribery is likely to bring high rewards, but also presents high risks? Most corruption research examines the demand side (officials' requests for bribes) in a domestic setting. In contrast, we examine the supply side (firms' illicit payments), asking who bribes and who does not, in a global setting – the United Nations' (UN) Oil-for-Food Program, part of UN sanctions on Iraq. Some companies helped Iraq circumvent UN sanctions through bribe payments in the form of illicit surcharges. Using unique transaction-level data uncovered and published through an independent investigation, we examine factors affecting managerial decisions on bribe payments in order to understand why some firms pay bribes, while others do not. Our analysis draws on the economic theory of crime, agency theory, and influences of home-country institutions. Results suggest that firms pay larger bribes when there are stronger financial and managerial incentives. Implementation of the OECD Anti-Bribery Convention at home negatively affects firms' illicit behavior abroad, decreasing the likelihood of firms' engaging in foreign bribery. Moreover, we find little relationship between a widely-used country-level corruption perception index and actual bribery by firms.

INTRODUCTION

Globalization and the rise of international trade and investment have been associated with a “corruption eruption,” as firms encounter widespread bribery in many countries (Beets, 2005). A combination of growing policy concern, increased availability of data at the country level, and broader interest in ethical dimensions of management has generated a substantial scholarly literature on corruption in recent years.

Little is known, however, about managerial behavior in the face of requests for bribes in international business. In some countries, declining such requests can lead to loss of current and future business (Spencer and Gomez, forthcoming), especially as international commerce often entails competition with foreign firms, and many home countries do not outlaw bribery abroad. How do firms react in an environment of ‘pay to play,’ where bribery is likely to bring high rewards, but also presents high risks?

The central contribution of this paper is examination of the supply-side of corruption (i.e., firms as bribe-payers) in a global setting, where companies from many home countries are confronted with bribe requests from a host government. Why do some firms engage in cross-border bribery, while others do not? We construct a framework for examining the supply side of corruption, focusing on explaining variability in managerial behavior. Our framework is based on the economic theory of crime (Becker, 1968), agency theory (Jensen and Meckling, 1976), and influences of home-country institutions.

Examination of firms’ strategic response to bribe requests requires data that go beyond widely-used country-level corruption indices. Secrecy and ethical considerations make such data largely unavailable, however, hindering empirical research. We use the United Nations (UN)’

Oil-for-Food Program (OFFP) as a natural laboratory providing an unusual opportunity to lift the veil of secrecy regarding managerial corrupt behavior.

Under the OFFP, the UN imposed sanctions on Iraq, in part in order to deprive the Iraqi government of funds. Iraqi officials evaded UN sanctions by requesting ‘illegal’ surcharges¹ from companies seeking oil-export contracts (Independent Inquiry Committee into the UN OFFP, hereafter IIC, 2005a, 2005b; U.S. Senate, 2005). Circumvention of UN sanctions through the “Saddam Bribery System” of oil allocations (U.S. Senate, 2005: 2, 32) was widespread, and later became the subject of official inquests, which produced detailed investigative reports (IIC 2005a, 2005b; U.S. Senate, 2005). These reports provide specific and comprehensive information on bribe requests and payments unlike any in the literature.

Our approach to understanding why firms pay bribes contributes to corruption research in several ways. First, as noted above, we shed light on the supply side of corruption (bribe payers) in a global setting, where companies from many home countries competed for export contracts in one host country, Iraq. Research on corruption is primarily domestic, based on perceptions, not actions, and focuses on the demand side (bribe takers), resulting in limited treatment of the suppliers’ perspective (Martin et al., 2007). Literature on cross-border corruption is also sparse and focuses on effects of public-sector corruption on foreign direct investment (FDI).²

¹ For illegality of surcharges, see Appendix and U.S. Senate (2005: 33) which documents that “these under-the-table surcharge payments were in direct violation of U.N. sanctions and the Oil for Food Program because they were not deposited into the U.N.-controlled escrow account...”

² Aidt (2003), Svensson (2005), Lambsdorff (2006), Seldadyo and de Haan (2006), and Triesman (2007) and provide surveys of the corruption literature. Studies of corruption’s effects on FDI include Rodriguez et al. (2005), Uhlenbruck et al. (2006), and Weitzel and Berns (2006). Robertson and Watson (2004) and Kwok and Tadesse (2006) examine reverse causality, looking at the effect of inward FDI on host-country corruption.

Second, the surcharge payment data published as part of a \$35 million official probe of the OFFP (Associated Press, 2005) enable us to present “objective and quantitative measures of actual corruption” (Tanzi, 1998), in contrast to widely-used survey-based measures of corruption. Using this data, we provide evidence on the relationship between perceived corruption and firms’ corrupt behavior in practice. Studies of the influence on perceived corruption of cultural and institutional factors are numerous (see Footnote 2), but few provide empirical evidence on the relationship of perceived and actual corruption.

Lastly, recent years have witnessed increased interest in anti-corruption policies in the international community. A major question of policy concern is the effectiveness of anti-corruption laws. Do such laws make a difference in practice, or can managers easily circumvent them? Evidence on this is scarce, not only because data on corrupt behavior are missing, but also because cross-country comparisons require controlling for factors that are difficult to measure, such as the extent and quality of legal enforcement. Our study of the underlying causes of supply-side corruption seeks to provide insight into the effectiveness of the global community’s effort to reduce corruption.

Cross-country studies of the causes of corruption face several challenges. Survey data may reflect varying definitions of corruption across countries. Use of OFFP data helps avoid biases stemming from definitions of corruption that might vary by survey respondents’ home countries, as well as bias stemming from beneficiaries of corruption being less likely to report than victims.

Statistical analysis can conflate supply- and demand-side factors (Baugn et al., 2010; Sung, 2005); empirical results may thus reflect a mixture of factors that affect both public officials’ decisions to seek bribes, and managers’ decisions in paying them, making identification of underlying influences challenging. Moreover, survey data based on perceptions or experience

may contain systematic biases related to a country's ability to address corruption. For example, countries may be perceived as cleaner due to lack of detection or reporting of corruption, rather than lack of corruption itself.

We are able to address these challenges here because the demand side (the Iraqi government) was the same across contracts. Requests for bribes were standardized across exporting firms, and centralized at the highest levels of government (IIC, 2005b). Such 'grand corruption' (Rose-Ackerman, 1999; Jain, 2001) involving a corrupt principal avoids agency problems on the demand side. In contrast to 'petty corruption' (which involves extortion by a corrupt agent, so that bribe size depends on the soliciting bureaucrat and the paying firm; Svensson, 2003), bribery decisions under OFFP did not depend on the specific collecting agent.³ The OFFP thus provides a clean natural experiment, allowing us to attribute variation in illicit behavior to the supply side – firms that exported oil from Iraq.

The remainder of the paper is organized as follows. The next section briefly describes the UN OFFP. This is followed by our theory development and hypotheses. Empirical analysis is outlined next. Results and findings are discussed in the following sections. The last section concludes.

THE UNITED NATIONS OIL-FOR-FOOD PROGRAM⁴

The OFFP was the largest humanitarian relief program in UN history (IIC 2005a: Vol I, 1). The United Nations Security Council (UNSC) imposed trade and financial sanctions on Iraq in

³ Corruption under OFFP is also 'grand' measured by average bribe size – over \$700,000. Compare average bribes of roughly \$8,300 in Svensson (2003) and \$2,100 in Olken (2007), all figures per transaction.

⁴ See Appendix for additional details. For further information, see IIC (2005a, 2005b) and the official UN Program website (www.un.org/Depts/oip/index.html).

Resolution 661, four days after its invasion of Kuwait in 1990. A central aspect of UN sanctions was an embargo on the export of oil, the basis of the Iraqi economy. In response to ensuing hardship in Iraq, the UNSC authorized the OFFP in 1995 (Resolution 986; IIC 2005a: Vol I, 14), which was implemented in 13 six-month phases during 1996-2003 (IIC, 2005a). Imports of humanitarian goods (primarily food and medicine) were financed by exports of Iraqi oil, with all payment going through the UN, in order both to help the Iraqi people and deprive the Iraqi regime of funds.

Under the OFFP, “Iraq was free to sell its oil so long as it was sold at what the UN decided was a fair market price and the proceeds of each sale were deposited to a UN-controlled escrow account to be used only for humanitarian and other purposes allowed by the UNSC” (IIC, 2005b: 2). In the first years of the program (which started in 1996), the Iraqi government priced its oil-export contracts below market levels, and allocated oil to various groups, individuals, and governments around the world sympathetic to its political positions, as well as to countries holding seats on the UNSC (Heaton 2005; Hsieh and Moretti, 2006).

Starting in the second half of 2000, the Iraqi government exploited the OFFP to generate income outside UN oversight through illicit surcharges on oil exports. In Fall 2000, Iraq requested that the UN allow it to impose surcharges on oil exports. According to IIC (2005a: Vol II, 135), “Faced with [UN] rejection for payment of a surcharge from the program, Iraq resorted to a covert surcharge policy.” When the trade press reported Iraq’s imposition of surcharges in contravention of UN sanctions, the UN sent a formal notice to buyers of Iraqi oil, informing them that surcharges violated UN sanctions and “buyers of Iraqi oil shall not pay any kind of surcharge to Iraq” (IIC 2005a: Vol II, 137; See Appendix). The official investigation into OFFP

terms Iraqi income through surcharge payments ‘illicit’ throughout its reports (IIC 2005a, 2005b).

During Fall 2000 - Fall 2002 (OFFP phases 8-12), Iraq collected a total of \$229 million in illicit surcharges from its oil buyers (IIC 2005a: Vol I, 85). Requests for surcharge payments were fixed per barrel exported, and due 30 days after loading oil for export. Failure to pay resulted in exclusion from further oil-export contracts with the Iraqi government, which kept meticulous track of how much each company owed, and how much had been paid (IIC 2005b: 11-12, US Senate 2005: 9-10).⁵ The illicit surcharge was collected from 138 of the 169 companies on which it was levied. In addition to the 31 companies that did not pay surcharges, 90 companies paid less than the surcharge requested (IIC 2005a: Vol I, 87).⁶

An examination of the micro-data on a contract-by-contract basis reveals that 104 companies did not pay surcharges on at least one contract during the bribe phase of the OFFP. The consequences of not paying are not entirely clear in the data, in part due to the fact that the bribe period started in the middle of phase 8 of the OFFP, and ended in the middle of phase 12, in combination with the fact that contracts cannot be pinned down more precisely than their phase. Of the 104 companies, 19 received contracts in a later phase of the bribe period, despite the fact that they did not pay a bribe, 44 did not receive additional contracts during the bribe period, and 41 could not be determined. For example, a company that did not pay in phase 10, but received a contract in phase 12 could have received the contract during the bribe period (first

⁵ “Unless a higher official had given a company dispensation, SOMO (the State Oil Ministry Organization) prohibited a company from loading additional oil when surcharges were overdue” (IIC 2005b:11).

⁶The consequences of partial payment were unclear. Some companies continued to obtain contracts despite their balance due, through a variety of promises, excuses, bad checks, etc., but others did not. The various investigative reports in IIC (2005b) and US Senate (2005) provide anecdotes.

part of phase 12), or afterward (last part of phase 12); we cannot tell which. The most that can be said is that not paying a bribe made receipt of further contracts much less likely.

Official reports on the OFFP (IIC 2005a, 2005b; US Senate, 2005) provide facts in voluminous detail, but scholarly research is limited. Two studies are relevant to our study (Heaton, 2005; Hsieh and Moretti, 2006); neither, however, utilizes information on firm bribery.

THEORY DEVELOPMENT AND HYPOTHESES

“The underlying causes of corruption remain poorly understood and widely debated. Yet the study of corruption beyond the realm of opinion surveys is still in its infancy, and there is little firm evidence relating corruption to real-world causal factors.” (Fisman and Miguel, 2007: 1021)

Corruption is widely defined as the misuse of public authority for private gain. Theories of corruption focus primarily on understanding the demand side – what factors are likely to raise or lower public officials’ likelihood of corrupt behavior (Shleifer and Vishny, 1993; Rose-Ackerman, 1999; Lambsdorff, 2006)? In contrast, understanding of the supply side of bribery is practically absent (Martin et al., 2007). We fill the gap by focusing on firms’ responses to requests for bribes and explaining why some engage in foreign bribery. Our discussion is built upon the economic theory of crime (Becker, 1968), where criminal activity (bribery decisions here) is analyzed as a function of expected returns. We advance the theory by introducing agency and institutional considerations. Below, we discuss rent as the key motivator for firms’ illicit behavior, and ownership structure and home-country institutional environment as factors that may mitigate or exacerbate managerial incentives to pay bribes.

Financial incentives: rent

The economic theory of crime (Becker 1968, Ehrlich 1996) assumes that decisions regarding illegal activity are based on self-interest, driven by incentives facing decision-makers. The theory predicts that managers maximize firms' profits, net of bribes, and decide whether to bribe based on analysis of expected returns including the likelihood of detection and severity of punishment (Rose-Ackerman, 1978; Ades and Di Tella, 1997).

A central component of the economics approach to bribery is short-term financial incentive, referred to as 'rent' in the corruption literature. The source of rent under OFFP is below-market transactions through managers' access to corrupt officials (managers' meetings with Iraqi officials are recounted in IIC, 2005b). Will firms pay bribes if enough rent is on the table, notwithstanding the risk of detection and punishment? The incentive theory predicts that the greater the rent, the greater the incentive for corruption, and hence the more will managers be prone to corrupt behavior (Ades and Di Tella, 1999; Jain, 2001). This leads us to hypothesize that bribe payments by managers will be positively related to economic rents at the contract level. Thus,

Hypothesis 1: The higher the contract rent, the greater the bribe payment.

Despite its significance in the theory of economic incentives, the rent hypothesis suffers from a conceptual shortcoming due to its focus on short-term financial incentives. The economic theory of crime does not allow for choices between honest and corrupt behavior; it predicts that all firms will offer bribes unless their costs are elevated through deterrence policies aimed at increasing the likelihood of detection or penalties for illicit behavior. If rent is high enough, all will bribe; if it is low enough, none will.

We extend the theory by considering factors that may result in variation in incentives facing managers for illicit behavior. Our objective is to relax the theory's unrealistic prediction that firms facing requests for bribes act identically. We focus on three dimensions of firm heterogeneity that the literature suggests may affect strategy – (1) ownership structure (Jensen and Meckling, 1976), (2) legal consequences (Rose-Ackerman, 1999), and (3) home-country institutional environment (Kogut 1991, Murtha and Lenway 1994)

Firm ownership: agency considerations

The corporate governance literature suggests that managerial behavior is related to firm ownership (Jensen and Meckling, 1976). Managers bear the risk and consequences of detection and punishment, yet may not benefit from the outcome of bribery decisions, depending on their ownership in the firm. In the corruption literature, agency problems are discussed primarily on the demand side of bribery (e.g., agents hired by governments to collect taxes instead collect bribes; Rose-Ackerman, 1978; Aidt, 2003). A few studies discuss relationships between firm ownership and corrupt behavior, but do not examine how managerial incentives under different ownership structures affect bribery decisions (Clarke and Xu, 2004; Wu, 2005a, 2009; Martin et al., 2007).

Here, the rent the firm obtains on each contract benefits shareholders. It is managers who make bribery decisions, however, and bear the consequences of bribery if caught (since shareholders are not accountable for managers' unlawful behavior). Managers will thus have greater incentive to bribe when they have more ownership stakes in the firm. In explaining variability associated with managerial incentives to bribe, we focus on types of ownership

structures where managers have differing equity stakes: state-owned enterprises (SOEs), privately-owned, publicly-listed, and partial-state/partial-public companies.

State ownership makes managers less prone to paying bribes. Managers of SOEs by definition have no equity stake, and typically face weaker performance incentives than those in the private sector (Megginson 2005; Clarke and Xu, 2004; Martin et al., 2007). Moreover, SOEs' connections with their home governments can shield them from corruption, making them likelier to lobby rather than bribe (Bennedsen et al, 2009). In contrast, owner-managers of privately-held firms have large ownership stakes in their firms, and thus have more to gain through bribes,⁷ while managers of publicly-listed companies typically have little ownership stake, and hence less to gain from bribery than owner-managers of private firms.⁸

Our discussion on bribery and managerial incentives provides an interesting reversal of the predictions of usual principal-agent theory for commonly-examined managerial misconduct, e.g., financial misreporting and stealing from stockholders. In these cases, if the behavior is detected, owners face financial losses far exceeding penalties levied (Karpoff et al, 2008), and even bankruptcy (e.g., Enron in the USA and Parmalat in Italy). Here detection may damage the firm's reputation, but is unlikely to threaten the viability of a firm because bribes are on a

⁷ Privately-held firms also tend to be less connected to their government, and have weaker bargaining power, which lead to more bribery (Lambsdorff and Cornelius, 2000; Clarke and Xu, 2004; Martin et al., 2007; Wu, 2009; Fan et al., 2009). Wu (2009) provides supporting evidence that privately-held firms are more likely to pay bribes than other types of firms in Asia.

⁸ Public companies also tend to have greater reporting requirements and regulatory scrutiny than privately-held firms. For example, the US Foreign Corrupt Practices Act, the first legislation to criminalize cross-border bribery (see discussion below), included accounting requirements for enforcement. These applied only to firms registered with the US Securities and Exchange Commission; i.e., publicly-listed firms (Noonan 1984: 679).

contract basis. This implies that agency considerations here may result in managers' acting more ethically than shareholders would prefer, not less.⁹

Also, some OFFP participating firms are partially state-owned and partially publicly-held. We expect managers in these firms to face incentives intermediate between those of fully state-owned enterprises and publicly-listed firms. To summarize the discussion, we expect bribe payments by managers to vary with the degree of separation of ownership and control. Thus,

Hypothesis 2: Owner-managers in private firms will pay bribes the most, managers in publicly-held firms next, managers in partially state-owned firms next, and managers in fully state-owned firms the least.

Legal consequences

Legal systems are an important part of corruption detection and deterrence (Rose-Ackerman, 1999; Tanzi, 1998; Treisman, 2000; Kimbro, 2002; Herzfeld and Weiss 2003; Wu, 2009). “The most obvious cost [of corruption] is the risk of being caught and punished.” (Treisman, 2000: 402). Legal institutions are relevant where cross-border bribery is a crime in the home country. Thus, central to the role of institutions is whether a firm's home-country criminalizes paying bribes to foreign public officials and how well anti-bribery laws at home are enforced. While the effectiveness of law enforcement is difficult to observe, we expect that countries with higher-quality judicial systems will more effectively discourage foreign bribery when it is illegal.

Cross-border bribery has long been unlawful only in the U.S., through the Foreign Corrupt Practices Act of 1977. In 1999, the Organization for Economic Cooperation and Development

⁹ We are grateful to Steve Tallman for this point.

(OECD) put into force the Convention on Combating Bribery of Foreign Public Officials in International Business Transactions (henceforth Anti-Bribery Convention).¹⁰ As of 2010, it has 38 signatory countries including eight non-OECD members. These countries implement the Convention through legislation making foreign bribery illegal (Baugn et al., 2010: 18).

Research suggests that laws against bribery abroad deter cross-border corruption (Spencer and Gomez, forthcoming), especially when multiple countries enforce the laws together (Cuervo-Cazurra, 2008). We expect that illegality of cross-border bribes in a home country will deter firms' engagement in foreign bribery. Thus,

Hypothesis 3: Firms from countries that have implemented the OECD Anti-Bribery Convention will bribe less abroad than firms from countries that have not implemented it.

Home-country institutions: financial transparency and corruption norms

The cost of corruption includes the likelihood as well as consequences of detection. Detection in part depends on societal transparency, which goes beyond national legal systems. Financial transparency at both firm and societal levels may discourage bribery, since it raises the likelihood of detection. A number of empirical studies (e.g., Kimbro, 2002; Wu 2005a, 2005b) provide supporting evidence suggesting that better disclosure practices help decrease bribery. Similarly, a more transparent home-country environment makes overseas illicit payments easier to detect. Walter (1985) addresses the role of financial secrecy in facilitating bribery, corruption,

¹⁰ More recently, the United Nations Convention Against Corruption (UNCAC) entered into force in 2005. Although the UNCAC is much broader and detailed in its coverage and provisions with 140 signatory countries (as of 2010), the OECD Anti-Bribery Convention was the only international agreement in force during the OFFP.

tax evasion and money laundering, and notes that money laundering often occurs through tax havens. We expect that firms from financially more transparent countries will bribe less.

Another potentially important determinant of cross-border bribery is home-country culture related to corruption. A recent study by Fisman and Miguel (2007) shows that social norms related to corruption at home help explain individuals' illicit behavior abroad. We conjecture that the more the home country is perceived as corrupt, the more its firms engage in foreign bribery.

EMPIRICAL STRATEGY

Data and sample

The illicit nature of corruption makes data reliability and comprehensiveness a critical issue. We are fortunate here in two respects. First, the Iraqi regime was longstanding but fell quickly, leaving behind extensive documentation. The State Oil Ministry Organization (SOMO) of Iraq maintained an electronic database of surcharges requested, paid, and unpaid, on a transaction-specific basis. Second, IIC crosschecked SOMO data against bank records, UN-approved contracts, and letters of trade credit, and verified accuracy through interviews of Iraqi officials involved with the creation and execution of the OFFP.

In constructing variables, we utilize two datasets: OFFP and non-OFFP data. OFFP data come from five oil tables in the IIC report (2005b). This dataset contains detailed information on legal and illegal payments associated with each oil contract, company names and home countries. Non-OFFP data include information on crude oil prices from Datastream, and home-country and company characteristics. Firm-level information is gathered from various sources including electronic company databases (ORBIS, Datastream), OFFP investigative reports, especially US Senate (2005) and IIC (2005b), article databases (Lexis-Nexis, Factiva, ProQuest),

and company websites. Country institutional data come from related websites and literature (see below). Table 1a and 1b present summary statistics on OFFP data and non-OFFP data, respectively.

“Insert Table 1a and 1b here”

Our sample is the 457 oil contracts during the OFFP bribe period (P8-12), which involved 187 companies from 51 countries. In the case of multinational companies, the OFFP database sometimes lists the subsidiary that exported oil from Iraq; we group foreign subsidiaries under their parent firm.¹¹ This reduced the number of firms and countries to 181 and 48, respectively. Among the 457 contracts, 310 contracts (68%) entailed illegal payments, involving (after consolidating subsidiaries) 137 companies from 38 countries.

Dependent variable

Our dependent variable, bribe is the percentage of surcharges paid in contract value, calculated by:

$$\text{Bribe} = \left(\frac{\text{Surcharges Paid}}{\text{Contract Value}} \right) \times 100 \quad (1)$$

The median bribe is about 1.3 percent of contract value; the maximum, about 4.8 percent. Although large in absolute terms due to large contract size, these figures are small in percentage terms because close monitoring by the UN obliged Iraq to price its oil close to market value, limiting its ability to impose large surcharges (IIC, 2005a: Vol I: 98-100, Vol III: 141).

¹¹ Grouping affects only a few firms and transactions (4 parent companies, 8 transactions). The subsidiaries are registered in Aruba, the Cayman Islands, the British Virgin Islands, and Singapore, jurisdictions that typically lack some country-level data. Dropping these 8 transactions does not affect the results.

Independent variables

Rent

Despite its role in theories of corruption, rent has been tested in the literature only indirectly. In the absence of transaction-specific data, researchers have relied on industry- or country-specific factors as proxies (e.g., size and scope of the public sector, trade protection, natural resources; see Jain, 2001; Lambsdorff, 2006). The OFFP data enable measurement of rent for each contract, and thus examination of how firms' behavior depends on financial incentives. To our knowledge, no study has empirically measured rent at a transaction level, or examined the relationship between rent and bribery.

The nature of corruption under OFFP – paying bribes to obtain a commodity at below-market price – facilitates a straightforward measure of rent through comparison of market prices and OFFP contract prices. The rent indicates how large the gap is between the market price and the OFFP price. We calculated the OFFP price by dividing contract value by contract size measured by barrels lifted. In equation form, rent for each contract is calculated by:

$$\text{Rent} = \left(\frac{1}{n} \sum \text{Daily Market Price} \right) - \left(\frac{\text{Contract Value}}{\text{Barrels Lifted}} \right) \quad (2)$$

The first term in equation (2) indicates a phase-averaged market price where n denotes the number of trading days in each OFFP phase of 8-12 (2000-2002), and daily market price is the crude oil price for Arab Gulf Dubai (\$/barrel) during the corresponding phase. We use Arab Gulf Dubai as a substitute for Iraqi oil. Dubai is widely traded and similar in both quality and production location.

Ownership

Given the large number of countries in the database, and the challenge of finding information on privately-held firms (the majority of participants in OFFP), we are only able to characterize firms along two dimensions: ownership structure and line of business. Ownership is categorized by private, public, state, partial-state and unknown dummy variables. Each dummy takes the value one, if a firm is privately-held (Private), listed on a stock exchange (Publicly-held), state-owned (State), or listed while being partially owned by a state (Partial state) at time of the contract, respectively; otherwise, zero.

OECD Anti-Bribery Convention

We capture the illegality of cross-border bribes in the home country through its implementation of the OECD Anti-Bribery Convention. Implementation indicates that it is a criminal offense in the home country to bribe a foreign public official. The OECD Anti-Bribery dummy takes the value one if a home country implemented the Convention during P8-12, and zero otherwise.

Legal origin

In searching for broad measures that reflect overall law enforcement quality and are not highly correlated with other institutional variables, we adopt a legal origin dummy for common law systems (La Porta et al., 1998, 2008). The literature on law and finance indicates that common-law legal systems put more weight on court decisions, and are associated with more independent judiciaries, more secure property rights and better contract enforcement than civil-law systems (La Porta et al., 2008). Treisman (2000) used this measure as a proxy for the effectiveness of legal systems and found a negative relationship between common-law systems and perceived corruption.

Financial transparency

Home-country financial transparency is measured along two dimensions. First, we include a ‘tax haven’ dummy that equals one, if a home country is identified as a tax haven in the list in Dharmapala and Hines (2009), and zero otherwise. Second, we use the ‘financial freedom’ index from Heritage Foundation to capture the level of financial transparency more broadly, through the degree of banking security as well as independence of the financial sector from government control.¹²

Perceived corruption

National institutional environments influence corruption (Spencer and Gomez, forthcoming). We include ‘perceived corruption’ using Transparency International’s Corruption Perception Index (CPI below) as a summary measure to capture ‘social norms related to corruption’ (Fisman and Miguel, 2007). CPI is one of the most widely used indices in the corruption literature, and highly correlated with other corruption indices (Herzfeld and Weiss, 2003).¹³ Previous studies show that CPI is related to cultural, economic, and historical factors (e.g., Husted, 1999; Treisman, 2000; Herzfeld and Weiss, 2003; Wu, 2005a). Moreover, because CPI aggregates ratings from a wide variety of surveys, both national and cross-country, it largely avoids the biases associated with

¹² We thank an anonymous referee for this suggestion. Bushman et al. (2004: 244) document that “financial transparency is higher in countries with low state ownership of enterprises, low state ownership of banks, and low risk of state expropriation of firms’ wealth”.

¹³ TI’s Bribe Payers Index (BPI) also captures perceptions on corruption from the perspectives of the private sector (local and foreign companies) on foreign bribery based on their experience in a particular country of operation. We use only CPI, however, as BPI is available for far fewer home countries as well as highly correlated with CPI (0.89 in our sample).

varying definitions of corruptions by reporters in each country discussed in the introduction (for corruption-survey methodology, see Knack, 2006).

Diplomatic connections

Firms may be more able to resist bribe requests if their home countries are in a position to help Iraq (Heaton, 2005). We control for diplomatic connections using a dummy, UNSC that equals one if a contract is associated with a country that served as a member of the UNSC when the contract was signed, and zero otherwise.

Table 1c provides variable descriptions.

“Insert Table 1c here”

STATISTICAL ANALYSIS

As part of our exploratory data analysis, we plot bribe against rent in Figure 1. It suggests both a positive linear relationship between bribe and rent, and imperfect measurement of our rent variable. Rent, by definition, should be at least zero; otherwise, companies would not export Iraqi oil. However, Figure 1 displays negative rents in a number of cases, points to the left of the vertical line. This imperfect measurement comes from using phase-average market prices (see equation 2 above); exact dates for each contract are not publicly available. This introduces noise into our measurement of rent, which may bias the estimated coefficient toward zero.

“Insert Figure 1 here”

Figure 1 also shows many zero values in our dependent variable (Bribe). Note that one-third of the bribe values in our sample are zero, suggesting the need for a censored regression model in statistical analysis (Maddala, 1983). We report results from Tobit estimation as well as ordinary

least squares (OLS) below. Although the Tobit model is appropriate for censored data like ours, it is well known that the method is more sensitive to misspecification than OLS. When the outcome values are censored at zero, OLS estimates are inconsistent, but can still be informative in terms of direction and significance (Wooldridge 2002: 525).

Our main statistical analysis proceeds in two steps. First, we test for differences in corrupt behavior among the home-countries after controlling for rent, using the least squares dummy variable (LSDV) model with no intercept (Greene, 2003). Without findings of differences in coefficients across home-countries, we would not expect any systematic relationships between bribery and country-level variables. In contrast, a finding of home-country coefficient differences would be consistent with the view that corruption at home helps explain corruption abroad. The equation we estimate is thus:

$$\text{Bribe} = \alpha \text{Rent} + \sum \beta_i \text{Home-country}_i + \varepsilon \quad (i = 1, 2, \dots, 48) \quad (3)$$

where Bribe and Rent are as measured in equations (1) and (2), respectively, Home-country is an indicator variable, and ε is an error term.

In the second step, we examine the effects of the factors driving cross-border bribery on the size of bribe through both OLS and standard Tobit models using equation (4):

$$\text{Bribe} = \delta + \gamma \text{Rent} + \sum \varphi_j \text{Ownership}_j + \sum \lambda_k \text{Legal Consequences}_k + \sum \pi_l \text{Home Institutions}_l + \omega \quad (4)$$

where Bribe and Rent are measured as in equations (1) and (2), respectively, Ownership is a set of dummy variables indicating whether the firm is ‘private’ (baseline), ‘publicly-held’, ‘partial-state’, ‘state’, and ‘unknown’, Legal Consequences include the dummies for ‘OECD Anti-Bribery’ Convention and ‘legal origin’ (common-law), and Home Institutions include the two

measures of financial transparency ('tax haven', 'financial freedom'), 'perceived corruption' and 'UNSC'.

All explanatory variables are rescaled, if necessary, so that higher values indicate a weaker institutional environment. For instance, perceived corruption is rescaled so that 1 indicates countries perceived as the least corrupt and 10 as the most corrupt.

RESULTS

Home-country effects

Table 2 reports the coefficients of equation (3) estimated using the full sample of 457 contracts from 48 countries. The coefficients demonstrate variation in mean bribe level for each country, after controlling for rent. We note that most of the 21 countries associated with significant coefficients (see Panel A) have high levels of perceived corruption according to the CPI. However, corruption is also perceived to be high in many of the 27 countries associated with insignificant coefficients (see Panel B).

Consistent with the hypothesis that cross-border anti-bribery laws reduce corruption, only three countries, among the 15 signatory countries that implemented the OECD Anti-Bribery Convention during OFFP P8-12 (2000-2002), are associated with significant coefficients. The rest are associated with insignificant coefficients.

“Insert Table 2 here”

Factors driving cross-border bribery

Results from OLS and standard Tobit models¹⁴ are reported in Table 3a, where model (1) includes only rent, and models (2a) and (2b) add home-country institutions, with the two measures of financial transparency, tax haven (labeled TH) and financial freedom (labeled FF) . Firm-level characteristics are added in models (3a) using TH and (3b) using FF. As shown at the bottom of Table 3a (F statistics for OLS and the log-likelihood ratio statistics for Tobit), the country-level and the firm-level characteristics are jointly significant at the 5 percent level. The Tobit estimates generally exhibit the same signs as the OLS estimates with similar statistical significance across all models.

“Insert Table 3a here”

Hypothesis 1: rent

The most noticeable aspect of the results in Table 3a is the positive and robustly significant coefficient estimates on rent of 0.10-0.13, with associated p-values less than 0.001 across all models. Models (1)-(2b) show how much the variability associated with the bribes paid can be explained only by rent and by home-country institutions, respectively. Note that rent alone explains 16% of the variability in model (1). From OLS model (1) to models (2a) and (2b), the explanatory power increases by 9% (from 0.156 to 0.170), and 11% (from 0.170 to 0.189) from models (2a) and (2b) to (3a) and (3b) where we add the firm-level variables. The small changes in goodness of fit for both OLS (adjusted R²s) and Tobit models (pseudo R²s) indicate that rent is

¹⁴ All models are estimated based on robust standard errors clustered by home-country (Moulton, 1990). Our examination of inflation factors (<10) and condition numbers (<100, Cameron and Trivedi, 2005: 350) indicates no serious multicollinearity concerns. We thank an anonymous referee for suggesting use of condition numbers to check multicollinearity.

the main variable that explains cross-border bribery. These findings provide supporting evidence for Hypothesis 1.

The sensitivity of bribes to changes in rents can be illustrated for a coefficient of 0.10 as follows. Given the units, a \$1/barrel increase in rent leads to a 0.10% rise in bribe. The mean bribe is 0.80% (of contract value), and mean rent is \$2.41 per barrel (Table 1b). This leads to an elasticity calculation at the mean of:

$$\eta = \frac{\% \Delta \text{bribe}}{\% \Delta \text{rent}} = \frac{\Delta \text{bribe} / \text{bribe}}{\Delta \text{rent} / \text{rent}} = \frac{0.10 / 0.80}{1.00 / 2.41} = 0.30$$

Thus a one percent increase in rent on a contract leads to a 0.30 percent increase in bribe; the remaining part of the increase in rent is kept by the bribe-payer. This magnitude appears reasonable; if exporters competed away rents through offering larger bribes for contracts, we might expect the elasticity to be closer to one, but as there was no ‘market for bribes,’ the number should be positive, but < 1 .

Hypothesis 2: ownership

The results largely support Hypothesis 2. Consistent with the prediction that owner-managers in private firms will bribe the most, we find that the coefficients on publicly-held, partial-state, and state are all negative and significant relative to private as baseline in models (3a) and (3b).

However, we find that the largest coefficient is on partial-state, rather than state, indicating that managers in partially state-owned firms bribe the least.

Hypotheses 3: legal consequences

The coefficient on the OECD Anti-Bribery Convention is negative and significant, consistent with the prediction in Hypothesis 3 in models (2a) - (3b), except Tobit model (3a) where the associated p-value slightly exceeds 0.10. The results support Hypothesis 3 that firms from countries whose laws criminalize foreign bribery bribe less abroad, suggesting a deterrence effect of the Convention.

Given the interest in the effectiveness of the Anti-Bribery Convention noted earlier, we investigate its deterrence effect using a bivariate nonparametric χ^2 test, and report the result in Table 3b. The result shows that the propensity to bribe for firms from non-signatory countries is 71% vs. 58% for those from signatory countries (p-value < .05).

“Insert Table 3b here”

While statistically significant, the difference in the propensity to bribe (13%) suggests a modest effect of the Convention on cross-border bribery by firms. It should also be noted that the deterrence effect is likely underestimated because most countries had implemented the Convention shortly before the onset of the OFFP bribe regime (P8-12).¹⁵

Home-country institutions

We do not find individual significance of other home-country characteristics in models (2a) - (3b). Although not statistically significant, the coefficients on the legal origin (common-law) dummy are all negative, consistent with the view that a higher quality judicial system may deter firms' foreign bribery behavior through stronger law enforcement. Likewise, the two measures of financial transparency--tax haven (TH) and financial freedom (FF) are statistically insignificant, but exhibit the expected positive signs. Results on UNSC are also insignificant.

¹⁵ We thank an anonymous reviewer for this point.

The coefficients on perceived corruption are all negative. Although none is significant, this is inconsistent with the view that the more corrupt is the home country, the more its firms will engage in foreign bribery. We examine this further in Figure 2, where we plot bribes paid, contract by contract, against home-country perceived corruption. Consistent with the result, the figure displays no systematic relationship between actual and perceived corruption, suggesting that firms from countries perceived as clean do not necessarily behave as cleanly as their home countries' reputations.

“Insert Figure 2 here”

Robustness checks

We checked the robustness of the results in several different ways. First, our firm-level results on ownership structure may capture reputation effects, rather than managerial incentives. As noted earlier, managers of publicly-held firms are subject to greater scrutiny so may care more about reputation, and loss of reputation through bribery can be costly, given its impact on future business. Our ability to measure reputation is limited by our multi-country sample of firms that are mostly privately held. In looking at reputation, we focus on the fact that oil exporters fall into two groups – firms that can process crude oil (industrial firms), and intermediaries (who must resell it).

The strategy literature suggests that reputation is industry-specific, and likely to be of greater concern for industrial firms, especially those in polluting and heavily-regulated industries, such as oil (Fombrum and Shanley 1990, Bansal and Roth 2000, Bertels and Pelozo 2008). Theoretical models and empirical evidence also suggest that intermediaries such as trading companies facilitate corruption (Oldenburg, 1987; Lambsdorff 2002; Hasker and Okten, 2008). This is

especially true in the petroleum industry, where trading companies have long had problematic reputations, e.g. Frynas and Mellahi (2003), McPherson and Searraigh (2007).

The industrial firms in our sample are primarily large multinational enterprises, which tend to be more visible, and subject to more public scrutiny (Strike et al., 2006). The remainder are primarily small trading companies with low profiles; hence reputation is likely to be less important. Moreover, some firms were created solely to participate in the OFFP – referred to as ‘front’ or ‘shell’ companies in the trade press. If reputation rather than managerial incentives under different ownership structures is driving our firm-level results, adding industry-segment dummies should reduce or eliminate the effect of ownership, with positive coefficients on trading and front companies (industrial firms as a baseline).

Results (not reported, but available on request) show that our main results do not change. Ownership dummies are largely unaffected when the industry-segment dummies are added to models (3a) and (3b) in Table 3a. Trading and front companies are more prone to corruption than industrial firms, but none of the coefficients is significant.

Second, in order to check whether firm responses to bribe requests are affected by prior bribe payments during the bribe period, we adjusted for repeated contracts in the models in Table 4 using two variables, respectively: i) a dummy that equals 1 if a company made more than one contract during the period, otherwise, 0, and ii) the number of prior OFFP contracts signed by the firm. Overall results do not change when either of these measures is included.

Lastly, some of the contracts in the OFFP database appear to be parts of a single contract. They usually have consecutive contract numbers in the data. To assess the potential impact of splitting one contract into two, we combined neighboring contracts. Although the sample size becomes slightly smaller (418), the main results do not change.

DISCUSSION

In summary, we consistently found significant positive rent coefficients across all models, indicating that firms pay larger bribes when there are strong financial incentives, even when there are legal and societal strictures against corruption. At the firm level, we found that ownership structure affects managers' reaction to bribe requests; unregulated small companies that can more easily avoid public scrutiny are the most prone to bribery. At the country level, we found a significant negative effect on firms' illicit behavior abroad of the implementation of the OECD Anti-Bribery Convention at home. Lastly, we found little relationship between a widely-used country-level corruption perception index and actual bribery by firms.

A potential explanation for this weak relationship can be found in self-selection by firms participating in the OFFP during the bribe period. Countries perceived as cleaner may be associated with fewer firms willing to enter into the contracting process with Iraq once word of bribe requests circulated. If there is a systematic relationship between perceived home-country corruption and the tendency of firms from that country to participate in the bribe period, then countries with low CPI scores (cleaner) may be indistinguishable from those with high scores. In other words, firm heterogeneity within a country could explain our finding of statistically-insignificant effects of corruption perception on actual bribery.

We are able to assess self-selection here through examination of firm participation in the pre-bribe period (phases 1 to 7). For each country with firms participating in the pre-bribe regime, we calculate the fraction of firms from that country that exited when the bribe regime started. Self-selection would imply a negative correlation – the cleaner the home country (i.e., the lower the rescaled CPI score), the higher the fraction of its firms exiting when the bribe regime started.

The correlation is positive (0.25) and significant at the 5 percent level, however, indicating that self-section does not explain our finding that perceived corruption at the national level is not a predictor of corrupt behavior at the firm level.

CONCLUSION

Taking advantage of data on actual bribe requests and payments, we examined determinants of supply-side corruption in a global setting, where companies from many home countries faced bribe requests from a host government, Iraq. In examining factors affecting managerial decisions on bribe payments, we applied concepts from the economic theory of crime, agency theory, and institutions to the analysis of the supply side of bribery.

Bribe payments at a transaction-level allowed us to measure financial incentives (rents) confronting firms faced with bribe requests. Fisman and Miguel (2007) found that ‘cultural or social norms related to corruption’ (proxied by CPI) drive corrupt behavior when such behavior is not penalized. The absence of penalties in their case (diplomatic parking tickets in New York) facilitates a clean test for social norms related to corruption as a determinant of illicit behavior, but prevents assessment of financial incentives and costs of corruption we examined here. We showed that after controlling for such norms and costs of corruption, rent significantly explains the variability in corporate illicit behavior.

At the firm level, we applied principal-agent theory to explain the differences in firms’ bribe payments, and hypothesized that they would depend on the varying degrees of separation and control of ownership structure. Consistent with this view, we found that owner-managers in privately-held firms, less subject to public scrutiny, paid bribes abroad the most. The results on

managerial incentives hold when we consider the possible effect of reputation associated with ownership structure.

The home-country institutional environment affects managerial decisions through likelihood and consequences of detection. Our results on legal consequences provide optimism for anti-corruption policy, in the form of a deterrence effect of implementation of the OECD Anti-Bribery Convention. Finally, our finding of little relationship between perceived corruption measures and actual corruption should encourage researchers to move beyond such measures in analyzing the causes and consequences of corruption.

Overall, results indicate that firms pay larger bribes in an environment of ‘pay to play’ where they face stronger financial incentives. Such incentives are enforced by lack of monitoring and weak legal environment to deter business corrupt practices at the international level. Our results shed light on important areas that private and public sectors can work together in order to facilitate better anti-corrupt business environment globally—improving corporate governance at the local level and strengthening monitoring and legal enforcement at the international level.

Our study contributes to the broader literature on the influence of home-country institutions on firms’ international behavior (Spencer and Gomez, forthcoming, King and Shaver 2001, Murtha and Lenway, 1994). We found that, despite the fact that the UN and its member states were unable to monitor illicit behavior during OFFP, firms from countries where cross-border corruption is illegal were less prone to bribery. Encouraging more nations to implement the anti-bribery convention(s) at the international level can act as a deterrent to firms’ corrupt behavior abroad.

We conclude by noting some limitations of our study. Rent is measured imperfectly due to the absence of contract-date information in the OFFP data. Also, the fact that most OFFP

participating firms are international and small-to-medium-sized trading companies limits our ability to examine firm-level determinants. Lastly, any study based on a single industry raises a question of external validity – to what extent is the petroleum industry typical of other parts of the global stage? Does corruption in the petroleum industry reflect broader managerial behavior?¹⁶ Whether managers would act differently in a different industry in the face of demands for bribes remains a question for future research.

¹⁶ The petroleum industry is widely viewed as prone to corruption, part of the so-called ‘resource curse’ (Auty, 1993). The industry is characterized by large rents and extensive government participation, and concentrated in countries with weak governance. Indeed, oil-producing countries tend to be perceived as corrupt, according to Transparency International (McPherson and MacSearraigh, 2007). Global industries with similar characteristics include mining, forestry, tourism.

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Table 1a: Summary statistics on OFFP data during phases 8-12 (2000 - 2002)

| OFFP Phases Dates¹ (MM/DD/YY) | Phase | P8 | P9 | P10 | P11 | P12 | P8-12* |
|---|------------------|-----------|-----------|------------|------------|------------|---------------|
| | From | 06/09/00 | 12/06/00 | 07/04/01 | 12/01/01 | 05/30/02 | 06/09/00 |
| | To | 12/05/00 | 07/03/01 | 11/30/01 | 05/29/02 | 12/04/02 | 12/04/02 |
| Total Number | Contract | 106 | 86 | 90 | 106 | 69 | 457 |
| | Bribe Contract | 55 | 78 | 88 | 78 | 11 | 310 |
| | Firm | 88 | 78 | 72 | 74 | 58 | 186 |
| | Country | 38 | 32 | 28 | 29 | 28 | 50 |
| Contract Value² (USD in Thousands) | Total Amount | 9,246,960 | 7,029,857 | 4,563,463 | 5,075,422 | 4,613,494 | 30,529,194 |
| | Max | 385,841 | 674,112 | 308,972 | 313,994 | 476,543 | 674,112 |
| | Min | 10,348 | 14,015 | 3,724 | 6,013 | 8,798 | 3,724 |
| | Mean | 87,235 | 81,743 | 50,705 | 47,881 | 66,862 | 66,885 |
| | S.D. | 76,474 | 111,606 | 53,716 | 45,887 | 78,767 | 25,702 |
| Surcharges Paid³ (USD in Thousands) | Total Amount | 13,424 | 88,996 | 76,547 | 44,748 | 4,498 | 228,213 |
| | Max | 1,163 | 9,804 | 5,432 | 3,744 | 1,171 | 9,804 |
| | Min | 8 | 50 | 50 | 25 | 30 | 8 |
| | Mean | 244 | 1,141 | 870 | 574 | 409 | 736 |
| | S.D. | 238 | 1,650 | 919 | 614 | 299 | 1,060 |
| Barrels Lifted⁴ (bbl in Thousands) | Barrels in total | 364,799 | 347,300 | 270,904 | 244,017 | 196,593 | 1,423,614 |
| | Max | 15,548 | 34,308 | 19,043 | 15,234 | 19,569 | 34,308 |
| | Min | 500 | 916 | 200 | 275 | 403 | 200 |
| | Mean | 3,441 | 4,038 | 3,010 | 2,302 | 2,849 | 3,128 |
| | S.D. | 3,056 | 5,641 | 3,136 | 2,272 | 3,262 | 1,272 |

Notes: * These figures are calculated based on the entire phases 8-12. Some firms and countries appear more than once during P8-12.

Sources:

¹ Office of the Iraq Programme Oil-for-Food website, Phases (I-XIII)

² UN OFFP Records (IIC Table 2, 2005b: 55)

³ SOMO Surcharge Records (ibid.)

⁴ UN OFFP Records (ibid.)

Table 1b: Summary statistics on non-OFFP data**Panel A: Daily Market Price (6/9/2000-12/4/2002)**

| Phase | Dates | | Crude Oil-Arab Gulf Dubai FOB (US\$/bbl) | | | | |
|-------|-----------|------------|--|--------|-------|-------|-------|
| | | | Mean | Median | S.D. | Min. | Max. |
| 8 | 6/9/2000 | 12/5/2000 | 28.40 | 28.64 | 23.42 | 23.42 | 32.80 |
| 9 | 12/6/2000 | 7/3/2001 | 24.06 | 24.20 | 19.13 | 19.13 | 27.41 |
| 10 | 7/4/2001 | 11/30/2001 | 21.73 | 22.76 | 15.73 | 15.73 | 26.68 |
| 11 | 12/3/2001 | 5/29/2002 | 21.27 | 20.35 | 16.81 | 16.81 | 26.07 |
| 12 | 5/30/2002 | 12/4/2002 | 24.99 | 24.59 | 21.87 | 21.87 | 27.65 |

Notes: Statistics are generated after omitting U.S. official holidays during 6/9/2000-12/4/2002 (Source: Datastream).

Panel B: Company and Country Characteristics

| Variable | Short Description | Mean | S.D. | Min. | Max. | Sum | N |
|----------------------|--|-------|-------|-------|------|-----|-----|
| Bribe | Percentage of contract value paid in surcharge | 0.80 | 0.83 | 0 | 4.84 | - | 457 |
| Rent | Phase average daily market price of Arab Gulf Dubai crude oil – contract value per bbl | 2.41 | 3.08 | -5.42 | 9.80 | - | 457 |
| Publicly-held | Dummy for publicly-held (listed) company | 0.05 | 0.21 | 0 | 1 | 22 | 457 |
| Private | Dummy for private company | 0.71 | 0.46 | 0 | 1 | 323 | 457 |
| State | Dummy for state-owned company | 0.17 | 0.38 | 0 | 1 | 79 | 457 |
| Partial state | Dummy for listed state-owned company | 0.04 | 0.19 | 0 | 1 | 17 | 457 |
| Unknown | Dummy for company with no ownership information | 0.04 | 0.18 | 0 | 1 | 16 | 457 |
| OECD Anti-Bribery | Dummy for entry into force of implementing legislation of OECD Anti-Bribery Convention | 0.22 | 0.42 | 0 | 1 | 101 | 457 |
| Legal origin | Dummy for common law legal system | 0.27 | 0.44 | 0 | 1 | 117 | 440 |
| Tax haven | Dummy for tax-haven country | 0.22 | 0.41 | 0 | 1 | 99 | 457 |
| Financial freedom | Aggregated measure of banking security as well as independence from government control | 51.07 | 21.87 | 10 | 90 | - | 438 |
| Perceived corruption | Corruption perception index | 6.70 | 2.04 | 1.46 | 9.80 | - | 438 |
| UNSC | Dummy for U.N. security council membership | 0.40 | 0.49 | 0 | 1 | 184 | 457 |

Panel C: Correlations

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|
| 1 Bribe | 1.00 | | | | | | | | | | | | |
| 2 Rent | 0.39 | 1.00 | | | | | | | | | | | |
| 3 Publicly-held | 0.12 | 0.04 | 1.00 | | | | | | | | | | |
| 4 Private | -0.11 | -0.04 | -0.35 | 1.00 | | | | | | | | | |
| 5 State | -0.13 | 0.00 | -0.31 | -0.04 | 1.00 | | | | | | | | |
| 6 Partial state | -0.04 | 0.00 | -0.71 | -0.10 | -0.09 | 1.00 | | | | | | | |
| 7 Unknown | 0.04 | -0.06 | -0.30 | -0.04 | -0.04 | -0.09 | 1.00 | | | | | | |
| 8 OECD Anti-Bribery | -0.15 | -0.06 | 0.14 | 0.16 | 0.08 | -0.24 | -0.11 | 1.00 | | | | | |
| 9 Legal origin | 0.02 | 0.03 | 0.15 | 0.01 | -0.04 | -0.19 | 0.05 | -0.14 | 1.00 | | | | |
| 10 Tax haven | 0.05 | -0.03 | 0.25 | -0.09 | -0.08 | -0.24 | 0.07 | 0.10 | -0.04 | 1.00 | | | |
| 11 Financial freedom | 0.07 | 0.05 | -0.27 | -0.02 | -0.01 | 0.35 | -0.02 | -0.59 | -0.16 | -0.68 | 1.00 | | |
| 12 Perceived corruption | 0.05 | 0.04 | -0.30 | -0.07 | 0.02 | 0.37 | 0.04 | -0.76 | -0.15 | -0.42 | 0.72 | 1.00 | |
| 13 UNSC | -0.05 | -0.04 | -0.30 | 0.05 | -0.02 | 0.38 | -0.06 | -0.07 | -0.21 | -0.42 | 0.47 | 0.25 | 1.00 |

Note: Pearson product-moment correlation coefficients.

Table 1c: Variable description

| Variable | Detailed Description | Sources |
|---------------------------|--|---|
| Bribe | Percentage of surcharges paid in contract value. | IIC Report |
| Rent | Arab Gulf Dubai phase average daily market price – (contract value/barrels lifted) | IIC Report, DataStream |
| Public | Indicator variable equal to 1 if a contract is associated with a firm listed on a stock exchange, at time of the contract. | Various sources including Bureau van Dijk Electronic Publishing (BvDEP)'s ORBIS database,,Datastream, major U.S. and world publication, and company information sources through LexisNexis, IIC Report including other UN OFFP contract documents, and the trade press. |
| Private | Indicator variable equal to 1 if a contract is associated with a privately-held firm, at time of the contract. | |
| State | Indicator variable equal to 1 if a contract is associated with a state-owned firm, at time of the contract. | |
| Partial state | Indicator variable equal to 1 if a contract is associated with a listed state-owned firm, at time of the contract. | |
| Unknown | Indicator variable equal to 1 if a contract is associated with a firm whose ownership is unknown. | |
| OECD Anti-Bribery | Indicator variable equal to 1 if a home country implemented the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions (OECD Anti-Bribery Convention) during P8-12 (2000-2002). | OECD Anti-Bribery Convention Ratification Status (OECD website) |
| Legal origin (common law) | Indicator variable equal to 1 if a contract is associated with a country whose legal origin is English-common law or a former British colony. | La Porta et al., 2008; Treisman, 2000 |
| Tax haven | Indicator variable equal to 1 if a home country is identified as a tax haven. | Dharmapala and Hines, 2006 |
| Financial freedom | A measure of banking security as well as a measure of independence from government control and interference in the financial sector (scale: 0-100). | Heritage Foundation, 2001-2002 |
| Perceived corruption | Corruption Perception Index (CPI) as a proxy for social norms related to corruption. CPI is on a scale of 1-10, where a lower score was rescaled to indicate less corrupt. | Transparency International's Corruption Perception Index, 2001-2002. Where 2001 and 2002 data absent, most recent prior data used. |
| UNSC | Indicator variable equal to 1 if a contract is associated with a country that served as a member of the U.N. Security Council when the contract was signed. | UNSC website |

Table 2: Bribe regression on rent and home-country dummy variables

| | Country Coefficient | Standard Errors | P> t |
|---|---------------------|---------------------|-------|
| RENT | 0.109 | 0.012 | 0.000 |
| Panel A: countries with significant coefficients (10% level, from highest to lowest estimates) | | | |
| QATAR | 1.067 | 0.439 | 0.016 |
| ROMANIA | 0.970 | 0.533 | 0.069 |
| UAE | 0.964 | 0.163 | 0.000 |
| UKRAINE | 0.896 | 0.202 | 0.000 |
| LEBANON | 0.850 | 0.308 | 0.006 |
| LIECHTENSTEIN | 0.818 | 0.187 | 0.000 |
| THAILAND | 0.809 | 0.308 | 0.009 |
| EGYPT | 0.759 | 0.286 | 0.008 |
| VIETNAM | 0.698 | 0.228 | 0.002 |
| SYRIA | 0.695 | 0.169 | 0.000 |
| PAKISTAN | 0.689 | 0.189 | 0.000 |
| UK* | 0.689 | 0.307 | 0.026 |
| PANAMA | 0.641 | 0.218 | 0.003 |
| TURKEY | 0.631 | 0.191 | 0.001 |
| JORDAN | 0.623 | 0.190 | 0.001 |
| CHINA | 0.620 | 0.153 | 0.000 |
| CYPRUS | 0.600 | 0.203 | 0.003 |
| SWITZERLAND* | 0.584 | 0.140 | 0.000 |
| BELARUS | 0.540 | 0.310 | 0.083 |
| FRANCE* | 0.520 | 0.149 | 0.001 |
| RUSSIA | 0.472 | 0.088 | 0.000 |
| Panel B: countries with insignificant coefficients (10% level, from highest to lowest estimates) | | | |
| IRELAND | 1.184 | 0.753 | 0.117 |
| YUGOSLAVIA | 1.001 | 0.755 | 0.185 |
| SOUTH AFRICA | 0.475 | 0.377 | 0.208 |
| INDONESIA | 0.451 | 0.309 | 0.146 |
| YEMEN | 0.442 | 0.378 | 0.243 |
| TUNISIA | 0.408 | 0.435 | 0.348 |
| PHILIPPINES | 0.367 | 0.754 | 0.627 |
| GREECE | 0.358 | 0.337 | 0.289 |
| ALGERIA | 0.319 | 0.379 | 0.400 |
| OMAN | 0.199 | 0.436 | 0.649 |
| AUSTRIA* | 0.180 | 0.436 | 0.680 |
| DENMARK* | 0.165 | 0.753 | 0.826 |
| SPAIN* | 0.155 | 0.239 | 0.517 |
| MALAYSIA | 0.145 | 0.241 | 0.547 |
| NETHERLANDS* | 0.055 | 0.753 | 0.942 |
| ITALY* | 0.027 | 0.173 | 0.876 |
| NIGERIA | 0.026 | 0.533 | 0.961 |
| SINGAPORE | -0.073 | 0.753 | 0.923 |
| VENEZUELA | -0.091 | 0.753 | 0.904 |
| BELGIUM* | -0.162 | 0.753 | 0.830 |
| BERMUDA | -0.258 | 0.753 | 0.733 |
| BRAZIL* | -0.259 | 0.753 | 0.731 |
| CANADA* | -0.298 | 0.754 | 0.693 |
| US* | -0.337 | 0.379 | 0.375 |
| INDIA | -0.361 | 0.534 | 0.499 |
| KENYA | -0.422 | 0.541 | 0.435 |
| MOROCCO | -0.449 | 0.755 | 0.552 |
| Adjusted R-squared | 0.575 | | |
| Number of observations | 457 | Number of countries | 48 |

Note: Least squares dummy variable model with no intercept. ^a H₀: Home-country dummy=0. * denotes the OECD Anti-Bribery Convention signatory countries which implemented legislation of the Convention during P8-12 (2000-2002).

Table 3a: OLS and Tobit regressions of bribe on economic incentives and home-country institutions

| Dependent variable: | OLS | | | | | TOBIT | | | | |
|--|---------------------|---------------------|---------------------|----------------------|----------------------|---------------------|---------------------|---------------------|----------------------|----------------------|
| | (1) | (2a) | (2b) | (3a) | (3b) | (1) | (2a) | (2b) | (3a) | (3b) |
| Bribe | | TH | FF | TH | FF | | TH | FF | TH | FF |
| Rent | 0.106*** (0.018) | 0.104*** (0.016) | 0.104*** (0.016) | 0.104*** (0.017) | 0.104*** (0.017) | 0.132*** (0.026) | 0.130*** (0.025) | 0.129*** (0.025) | 0.129*** (0.025) | 0.128*** (0.025) |
| Public (private: baseline) | | | | -0.322† (0.169) | -0.328† (0.168) | | | | -0.613† (0.350) | -0.621† (0.351) |
| Partial state | | | | -0.546*** (0.106) | -0.548*** (0.107) | | | | -1.201*** (0.318) | -1.207*** (0.323) |
| State | | | | -0.163** (0.054) | -0.163** (0.055) | | | | -0.254* (0.105) | -0.255* (0.103) |
| Unknown | | | | 0.159 (0.171) | 0.167 (0.172) | | | | 0.141 (0.241) | 0.159 (0.241) |
| OECD Anti-Bribery | | -0.455* (0.197) | -0.458** (0.166) | -0.368† (0.215) | -0.347† (0.189) | | -0.659* (0.291) | -0.734** (0.261) | -0.519 (0.315) | -0.563† (0.290) |
| Legal origin (common-law) | | -0.071 (0.124) | -0.078 (0.123) | -0.082 (0.115) | -0.077 (0.115) | | -0.124 (0.164) | -0.168 (0.158) | -0.137 (0.150) | -0.167 (0.146) |
| Financial transparency ^a | | 0.039 (0.108) | 0.001 (0.002) | 0.001 (0.102) | 0.002 (0.002) | | 0.169 (0.167) | 0.000 (0.003) | 0.119 (0.159) | 0.000 (0.003) |
| Perceived corruption | | -0.056 (0.045) | -0.068 (0.043) | -0.037 (0.045) | -0.046 (0.044) | | -0.078 (0.065) | -0.102 (0.062) | -0.043 (0.065) | -0.062 (0.064) |
| UNSC | | -0.027 (0.097) | -0.055 (0.099) | -0.002 (0.097) | -0.028 (0.095) | | 0.016 (0.138) | -0.023 (0.143) | 0.059 (0.141) | 0.024 (0.139) |
| Constant | 0.547*** (0.033) | 1.048** (0.378) | 1.085*** (0.283) | 0.961* (0.376) | 0.935** (0.300) | 0.266*** (0.073) | 0.930† (0.550) | 1.178** (0.437) | 0.768 (0.543) | 0.933* (0.455) |
| R ² (OLS)/ Pseudo R ² _M (Tobit) ^b | 0.156 | 0.182 | 0.182 | 0.206 | 0.207 | 0.047 | 0.060 | 0.059 | 0.078 | 0.078 |
| Adj. R ² (OLS)/ Pseudo R ² _w (Tobit) ^c | 0.156 | 0.170 | 0.170 | 0.188 | 0.189 | 0.156 | 0.179 | 0.180 | 0.196 | 0.198 |
| F-test (OLS) / LR test (Tobit) ^d | - | 2.63* | 2.65* | 3.34* | 3.43** | - | 14.65* | 13.60* | 21.13*** | 21.66*** |
| N | 457 | 439 | 439 | 439 | 439 | 457 | 439 | 439 | 439 | 439 |

Notes: Robust standard errors clustered by country are reported in parentheses for both OLS and standard Tobit regressions. All institutional variables are rescaled, so that higher values indicate a weaker institutional environment. ^a Financial transparency measured by tax haven (TH) and financial freedom (FF) as indicated in each model. ^b McFadden's Pseudo R² computed by [1 - Log likelihood (full model) / Log likelihood (constant only model)]. ^c Squared multiple correlation between bribe and its predicted value (Wooldridge, 2002). ^d Likelihood ratio test statistic is calculated by -2[LogL_{restrict.} - LogL_{unrestrict.}]. Model (1) is re-estimated using the sample size of 439 for the joint significance tests. Statistical significance is reported based on two-sided tests: † p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 3b: χ^2 test of association between home-country's implementation of the OECD Anti-Bribery Convention and foreign bribery

| Home Country's Implementation of the OECD Anti-Bribery Convention | Bribe ^b | | Total |
|--|--------------------|---------------|-------|
| | Yes | No | |
| Yes (row percent) | 64 (58.2) | 46 (41.8) | 110 |
| No (row percent) | 246 (70.9) | 101 (29.1) | 347 |
| Total | 310 | 147 | 457 |
| Statistic | Value | Prob. | |
| Chi-squared ^a | 6.185 | 0.013 | |

^a H₀: There is no association between home-country's implementation of the OECD Anti-Bribery Convention and foreign bribery by its firms.

^b Bribe at the row level indicates whether each contract by a participating firm is associated with a bribe.

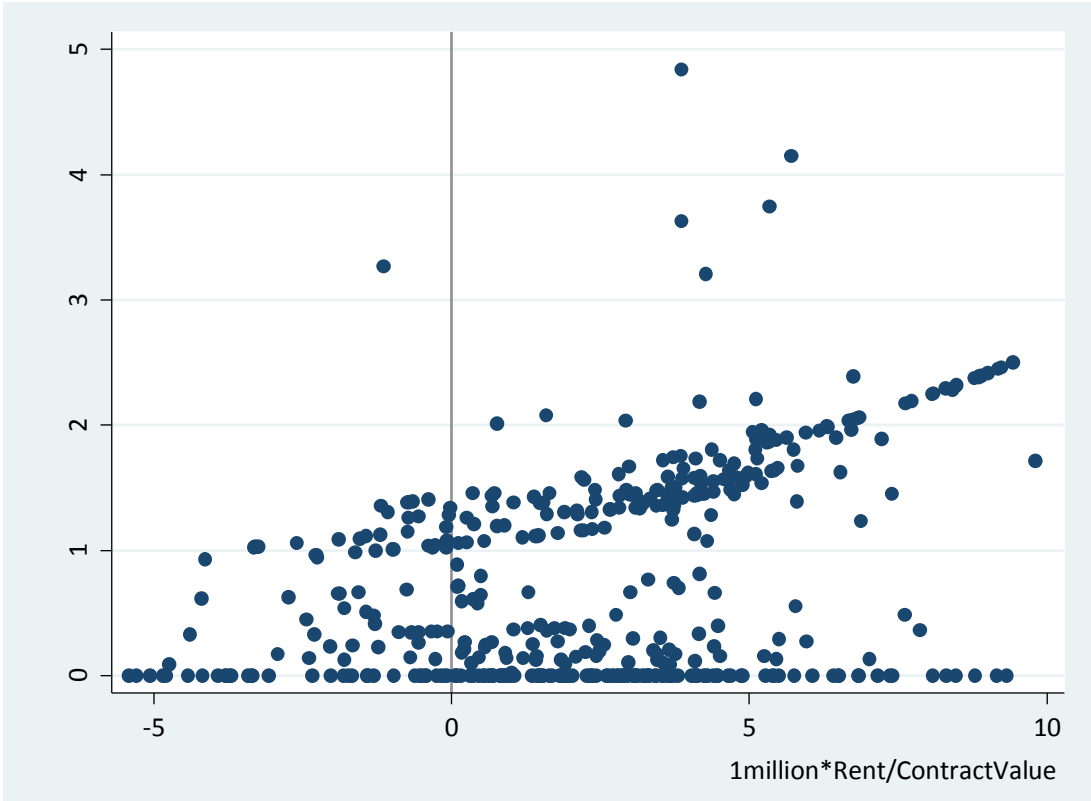


Figure 1: Bribes and contract rents

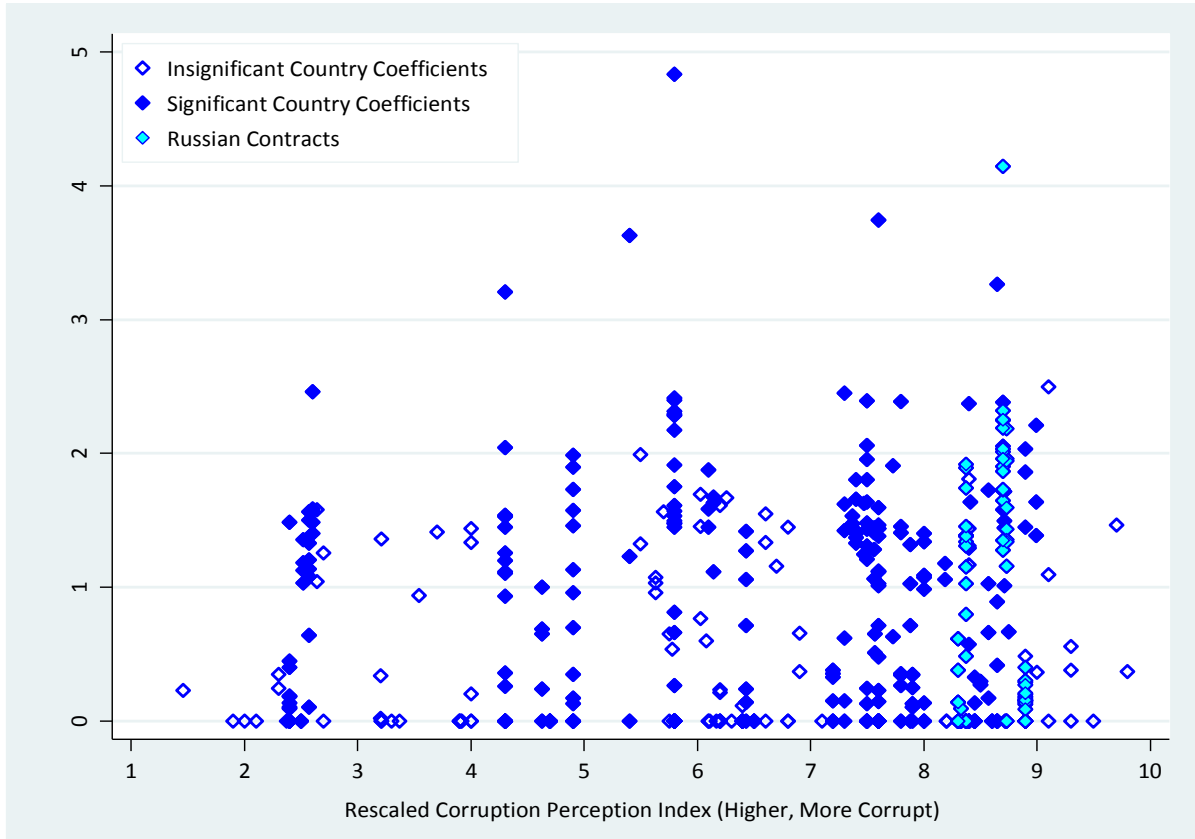




Figure 2: Bribes and corruption perception index

Notes: Corruption perception index (CPI) scores come from Transparency International (various years). CPI scores are available only for 439 contracts. Significance of coefficients refers to 10% level.

APPENDIX: Background notes on the UN Oil-for-Food Program

(1) UN Oil overseers fax warning buyers of Iraqi crude oil (Dec. 15, 2000)

| UNITED NATIONS | | NATIONS UNIES | |
|---|--|--|--|
|  | | | |
| SECURITY COUNCIL COMMITTEE ESTABLISHED BY RESOLUTION 661 (1990) CONCERNING THE SITUATION BETWEEN IRAQ AND KUWAIT | | | |
| S/AC.25/2000/OIL/1330/ FAX. | | 15 December 2000 | |
| TO: BUYERS OF IRAQI CRUDE OIL. | FROM: THE OIL OVERSEERS UNDER SECURITY COUNCIL RESOLUTION 986 (1995) |  | |
| FAX NO.: | FAX NO.: (212) 963-1628 | | |
| ATTENTION: | REF.: OIL-FOR-FOOD ARRANGEMENT | | |
| TOTAL NUMBER OF TRANSMITTED PAGES INCLUDING THIS PAGE : 1 | | | |

Dear Sirs,

Following consultation with the 661 Committee, the UN Oil Overseers wish to advise Buyers of the following:

- 1) The sanctions committee has not approved a surcharge of any kind on Iraqi Oil.
- 2) Payments for purchasing Iraqi crude oil cannot be made to a non-UN account.
- 3) Therefore, buyers of Iraqi oil shall not pay any kind of surcharge to Iraq.

Figure: Oil overseers fax to the buyers of Iraqi crude oil (Dec. 15, 2000) (excerpt).

Source: IIC report (2005a, 137)

(2) Accuracy of bribe data

Investigators had access to both transaction databases and bank records of the Iraqi government, and used both to verify illicit payments. They also interviewed both bribe payers and recipients, and provided companies opportunities to provide rebuttal evidence prior to publication of IIC (2005b). None did (IIC, 2005b). For more details, see IIC (2005b) and US Senate (2005).

(3) Humanitarian aid

In addition to oil-export surcharges, the Iraqi regime collected hundreds of millions of dollars through kickbacks on humanitarian imports, which we do not examine. The number and variety of goods imported make it difficult to ascertain which of the firms that paid kickbacks (and which of those that did not) were in comparable positions, clouding the lens for observation of illicit behavior.