

Ownership, Delegation and Agency Cost: Evidence from Firm-Level Data

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Abstract

A central feature of the organization of the modern firm is the separation of ownership from control. This separation gives rise to agency problems, whereby employees pursue private benefits at a cost to firms' owners. To date, the inability to observe these private benefits has made it nearly impossible to say anything about the extent and magnitude of these costs, much less test theoretical predictions. This paper exploits a set of internal records ("second books") kept by an industrial supplier, with information on private benefits collected by hundreds of firms over a period of several years. The private benefit of employees of buying firms is measured by the cash kickbacks that they receive from the supplier. The cost to owners of the buying firms is measured by the supplier's markups. This paper documents for the first time the size (ca. 5% of contract value) and extent (ca. 46% of transactions involve kickbacks) of private benefits. We document that the size of kickbacks varies widely across firms, but little within a firm. Employees of government-owned firms and foreign firms are much more likely to demand kickbacks, as are foreign-owned firms. Delegation of purchasing decisions is associated with higher kickbacks in private firms, but not in government firms. Of independent interest, we demonstrate inefficiencies introduced by government ownership: governmental organizations pay approximately 21 percent more for the same good as private firms.

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I. Introduction

Any firm with more than one employee necessarily separates ownership from control. It has long been recognized that this separation may entail substantial agency costs (Jensen and Meckling, 1976). These include shirking, as well as directly taking private benefits, such as diverting firm assets. To date, the inability to observe these private benefits has made it nearly impossible to say anything about the extent and magnitude of these costs, much less test theoretical predictions.

Central to these questions is the decision to delegate authority within the firm. The conflict is particularly clear when CEOs hold substantial or total ownership in the firm, but is present whenever the incentives of different levels of the hierarchy diverge. Delegation has emerged as a focal topic in the mechanism design literature. This literature suggests that a firm delegates authority to its employees because the employees have better or cheaper access to “local” information, and therefore can make better decisions. However, the cost of delegation is that the employees can exploit their delegated authority, collude and gain private benefit at the expense of firms.¹

Despite an expanding body of theoretical works on delegation, “most of [the] evidence concerning internal organization of firms comprises case studies and business reports, instead of large scale empirical datasets” (Mookherjee 2006). Unsurprisingly, it is difficult to observe and measure the private benefits of delegated employees and the cost that they incur to their firms.

This paper exploits the records of kickbacks and profits that an industrial supplier has made in thousands of sales contracts to firms in an Asian developing country. In this dataset, we observe the private benefits of colluding parties and the cost to buying firms: (i) the private benefit of employees of buying firms is the kickbacks that they receive from the supplier; (ii) the private benefit of the supplier is its profits; and (iii) the cost of employees’ actions to their firms is the markup of

¹ For examples of these arguments see ??

the supplier, which are sums of the above kickbacks and profits. This paper documents for the first time the size (ca. 5% of contract value) and extent (ca. 46% of transactions involve kickbacks) of private benefits. We document that the size of kickbacks varies widely across firms, but little within a firm. Employees of government-owned firms and foreign firms are much more likely to demand kickbacks, as are foreign-owned firms. Delegation of purchasing decisions is associated with higher kickbacks in private firms, but not in government firms. Of independent interest, we demonstrate inefficiencies introduced by government ownership: governmental organizations pay approximately 21 percent more for the same good as private firms.

This dataset covers 1737 procurement contracts made with 372 buying firms from January 2003 to July 2007. It contains detailed information about the kickbacks, costs, profits, dates of contracts, names and sizes of buying firms and contact persons' positions. The supplier allowed the use of this dataset for research purposes under the condition that the identity of the supplier and its clients is not revealed.

The rest of the paper is structured as follows. Section II provides the background of the industrial supplier and describes its sales and bribing practices. Sections III discusses our conceptual framework, while Section IV presents empirical evidence, exploring the predictors of private benefits and firm performance. The paper ends with a brief discussion of the implication of the results.

II. The Firm's Sales and Bribing Practices

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 four leading national suppliers in this competitive market. The dataset covers all

sales transactions of this supplier from January 2003 to July 2007. It 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, position of contact person.

During the period studied the supplier entered into 1737 contracts with 371 firms with 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. Only 121 out of these 372 clients took kickbacks. The median kickback among contracts with corrupt clients was 7.0%. The descriptive statistics are shown in Table 1.

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; receiving payment and giving 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 approaches the clients identified as potential in the first step. For a new client, this is a lengthy process. Initially the supplier's salespeople contact the potential client to request a meeting. If the client accepts the offer 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 lead to sales because these firms already buy from different 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, post-sales services and the

kickback if the client shows interest. The amount of the kickback is almost always initiated by the client. The supplier gives its salespeople a minimum price list and allows them to pay kickbacks up to 5% of the value of the contract. For any price lower than the listed prices, or for a kickback greater than 5% of the contract values, the salespeople should ask the CEO of the supplier for authorization. Competition in the market makes the supplier's offer very similar in quality, price and kickback levels.

If an agreement is reached, they would typically enter into a contract by proceeding through the following process. After signing the contract, the client makes a deposit of roughly 30% of the contract value and the supplier starts ordering the product from overseas (a deposit is usually necessary because these products are customized and would be difficult to be sold 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 may allow the client to hold back a small amount (roughly 20% of the contracted value) until one month after delivery so that the client can make sure that the product meets the specified quality.

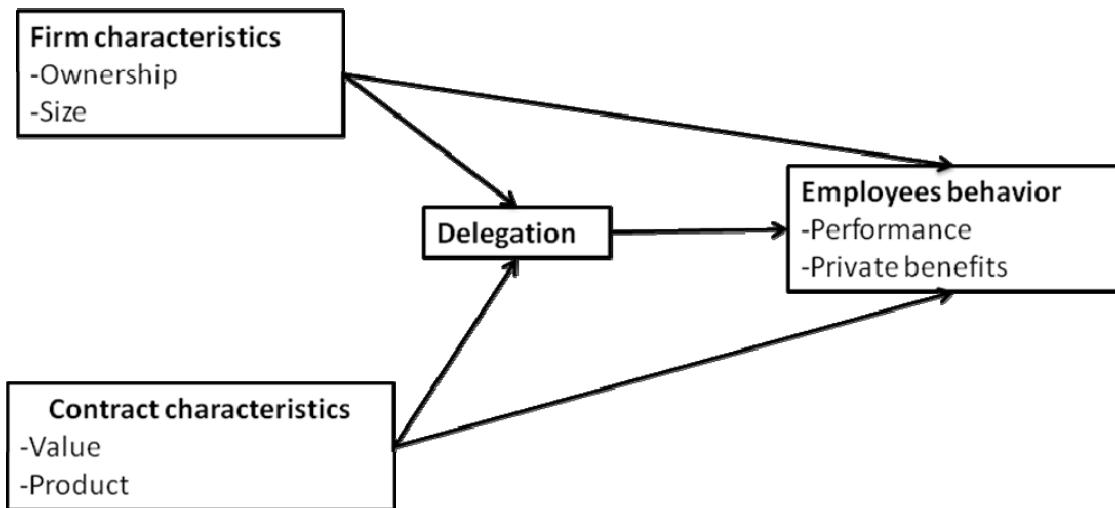
The kickback is paid only after all contract payments have been made. This is quite different from the kickback-payment method used by in other firms that deal with larger contract values (that I have interviewed.) When contract values are large, selling firms usually pay kickbacks as a percentage of the actual payment, that is, they do not wait until all payments have been made. Even this supplier mentioned that in a few cases when contract values are high, it had to pay part of the kickback before all payments had been made.

Bribing is also efficient in the sense that 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 (such as on the New Year Eve), this supplier has been spending less and less money on such gifts and fancy dinners. Kickbacks simply come in cash stuffed in envelopes with the

amount written clearly outside. Surprisingly, the supplier sometime wires the kickback money through the post office to recipients in remote areas.

III. Conceptual Framework

The figure below demonstrates what we posit are the key determinants of employee behavior.



An initial glance suggests that determining causal relationships may be difficult. The level of private benefits is plausibly related to a host of factors, including firm ownership and size, contract characteristics, and the level of delegation within the firm. The level of delegation itself likely varies with firm and product characteristics. As we are unable to identify plausibly exogenous variation, we instead focus on what relationships the data indicate. It is our hope that providing this first set of facts will inform both theory and future empirical work.

Firm Ownership and Performance

We split our firms into three categories of ownership for analysis: privately held firms, government organizations and state-owned enterprises; and foreign firms (including joint ventures). Basic economic theory suggests that incentives affect performance. As employees of government-owned firms typically face much flatter incentives than those of privately held firms, and much (but

by no means all) evidence suggests that government firms operate less efficiently than private firms. (Shleifer and Vishny, 1994.) The relative performance of foreign firms is theoretically less clear. On the one hand, it has been argued that foreign firms that manage to compete abroad have efficient internal control processes, which may lead to greater efficiency and fewer private benefits. On the other hand, there is substantially more distance between the front-line employee of a foreign firm and its equity holders than for a domestic employee.

Firm Ownership and Delegation

In the literature, the most frequently claimed reason for delegation is that lower employees have better “local” information and therefore can make better business decisions for the firms than their superiors. This logic suggests that the superiors have either comparatively lower motivation to acquire local information or higher information processing cost (Mount and Reiter 1995; Bolton and Dewatripoint 1994; Zandt 1997).

Our data source divides representatives of firms into three categories: CEO, management, and staff. While these levels are not precise, the coding decision was made by the same individuals within the trading firm providing our data, and should therefore be quite comparable across firms.

Delegation, Performance, and Kickbacks

There is no clear theoretical prediction between delegation and performance: delegation allows specialization, and in large firms which engage in a broad range of activities, the value of specialization could be quite high. A dedicated procurement officer may gain familiarity with the market and be able to negotiate better deals for the acquiring company. Of course, if lower-level employees face weaker incentives, they may be less motivated to perform well.

Similarly, the effect of delegation on private benefits is ambiguous. On the one hand, delegation transfers control from owners of firms to their employees, permitting them more discretion and thus more room for corruption. In fact Klittgard (1988) argues that discretion is one

of the main causes of corruption. On the other hand, Carbonara (2000) suggests that if supervisors are properly incentivised to monitor and prevent corrupt behaviors by employees, delegation may in fact reduce corruption.

IV. Empirical Results

Following Figure 1, this section first examines what product and firm characteristics predict delegation. We then describe our measures of kickback and delegation, and ask what firm factors predict whether a firm employee requires a kickback in the procurement process, and what predicts the size of this kickback. Finally, we examine what determines the performance of the agent negotiating on behalf of the firm.

Determinants of Delegation

Table 2 describes the factors that predict delegation of the purchasing decision within firm. Both OLS regressions, with 1 indicating CEO, 2 indicating management, and 3 indicating staff, and ordered logits are presented. Because the coefficients on the OLS regressions are more readily interpretable, we focus on these results. Standard errors are clustered by purchasing firm.

The first two columns suggest that there is not a clear relationship between firm ownership and delegation: government and foreign firms are no more likely to delegate decisions than private firms (the omitted category). Columns (3) and (4) add firm size and product cost. As predicted by most theories, larger firms are significantly more likely to delegate purchasing decisions than medium or small firms. Similarly, the more valuable the product, the less likely the decision is to be delegated. (We measure product cost to the importing firm, rather than the purchaser). Columns (5) and (6) suggest that there is minor variation by purchasing industry.

Taken together, the results suggest that relationships between ownership and performance and kickbacks may not be ‘contaminated’ by a mediating channel of delegation. In contrast, firm size and product cost affect delegation, which likely in turn affect kickbacks and performance.

Table III estimates these relationships separately for government, private and foreign firms. We also include product fixed-effects (the importing firm sells approximately 20 different types of products). Interestingly, delegation does not increase with firm size for foreign firms (though the estimates are relatively imprecise). IN contrast, delegation is strongly increasing with firm size for private and foreign firms. The relationship between product cost and delegation is strongest for government firms.

Measuring Kickbacks and Performance

The agency cost of delegation is a popular topic in the mechanism design literature. However, there have been few empirical studies on this topic. Obviously, the challenge is how to measure the cost properly. Ang, Cole and Lin (2000) use the ratio of annual expense over sales as a proxy of agency cost for a sample of small businesses in the United States. They find that this agency cost increases when: (i) management is delegated to an outsider of the firm; (ii) the manager holds a lower share in the ownership of the firm; (iii) there are many non-manager shareholders; (iv) there is less monitoring by banks. However, in another study, Durand and Vargas (2003) found little evidence for the relationship between delegation and productive efficiency using a sample of French private firms. They suggest that the principal-agency model has limited power in explaining behaviors of private firms.

In this study, we directly observe the level of private benefit taken by an employee of a firm, as the importing firm providing us with data records the amount of kickback paid. To measure overall performance, we use two measures. Cost to share holders indicates the cost paid by shareholders of the firm, and includes the net profit of the importing firm plus the size of the bribe.

Markup refers to the (gross) profit earned by the importing firm, net of any kickback paid to the purchasing employee.

Determinants of Kickback

Table IV examines firm and product characteristics that predict whether the purchasing firm requires a kickback. A linear probability model is estimated. In column (1), we see that employees of government-owned firms are significantly more likely to demand kickbacks: the magnitude of the effect is very large, at 39%. Perhaps more surprisingly, we find that employees of foreign-owned firms are even more likely to demand a kickback, approximately 58% more likely. (Results, available on request, are similar if we strict attention to foreign firms whose headquarters are located in an OECD country: kickbacks are required).

We also find that the greater the value of the product, the more likely the purchaser is to demand a kickback. All of these results include product fixed effects.

Columns (2)-(4) test whether these patterns vary by firm ownership. We find that the likelihood of requiring a kickback is increasing in product cost for government and private firms; there are too few foreign firms to estimate this relationship precisely.

Consistent with theories of private ownership, CEOs of private firms are less likely to demand kickbacks than management or staff. In contrast, in government firms, low-level staff are the least likely to demand kickbacks.

Table V examines the predictors of the size of kickback required. The size of the kickback is measured as the dollar amount of the kickback divided by the cost to the importing firm. We choose a percentage specification because the kickbacks themselves are negotiated in percentages. For transactions in which no kickback is required, a 0 is recorded.

Table V indicates similar patterns. For the whole sample (columns 1), the average size of the kickback demanded by employees of government and foreign firms is much larger, at 8% and 5%,

relative to that required by employees of private firms. The fact that there was no relationship between delegation and ownership suggests that this relationship may be causal. Kickbacks are increasing in product size, though the relationship is quadratic, with an inflection point at \$13,500, well above the median contract size.

Columns (2)-(4) estimate this relationship for alternative firm ownership structures. The results suggest that the relationship between kickback and firm size is not uniform: larger government and foreign firms have larger kickbacks, while larger private firms have smaller kickbacks, on average. Similarly, the relationship between delegation and size of kickback is strong for private and foreign firms, but not for government firms.

Measures of Performance

Tables VI – VIII examine predictors of performance. All regressions in this section include product fixed effects.

The first measure, cost to shareholders, relates the “surplus” extracted from shareholders by both the employee and the trading firm, to firm and product characteristics. For each pair of columns, the first column omits the ‘endogenous’ regressors indicating whether a kickback was demanded and the size of the kickback, while the second column includes these measures. The dependent variable, cost to the shareholders, is the sum of the kickback and the gross profit (after kickback) accruing to the importing firm, measured as a percent of product cost.

Agents of government firms acquire products at the highest cost to shareholders: an average of 21%. Not surprisingly, the higher the kickback, the greater the cost to shareholders. The coefficient on this variable is greater than one for foreign firms, suggesting that an extra dollar in kickbacks is associated with \$1.88 in additional profit for the importing firm.

Larger firms appear to do a worse job acquiring products, though the results are significant only for the entire sample, and for private firms.

Finally, the profitability (as measured by percent) decreases in the product cost.

Table VII repeats this analysis, using the markup achieved by the firm as the dependent variable. This measure “penalizes” the firm’s profits by the amount of kickback paid. These regressions suggest that government-owned firms are not significantly more profitable. Medium and large firms appear to do “worse” at negotiating deals than small firms.

The coefficient of -1.28 on government firms in column (4) may at first appear puzzling: why should one dollar in increased kickbacks reduce the firms profit by more than a dollar? One possible explanation is that very good negotiators manage to both acquire large bribes for themselves, and cause the firm to offer a particularly low price.

Indeed, those who have argued in favor of corruption note that it sometimes aligns incentives correctly: for example, if the acquiring agent is able to procure a product at a particularly low price, a kickback may serve as an informal bonus to that employee.

Table VIII provides some evidence potentially consistent with this view. It examines the markup paid by firms which never demanded a kickback. In contrast to Table VII, the dummy on government ownership is positive, and economically and statistically quite significant: for the same product, government procurement agents pay 30% more than private procurement agents. However, much caution is warranted when comparing results for table VII (which includes the entire sample) and VIII (which includes only firms that do not demand kickbacks), as there is severe sample selection.

Stickiness of Private Benefits

In Table IX, we present what we believe is a new stylized fact: the persistence or stickiness of private benefits. Most transactions involve kickbacks (regardless of the ownership structure), and the size of this kickback varies widely (the standard deviation is 16%). However, the within-firm

standard deviation is much smaller, at 4%, and (Panel B) 44% of bribes are (in percentage terms) nearly exactly the same size as the previous bribe.

V. Conclusion and Future Directions

The evidence presented in this paper suggests several important facts about the separation between ownership and control: it introduces significant agency costs: on average, approximately 6% of the contract value.

Employees of government-owned firms and foreign firms are much more likely to demand kickbacks, as are foreign-owned firms. Delegation of purchasing decisions is associated with higher kickbacks in private firms, but not in government firms. Of independent interest, we demonstrate inefficiencies introduced by government ownership: governmental organizations pay approximately 21 percent more for the same good as private firms.

These results do not imply that delegation is harmful, or that firms should avoid it. Delegation provides important benefits that have been discussed in the literature and in this paper. Instead, this paper provides a measure of the agency cost of delegation and shows that this cost is very significant.

Finally, we caution that all results presented are correlations, and may not warrant causal interpretation. Future work will seek to develop more credible identification strategies to identify causal relationships: for example, by obtaining a longer time series, we may be able to include firm-fixed effects, and observe how kickbacks vary when the particular product being acquired changes, or when the agent in charge of procurement changes.

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Table I: Summary Statistics

	All	Private	Foreign	Government
Transactions				
Number of transactions	1737	1041	224	472
Number of firms	371	213	45	113
Average contract value (USD '000s)	2.10	1.65	1.87	3.21
Kickbacks				
Firms taking kickback	174	67	33	74
Percent of firms taking kickback	46.9%	31.5%	73.3%	65.5%
Transaction involves kickback	45.6%	26.1%	83.9%	70.3%
kickback as % of Contract Value	5.4%	2.5%	8.4%	10.4%
kickback as % Taking kickback	11.8%	9.5%	10.0%	14.8%
10th percentile	3.5%	2.3%	4.8%	4.7%
median	7.0%	4.8%	6.8%	9.4%
90th percentile	24.5%	12.3%	19.9%	28.8%
Gross Markup (Net of Kickback)				
Average markup (% of COGS)	90.5%	85.4%	93.3%	100.7%
10th percentile	11.3%	8.6%	10.9%	15.5%
median	79.1%	77.0%	70.0%	88.9%
90th percentile	184.2%	169.7%	193.6%	193.5%
Delegation				
CEO / Country Head	27.1%	28.8%	35.3%	19.7%
Management	21.1%	25.1%	5.4%	19.9%
Staff	51.8%	46.1%	59.4%	60.4%
Firm Size				
Small	66.7%	86.9%	43.1%	36.2%
Medium	25.3%	6.2%	50.9%	52.5%
Large	7.7%	6.3%	6.0%	11.3%

Note: State Owned Enterprises are included in Government Category)

Table II: Determinants of Delegation: Regression Results

Dependent variable: Level of Delegation (1=CEO/Country Head; 2=Management; 3=Staff)

ALL FIRMS						
	OLS	Ord Log	OLS	Ord Log	OLS	Ord Log
Government	0.28 (0.23)	0.59 (0.51)	0.20 (0.19)	0.35 (0.44)	0.19 (0.19)	0.34 (0.45)
Foreign	0.11 (0.45)	0.29 (1.08)	0.20 (0.32)	0.42 (0.79)	0.16 (0.32)	0.33 (0.83)
Medium firm			0.23 (0.22)	0.60 (0.52)	0.25 (0.22)	0.69 (0.53)
Large firm			0.78 *** (0.22)	2.26 *** (0.84)	0.77 *** (0.21)	2.26 *** (0.82)
Product Cost			-0.56 *** (0.21)	-1.21 *** (0.46)	-0.56 *** (0.20)	-1.23 *** (0.47)
Product Cost Sq			0.13 (0.43)	0.47 (1.26)	0.10 (0.42)	0.40 (1.26)
Industry 1					0.47 ** (0.23)	1.11 (0.73)
Industry 2					-0.04 * (0.02)	-0.08 * (0.05)
Industry 3					0.00 (0.00)	0.00 (0.00)
Observations	1710	1710	1710	1710	1663	1663
Firms	369	369	369	369	364	364

Table III: Determinants of Delegation: By Ownership

	All Firms OLS	Gov't Firms OLS	Private Firms OLS	Foreign Firms OLS
Government	0.22 (0.19)			
Foreign	0.25 (0.33)			
Medium firm	0.21 (0.22)	-0.25 (0.23)	0.09 (0.24)	1.05 ** (0.46)
Large firm	0.81 *** (0.22)	0.45 (0.46)	0.76 *** (0.19)	1.51 *** (0.54)
Product Cost	-0.04 * (0.02)	-0.10 *** (0.03)	-0.01 (0.03)	0.08 (0.05)
Product Cost Sq	0.00 (0.00)	0.00 *** (0.00)	0.00 (0.00)	-0.01 * (0.00)
Industry 1	-0.57 *** (0.22)	-0.36 (0.35)	-0.33 (0.21)	-0.72 (0.49)
Industry 2	0.09 (0.45)	0.51 * (0.29)	-1.07 *** (0.21)	-0.57 ** (0.23)
Industry 3	0.37 * (0.21)	0.35 (0.26)	0.15 (0.34)	-0.02 (0.82)
Transactions Firms	1690 366	459 112	1010 209	221 45
Product FE	Yes	Yes	Yes	Yes

Table IV: Does Purchaser Require Kickback?

	All Firms OLS	Gov't Firms OLS	Private Firms OLS	Foreign Firms OLS
Government	0.39 *** (0.08)			
Foreign	0.58 *** (0.12)			
Management	0.06 (0.08)	-0.12 (0.11)	0.10 (0.07)	0.35 (0.22)
Staff	0.14 (0.12)	-0.21 * (0.11)	0.29 * (0.16)	0.16 (0.16)
Medium firm	-0.03 (0.09)	-0.05 (0.11)	0.24 * (0.14)	-0.22 (0.14)
Large firm	0.17 (0.13)	0.23 (0.17)	0.13 (0.19)	0.35 (0.22)
Product Cost	0.03 *** (0.01)	0.02 ** (0.01)	0.04 ** (0.02)	-0.02 (0.06)
Product Cost †	0.00 ** (0.00)	0.00 (0.00)	0.00 ** (0.00)	0.00 (0.00)
Industry 1	0.06 (0.08)	0.02 (0.10)	-0.03 (0.07)	0.17 (0.13)
Industry 2	0.04 (0.18)	0.19 (0.22)	-0.05 (0.06)	0.16 (0.31)
Industry 3	0.01 (0.19)	-0.20 (0.17)	0.39 (0.29)	0.41 (0.28)
Product 1	0.04 (0.09)	0.07 (0.10)	0.06 (0.11)	-0.29 (0.24)
Product 2	-0.09 (0.10)	-0.06 (0.13)	-0.16 ** (0.07)	-0.30 (0.21)
Product 3	-0.07 (0.11)	-0.01 (0.18)	0.02 (0.14)	-0.20 (0.18)
Product 4	-0.04 (0.14)	-0.14 (0.24)	0.02 (0.21)	0.08 (0.13)
Observations	1690	459	1010	221
Firms	366	112	209	45

Product FE Yes Yes Yes Yes

Table V: Predictors of Size of Kickback Demanded

	All Firms OLS	Gov't Firms OLS	Private Firms OLS	Foreign Firms OLS
Government	0.08 *** (0.02)			
Foreign	0.05 *** (0.02)			
Management	0.01 (0.01)	0.01 (0.03)	0.01 (0.01)	0.05 ** (0.02)
Staff	0.03 (0.02)	-0.01 (0.04)	0.04 ** (0.02)	0.03 ** (0.01)
Medium firm	0.00 (0.02)	0.00 (0.03)	0.04 (0.03)	0.03 ** (0.01)
Large firm	0.07 (0.05)	0.21 *** (0.06)	-0.03 ** (0.02)	0.13 *** (0.03)
Product Cost	0.00 * (0.00)	0.00 (0.00)	0.00 (0.00)	-0.01 (0.01)
Product Cost †	0.00 ** (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Industry 1	0.03 (0.02)	0.02 (0.03)	0.01 (0.01)	0.01 (0.02)
Industry 2	0.00 (0.02)	0.02 (0.03)	0.00 (0.00)	0.00 (0.03)
Industry 3	-0.04 * (0.02)	-0.08 (0.05)	0.00 (0.02)	0.01 (0.03)
	-0.04 *** (0.01)	-0.03 (0.03)	-0.01 (0.01)	-0.05 ** (0.02)
	-0.02 (0.02)	-0.02 (0.03)	-0.01 * (0.01)	-0.07 *** (0.02)
	0.01 (0.02)	0.06 (0.09)	0.00 (0.02)	-0.02 (0.03)
	-0.02 (0.02)	-0.02 (0.05)	0.00 (0.02)	0.00 (0.04)
Observations				
Firms	1690 366	459 112	1010 209	221 45

Table VI: Predictors of Cost to Shareholders

	All Firms		Government		Private		Foreign	
Corrupt Buyer		0.05 (0.06)		-0.01 (0.11)		0.06 (0.07)		0.15 (0.14)
Size of Kickback		0.57 ** (0.25)		0.56 (0.35)		0.38 * (0.20)		2.88 *** (0.75)
Government	0.21 *** (0.08)	0.15 ** (0.07)						
Foreign	0.11 (0.15)	0.06 (0.14)						
Management	0.16 (0.10)	0.15 (0.10)	0.05 (0.15)	0.04 (0.14)	0.03 (0.12)	0.03 (0.12)	0.56 *** (0.18)	0.35 * (0.18)
Staff	0.02 (0.10)	0.01 (0.10)	-0.16 (0.15)	-0.16 (0.14)	-0.06 (0.13)	-0.08 (0.13)	0.31 ** (0.16)	0.20 (0.17)
Medium firm	0.19 ** (0.10)	0.19 ** (0.09)	-0.11 (0.11)	-0.11 (0.10)	0.17 (0.11)	0.15 (0.10)	0.49 *** (0.14)	0.43 *** (0.14)
Large firm	0.34 *** (0.10)	0.30 *** (0.10)	0.17 (0.19)	0.05 (0.18)	0.29 ** (0.12)	0.29 *** (0.11)	0.24 (0.39)	-0.18 (0.33)
Product Cost	-0.04 *** (0.01)	-0.04 *** (0.01)	-0.06 *** (0.02)	-0.06 *** (0.02)	-0.05 *** (0.01)	-0.06 *** (0.01)	-0.07 (0.07)	-0.05 (0.06)
Product Cost Sq	0.00 (0.00)	0.00 (0.00)	0.00 * (0.00)	0.00 ** (0.00)	0.00 *** (0.00)	0.00 *** (0.00)	0.00 (0.00)	0.00 (0.00)

Table VII: Predictors of Markup

	All Firms		Government		Private		Foreign	
Corrupt Buyer		0.01 (0.06)		-0.01 (0.10)		0.00 (0.07)		0.12 (0.13)
Size of Kickback		-0.58 *** (0.21)		-1.28 *** (0.22)		-0.33 ** (0.14)		1.12 (0.75)
Government	0.05 (0.06)	0.09 (0.06)						
Foreign	0.02 (0.12)	0.04 (0.12)						
Management	0.13 (0.09)	0.14 (0.09)	0.05 (0.11)	0.07 (0.11)	0.01 (0.11)	0.02 (0.12)	0.50 *** (0.16)	0.39 ** (0.17)
Staff	-0.01 (0.09)	0.01 (0.09)	-0.07 (0.09)	-0.09 (0.11)	-0.11 (0.12)	-0.10 (0.12)	0.28 ** (0.14)	0.23 (0.15)
Medium firm	0.18 ** (0.08)	0.18 ** (0.08)	-0.07 (0.08)	-0.07 (0.09)	0.07 (0.06)	0.08 (0.07)	0.36 *** (0.13)	0.35 *** (0.13)
Large firm	0.19 * (0.11)	0.22 ** (0.10)	-0.29 ** (0.14)	-0.02 (0.15)	0.33 *** (0.10)	0.32 *** (0.10)	0.13 (0.36)	-0.06 (0.33)
Product Cost	-0.04 *** (0.01)	-0.04 *** (0.01)	-0.05 *** (0.01)	-0.05 *** (0.01)	-0.05 *** (0.01)	-0.05 *** (0.01)	-0.07 (0.05)	-0.06 (0.05)
Product Cost Sq	0.00 * (0.00)	0.00 * (0.00)	0.00 ** (0.00)	0.00 ** (0.00)	0.00 *** (0.00)	0.00 *** (0.00)	0.00 (0.00)	0.00 (0.00)

Table VIII: Markup Paid by Firms With No Kickback

	All Firms	Government	Private	Foreign
Government	0.30 *** (0.10)			
Foreign	0.03 (0.12)			
Management	-0.04 (0.17)	-1.24 *** (0.22)	0.01 (0.17)	0.38 (0.63)
Staff	-0.23 (0.18)	-1.37 *** (0.10)	-0.22 (0.19)	-0.11 (0.48)
Medium firm	0.06 (0.10)	-0.16 (0.24)	0.15 (0.10)	0.09 (0.48)
Large firm	0.05 (0.14)	0.20 (0.22)	0.09 (0.15)	
Product Cost	-0.05 *** (0.02)	-0.13 (0.14)	-0.06 ** (0.02)	0.19 (0.27)
Product Cost Sq	0.00 (0.00)	0.01 (0.01)	0.00 (0.00)	-0.01 (0.07)

Table IX: Stickiness of Kickbacks
(includes only firms that have more than one transaction)

ALL VALUES	All	Private	Public	Foreign	OECD-HQ
% Transactions with Kickback	0.76	0.60	0.85	0.94	0.92
Average Kickback	0.09	0.06	0.13	0.09	0.10
Standard deviation of kickback	0.16	0.19	0.15	0.06	0.08
Average (Within firm mean)	0.11	0.11	0.12	0.09	0.10
Average (Within firm standard deviation)	0.04	0.03	0.05	0.03	0.05
% of variation explained by firm ID (intraclass correlation)	0.69	0.72	0.66	0.38	0.12
Stickiness					
When bribe is non-zero, % of bribes					
Within 1% of group mean	0.09	0.16	0.03	0.04	0.00
Within 1% of previous amount	0.44	0.46	0.40	0.52	0.39