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Institutions and Bribery in an Authoritarian State

Yuhua Wang

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Abstract Scholars have suggested that corruption could serve as a substitute for property-protecting institutions in developing countries, but very few empirical studies have been conducted to test this theory. Most existing studies on the determinants of corruption are cross-national, rely on perception-based measures, and focus on economic development, regime type, and market structure as explanatory variables. Little is known about why corruption occurs in an authoritarian state at the micro level. We theorize bribery as a bargaining process between a firm and a rent-maximizing public official, and we assume that graft-paying firms face different sets of rules and regulations, which govern firms' costs and benefits of bribing. We test the hypothesis that firms' bribes are determined by the rigor of their internal auditing control and the quality of property-protecting institutions. We use entertainment and travel costs directly observed in a large-scale firm-level survey in China as a proxy for corruption. Our study implies that firms operating in a weak property rights regime rely on political connections as a substitute for formal legal protection. The findings shed light on the literature on property rights, corruption, and East Asian development.

Keywords Bribery · Corruption · Property rights protection · China

Introduction

Authoritarian rulers especially have difficulty in making a credible commitment to investors because autocrats are unwilling to constrain their discretionary power (North 1990; Olson 1991). However, some of the fastest-growing economies were or still are run by autocrats, including, to name just a few: Suharto's Indonesia, Lee Kuan Yew's Singapore, Deng Xiaoping's China, Park Chung-hee's South Korea, Chiang Ching Kuo's Taiwan, Gamal Abdel Nasser's Egypt, Augusto Pinochet's Chile, and Shah Mohammed Reza Pahlavi's Iran. There must be some alternative

Y. Wang (✉)
Department of Political Science, University of Pennsylvania, 208 South 37 Street, Room 217, Philadelphia, PA 19143, USA
e-mail: yuhuaw@sas.upenn.edu

mechanisms to substitute for property rights protection, which is often weak or absent in authoritarian regimes.

Scholars have suggested that political connections cultivated via corruption serve as a substitute for property-rights-protecting institutions (Johnson et al. 2000; Hellman et al. 2003; Faccio 2006). However, very few empirical studies have been conducted to test the relationship between property rights protection and corruption.

Previous empirical studies of corruption share three common features. They rely on perception-based indices to measure corruption; they are based on macro-level analysis using cross-national data; and they focus on the effects of economic development, regime type, and market structure. Despite the significant contributions of existing research, little is known about how various institutions within an authoritarian regime affect experience-based measures of corruption at the micro level.

We fill this gap by examining the institutional determinants of bribery in authoritarian states based on an analysis of a large firm-level survey in China. We use a new measure of graft pioneered by Cai et al. (2011): entertainment and travel costs (ETC.). ETC. is listed as a category under "management fees" (*guanli feiyong*) in firms' accounting books. The World Bank and the National Bureau of Statistics in China sent survey teams to 12,400 firms operating in China to directly record this number from their accounting books. ETC. covers routine business expenditures on lodging, meals, and travel. However, a significant portion of ETC. is spent on building connections with government officials. This part of ETC. takes the form of eating and drinking with officials, gifts, hotel accommodations, and airfare used by officials or their families, karaoke, sports club memberships, and other recreational activities. Firms in China often use ETC. to bribe officials and get reimbursed by presenting allowable receipts.[1]

We identify three components of ETC.: routine business expenditures, managerial excess, and bribery. We control for possible correlates with these three components and find that firms with soft auditing control and firms operating under a weak property-right-protecting environment have significantly higher ETC., suggesting that a notable portion of ETC. is spent on bribing public officials.

We theorize bribery as a bargaining process between a firm and a rent-maximizing public official following the existing literature (Shleifer and Vishny 1993; Svensson 2003). However, we relax the assumption that graft-paying firms face the same set of rules and regulations, which is prevalent in previous models of bribery (Svensson 2003: 208). Consider a scenario where firms must pay bribes to continue their operations bargaining about the amount with a public official. The price a firm is willing pay is determined by the costs and benefits of bribery. While the internal

[1] The author's experience with Chinese firms is that the reimbursement requirements are very flexible. Almost everything can be reimbursed. What's worse is that the issuers of receipts are also very flexible. For example, many hotels operate boutiques for expensive gifts, and those gifts can be invoiced as room charges. There is also a large black market for fake receipts. According to an official report, in 2010, an agency designated by the central government detected over 660 million fake receipts. The central government organizations used fake receipts to get reimbursed for over 140 million RMB (approximately 20 million U.S. dollars) in cash. In addition, more than 70,000 firms were found to use fake receipts. Obviously, this is just the tip of the iceberg. Please see "China Detected and Confiscated 660 Million Pieces of Fake Receipts in 2010" (2010 Quanguo jiaohuo 6.6 yi jiafapiao), *Xinhua News*, May 16, 2011, at http://news.xinhuanet.com/video/2011-05/16/c_121423162.htm, accessed on January 12, 2012.

auditing control governs the potential costs, the quality of property rights protection determines the benefits.

Property-rights-protecting institutions are defined as a combination of institutions providing the legal framework that supports private contracts (contracting institutions) and institutions constraining government and elite expropriation (protecting institutions) (North 1981: 20–27; Acemoglu and Johnson 2005: 950). A strong legal system that enforces private contracts and defends against state expropriation is an important indicator of a strong property rights regime.

The findings shed lights on our understanding of the paradoxical coexistence of rapid growth and rising corruption in China and transition economies in general (Wedeman 2012). Scholars have noted a structural change in the causes and forms of corruption in China. In the 1980s, corruption was the unintended consequence of economic reform policies such as the dual-track pricing system, which created rent-seeking opportunities for officials who controlled supply of scarce goods (Gong 1997). In the 1990s, corruption was the by-product of a semi-competitive market economy where the state still played a strong role in regulating economic activities (Pei 2006). Different types of economic reforms also generated opportunities for various forms of corruption. Manion (2013) distinguished between non-transactive corruption where officials prey on public resources on the one hand and the mutually beneficial exchanges between public officials and private businesspersons on the other. She argues that the forms of corruption that emerged in the 1980s were mostly of the former type, compared to the mutually beneficial corruption of the 1990s. This study is focused on this mutually beneficial corruption.

The next section will identify a gap in the recent literature on corruption. The third section will propose an institutional theory of bribery. The fourth section justifies a measure of bribery: entertainment and travel costs. The fifth section introduces the data set and operationalizes key variables. The sixth section presents the results of the quantitative analysis. The final section will then conclude with a summary of major findings and implications.

Existing Studies on Corruption

Rose-Ackerman (1978) pioneered positive research on corruption. Recent efforts by political scientists and economists have been undertaken to examine cross-national variations in corruption using perception-based measures, and many studies have focused on the effects of economic development, regime type and market structure.[2]

With some exceptions, most recent studies on corruption have been cross-national (Mauro 1995; Svensson 2000; Treisman 2000).[3] While cross-national studies provide useful insights on corruption at the aggregate level, we have limited knowledge about why corruption occurs more often in some regions or some firms than others within a country, although the political institutions, culture and historical factors are similar.

[2] For a review of recent studies on corruption, please see Treisman (2007) and Olken and Pande (2012).
[3] Exceptions include Svensson's (2003) study of Uganda, Cai et al.'s (2011) study of China, and Olken's (2007) study of Indonesia.

Research on the determinants of corruption has focused on economic development, regime type, and market structure. La Porta et al. (1999), Ades and Di Tella (1999), and Treisman (2000) all found a positive correlation between per capita GDP and perceived corruption.

Some studies have examined how corruption occurs with different probabilities in democracies and authoritarian regimes. Treisman (2000) suggested that it may take decades for the establishment of democratic institutions to translate into lower perceived corruption. Some have found that the relationship is nonlinear: democratization may increase corruption in the short run, even if graft is reduced as democracy deepens (Montinola and Jackman 2002). However, as Treisman (2007: 228) showed, among imperfect democracies or soft authoritarian states, small increases in freedom do not have a consistent impact on corruption perceptions.

In addition, many studies have found that a less competitive market structure that generates more rents tends to increase opportunities for corruption (Ades and Di Tella 1999). Sandholtz and Gray (2003) found a negative effect of trade openness on corruption.[4]

Finally, most existing measures of bribery and corruption are based on perception indices constructed from experts' assessments or surveys of ordinary citizens or business managers. The three most widely used corruption measures are the Corruption Perception Index constructed by Transparency International, a rating of control of corruption published by a team led by Daniel Kaufmann at the World Bank (*Governance*), and a rating by Political Risk Services based on evaluations by its network of experts and published in its International Country Risk Guide. These measures are subject to perception bias (Knack 2006; Treisman 2007) and introduce significant measurement errors.

Despite the high volume of existing studies, very few micro-level studies have been conducted in authoritarian regimes examining how institutional factors affect experience-based measures of corruption. The Chinese case is useful in providing some new insights on this literature because China is a weak rule-of-law regime (ranked 116th in the *Governance* index by Kaufmann et al. 2009) while having a large regional variation of corruption (Yang 2004: 217–258). What explains the variation in corruption within a country where democratic accountability is absent, political institutions are identical and cultural and historical factors are similar across regions?

Incentive Structures and Bribery

Our theoretical framework is this: Bribes are prices firms are willing to pay to obtain a government good, such as a permit. Prices are determined by a set of institutions governing the capacity and incentive of firms along with the demand and supply for the good. Firms calculate the costs and benefits of paying bribes, and the incidence and amount are explained by the variation in the institutional environment in which the firm is embedded.

We focus on the briber's side and argue that two sets of institutions determine firms' cost-benefit calculations. One is their internal auditing control, which determines the

[4] One exception is Pinto and Zhu (2008) who found a positive effect of foreign direct investment on corruption because foreign investment increases rents for bureaucrats in the hosting country.

transparency of the firm's accounts to the public, shareholders, partners, regulators and mother companies. A strict auditing system decreases a firm's tendency with respect to discretionary spending (for example, bribery) through increasing the costs of graft.

Second is the external property-rights-protecting environment, which determines the security of the firm's property. Assuming that there is a diminishing return in the relationship between the quality of property rights regime and gains from bribery, the weaker property rights are protected, the greater the gains from a dollar spent on building political connections. Therefore, a politically connected firm is able to seek more rents from an environment where other firms are all discriminated against than one where other firms are uniformly protected. Therefore, firms are more likely to bribe when operating in a weak property rights regime.

Two testable hypotheses are:

Hypothesis 1 Firms with stricter internal auditing rules are less likely to bribe, ceteris paribus.

Hypothesis 2 Firms operating in a weak property rights regime are more likely to bribe, ceteris paribus.

Auditing Rules

A firm's internal auditing rules are not directly observable. However, stringency is highly correlated with the ownership. We show that Chinese domestic companies have softer auditing rules than foreign invested enterprises (FIEs).

The private sector in China went through structural changes during the reform era. The private sector in China includes two types of entities—self-employed household businesses (*getihu*) and privately run enterprises (*siying qiye*). The regulatory definition of the former is an entity with seven or fewer employees; the definition of the latter is an entity with more than seven employees (Huang 2008: 22). The private sector developed rapidly in the early 1980s with the green light given by the state.

Although the private sector has received de jure status in law, private enterprises in practice have the lowest political status compared to state-owned enterprises (SOEs) and FIEs. As Huang (2008) argued, in the 1990s, the Chinese state systematically favored foreign firms at the expense of indigenous private firms. Small private businesses, such as food and vegetable stalls operated by peasants at the intersections of cities and the countryside, are considered "backward" and, therefore, contradict the goal of major Chinese cities to become world-class cities.

Facing the formal constraints imposed by the state, private entrepreneurs have to rely on connections to survive and prosper. An informal way to seek connections is to build clientelistic ties with local officials. As Wank (1999: 68) argued, "much exchange conducted by private companies is embedded in clientelist ties with various administrative, policing, distributive, and manufacturing organs of the local state."

One advantage of domestic private enterprises in building connections is that they are not subject to rigorous auditing control. As a lawyer bluntly put it, "private firms are very flexible in using their money. They are not susceptible to any auditing: it is the boss' own money, so they can use it in whichever way they want."[5]

[5] Interview with a lawyer in Guangzhou, March 31, 2010.

A formal way to build connections is for private entrepreneurs to join the Chinese Communist Party. The Chinese Communist Party is increasingly integrating itself with the private sector, both by co-opting entrepreneurs into the Party and encouraging current Party members to go into business (Dickson 2003; Tsai 2007).

In addition to the domestic ownership liberalization, realizing that the nation had been drained of capital and entrepreneurial expertise after the Cultural Revolution, the post-Mao leadership decided to open up to attract foreign investors. The first law on foreign investors was passed by the National People's Congress in 1979.[6] The law, though path-breaking, still reflected the cautiousness of the leadership in the sense that it allowed only equity joint ventures. Forming a joint venture with a domestic Chinese firm offered foreign investors a sort of protection since their Chinese partners at that time were mainly state-owned or collective enterprises with close ties with the Chinese government. However, uncertain of China's political and economic environment, investors in the early 1980s were mainly from the so-called "China circle"—Hong Kong, Macao, and Taiwan—which had a linguistic advantage and kinship connections with mainland China.

This changed in the 1990s when investors from outside the China circle started to outnumber those from within the China circle. Before the Asian financial crisis in 1997, over half of China's FDI inflows had been from the China circle. This generation of "foreign" investors are ethnic Chinese. They relied primarily on kinship connections to select places for investment because their common language and customs made doing business on the mainland easy and cheap (Naughton 2007: 416–417). The way China circle investors interact with Chinese local governments is different from foreign investors. Ethnic Chinese investors, taking advantage of their linguistic and cultural advantages and close family ties, are more likely to rely on informal connections with Chinese officials to conduct business and settle disputes.

At the same time, investors from the United States, the European Union, Japan, and other countries were attracted by China's big market. Throughout the 1990s, especially after the Asian financial crisis, FDI from outside the China circle surged. In 1998, the share of FDI from outside the China circle surpassed that from within it for the first time in history (Naughton 2007: 403).

FIEs from outside the China circle are often subject to strict internal auditing rules and anti-corruption regulations imposed by their mother countries. The most salient example is the Foreign Corrupt Practices Act (FCPA) of 1977. Two key sets of provisions in the FCPA are the anti-bribery provisions and the record-keeping provisions. The FCPA's anti-bribery provisions make it unlawful for United States persons, United States companies, and certain foreign issuers listed on the United States securities exchange to make payments to foreign officials for the purpose of obtaining or retaining business for or with or directing business to any person (Petersen 2008). The FCPA's record-keeping and accounting provisions require United States corporations to keep books, records and accounts in reasonable detail in a way that fairly reflects their transactions and the dispositions of their assets (Petersen 2008). Violations of either the bribery and accounting provisions of the FCPA can subject individuals or corporations to both criminal and civil penalties.

[6] For a detailed discussion of evolution of the FDI regulatory framework, please see Fu (2000).

Recent years have seen a spike in enforcement of the FCPA, increasing from five actions in 2004 to 74 in 2010.[7] Our interview with a lawyer who has been practicing law with multinational corporations operating in China remarked that the scope of the FCPA is "expansive" and that the punishment is "extreme."[8] For example, in 2005, DPC Tianjin, the Chinese subsidiary of a Californian company that makes medical equipment, admitted paying bribes to doctors and laboratory personnel. American prosecutors said that this fell under the scope of the FCPA because health care in China is run by the government. Furthermore, although the United States company paid bribes through its Chinese agency, this fell within the scope of the FCPA. Another recent example is the AGA Medical Corporation of Minnesota's pleading guilty to bribing doctors to purchase medical devices and China's Intellectual Property Office officials' pushing of patent approvals. Even though the payments were made by a distributor, the courts still held the manufacturer responsible. The fines imposed on firms are also increasing. In February 2009, American courts fined KBR, a construction firm, and Halliburton, its former parent, $579 million over bribes paid to obtain contracts in Nigeria. Last year, they punished Siemens, a German conglomerate, with an $800 million fine. The German authorities also fined Siemens a similar amount.[9] These cases suggest that even when companies bribe through a third party—for example, a Chinese agency or individual—this still falls under the scope of the FCPA.

Later, members of Organization for Economic Cooperation and Development (OECD) were also required to implement laws criminalizing the bribery of foreign officials (Petersen 2008). The OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions was enacted in 1997. All OECD member countries are expected to comply with this convention.

Some recent studies on foreign enterprises in China have found that interaction between foreign and Chinese firms increases the use of meritocratic hiring and promotion practices and enhances respect for the rule of law (Guthrie 1999; Santoro 2000).

A remaining category is Chinese SOEs. Studies have shown that local and central SOEs tend to hire small local auditors for opportunistic reasons, with governments using political pressure to coerce small local auditors to collude with their SOEs (Wang et al. 2008).

Based on the discussions above, we expect a higher level of bribery in domestic private enterprises than any other firms, especially FIEs from outside the China circle, due to private enterprises' lax auditing rules.

Property Rights Regimes

Most conceptualizations of property rights regimes are uni-dimensional. Prominent examples include the World Bank's Political Risk Index, *Governance* scores by Kaufmann et al. (2009), and *Polity* scores. These indexes are constructed using perceptions of government expropriation based on survey instruments. They all focus on measuring the *level* of property rights protection. We argue that the level of property rights protection is inadequate in capturing the full facets of property

[7] *The Economist*. 2011. "A Tale of Two Laws: America's Anti-corruption Law Deters Foreign Investment." September 17.

[8] Interview with a lawyer, Philadelphia, PA, February 10, 2012.

[9] *The Economist*. 2009. "Ungreasing the Wheels: Governments Around the World Are Making Life Difficult for Corrupt Firms." November 19.

rights regimes. A regime with a high level of property rights protection (measured by the mean) and small variation in perception (measured by the standard error) is more desirable than a regime with a similar level but greater variation because the latter shows signs of discrimination.

We propose a second dimension of property rights protection: variation of protection. Investors not only care about the general level of property rights protection but also will be sensitive to discrimination. A discriminatory regime is riskier to investors than an impartial regime because, in the former, the privileged are more likely to eliminate competitors and seek rents from monopoly.

This is particularly evident in China, where the reforms have recently favored large SOEs at the expense of small and medium-sized private enterprises (Huang 2008). In a situation where "the state advances, the private retreats" (*guojin mintui*), the private sector is exposed to adverse discrimination in contract enforcement and state intervention. A stimulus package of over 40 billion RMB (about 6 billion US dollars) in 2009–2010 was invested in infrastructure-building in which SOEs are major beneficiaries. This favoritism toward SOEs alienated FIEs and private enterprises.

A vice president of a French firm invested in Shanghai expressed his concerns:

> Government policies are beneficial for central SOEs. For example, monetary policies and loan policies don't favor private and foreign enterprises. In terms of tax collection, nominally foreign enterprises pay the same tax rates as other enterprises, but SOEs can evade their taxes; private enterprises can too if they are connected with the government. Only foreign enterprises pay the full amount. There is a prevalent concern among foreign enterprises that the government starts to discriminate against foreign firms.[10]

This insight finds support in Gallagher's (2002, 2007) argument that the infusion of foreign capital into China's economy changed the nature of the economic debate. A typical transitional economy debate over public versus private industry shifted to a debate that pits Chinese national industry over foreign competition in particular and globalization more generally.

Firm survey data show that the two dimensions—level and variation—are negatively correlated. Figure 1 shows a scatter plot of the city average of firms' evaluation of property rights protection on the *X*-axis and within-city variation on the *Y*-axis. As the level of property rights protection increases, the variation decreases. Substantively, this means that as the quality of a city's property protection increases, the city is less likely to be discriminatory.

We expect that bribes increase when the level of property rights protection decreases or the variation in property rights protection (discrimination) increases.

Measuring Bribery

In a review article of corruption studies, Treisman (2007: 213) concluded, "the challenge of the next wave of research will be to refine and gather more experience-based measures of corruption and to examine the patterns they reveal."

[10] Interview with the vice president of a multinational corporation, Shanghai, April 27, 2010.

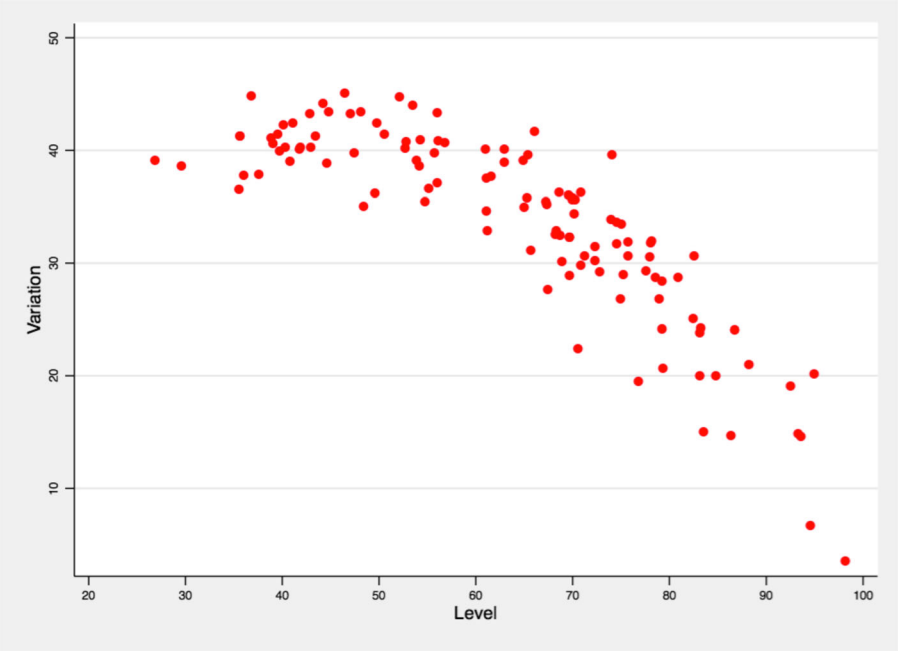

Fig. 1 Level vs. variation of property rights protection. Source: The World Bank survey

Recent years have seen a surge in experience-based measures: Transparency International's "Global Corruption Barometer," the United Nations Interregional Crime and Justice Research Institute, and the World Bank's World Business Environment Survey have asked respondents about their experience of paying a bribe or being expected to pay a bribe. These measures are, however, subject to biases, too. As Treisman (2007: 239) argued, "respondents in some countries are more reluctant to admit paying bribes and so would reply 'don't know' or 'no answer' rather than 'yes' to survey questions about this."

We propose a new measure of bribery that is not subject to perception bias and non-response bias. Joining recent studies using audit reports as a measure for corruption (Olken 2007; Cai et al. 2011), we use ETC. as a proxy for bribery. ETC. is listed in a firm's accounting book and is used by firm managers to cover regular business trips and meals with clients. However, a significant portion of ETC. is spent on bribing government officials. Chinese hotels, restaurants and shopping malls can issue various kinds of receipts (*fapiao*) and are very liberal in the amounts on the receipts. This allows firm managers to simply bribe in cash and get reimbursed by presenting an over-valued receipt.

The World Bank and the National Bureau of Statistics in China sent survey teams to 12,400 firms and requested copies of their accounting books. They then recorded the costs for travel (*chailu fei*) and entertainment (*zhaodai fei*) directly from the accounting books. The measure is not subject to perception bias and non-response bias because it was collected directly from accounting books, and every firm has an accounting book.

However, the measure is subject to another measurement error: ETC. includes not only bribery but also routine business trip expenses. Cai et al. (2011) distinguished four components of ETC. The first is *normal business expenditures*, denoted by x_r, to build relational capital with suppliers and clients. The second is *managerial excess*, denoted by x_c, which goes directly to the manager's or employees' own pockets or to their families and friends. SOEs and domestic private firms with low levels of oversight and transparency might use ETC. as an informal compensation scheme for employees. This would allow SOEs to compensate employees at higher levels than is usually permissible under regulations.[11] The third is "grease money," denoted by x_g, which refers to bribes paid to service-related government agencies, such as licensing and utilities agencies, in exchange for better government services. The fourth is "protection money," denoted by x_p, which refers to bribes to government tax agency officials in exchange for lower government expropriation. Thus, ETC. is the sum of these four components: x_r, x_c, x_g, and x_p. We are interested in x_g+x_p: the costs of bribery. The weights of different components in ETC. generate different observable implications:

Implication 1 If ETC. is spent as normal business expenditures, then it should increase as the firm's geological scope of business activities expands; otherwise, ETC. should not be correlated with the geological scope of business activities.

Implication 2 If ETC. is spent as managerial excess, then it should increase as the manager's salary or employees' salaries decrease; otherwise, ETC. should not be correlated with the manager's or employees' salaries.

Implication 3 If ETC. is spent as "grease money" or "protection money," then it should increase as the internal auditing rules loosen or the quality of property rights protection deteriorates; otherwise, ETC. should not be correlated with internal auditing rules or property rights protection.

The rationale for implication 1 is that, if a firm has a large geographical scope of business activities, such as having suppliers or clients outside the locality where the firm is based, then its routine business expenditures (lodging, transportation, and meals) should be higher than those of a firm that only conducts business locally. The rationale for implication 2 is the efficient wage logic where employees with higher pay are less likely to embezzle company funds or be compensated. The rationale for implication 3 is a direct derivation from hypothesis 1 and 2.

Data and Measurements

The data are derived from a large-scale firm survey conducted jointly by the World Bank and the Enterprise Survey Organization of the National Bureau of Statistics of China. The survey was implemented in 2005 and interviewed 12,400 firms located in 120 cities across all Chinese provinces except Tibet. In each province, the provincial capital was automatically surveyed, and additional cities were selected based on the economic size of a province. 100 firms were sampled in each city, except for the four

[11] We thank an anonymous reviewer for pointing this out.

provincial-level cities (Beijing, Tianjin, Shanghai, and Chongqing), where 200 firms were surveyed.

The questionnaire has two parts: the first part was filled out by firms' senior managers and asked for qualitative information about the firm in 2004; the second part covered financial and quantitative information, much of which went back three years, regarding the firms' production and operation and was obtained directly from the firms' accounting books through the assistance of the firms' chief accountants.[12]

Under-reporting is a concern because firm managers might hide their actual bribes. However, the tendency to under-report is negatively correlated with the rigor of a firm's auditing control (Chaney et al. 2011): Chinese domestic private enterprises have the strongest incentive to hide. If we still find a higher level of bribery among Chinese native private firms, the measurement error does not bias the overall conclusion.

The Dependent Variable

The dependent variable is the firms' entertainment and travel costs in 2004 normalized by the firms' total revenues in 2004. ETC., in the rest of the paper, refers to this percentage. It varies significantly across firms and cities. At the firm level, ETC. has a mean of 1.09 and a standard deviation of 2.25. The range of ETC. is from 0 to 45.51. One percent of firms have ETC. higher than 9.72.[13] At the city level, ETC. has a mean of 1.14 and a standard deviation of 0.45. The range is from the lowest of 0.4 in Suzhou in Jiangsu to 2.4 in Haikou in Hainan. A full ranking of the cities is shown in Appendix Table 3.

The Independent Variables

The first set of independent variables measures a firm's internal auditing rules. As elaborated in the previous section, we use ownership to measure the internal auditing rules of a firm. Firm ownership in contemporary China is a complicated issue. After three decades of SOE reforms, private sector development and FDI liberalization, very few firms in China have pure ownership. This paper relies on two indicators to identify a firm's ownership. First is the firm's registration status. A firm in China can be registered as an SOE (*guoyou qiye*), a collective enterprise (*jiti qiye*), a private enterprise (*siying qiye*), a foreign invested enterprise (*waizi qiye*), or a mixed ownership firm (such as a joint-stock cooperative firm (*gufen hezuo qiye*)). The survey also asked the FIEs to indicate whether their investments were from Hong Kong, or Macao, or Taiwan or foreign countries. However, a large number of firms, especially FIEs, are joint ventures, so a second indicator is the firm's shareholding structure. The survey asked firm managers about the shares of different shareholders: state share, collective share, legal person share, private share and foreign share. Table 1 shows the cross-tabulation of these two indicators.

[12] More information about the survey can be found in Cai et al. (2011) and World Bank (2007).

[13] To avoid the influence a few high-leverage cases that could potentially distort the regression line, these cases are excluded from the analysis.

Table 1 Cross tabulation of firms' registration status and capital share

Self-reported ownership/average capital share (%)	State capital	Collective capital	Private capital	Foreign capital	Legal person capital	*N*
SOEs	82.95	0.00	0.00	0.00	17.04	1,122
Collective	3.22	76.80	8.06	1.07	10.82	869
Private	0.31	1.30	78.40	0.84	19.14	1,675
China circle	4.69	3.31	6.91	66.45	18.60	990
Foreign	4.96	2.43	4.39	72.11	16.07	1,398
Mixed	9.25	4.75	51.26	1.92	32.73	6,346

Source: The World Bank survey

The independent variables measuring ownership are constructed by combining these two indicators. A firm is coded as *SOE* if the firm is registered as an SOE and the firm's state share is over 50 %. A firm is coded as *collective* if the firm is registered as a collective enterprise and the firm's collective share is over 50 %. A firm is coded as *private* if the firm is registered as a private firm and the private share of the firm is over 50 %. A firm is coded as a *China circle* firm if the firm is registered as a Hong Kong, or Macao, or Taiwan-invested firm and the foreign share of the firm is over 50 %. A firm is coded as *foreign* if the firm is registered as a foreign firm and the firm's foreign share is over 50 %. A firm is coded as *mixed* if the firm is registered as a mixed firm and no shareholder controls more than 50 % of the firm's share. As Table 1 shows, most mixed firms are privately owned. Some firms are coded as others since they are registered as others. This coding scheme produces 1,623 SOEs (13.1 %), 1,017 collective firms (8.2 %), 4,500 private firms (36.3 %), 594 China circle firms (4.8 %), 979 foreign firms (7.9 %), 3,185 mixed firms (25.69 %), and 502 other firms (4.1 %).

The ownership variables will be included in the regression analysis all at once except one category as the baseline, so we can have pair comparisons between these key categories: SOE, private, China circle, and foreign. We expect to see a positive sign on SOE and private when foreign is the baseline. The effects of collective, China circle and mixed are difficult to predict.

The second set of independent variables measures a firm's external environment with respect to the quality of property rights protection. There are two dimensions of property rights protection: level and variation. The survey asked firm managers the following question: "In the commercial or other disputes, in how many cases (%) can your company's legal contracts or properties be protected (verdict passed and enforced)?" The answer is a percentage for each firm. The variable has a mean of 61.95 with a standard deviation of 38.93 and a range of 0–100. The paper uses two indicators to measure the quality of property rights protection. First is the city mean of firm-level evaluations of property rights protection (*city property protection level*). Second is the city variation (measured by within-city standard deviation) of firm-level evaluations of property rights protection (*city property protection variation*). These two variables are highly correlated, so they are included in the analysis one by one to

avoid multicollinearity. We expect to see a negative sign on city property protection level and a positive sign on city property protection variation.

Controls

The model includes two groups of controls. As our theory indicates, bribes are prices that are determined by the demand and bargaining power of a firm. So the first group measures a firm's demand and bargaining power including *age* (log), *taxes* paid in 2003 (log), number of *employees* in 2003 (log), the number of *licenses* and registrations required for the firm, whether the general manager is appointed by the government (*government-appointed manager*), the number of days the general manager interacted with the government (*interaction with government*),[14] percentage of a firm's products sold to the government (*sale to the government*), and *confidence in courts*.[15] We expect that older and larger firms, measured by age, tax and employee, have higher demand (higher ETC.) and stronger bargaining power with the government (lower ETC.), so their effects are difficult to predict. The number of licenses should have a positive effect as it measures demand, while the remaining variables (government-appointed manager, interaction with government, and sale to government) are difficult to predict because they measure both demand and bargaining power.

The second group is included to control for possible correlates with ETC. The "percentage of *sales outside the province* in 2004" is controlled to test implication 1. Business relations outside the province reflect the geographical scope of a firm's business activities. If ETC. is spent as normal business expenditures, ETC. should increase as sales outside the province increase. In addition, *CEO pay* (log)[16] and average monthly *employee wages* are included to test implication 2. If ETC. is spent as managerial excess, then it should decrease as CEO pay or employee wages increase.

At the city level, *GDP per capita* (log) is included to test the relationship between economic development and corruption (Treisman 2007: 223).

Industry "fixed effects" are considered to control for possible variations in state regulations in various industries (Hsueh 2011). City "fixed effects" are also included to account for the historical and cultural features of different cities. Summary statistics of the included variables are shown in Appendix 4.

[14] The original wording of the question was, "How many days does the GM or vice GM spend on government assignments and communications per month? (Government agencies include Tax Administration, Customs, Labor Bureau, Registration Bureau, etc.; assignments refer to handling the relationship with the government workers, consolidating and submitting various reports or statements, etc.)" Answers: 1=1 day, 2=2–3 days, 3=4–5 days, 4=6–8 days, 5=9–12 days, 6=13–16 days, 7=17–20 days, 8=over 21 days.

[15] The wording of the question is, "In the case of commercial disputes with the suppliers, clients, or subsidiaries in your locality, how much confidence (%) do you have that the disputes will be settled with justice by the local legal system?"

[16] CEO pay is not directly observed in the survey. The survey asked the relative ratio of CEO pay to the average middle-manager pay and the ratio of the latter to the average worker pay. CEO pay is computed as the product of the two ratios and the average wage of the firm. Firms' average wages are measured directly in the survey.

Determinants of Bribery

Before conducting regression analysis, we first show the descriptive pattern of ETC. across different ownership types. Figure 2 shows box plots of ETC. across various ownership types.[17] As shown, firms with China circle ownership and foreign ownership have a noticeably lower level of ETC. compared with all other types of firms. Meanwhile, SOEs and private firms have a marginally higher level of ETC. than other firms. This lends preliminary support to hypothesis 1 that foreign firms characterized by rigorous internal auditing control are less likely to bribe. This also implies that a significant proportion of ETC. is not spent as normal business expenditures, as foreign firms, which have a larger geological scope of business activities than domestic firms, spend less on ETC.

The results also ease our concern about the possibility of under-reporting. If firm mangers under-report, it is illogical to see higher reported ETC. among Chinese private firms with poor oversight and transparency. If they lied and nobody could check, why would they not hide more? And assuming they under-reported, it would make our findings more significant if there were no downward measurement error.

OLS regression is employed to estimate the following model:

$$\begin{aligned}\text{ETC.} = {} & \alpha + \beta_1 \text{SOE} + \beta_2 \text{COLLECTIVE} + \beta_3 \text{PRIVATE} + \beta_4 \text{CHINA CIRCLE} \\ & + \beta_5 \text{FOREIGN} + \beta_6 \text{MIXED} + X\beta + \Sigma \text{INUDSTRY}i + \Sigma \text{CITY}j + \varepsilon \quad (1)\end{aligned}$$

Columns 1–4 in Table 2 report the OLS estimates of Eq. (1). Because firms in the same city are not independent, standard errors clustered at the city level are reported in parentheses.

Summarizing the results of pair comparisons, the levels of ETC. rank as follows: private>SOE>mixed>China circle>foreign>collective. The differences between private, SOE and mixed are not statistically significant, but they have significantly higher ETC. than the rest. On average, a SOE or private firm spends 0.1 more on ETC. than a foreign firm. This effect is substantial given that the mean firm ETC. is 1.09. Substantively, an average SOE or private firm spends 48 million RMB (about 7 million US dollars) more on entertainment and travel each year than an average foreign firm.

The low ranking of collective firms is puzzling. As Naughton (2007: 121) noted, property rights in collective enterprises are "fuzzy," so we don't have a clear theoretical explanation for this.

Among the controls, age is significantly positive, which implies that ETC. is not a once-for-all fixed cost in establishing relationships with officials or clients. Taxes and number of employees both have negative and significant effects: bigger firms bribe less. This implies that the bargaining effect triumphs the demand effect, so larger firms with stronger bargaining power need not pay a higher price. This also implies that taxes and bribes substitute for each other, which confirms an observation from qualitative interviews that tax evasion is prevalent among firms that have political connections.

[17] Outside values are excluded in the plots.

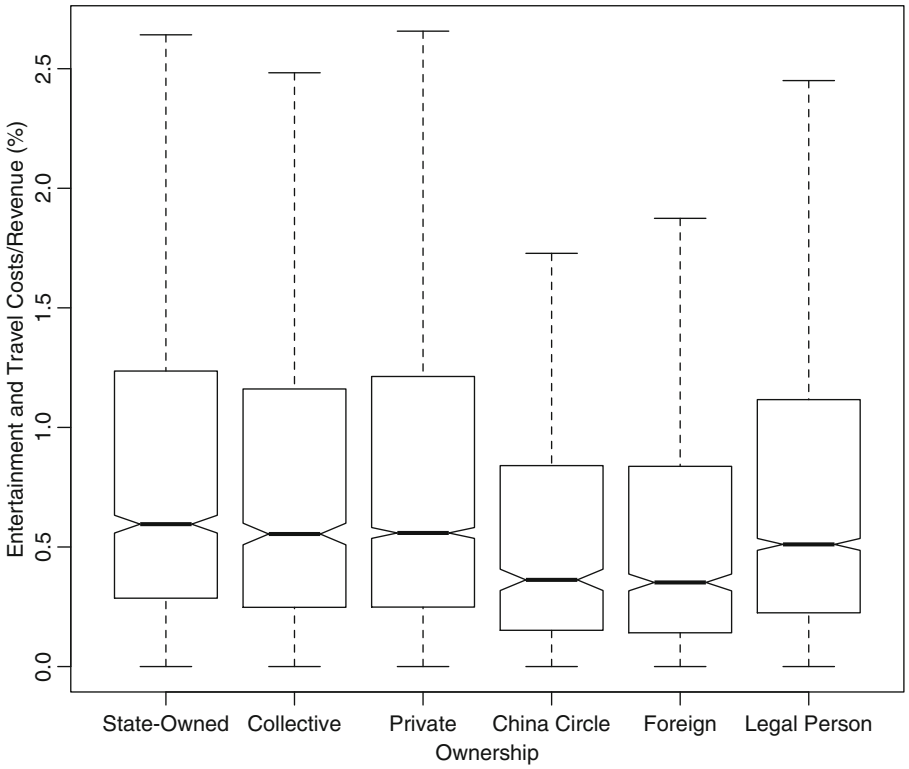

Fig. 2 Entertainment and travel costs across ownerships. Source: The World Bank survey

Among the government-business relations variables, government-appointed manager, interaction with the government, and sale to the government all have significantly positive effects on ETC. This has three implications. First, this suggests a demand-side story of bribery that firms with more interactions with the government need to pay a higher price. Second, this lends extra support to implication 3 that a big chunk of ETC. is spent on interacting with government officials. This supports the "red tape" argument that cumbersome bureaucracy invites corruption (Bardhan 1997). Third, obtaining a government contract requires extra bribery costs. Firms that sell their products to the government must spend money to buy this privilege. However, the number of licenses does not show statistical significance. There is no support for the "speed money" hypothesis, which states that corruption is the much-needed grease for the squeaky wheels of a rigid administration (Bardhan 1997). Finally, confidence in the courts does not affect a firm's tendency to bribe. This suggests that the formal legal institutions have not functioned as a curb on graft. This supports Manion's (2004) observation that party organizations have triumphed over state institutions (for example, courts and procuratorates) in handling corruption cases.

The three variables that are included to test the two implications show mixed results. Sale to another province has a significantly positive effect on ETC. This supports implication 1, which states that, if ETC. is spent as normal business expenditures, it should increase as the firm's geological scope of business expands. This means that part of ETC. is spent as routine business expenditures on lodging, meals and travel. However,

Table 2 Determinants of entertainment and travel costs

OLS					MLE		OLS
Explanatory variables	DV=entertainment and travel costs/total revenue (%)						DV=entertainment and travel costs (1,000 yuan)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Firm level variables							
SOE	BASELINE	−.021	.075	.098**	.113*	.116**	793.630*
		(.042)	(.061)	(.048)	(.058)	(.058)	(469.135)
Collective	−.101*	−.122***	−.026	−.003	−.001	.001	1,392.806
	(.053)	(.046)	(.068)	(.056)	(.061)	(.061)	(618.267)
Private	.021	BASELINE	.096*	.119***	.125***	.126***	1,028.759***
	(.042)		(.055)	(.043)	(.049)	(.049)	(326.837)
China circle	−.075	−.096*	BASELINE	.023	.020	.022	355.644
	(.061)	(.055)		(.048)	(.067)	(.067)	(713.095)
Foreign	−.098**	−.119**	−.023	BASELINE	BASELINE	BASELINE	BASELINE
	(.048)	(.044)	(.048)				
Mixed	−.010	−.031	.066	.089**	.095**	.097**	637.979
	(.040)	(.031)	(.055)	(.044)	(.048)	(.048)	(390.166)
Revenue (log)	–	–	–	–	–	–	790.191***
							(220.649)
Age (log)	.061***	.061***	.061***	.061***	.063***	.063***	−.496
	(.013)	(.013)	(.013)	(.013)	(.014)	(.014)	(61.533)
Tax (log)	−.036***	−.036***	−.036***	−.036***	−.036***	−.037***	330.813***
	(.008)	(.008)	(.008)	(.008)	(.008)	(.008)	(92.461)
Employee (log)	−.156***	−.156***	−.156***	−.156***	−.159***	−.159***	264.075

Table 2 (continued)

OLS					MLE		OLS
Explanatory variables	DV=entertainment and travel costs/total revenue (%)						DV=entertainment and travel costs (1,000 yuan)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(.016)	(.016)	(.016)	(.016)	(.012)	(.012)	(287.071)
License	.002	.002	.002	.002	.002	.002	35.879**
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(16.354)
Government-appointed manager	.068*	.068*	.068*	.068*	.068*	.068*	26.733
	(.038)	(.038)	(.038)	(.038)	(.039)	(.039)	(236.553)
Interaction with government	.017*	.017*	.017*	.017*	.018**	.019**	59.138
	(.009)	(.009)	(.009)	(.009)	(.009)	(.009)	(37.276)
Sale to government	.005***	.005***	.005***	.005***	.005***	.005***	6.980
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(5.070)
Confidence in courts	−.000	−.000	−.000	−.000	−.000	−.001	.186
	(.001)	(.001)	(.001)	(.001)	(.000)	(.000)	(2.791)
Sale to another province	.005***	.005***	.005***	.005***	.005***	.005***	7.959***
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(2.260)
CEO pay (log)	−.006	−.006	−.006	−.006	−.007	−.007	−339.111
	(.019)	(.019)	(.019)	(.019)	(.016)	(.016)	(209.283)
Employee wages (log)	.042	.042	.042	.042	.055	.057	1,748.989***
	(.056)	(.056)	(.056)	(.056)	(.036)	(.036)	(402.994)
City level variables							
City property protection level	–	–	–	–	−.004***	–	–
					(.001)		

Table 2 (continued)

OLS					MLE		OLS
Explanatory variables	DV=entertainment and travel costs/total revenue (%)						DV=entertainment and travel costs (1,000 yuan)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
City property protection variation	–	–	–	–	–	.008***	–
						(.002)	
City GDP per capita (log)	–	–	–	–	−.012	−.014	–
					(.030)	(.030)	
Industry dummies	YES	YES	YES	YES	YES	YES	YES
City dummies	YES	YES	YES	YES	NO	NO	YES
Intercept	1.250***	1.271***	1.175***	1.152***	1.381***	.858***	−20,603.63***
	(.356)	(.346)	(.351)	(.349)	(.327)	(.326)	(3,145.088)
N	10,857	10,857	10,857	10,857	10,857	10,857	10,857
Wald chi^2	–	–	–	–	1,443.53***	1,436.69***	–
(Pseudo) R^2	.155	.156	.156	.154	–	–	.127

The dependent variable in columns 1–6 is the percentage of entertainment and travel costs in a firm's total revenue in 2004. The dependent variable in column 7 is the amount (in 1,000 yuan) of entertainment and travel costs. Standard errors clustered at the city level are reported in parentheses.

Source: The World Bank survey

MLE maximum-likelihood estimation

p values are based on two-tailed tests

***$p<0.01$; **$p<0.05$; *$p<0.10$

there is no supportive evidence for implication 2. Neither CEO pay nor employee wages are correlated with ETC., so there is no strong support for the hypothesis that firm managers or employees are embezzling or compensated by company funds.

Property Rights Regimes

To test hypothesis 2 that firms are more likely to bribe in regimes with weak property rights, hierarchical linear modeling (HLM) is employed in the following analysis. This paper uses two variables to measure the quality of a city's property rights protection. The first is a level measure (*city property protection level*) that is constructed using the within-city mean of firms' evaluations of property rights protection. The second is a variation measure (*city property protection variation*) constructed using the within-city variation in firms' evaluations. These two variables are city-level covariates, so a two-level model is estimated where firms are nested within cities.

The rationale of using multi-level modeling is twofold. First, property rights protection is a macro-level phenomenon: rights are a public good and non-exclusive. To understand the quality of property rights protection in a city, we need to aggregate the data to the macro level rather than examine an individual firm's evaluation. Second, multi-level modeling can potentially solve the endogeneity problem. While a firm's bribery may change how the government protects the firm's property (reverse causality), one firm's bribery is not likely to change the quality of property protection in the whole city.

We estimate the following models:

$$\mathrm{ETC}_{ij} = \beta_{1j} + X\beta + \varepsilon_{ij} \tag{2}$$

$$\beta_{1j} = \gamma_{11} + \gamma_{12}\text{CITY PROPERTY PROTECTION LEVEL} + \mu_{1J} \tag{2.1}$$

$$\beta_{1j} = \psi_{11} + \psi_{12}\text{CITY PROPERTY PROTECTION VARIATION} + \upsilon_{1J} \tag{2.2}$$

Equation (2) is the usual linear model, β_{1j} is the usual intercept, $X\beta$ is the usual variables-coefficients matrix and ε_{ij} is the usual residual error term. The subscript j is for the cities (j=1…120), and the subscript i is for individual firms (i=1…12,400). The difference from a usual regression model is that each city has a different intercept coefficient β_{1j}. The residual errors ε_{ij} are assumed to have a mean of zero and a variance to be estimated. It is assumed that the variance of the residual errors is the same in all cities. Across all cities, the intercept coefficient β_{1j} has a distribution with a mean and a variance.

As specified in models (2.1) and (2.2), the variation of β_{1j} can be explained by the city-level variables "city property protection level" and "city property protection variation." Equation (2.1) predicts the average ETC. in a city (the intercept β_{1j}) by the level of property rights protection. Equation (2.2) predicts the average ETC. in a city by the variation in property rights protection in that city. These two models are estimated separately because the level and the variation are highly correlated, as

shown in the section "Incentive Structures and Bribery". Thus, γ_{12} is expected to be negative because bribery should be more prevalent in a city with poor property rights, while ψ_{12} should be positive, as bribery will increase as the government becomes more discriminatory.

Maximum-likelihood estimation is employed to estimate these multi-level models. City "fixed effects" are excluded in the analysis because, otherwise, they will eliminate all city-level variations. Column 5 in Table 2 reports the estimates of Eq. (2.1), and column 6 reports the estimates of Eq. (2.2), both having foreign as the baseline category.

First, the city property protection level has a significantly negative effect on ETC. In addition, the variation measure is also significant, and the effect is positive: bribes increase as the city becomes more discriminatory (variation increases). The findings support hypothesis 2 that firms are more likely to bribe in a regime with weak property rights. This also confirms implication 3 that ETC. is spent as "grease money" and "protection money." If it were not, ETC. should not be correlated with the quality of property rights regimes. The findings suggest that political connections serve as a substitute for property rights-protecting institutions in China, and bribery provides access to political connections. However, the city GDP per capita does not show a significant effect, which differs from the findings of cross-national studies.

Finally, the inclusion of city-level variables and the use of HLM do not change the original results. Private firms and SOEs still have a higher ETC. than foreign firms. The control variables that were significant still have the same direction and similar significance levels. This shows the robustness of the estimates.

Robustness Checks

We also test against a possibility of economies of scale in bribing: If the average size of a foreign firm is much larger than Chinese private firms, FIEs could afford to spend lower proportions of their revenue than private firms because the absolute amounts of their bribery could still be larger than those of native private firms.[18]

To test this, we switch the dependent variable from a percentage measure to a level measure. Column 7 in Table 2 uses the amount of entertainment and travel costs as the dependent variable. To control for a firm's capability to bribe, we hence included firm's revenue (log) in the regression. As shown, the previous results still hold with the new dependent variable: SOEs and native private firms still have significantly higher entertainment and travel costs in absolute terms than FIEs.

Discussion, Conclusions, and Implications

As Treisman (2007, 222) concluded in his review essay, the challenge to the study of corruption is not only the methodological issues, but also "More importantly, there is no widely accepted theory on which to base an empirical model." This paper

[18] We thank an anonymous reviewer for pointing this out.

proposes an institutional theory of bribery and tests it with firm-level data. We demonstrate that how much bribes a firm pays is correlated with its internal auditing control and external property protection. We show that entertainment and travel costs listed in firms' accounting books are a reasonable proxy for graft, and our results hold after controlling for possible correlates with entertainment and travel costs such as routine business expenditures, managerial excess and employee compensation.

Our research has three broader implications. First, it is documented that corruption has worsened and intensified over the years in China (Wedeman 2004). This study provides one possible explanation for the deterioration: the Chinese state is becoming more discriminatory. China's reforms in the 1980s were characterized as "reform without losers," whereas the second phase (1992–present) has been referred to as "reform with losers" (Naughton 2007: 91). Naughton's terms summarize well the changes in China's reforms from the 1980s, when the private sector was promoted, SOEs were supported and FIEs were favored, to the 1990s, when the private sector was discriminated against, small SOEs were privatized and FIEs were differentiated.

In addition, the findings mark important differences in corruption between post-communist states and capitalist/democratic states. One is the form of corruption. While corruption in post-communist regimes tend to concentrate in the economic realm because of the strong role of the state in the economy, corruption in liberal democracies happens more frequently in the political realm. For example, in the USA, corruption cases investigated by the Department of Justice primarily involve conflict of interest, fraud, campaign-finance violations and obstruction of justice (Glaeser and Saks 2006: 1057).

Second are the level and cause of corruption. It is no coincidence that corruption is widespread in post-communist regions such as Eastern Europe, Russia, China, and Vietnam. By all measures, the post-communist states were rated significantly more "corrupt" on average than non-communist countries (Treisman 2003: 4). As for causes, institutional uncertainty and lack of market competition have been identified as major contributors to post-communist corruption, whereas electoral incentives have been the driving force for corruption in liberal democracies. As Rose-Ackerman (2006: xxvii) contended, "Under socialism, corruption helped overcome some of the rigidities of a planned economy. During the transition, corruption…was a response to the uncertainty and institutional weakness of the transitional states."

Finally, the study sheds light on the puzzling coexistence of rampant corruption and "developmental states" in East Asia. Many East Asian economies have managed to modernize with authoritarianism and corruption, such as Indonesia, Singapore, China, South Korea, Taiwan, and Vietnam. These regimes are believed to have weak rule of law and rampant corruption (Kang 2002).

Our study implies that firms operating under weak property rights protection rely on bribery to establish political connections. Clientelism serves as a substitute for formal legal institutions in securing property rights. Although we do not test the relationship between bribery and investment, previous studies have shown that politically connected firms fare better than non-connected firms (Li et al. 2008; Kung and Ma 2011). Strategic investors have employed a unique tactic to conduct business in a relational society such as China.

Appendix

Table 3 Ranking of surveyed cities on entertainment and travel costs

Ranking	Province	City	ETC.	Ranking	Province	City	ETC.
1	Jiangsu	Suzhou	0.4	60	Liaoning	Jinzhou	1.1
2	Shandong	Linyi	0.4	61	Heilongjiang	Daqing	1.1
3	Shandong	Weihai	0.4	62	Heilongjiang	Qiqihaer	1.1
4	Hebei	Tangshan	0.5	63	Anhui	Hefei	1.1
5	Guangdong	Shenzhen	0.5	64	Yunnan	Kunming	1.1
6	Hebei	Handan	0.6	65	Jiangsu	Lianyungang	1.1
7	Fujian	Xiamen	0.6	66	Hunan	Chenzhou	1.1
8	Sichuan	Leshan	0.6	67	Beijing	Beijing	1.2
9	Shanxi	Yuncheng	0.6	68	Shaanxi	Baoji	1.2
10	Henan	Nanyang	0.6	69	Fujian	Zhangzhou	1.2
11	Shandong	Yantai	0.6	70	Jiangsu	Nanjing	1.2
12	Zhejiang	Hangzhou	0.6	71	Hubei	Yichang	1.2
13	Guangdong	Jiangmen	0.6	72	Sichuan	Mianyang	1.2
14	Sichuan	Deyang	0.6	73	Jiangsu	Nantong	1.2
15	Zhejiang	Jinhua	0.6	74	Tianjin	Tianjin	1.2
16	Liaoning	Dalian	0.7	75	Zhejiang	Ningbo	1.2
17	Shandong	Taian	0.7	76	Shanghai	Shanghai	1.3
18	Jiangxi	Shangrao	0.7	77	Hunan	Yueyang	1.3
19	Guangdong	Foshan	0.7	78	Shanxi	Taiyuan	1.3
20	Guangdong	Huizhou	0.7	79	Ningxia	Yinchuan	1.3
21	Hubei	Xiangfan	0.7	80	Jiangsu	Changzhou	1.3
22	Henan	Zhoukou	0.7	81	Hubei	Jingmen	1.3
23	Guangdong	Guangzhou	0.7	82	Shanxi	Datong	1.3
24	Henan	Shangqiu	0.7	83	Jiangxi	Jiujiang	1.3
25	Guangdong	Maoming	0.7	84	Guangxi	Nanning	1.4
26	Fujian	Fuzhou	0.7	85	Jiangsu	Yangzhou	1.4
27	Yunnan	Yuxi	0.7	86	Jiangxi	Yichun	1.4
28	Shandong	Weifang	0.7	87	Jilin	Jilin	1.4
29	Chongqing	Chongqing	0.7	88	Guangdong	Zhuhai	1.5
30	Hubei	Jingzhou	0.8	89	Henan	Xinxiang	1.5
31	Hebei	Shijiazhuang	0.8	90	Liaoning	Fushun	1.5
32	Shandong	Zibo	0.8	91	Guangxi	Guilin	1.5
33	Anhui	Wuhu	0.8	92	Shaanxi	Xianyang	1.5
34	Zhejiang	Shaoxing	0.8	93	Hebei	Baoding	1.6
35	Shandong	Jining	0.8	94	Jilin	Changchun	1.6
36	Zhejiang	Jiaxing	0.8	95	Zhejiang	Taizhou	1.6
37	Neimenggu	Baotou	0.8	96	Jiangsu	Xuzhou	1.6
38	Hebei	Langfang	0.8	97	Hubei	Wuhan	1.6

Table 3 (continued)

Ranking	Province	City	ETC.	Ranking	Province	City	ETC.
39	Henan	Xuchang	0.9	98	Sichuan	Chengdu	1.6
40	Jiangxi	Ganzhou	0.9	99	Liaoning	Benxi	1.6
41	Sichuan	Yibin	0.9	100	Xinjiang	Wulumuqi	1.6
42	Fujian	Quanzhou	0.9	101	Hubei	Huanggang	1.6
43	Jiangxi	Nanchang	0.9	102	Gansu	Tianshui	1.7
44	Liaoning	Anshan	0.9	103	Shaanxi	Xian	1.7
45	Hubei	Xiaogan	0.9	104	Hebei	Qinhuangdao	1.7
46	Henan	Zhengzhou	0.9	105	Liaoning	Shenyang	1.8
47	Hebei	Cangzhou	0.9	106	Hunan	Changde	1.8
48	Shandong	Jinan	0.9	107	Qinghai	Xining	1.8
49	Fujian	Sanming	0.9	108	Guizhou	Guiyang	1.8
50	Jiangsu	Wuxi	1	109	Guizhou	Zunyi	1.8
51	Gansu	Lanzhou	1	110	Henan	Luoyang	1.8
52	Zhejiang	Huzhou	1	111	Heilongjiang	Haerbin	1.9
53	Anhui	Anqing	1	112	Jiangsu	Yancheng	1.9
54	Hebei	Zhangjiakou	1	113	Neimenggu	Huhehaote	1.9
55	Ningxia	Wuzhong	1	114	Hunan	Hengyang	2
56	Yunnan	Qujing	1	115	Anhui	Chuzhou	2
57	Guangxi	Liuzhou	1	116	Hunan	Zhuzhou	2
58	Shandong	Qingdao	1.1	117	Hunan	Changsha	2.3
59	Zhejiang	Wenzhou	1.1	118	Hainan	Haikou	2.4

Table 4 Summary statistics

Variable	*N*	Mean	Std. dev.	Min	Max
ETC.	12,400	1.09	2.25	0.00	45.51
Firm age (log)	12,395	2.13	0.88	0.69	4.93
Tax 2003 (log)	12,207	7.17	2.30	−1.61	16.94
Employee 2003 (log)	12,399	5.55	1.49	0.00	11.70
License	12,400	6.48	6.82	1.00	258.00
Sale to government	12,399	2.33	10.05	0.00	100.00
Government-appointed manager	12,368	0.12	0.32	0.00	1.00
Interaction with government	12,265	2.57	1.27	1.00	8.00
Confidence in courts	11,598	78.47	26.33	0.00	100.00
Sale to another province	12,399	39.41	34.80	0.00	100.00
CEO pay 2004 (log)	12,002	8.49	1.01	−0.11	13.62
Employee wages (log)	12,400	6.87	0.49	−0.92	9.52

References

Acemoglu D, Johnson S. Unbundling institutions. J Polit Econ. 2005;113(5):949–95.

Ades A, Di Tella R. Rents, competition, and corruption. Am Econ Rev. 1999;89(4):982–93.

Bardhan P. Corruption and development: a review of issues. J Econ Lit. 1997;35(3):1320–46.

Cai H, Fang H, Xu L. Eat, drink, firms and government: an investigation of corruption from entertainment and travel costs of Chinese firms. J Law Econ. 2011;54(1):55–78.

Chaney PK, Faccio M, Parsley D. The quality of accounting information in politically connected firms. J Account Econ. 2011;51(1):58–76.

Dickson B. Red capitalists in China. New York: Cambridge University Press; 2003.

Faccio M. Politically connected firms. Am Econ Rev. 2006;96:369–86.

Fu J. Institutions and investments: foreign direct investment in China during an era of reforms. Ann Arbor: The University of Michigan Press; 2000.

Gallagher M. 'Reform and openness' why China's economic reforms have delayed democracy. World Polit. 2002;54:338–72.

Gallagher M. Contagious capitalism: globalization and the politics of labor in China. Princeton: Princeton University Press; 2007.

Glaseser EL, Saks RE. Corruption in America. J Public Econ. 2006;90:1053–72.

Gong T. Forms and characteristics of China's corruption in the 1990s: change with continuity. Communis and Post-Commun. 1997;30(3):277–88.

Guthrie D. Dragon in a three-piece suit: the emergence of capitalism in China. Princeton: Princeton University Press; 1999.

Hellman JS, Jones G, Kaufmann D. Seize the state, seize the day: state capture and influence in transition economies. J Comp Econ. 2003;31:751–73.

Hsueh R. China's regulatory state: a new strategy for globalization. Ithaca: Cornell University Press; 2011.

Huang Y. Capitalism with Chinese characteristics. New York: Cambridge University Press; 2008.

Johnson S, Kaufmann D, McMillan J, Woodruff C. Why do firms hide? Bribes and unofficial activity after communism. J Public Econ. 2000;76:495–520.

Kang D. Crony capitalism: corruption and development in South Korea and the Philippines. New York: Cambridge University Press; 2002.

Kaufmann D, Kraay A, Mastruzzi M. Governance matters viii: aggregate and individual governance indicators 1996–2008. Working paper 4978. Washington, DC: World Bank; 2009. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1424591.

Knack S. Measuring corruption in Eastern Europe and Central Asia: a critique of the cross-country indicators. Working paper 3968. Washington, DC: World Bank; 2006. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=923275.

Kung JK, Ma C. Does it pay to have "friends" in the government? Insecure property rights, political connections, and private enterprise growth in transitional China. Working paper. Hong Kong: The Hong Kong University of Science and Technology; 2011. http://ihome.ust.hk/~sojk/work_in_progress.htm.

La Porta R, Lepez-de-Silanes F, Shleifer A, Vishny RW. The quality of government. J Econ Law Org. 1999;15(1):222–79.

Li H, Meng L, Wang W, Zhou L. Political connections, financing and firm performance: evidence from Chinese private firms. J Dev Econ. 2008;87:283–99.

Manion M. Corruption by design: building clean government in mainland China and Hong Kong. Cambridge: Harvard University Press; 2004.

Manion M. The challenge of corruption. Presented at the Center for the Study of Contemporary China Annual Conference, Philadelphia, Pennsylvania, April 25–26, University of Pennsylvania; 2013.

Mauro P. Corruption and growth. Q J Econ. 1995;110(3):681–712.

Montinola G, Jackman R. Sources of corruption: a cross-country study? Brit J Polit Sci. 2002;32:147–70.

Naughton B. The Chinese economy: transitions and growth. Cambridge: The MIT Press; 2007.

North D. Structure and change in economic history. New York: Norton; 1981.

North D. Institutions, institutional change, and economic performance. New York: Cambridge University Press; 1990.

Olken B. Monitoring corruption: evidence from a field experiment in Indonesia. J Polit Econ. 2007;115:200–49.

Olken B, Pande R. Corruption in developing countries. Ann Rev Econ. 2012;4:479–509.

Olson MC. Autocracy, democracy, and prosperity. In: Zeckhauser RJ, editor. Strategy and choice. Cambridge: MIT Press; 1991. p. 131–57.

Pei M. China's trapped transition: the limits of developmental autocracy. Cambridge: Harvard University Press; 2006.
Pedersen E. The foreign corrupt practices act and its application to U.S. business operations in China. J Int Bus Law 2008: 13–47.
Pinto PM, Zhu B. Fortune or evil? The effect of inward foreign direct investment on corruption. Boston, MA: Presented at the Annual Conference of the American Political Science Association; 2008.
Rose-Ackerman S. Corruption: a study in political economy. New York: Academic; 1978.
Rose-Ackerman S. Introduction and overview. In: Rose-Ackerman S, editor. International handbook on the economics of corruption. Northampton: Edward Elgar; 2006. p. xiv–xxxviii.
Sandholtz W, Gray MM. International integration and national corruption. Int Org. 2003;57:761–800.
Santoro MA. Profits and principles: global capitalism and human rights in China. Ithaca: Cornell University Press; 2000.
Svensson J. Foreign aid and rent-seeking. J Int Econ. 2000;51:437–461.
Svensson J. Who must pay bribes and how much? Evidence from a cross section of firms. Q J Econ. 2003;118(1):207–30.
Treisman D. The causes of corruption: a cross-national study. J Pub Econ. 2000;76(3):399–458.
Treisman D. Postcommunist corruption. In: Fidrmuc J, Campos N, editors. Political economy of transition and development: institutions, politics, and policies. Norwell: Kluwer; 2003. p. 201–26.
Treisman D. What have we learned about the causes of corruption from ten years of cross-national empirical research? Ann Rev Polit Sci. 2007;10:211–44.
Tsai K. Capitalism without democracy: the private sector in contemporary China. Ithaca: Cornell University Press; 2007.
Wang Q, Wong TJ, Xia L. State ownership, the institutional environment, and auditor choice: evidence from China. J Account Econ 2008: 112–134.
Wank D. Commodifying communism: business, trust, and politics in a Chinese city. New York: Cambridge University Press; 1999.
Wedeman A. The intensification of corruption in China. China Quart. 2004;180:895–921.
Wedeman A. Double paradox: rapid growth and rising corruption in China. Ithaca: Cornell University Press; 2012.
Bank W. Governance, investment climate, and harmonious society. Washington, D.C.: World Bank; 2007.
Yang D. Remaking the Chinese leviathan: market transition and the politics of governance in China. Stanford: Stanford University Press; 2004.