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Who determines Chinese firms' engagement in corruption: Themselves or neighbors?

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ABSTRACT

We investigate the determinants of firm corruption and highlight contagious diffusion of firm corruption under mutual influences of firms' past corrupt history and between peers. The analysis finds that firms' decision-making on engagement in corruption can be affected vertically by their own past experience of bribing bureaucrats and horizontally by the contagion effects of neighbors' observed malfeasance, while there is substantial regional heterogeneity. Moreover, these horizontal contagion effects are nonlinear depending on the distance between neighbors. We also identify three channels underlying "osmosis" of corruption: firms' geographic networks, information exposure, and local marketization. The strongest contagion effect appears in the eastern region, indicating that petty firm corruption can develop into a systematic phenomenon. More practical anti-corruption policies call for cooperation in design and implementation across administrative areas.

1. Introduction

Corruption is pervasive in transition economies. There are a large number of studies examining the determinants of corruption (see a recent survey in Kis-Katos & Schulze, 2013). Many of these focus on the incentives of bureaucratic corruption (e.g., Armantier & Boly, 2011) or corruption at country level (e.g., Goel & Korhonen, 2011) and at provincial level (e.g., Ko & Zhi, 2013), while only a limited number of studies examine the causes of micro-level corrupt behavior among "victims" such as firms (Chatterjee & Ray, 2012). It is nevertheless worth noting that corruption arises because the government, public officials and firms (or households) are involved in a principal-supervisor-agent relationship in both developing (Mishra, 2005) and developed countries (Brandt & Svendsen, 2013). The agents ("firms") are sources of corruption in the society through their decision-making, especially in transition economies engaged in the construction of democracy and improvement of institutional quality. A white paper from Charney Research, a polling firm, reveals that in 2014, 35% of 2293 firms across different industries and regions in China paid bribes.[1] Answering questions as to why some firms decide to pay bribes while others do not and why some firms would opt to pay more than others will cast new light on the reasons for and the spread of rampant and persistent corruption (Khan, 2008) and indicate implications for effective anti-corruption policy.

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[1] A briefing is available at: http://www.forbes.com/sites/richardlevick/2015/01/21/new-data-bribery-is-often-an-unspoken-rule-in-china/#4fbbdc6645fc [accessed 25 October 2016].

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Our logic starts from a firm's stance: how it decides the optimal solution to pay or not to pay a bribe in the complex principal-supervisor-agent interactions involving not only bureaucrats and the firms themselves, but also other firms' optimal responses. This paper engages in this endeavor through an analysis of a sample of 9077 firms in China, collected by the World Bank. The empirical analysis uses the time a firm spends with four crucial government departments – taxation, public security, environment, labor and social insurance – to provide an objective measure of the level of firm corruption.

The present study advances the existing literature on the following fronts. First, we add new explanations to firm-level corrupt behavior. In particular, we detect the contagious corrupt influence, where that exists, in corruption-related decision making. We suspect that when making decisions on corruption, firms may not only consider their own characteristics, but also care about other firms' malpractices. This supposition is inspired by the existing literature on bureaucrat corruption: the willingness of a bureaucrat to be corrupt depends on the behavior of other bureaucrats (Shleifer & Vishny, 1993).The more perceived corruption in a society, i.e., more people engaging in corruption, the more an individual is inclined to be corrupt as corruption seems to be justified (Dong, Dulleck, & Torgler, 2012).

We further hypothesize and specify that the extent of firms' corruption efforts could derive from two sources: (1) vertical influence, i.e., its own characteristics, especially its own past experience of corruption from an intertemporal behavioral concern; and/or (2) horizontal influence including either corrupt practices observed in other firms or unobserved corrupt culture and customs within the area. We also suspect that this neighborhood influence on corrupt behavior might be geography and industry specific, considering the very different cultures and customs across China. This contagious influence on the corruption of victims' (or suppliers') behavior has not yet been studied in China, nor in more general literature on determination of corruption.

Second, based on identifying firms' interdependent decision-making on malfeasances, we further investigate underlying mechanisms to discover how firms' engagement in corruption is affected by themselves and/or neighbors' corrupt behavior which is observed and/or unobserved. While there are regional and cross-country studies documenting contagion of corruption (e.g., Goel & Nelson, 2007; Goel & Saunoris, 2014), there is a paucity of firm-level empirical evidence and thus lacks mechanisms of how corruption spillovers. In the present study, we pay particular attention to the role played by dispersal of information, which is through either geographic links or access to a variety of news (e.g., Zhu, Lu, & Shi, 2013 for corruption perceptions in China and Costa, 2013 for a cross-country study), and marketization (e.g., Gong & Zhou, 2015 for China and Iwasaki & Suzuki, 2012 for transition economies). To the best of our knowledge, this is the first firm-level study unveiling not only the contagion effects of corruption, but also the (new) channels of this "osmosis".

Our findings will shed new light on the general literature on the determinants of firms' behavior and the underlying mechanisms, and help explain why corruption has been rampant in China and even worse than the median compared to other major transition economies (Dollar et al., 2003), especially since the reforms deepened in the 1990s (Wedeman, 2012). The findings are also expected to inform practical bottom-up corruption control policy.

The paper proceeds as follows. Section 2 describes the data. Section 3 presents methodology, with particular attention to appropriate specifications. Section 4 discusses empirical results. Section 5 makes concluding remarks and offers implications for anti-corruption policy.

2. Data

2.1. Data source

We use the World Bank Enterprise Surveys conducted by the World Bank in collaboration with the National Bureau of Statistics of China in 2005. This cross-sectional survey includes 12,400 firms in 30 out of 34 Chinese provinces.[2] We divide the full sample into 3 regions – East, Center, and West – according to the National Bureau of Statistics of China (NBS) (see Table 1).[3] We drop firms who reported unrealistic age and those which supplied no data on geographic locations (longitude and latitude data) which are needed for spatial analysis. The final constructed full sample contains 9077 firms.

The sample shows satisfactory representativeness, covering 29 industries, ranging from the low-value industry (25.3%), bulk-goods industry (74%) and high-value industry (0.7%).[4] According to the real percentage shares owned by different stakeholders, we defined firms' ownership by the largest shareholder. The state shares dominate in 47.1% of sample firms (36% of which state shares are higher than 50%), while 38.5% and 14.4% are private- and foreign-owned firms, respectively. Small and medium sized firms are also represented well. The median number of employees is 300 across sample firms. 23% of firms have under 100 employees, while only 11% employ more than 2000 people. Regarding firm performance, 16.6% of our samples experienced negative or zero net profit in 2005. The median annual net profit per employee was 8939 *yuan* in 2005, which is equivalent to US$ 1091.[5]

[2] 34 provinces are constituted by 23 provinces, 5 autonomous regions, 4 directly administered municipalities (Beijing, Tianjin, Shanghai and Chongqing) and 2 special administrative regions (Hong Kong and Macau).

[3] The classification is also motivated by economic, geographic and cultural differences. For example, the average GDP per capita of sample cities in the coastal region, East, was 13,771 *yuan* in 2005, which was 1.13 and 1.09 times larger than that in landlocked Central and West regions, respectively.

[4] The classification follows the World Bank (2006). Low-value industry includes agricultural and sideline food processing; food production; textile, garment, shoe and cap manufacturing. Bulk goods industry includes the production of raw chemical materials and chemical products; non-metal mineral products; smelting and processing of (non)ferrous metals. High-value industry includes pharmaceuticals; medical, electronics and telecoms equipment.

[5] Authors' calculation (8939 ÷ 8.19) based on the 2005 market exchange rate (8.19) from the World Bank online database.