The Political Determinants of Corruption

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Ngoc Tuan Phan

Department of Political Science
Duke University

Date: _____
Approved:

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Edmund Malesky, Supervisor

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Erik Wibbels

_____
Melanie Manion

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Markus D. Taussig

Dissertation submitted in partial fulfillment of the requirements for the degree of
Doctor of Philosophy in the Department of Political Science
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ABSTRACT

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Abstract

Political factors play a big role in influencing the ebbs and flows of corruption. The literature seems unanimously in agreement that, even in places where corruption is entrenched and systemic, the political calculations of individual politicians can still have an impact on corruption outcomes. On the other hand, while canonical research has delved into the divergent inner workings of different types of corruption for decades, studies on the link between politics and corruption have not paid sufficient attention to these distinctions. This dissertation speaks to the idea that politics influences different types of corruption differently in different settings. I seek to shed some light on how types of corruption and political contexts matter by studying wrongdoing at local governments in Vietnam. A contribution of the dissertation is the data collection efforts to acquire novel datasets. I got access to fine-grained data on bribery behavior at Vietnamese firms by working on the survey team for the Vietnam Provincial Competitiveness Index (PCI) for four years. On the politics side, I constructed a dataset on the career paths of Vietnamese provincial leaders since late 1990s, using information from newspapers, administrative almanacs, and various Internet sources.

This dissertation is dedicated to my late grandfather Phan Cong Dat, my late father Phan Cong Nghia, my grandmother Ho Thi Cot, and my mother Ngo Thi Men.

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Introduction

Political factors play a big role in influencing the ebbs and flows of corruption. The literature seems unanimously in agreement that, even in places where corruption is entrenched and systemic, the political calculations of individual politicians can still have an impact on corruption outcomes (Kunicova and Rose-Ackerman, 2005; Niehaus and Sukhtankar, 2013; Ferraz and Finan, 2011). On the other hand, while canonical research has delved into the divergent inner workings of different types of corruption for decades (Ackerman, 1978; Shleifer and Vishny, 1993; Johnston, 2005), studies on the link between politics and corruption have not paid sufficient attention to these distinctions. This dissertation speaks to the idea that politics influences different types of corruption differently in different settings. I seek to shed some light on how types of corruption and political contexts matter by studying wrongdoing at local governments in Vietnam. I also examine how the incentive structures of subnational politicians and their central counterparts interact. A contribution of the dissertation is the data collection efforts to acquire novel datasets. I got access to fine-grained data on bribery behavior at Vietnamese firms by working on the survey team for the Vietnam Provincial Competitiveness Index (PCI) for four

years. On the politics side, I constructed a dataset on the career paths of Vietnamese provincial leaders since late 1990s, using information from newspapers, administrative almanacs, and various Internet sources.

The dissertation deals with two broad categories of graft: Rent-seeking and extractive corruption. Rent-seeking corruption happens when firms bribe or give kickbacks to state agents to get access to special privileges such as government contracts. This type of corruption sometimes takes the form of ongoing collusive relationships, where businesses wine and dine and give lavish gifts to politicians in order to get preferential treatment when opportunities to acquire rents arise. Extractive corruption — also called extortion — happens when state agents intimidate and harass businesses into bribing them.

Since rent-seeking corruption is often directly related to the actions and choices of high-level politicians, the impact of politics is more predictable. Research has uncovered consistent patterns across contexts in the interaction between politics and rent-seeking. For example, more time in power seems to help entrench politicians and lead to a general increase in rent-seeking, while also making it more predictable. These findings apply from Italy (Coviello and Gagliarducci, 2017), Romania (Klašnja, 2015), to Cambodia (Samphantharak and Malesky, 2008). Furthermore, consider the effect of political stability and the politicians' time horizon. Multiple studies have found an uptick in corruption right before the end of politicians' tenure. Having invested a large fixed cost in building political capital and connections, both firms and politicians have an interest in cashing out before they expire. This increase in rent-seeking in the sunset period is found in cross-national research (Campante et al., 2009), and also in single-country studies from Mexico (Gamboa-Cavazos et al., 2007), Russia (Sidorkin and Vorobyev, 2018; Mironov and Zhuravskaya, 2016) to Vietnam

(Nguyen, 2021).

The story is more complicated when it comes to extractive corruption. Since this type of corruption takes place at the contact point in everyday government-to-business interactions, there is a big role for government agents — lower level officials over which politicians may or may not have strong control. This results in a more conflicting body of findings regarding the extortion of businesses. For example, while Buckley-Farlee (2017) found in the case of Russia that extortion drops toward the end of the regional mayors' term, Cooper et al. (2021) showed the opposite pattern in five West African countries, where the extortion of truck drivers increases during politically sensitive periods. This difference arises because in the context of Cooper et al. (2021), politicians' control over lower-level employees is weak and bureaucrats act as independent agents with their own political calculations. Corruption picks up at the end of the politicians' term since bureaucrats themselves are collecting funds to insure against future uncertainty, when the incumbent's successor arrives to disrupt the status quo. In a setting where local politicians maintain a strong grip over the apparatus below them, however, extortion should vary temporally in a way that best serves their interests. The Political Corruption Cycles paper in this dissertation shows that Vietnamese provincial leaders dial down extractive corruption during politically sensitive times to improve their chances of promotion to higher offices. Moreover, I provide evidence that rent-seeking displays the opposite temporal patterns from extortion, highlighting the need to differentiate between these two types of corruption.

In addition to the typology of corruption, the Safety in Numbers paper emphasizes the importance of taking into account political contexts. It shows that the effectiveness of transparency measures such as the Vietnam Public Administration

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Performance Index (PAPI) in reducing corruption depends on the realities of the political system and the calculations of actors on the ground. Using transparency measures to correct information asymmetries will be ineffective if the principals are unable or unwilling to punish agents. While corruption has always been one criterion to evaluate Party members, anti-corruption activities in Vietnam, even during its most feverish periods, tend to be based around a case-by-case, fire-alarm type approach. The Party leadership, until this day, still overlook systematic solutions that have proved effective elsewhere such as the creation of an independent anti-corruption body with substantial powers (Malesky and Phan, 2019), or a reliance on governance index such as PAPI (Nguyen, 2020; Le and Malesky, 2017). In this environment, the impact of information provided by PAPI comes not from its empowering effect on the principals, but solely through its impact on the bureaucrats' beliefs on the prevalence of corruption and the risks associated with wrongdoing. This results in unintended effects at the local level.

Amidsts these heterogeneity, the Gains from Graft vs. The Promise of Promotion paper attempts to single out universal political mechanisms that influence corruption. Both elections and promotion opportunities align the interest of political agents with that of their principals and motivate politicians to perform. I provide evidence that the promise of higher offices spurs incumbents in an authoritarian regime to cut down on wrongdoing, which supplements Ferraz and Finan (2011)'s similar findings on the relationship between term limits and corruption in a democratic setting. In doing so, the paper gives credibility to recent arguments in the literature that non-democratic institutions such as performance-based promotion can, in part, substitute for electoral incentives (Bell, 2016; Xu, 2011).

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The Gains from Graft vs. The Promise of Promotion

2.1   Introduction

"If men were angels, no government would be necessary. If angels were to govern men, neither external nor internal controls on government would be necessary."[1] Alas, men are no angels and neither are those who govern. Politicians are entrusted with great powers but the gains from and temptation of corruption are dangerously inviting. In democratic settings, electoral incentives are expected to have a disciplining effect on politicians by threatening corrupt incumbents with removal. Theoretical arguments on why electoral accountability can rein in wrongdoing and boost performance abound (Adams and Kenny, 1986; Ferejohn, 1986; Banks and Sundaram, 1993), and a large body of empirical research support this viewpoint. The findings consistently show that politicians who are subject to electoral incentives are less corrupt and also less prone to other opportunistic behaviors in taxation, public expenditure, and fiscal policies (Ferraz and Finan, 2011; Besley and Case, 1995; Alt et al., 2011; Klašnja and Titiunik, 2017).

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[1] J. Madison, The Federalist, number LI.

This begs the question: Can institutions constrain corruption in settings without downward electoral accountability? A growing literature — typically focused on China — proposes that performance-based promotion and political meritocracy can substitute for electoral incentives in motivating economic performance. According to Bell (2016), meritocratic promotion can be an effective method of choosing competent and moral political leaders. Xu (2011) makes a similar argument: China's economic success despite the lack of good institutions by the standard of the Washington Consensus can be attributed to regional decentralized authoritarianism (RDA). The three pillars of RDA are regional competition, centralized control over personnel, and performance-based promotion. While the conclusion is not forgone (Shih et al., 2012; Meyer et al., 2016), several studies have provided evidence linking economic performance with promotion (Maskin et al., 2000; Chen et al., 2005; Li and Zhou, 2005; Sheng, 2009), at least at the lower levels of government (Landry et al., 2018). The flip side of motivating performance is curtailing wrongdoing, and, if Bell and Xu were right, we should see that meritocratic and performance-based promotion can also emulate electoral incentives in containing corruption. However, no evidence exists that support this prediction.

This paper fills the gap by examining the case of Vietnamese provincial People's Committee Chairmen (PCOMs) — heads of the executive branch at the province level. Specifically, I use a regression discontinuity design (RDD) to study how the promise of promotion to higher offices motivates PCOMs to reduce corrupt activities. This setting is particularly appropriate for this question. First, Vietnam is a country where business-to-government corruption is prevalent. The Corruption Perception Index (CPI) ranks Vietnam at 117th out of 180 countries. In large-scale enterprise surveys, a large share of firms report widespread wrongdoing in all in-

teractions with government agents, including administrative procedures, regulatory inspections, and government procurement activities (Malesky et al., 2019). Second, much of the corruption takes place at the primary sub-national level — the provinces (Bai et al., 2019) — where PCOMs are powerful actors. The PCOMs are in charge of the provincial bureaucratic apparatus. They are directly responsible for signing major procurement contracts — which is tightly linked to rent-seeking — and indirectly influence petty corruption through their grip on lower-level employees. Research on Vietnam demonstrates a strong correlation between corruption in the provinces and the PCOMs' political cycles (Phan and Dulay, 2022). Third, PCOMs operate in an environment of strong upward accountability due to the Vietnamese Communist Party (VCP)'s centralized personnel control. In order to get promoted to any higher offices, the PCOMs must survive a comprehensive and — at least partially — meritocratic vetting process by the central government. In short, this paper examines a setting where corruption is common, studying actors who can influence such outcomes but who are also motivated to perform out of career aspirations.

Following the approach adopted by Jensen and Malesky (2018a), I take advantage of a cutoff in the age at the initial appointment as PCOMs that separates promotable governors from those who are not. Politicians immediately on either sides of this threshold are identical in all observable characteristics other than one sole factor — their promotability. I show that under provincial leaders who can still climb the political ladder, firms face less extortion by state agents in all aspects of business, from administrative procedures such as business registration to regulation compliance such as inspection activities by local regulators. Moreover, promotable PCOMs also achieve significantly higher economic growth compared to their lame-duck counterparts. These results hold across several robustness checks, including alternative specifications, alternative bandwidths, and placebo thresholds.

The findings corroborate the current consensus on the role of accountability mechanisms in reining wrongdoing in democratic settings (Ferraz and Finan, 2011; Raveh and Tsur, 2021). Moreover, this paper offers evidence that promotion pressures can substitute for electoral incentives in reducing politicians' corruption. In doing so, it speaks to the literature on political meritocracy and regional decentralized authoritarianism. The same mechanisms that apply in the case of economic performance in China (Xu, 2011) also generalize to the question of constraining corruption in Vietnam. Finally, while multiple studies suggest that performance is rewarded with promotion (Maskin et al., 2000; Chen et al., 2005; Landry et al., 2018), there remains a need to directly show how this knowledge influences politicians' behavior. This paper demonstrates that, all else being equal, the fact that a local leader is eligible for higher offices drives them to scale back on corrupt activities, which indirectly leads to better provincial economic performance.

2.2   Curtailing Corruption

Politicians are entrusted with great powers under incomplete contracts that leave room for the abuse of power. In this principal-agent relationship, politicians are not offered an explicit incentive scheme with well-defined payoffs that tie reward and sanctions to their individual decisions. The gains from and the temptation of corruption are considerable, which makes the task of properly incentivizing politicians paramount. In democracies, elections serve as the disciplining device. Elections help improve governance outcomes in the public's interests through two effects. Under the accountability effect, politicians exert efforts in the interest of the public in order to stand a chance for re-election after their term ends. Under the selection effect, the public take matters into their own hands and replace unscrupulous or incompetent incumbents with more suitable candidates (Besley and Case, 1995; Ferejohn, 1986).

Empirical research has backed up these theoretical claims. Several studies draw conclusion on the effectiveness of electoral incentives by examining instances when this device is removed, for example, in the case of term limits. In the context of Brazilian municipalities, Ferraz and Finan (2011) compare first-term mayors — who can be re-elected — to second-term mayors — who must step down at the end of their term. They find that the former group misappropriate 27 percent fewer state resources. The effect increases with political competition, which further suggests the role of electoral accountability. Taking a slightly different approach, Raveh and Tsur (2021) re-examine the widely held view that resource windfalls worsen corruption and show that this is only true when electoral incentives are not active. Specifically, U.S. mayors do ramp up wrongdoing in the presence of resource windfalls, but only in states with term limits. In contrast, in states without term limits, resource windfalls increase future graft prospects, which encourages incumbents to minimize corruption in the hope of being re-elected. Beyond corruption, these findings also apply to other opportunistic behaviors. Klein and Sakurai (2015) investigate the connection between term limits and fiscal opportunism. First-term mayors in Brazil, with eyes set firmly on re-election, implement looser fiscal policies, change the budget composition, and reduce local taxation in the last year of their term. In a similar vein, Besley and Case (1995) show that non-reelectable U.S. state governors increases extraction, i.e. taxes sales taxes, income taxes, public expenditures.

The evidence is strong on the role of electoral incentives in discouraging malfeasance. Can corruption be constrained without them? When it comes to economic growth, there are arguments that political meritocracy and performance-based promotion can substitute for elections. Bell (2012) and Bell (2016) argue that political selection based on rigorous examination and evaluation of past performance and vir-

tuous behavior can be as effective as one built on the democratic principle of "one person, one vote." Xu (2011) makes a related argument in an attempt to explain "the China puzzle" — the fact that China achieved impressive economic results for many years even without what are typically considered good institutions. The empirical literature of cross-country studies (North et al., 1990; Acemoglu and Johnson, 2005; Rodrik, 2006) stresses the importance of property right protection, contract enforcement, and the separation of government from business, all of which are inadequate in the case of China. Xu argues that China's success can be attributed to a set of alternative institutions called regional decentralized authoritarianism (RDA). RDA is built on the three pillars of regional competition, centralized control over personnel, and performance-based promotion. Specifically, regional leaders are put in charge of relatively self-contained local economies and compete with one another both on economic growth and policy experiments. Successful local politicians are rewarded with promotion to higher positions in the central government or in other localities. This method of political selection ensures that experienced and competent officials are chosen for the top posts. Moreover, the promise of higher offices spurs local politicians to exert costly effort to achieve economic performance and implement novel policy experiments which, if successful, can be expanded to other regions (Xu, 2011). Although contrasting views exist (Shih et al., 2012; Meyer et al., 2016), there are evidence that link performance with promotion in China's system. According to Maskin et al. (2000), Chen et al. (2005), and Li and Zhou (2005), provincial officials' economic performance relative to the national average and immediate predecessors in the province significantly impacts their promotion chances. Delving deeper, Sheng (2009) show that provincial GDP growth matters only for the career prospects of governors but not those of local Party Secretaries, which suggests a certain division of labor where the latter mainly tend to Party affairs while the former manage the local economy. A recent study — Landry et al. (2018) — attempts to reconcile

conflicting evidence in the literature on the role of factionalism and performance in political selection. Their results point to a dualist strategy, where economic performance plays a greater role at lower levels of government and political connections are more important at the top.

The literature suggests that performance-based promotion can bring about economic growth, but does this logic apply in the case of constraining wrongdoing? If promotion pressures motivate regional leaders to perform, it should also incentivize them to rein in opportunistic behaviors such as corruption. In addition, while existing research has established a link between economic performance and promotion, they have not shown evidence that promotability directly influences local politician's behavior (Xu, 2011). I seek to fill this gap by comparing the performance of otherwise identical politicians who only differ in whether they can still be motivated by the fruits of promotion. In Vietnam, if a provincial governor is initially appointed as PCOM before they reach the age of 55, they are eligible for promotion to higher offices after their term as PCOM ends. On the other hand, if the initial appointment takes place after the politician has already turned 55, they must retire at the end of the term. I take advantage of this threshold to perform a RDD analysis.

2.3 Context

Corruption is a major problem in Vietnam (Malesky and Phan, 2019). The 2018 Corruption Perception Index (CPI) by Transparency International ranked Vietnam 117th out of 180 countries included in the survey, below China, Indonesia, Thailand and the Philippines in the East Asian region. Business-to-government corruption is prevalent. According to the Vietnam Provincial Competitiveness Index (PCI) report, the leading enterprise survey in the country, 30.8 percent of businesses claimed to have paid informal charges to expedite land procedures, while 39.3 percent bribed

public officials during inspections. In additional, 48.4 percent of firms agreed that paying commissions is necessary to win government procurement contracts (Malesky et al., 2019).

Vietnam is a centralized single-party regime governed from Hanoi by the Communist Party (VCP). In Vietnam, provinces are the primary sub-national administrative units. This paper studies provincial People's Committee Chairmen (PCOMs) — leaders of the provincial executive branch. PCOMs are directly responsible for running the provincial bureaucracies and have considerable discretion in doing so. They preside over lower-level government units (districts, communes, villages) as well as the provincial departments of line ministries (education, planning and investment, commerce and industry, health, resources and environment, transport, etc.). In Vietnam and China, the PCOMs actively manage the provincial economy in a way not seen in the West.[2] Furthermore, research on corruption in Vietnam claims that "virtually all business-government interactions occur at the provincial, rather than national, level (Bai et al., 2019)[3]."

The PCOMs wield great powers in the province over which they preside. They can annul the decisions of both legislative and executive bodies at the lower levels of government — districts and communes. They also have full power of dismissal within the province. Furthermore, both horizontal accountability to provincial legislatures, and vertical accountability to central government, tends to be weak. The local legislative body to which the PCOMs supposedly answer, the provincial People's Councils,

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[2] According to a Chinese mayor, the biggest difference between the job in China and the US "is that you [US counterparts] do not seem to manage the economy much. When I was mayor of Shouguang, my main effort was on grasping the economy, everything from fiscal growth to enterprise profit, peasant income, private economy, structural adjustment" (Guo 2009).

[3] Page 654

convene only a couple of times a year and then only for a day or two. These meetings are mostly ceremonial and the Councils approve whatever put in front of them, giving PCOM great control (Kerkvliet and Marr, 2004). Moreover, due to the relatively large number of local units in Vietnam,[4] the central government does not exert great influence over what happens inside the provinces. Some provinces become de facto fiefdoms under longstanding local leaders. On the other hand, central government control over promotion is strong. The Vietnamese Communist Party maintains a strong grip on the career paths of local officials. If promoted, PCOMs will either fill the Party Secretary position in the province or go to the central government in Hanoi to become (vice) ministers, (vice) chairmen of powerful Party organs, or for leadership positions in the National Assembly. No matter where the PCOMs are promoted next, their selection must be approved by the Communist Party's Central Committee, the Politburo and the Party Secretariat (Kerkvliet and Marr, 2004).

In summary, the prevalence of business-to-government corruption at the local level, PCOMs' considerable discretion in the provinces, and the important role of the central government in personnel control make PCOMs particularly appropriate subjects for this paper's research question.

2.4 Theory

2.4.1 The PCOMs' Calculations

During their tenure, provincial leaders seek to maximize utility from three broad factors. First, there is public-spiritedness — many PCOMs would like to contribute to the betterment of their hometown or local populace. Leaders who prioritize this goal seek to attract investment, spur economic growth, modernize the local economy and infrastructure. They aspire to improve education and healthcare, and most

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[4] There are 63 provinces and major cities, compared to 34 in China.

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importantly, elevate the average local income by achieving high economic growth. Second, PCOMs, especially corrupt ones, seek to build up personal wealth and benefits. These comes in the forms of preferential treatment and nepotism, where local leaders use their power to put themselves and relatives in cushy positions in the local government, good schools, or even just to cut the line and get special attention at public hospitals. The main sources of personal benefits, however, are informal incomes which often come from bribes by subordinates and the local business community. Lower-level public officials extort citizens and firms before transferring these bribes upward, either as a regularized payments or in exchange for more lucrative positions in the local government. Sometimes citizens and firms directly approach local leaders to ask for preferential treatments, such as access to state-owned land or government contracts. Overall, this goal clashes with the first one since bribery, side dealings, non-transparency, and the extortion of local businesses tend to harm the provinces' socio-economic performance.

The third factor is chances of promotion to the central government which confers prestige and opportunities for further enrichment. Positions in the government ministries and central Party apparatus bestow a higher level of status and reputation as well as exposure to the national audience. As will be discussed below, while local leaders have to retire by age 60, higher-ranked officials in the central government have their retirement age increased to 65. Thus, a promotion prolongs the window for the local leader to make policies with nationwide implications, leave a lasting political legacy, and accumulate personal wealth. In general, the PCOM's support base in the province also hold in high regard such a move. First, given the large number of sub-national units in Vietnam, there is a certain prestige in having a local compatriot in high places in the national government. Moreover, research have also shown that provinces/districts/communes benefit financially and politically from having native-

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born sons or daughters in power-wielding positions in Hanoi (Do et al. 2017).

The importance of promotion is also reflected in the lengths to which PCOMs are willing to go to polish their CVs for higher positions. Research in a similar context — China — shows that subnational leaders strategically ramp up fiscal expansions in the third and fourth years of their tenure when promotion opportunities are approaching (Guo, 2009). This increase in government spending is allocated to large-scale and highly visible development projects that can signal the politicians' competence. In addition, Chinese and Vietnamese local leaders use their authority to issue tax breaks to achieve impressive investment figures in alignment with promotion cycles (Chen and Zhang, 2020; Jensen and Malesky, 2018a). Attempts to achieve economic growth at the right times also lead to political cycles in air pollution (Shen, 2014). Wallace (2016) provides evidence that provincial leaders even resort to deception, increasing the manipulation of GDP growth data significantly in the years with leadership turnover.

2.4.2 The Mechanics of Promotion

The central government maintains a strong grip on the career paths of local officials. If promoted, PCOMs will either fill the Party Secretary position in the province or go to the central government in Hanoi to become (vice) ministers, (vice) chairmen of powerful Party organs, or chairmen of bodies in the National Assembly. These positions are explicitly defined as "under the direct supervision of the Poliburo/The Party Secretariat (Giang, 2022)." Accordingly, the latter are heavily involved in the nomination and appointment procedures (Kerkvliet and Marr, 2004). The initial search as well as the final selection must be approved by the Politburo/Secretariat. These central bodies also reserve the right to transfer leaders from elsewhere instead of promoting from within the province (Minh, 2018).

The central government developed an entire system to assess the performance of Party members. Higher-ranking officials such as PCOMs are rated annually on a 100-point scale. They are then explicitly assigned to four grades of performance: (1) Excellent, (2) Good, (3) Satisfactory, and (4) Unsatisfactory (Truong, 2010; Nguyen, 2017). The assessment revolves around two major groups of criteria: "Morals" and "Performance." Corruption is a major item in the "Morals" group. Officials in leadership positions are responsible for their own track record on corruption as well as any wrongdoing in their Party unit. For PCOMs, this means that any corruption scandals in the province could harm their evaluation. Significant cases of graft would downgrade a Party unit to the "Unsatisfactory" level (To, 2014). Since 2016, there has been an increased emphasis on corruption in performance evaluation, coinciding with a widespread and intense anti-corruption campaign waged by the new Party leadership (Malesky and Phan, 2019). Anti-corruption effort is now the first item in the second component "Performance" (Nguyen, 2017) (Nguyen, 2019a) (Nguyen, 2019b). The reigning Party Secretary also repeatedly warns against appointing unscrupulous politicians to high-level leadership positions (Dan, 2018).

2.4.3 Predictions

While all PCOMs can pursue the first two goals at any point during their time in power, the third one — promotion — is available only to a selected group. Due to laws and regulations governing mandatory retirement, the PCOMs' age at the initial appointment determines whether or not they are still eligible for higher positions. All else being equal, PCOMs who are still promotable should behave differently from those who can no longer compete.

As shown above, central Party bodies including the Politburo and the Secre-

tariat play a crucial role in political selection at the highest level. Moreover, the central government's prioritization of anti-corruption makes it an important component in PCOMs' competitiveness as candidates for promotion. Therefore, I expect promotable provincial leaders to be motivated to minimize negative reputation and chances of corruption-related scandals. PCOMs in this group will use their control over the local apparatus to dial down the extortion of firms in all aspects of business. To test this hypothesis, I use a combination of biographical data on PCOMs, and firm-level data on bribery from 2006 to 2019.

2.5   Data

2.5.1   Data on Provincial Leaders

There is no publicly available dataset on Vietnamese political leaders. The information on PCOMs in this paper comes from a multiple-year data collection effort. I documented the tenures and basic characteristics of all provincial Party Secretaries and People's Committee Chairmen from late 1990s to 2020. Information comes from various and disperse sources, including Wikipedia pages and the Administrative Almanacs (*Niem giam hanh chinh*), which contain snapshots of the leadership composition at Vietnamese provinces every five years. The bulk of the information was founded in online news articles from national and local outlets, which sometimes contain brief bios on the incoming and outgoing officials.

I cross-checked the various sources to compile a comprehensive dataset of 575 Party Secretary and PCOM tenures. The data include the exact years of the provincial leader's terms, year of birth (and date of birth whenever possible), hometown, and education. More importantly, I documented the outcome of the leaders' tenure, classifying them into five categories (1- Retired, 2- Promoted, 3- Fired, 4- Demoted, and 5- Ill or Died in Office).

Data on various types of extortion comes from the Vietnam Provincial Competitiveness Index (PCI) survey. Established in 2005, the PCI is the largest annual enterprise survey in Vietnam. Its goal is to assess and rank provincial governments' efforts in creating a favorable business environment for the development of the private sector. In the 2018 wave, 8,681 domestic private firms from all 63 provinces answered the full survey. The survey also collected responses from 1,577 foreign-invested enterprises (FIEs) from the 20 provinces and cities with the highest concentration of foreign direct investment.

The PCI uses a stratified random sampling strategy within each of provinces with strata based on the age (entered before or after 2010), broad sector (agriculture, manufacturing, services, natural resources), and investment type (sole proprietorship, limited liability, join stock, joint venture, and 100 percent foreign owned). In 2018, the uncorrected response rate was 40 percent for the domestic survey and 32 percent for the foreign survey, although after correcting for incorrect addresses and contact information, the final response rate was about 50 percent for both instruments. About 70% of surveys were answered by the owner, CEO, or top manager with the rest completed by other high managers or financial officers.

In this paper, I use the domestic component of the PCI (PCI-DDI) to focus on local Vietnamese businesses. Compared to FIEs, domestic firms are much less mobile, have less bargaining power vis-a-vis the state and are therefore more vulnerable to extortion. The data cover a grand total of 111,354 respondents across 14 years from 2006 to 2019. I focus on three important variables that capture different aspects of corruption at businesses. First, I look at the reported total annual expenses

on informal payments of all sorts (as a percentage of firm revenue). This variable captures the overall level of corrupt dealings. In the PCI data, this is an ordinal level with seven levels. Following Bai et al. (2019), I converted this variable into a continuous measure by taking the mid-point value of each group. The second variable of interest is a binary variable that asks PCI respondents whether they had to pay informal fee to acquire a registration certificate — the document that all businesses need to operate. Third, a lot of the extortion takes place when inspectors visit firms to verify compliance with regulatory standards, such as fire safety, food sanitation, environmental standards, tax compliance, etc. I use a variable asking whether the firm had to give gifts (informal fee) to the government team during such inspections.

Table 1 below summarizes the key characteristics of PCI respondents and the PCOMs in this study. Firms spend on average 3.43 percent of their annual revenues on informal fees — a sizable amount. By comparison, the amount businesses pay in value-added taxes (VAT) are five percent for essential goods and services and ten percent for all other goods. About 32 percent of firms had to pay bribes to speed up procedures during applications for registration certificates, while the corresponding number is a striking 46 percent for bribery during inspections. Data on the two latter variables is only available since 2017 and 2016, respectively, when these questions are added to the survey.

2.6   Research Design

2.6.1   A Regression Discontinuity Design

I take advantage of a discontinuity in the promotion chances of PCOMs to study the impact of career prospects on local corruption. In a nutshell, there is a cutoff at 55, whereby the PCOMs appointed before this age are still eligible for promotion, while those whose first appointment takes place after this age can no longer be promoted

to higher offices.

Table 2.1: Summary statistics

	N	mean	sd	min	max	p25	p75
Bribe expenses (as % of revenues)	62043	3.43	5.96	0.00	35.00	0.50	3.50
Bribes for registration certificate	12337	0.32	0.47	0.00	1.00	0.00	1.00
Bribes during inspections	12337	0.46	0.50	0.00	1.00	0.00	1.00
Equity at formation	62043	2.58	1.19	1.00	8.00	2.00	3.00
Employment at formation	62043	2.04	1.06	1.00	8.00	1.00	3.00
Sector: Industry	62043	0.14	0.35	0.00	1.00	0.00	0.00
Sector: Service	62043	0.63	0.48	0.00	1.00	0.00	1.00
Sector: Agriculture	62043	0.08	0.26	0.00	1.00	0.00	0.00
Sector: Mining	62043	0.02	0.14	0.00	1.00	0.00	0.00
Industrial zone	62043	0.08	0.27	0.00	1.00	0.00	0.00
PCOM's age at appointment	188	52.02	3.45	40.00	59.00	50.00	54.50
Female PCOM	188	0.03	0.16	0.00	1.00	0.00	0.00
Local PCOM	188	0.66	0.47	0.00	1.00	0.00	1.00
Retired at end of term	188	0.26	0.44	0.00	1.00	0.00	1.00
Promoted at end of term	188	0.40	0.49	0.00	1.00	0.00	1.00
Promoted to TW	188	0.08	0.27	0.00	1.00	0.00	0.00
Promoted to Secretary	188	0.32	0.47	0.00	1.00	0.00	1.00
Tenure at position	188	5.20	2.18	2.00	15.00	4.00	6.00
Tenure at province	188	6.39	2.71	2.00	16.00	5.00	8.00

According to Vietnam's Labor Law, the retirement age for public officials is 60 for men and 55 for women (Nguyen, 2012a). However, there are exceptions for important posts in the Party, such as vice ministers, leadership positions in the National Assembly, and provincial Party Secretaries — essentially all the possible destinations for PCOMs that are promoted (Nguyen, 2015). Retirement age is extended by five years for these positions, making it effectively 65 for men and 60 for women (Nguyen, 2012b).[5]

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[5] I use the cutoff age for male PCOMs for the sake of brevity. In practice, only 3 percent of the politicians in the dataset are female.

Regulations on Cadre Appointment by the Ministry of Internal Affairs states that the first appointment need to leave enough time for the appointee to complete one full term of five years, echoing much earlier government resolutions (Nguyen, 2012c; Phan, 2003). Effectively, this means that PCOMs need to be selected for these positions in the central government and as provincial Party bosses before the age of 60. To be able to meet such deadlines, the PCOMs' first appointment needs to happen before they turn 55 in order to allow the completion of one full term.

I argue that this threshold age of 55 is the key lever that separate the promoteable PCOMs from those who no longer have any chance of climbing up the ladder. The key assumption of a regression discontinuity design is that this promotability (or the lack thereof) is the only substantive difference between a PCOM appointed at age 54 and one at age 55. Below, I include a balance table that looks at key characteristics of PCOMs within 4 years on either side of this threshold. As demonstrated in Table 2, provincial leaders in these two groups are not statistically different in any meaningful respects, from gender, hometown status, to key characteristics of the domestic firms in their provinces.

The regression discontinuity design reveals the local average treatment effect at the point of cutoff. The treatment variable in this case if *Must Retire* which takes value of 1 if the PCOM was younger than 55 at the time of the initial appointment and 0 otherwise. The running variable (also called the assignment variable) is obtained by subtracting the cutoff from the age at appointment. This running variable — named *FakeAge* — is centered around 0 and ensures that the measured effect of the treatment variable capture only the impact of promotability and not other factors that also vary with age.

Table 2.2: Balance Table

Variable	(1) Promoteable	(2) Must Retire	(3) diff
year of establishment	2,005.897	2,005.950	0.052
	(2.963)	(3.207)	(0.515)
total equity at time of establishment	2.483	2.481	-0.002
	(0.315)	(0.314)	(0.053)
employment size at time of establishment	2.100	2.134	0.034
	(0.228)	(0.246)	(0.040)
Mainly operate in Industry/Manufacturing/Construction	0.165	0.150	-0.015
	(0.136)	(0.117)	(0.023)
Mainly operate in Services/Commerce	0.606	0.606	0.001
	(0.085)	(0.078)	(0.015)
Mainly operate in Agriculture/Forestry/Aquaculture	0.082	0.078	-0.003
	(0.042)	(0.045)	(0.008)
Mainly operate in Mining	0.023	0.019	-0.004
	(0.024)	(0.019)	(0.004)
Mainly operate in Capital construction	0.232	0.233	0.001
	(0.098)	(0.076)	(0.017)
Number of licenses and permits needed to operate	3.284	3.244	-0.040
	(0.702)	(0.778)	(0.161)
Number of times firm was inspected in the past year	1.876	1.847	-0.029
	(0.315)	(0.374)	(0.057)
how many times firm inspected by tax authority	1.150	1.079	-0.071
	(0.918)	(0.287)	(0.135)
Bribery as a share of revenue (%)	3.255	3.389	0.134
	(1.024)	(0.969)	(0.179)
Female	0.030	0.019	-0.011
	(0.171)	(0.136)	(0.027)
Work in hometown (C)	0.663	0.795	0.133
	(0.476)	(0.408)	(0.084)
Observations	100	54	154

*Standard errors in parentheses

Table 2.3: Balance Table

Variable	(1) Promoteable	(2) Must Retire	(3) diff
Owner is a former government officer	0.033	0.031	-0.002
	(0.014)	(0.014)	(0.002)
Owner is a former military officer	0.039	0.038	-0.002
	(0.023)	(0.025)	(0.004)
Owner is a former SOE manager	0.093	0.088	-0.006
	(0.027)	(0.023)	(0.004)
Owner is a former SOE employee	0.127	0.128	0.001
	(0.038)	(0.032)	(0.006)
Quality of province-provided services: Telephone	4.813	4.843	0.030
	(0.124)	(0.148)	(0.022)
Quality of province-provided services: Infrastructure	4.131	4.153	0.023
	(0.319)	(0.297)	(0.095)
Quality of province-provided services: Access to Internet	4.439	4.474	0.035
	(0.211)	(0.220)	(0.037)
Quality of province-provided services: Feedback to Petition	3.497	3.510	0.012
	(0.452)	(0.362)	(0.144)
Quality of province-provided services: Public Transport	3.726	3.662	-0.064
	(0.783)	(0.592)	(0.247)
Quality of province-provided services: Electricity	4.454	4.518	0.064
	(0.307)	(0.279)	(0.053)
Quality of province-provided services: Water	4.427	4.478	0.051
	(0.287)	(0.270)	(0.050)
Quality of local labor	3.139	3.144	0.005
	(0.112)	(0.104)	(0.019)
Observations	100	54	154

*Standard errors in parentheses

2.6.2 Model Specifications

I run the following regression:

$$y_i = \alpha + \beta_1 RetireMust_j + \beta_2 FakeAge_j + \mathbf{\Omega_j} + \mathbf{\Gamma_i} + \nu + \epsilon_i$$

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Here, y_i indicates the level of bribery reported by PCI respondent i — a firm that does business under a PCOM j. This variable is a continuous measure for the overall level of bribes and takes binary values for informal payments during registration and inspections. $\mathbf{\Omega_j}$ is a set of control variables for PCOM j. $\mathbf{\Gamma_i}$ is a vector of control variables for firm i. I also control for a series of year and sector fixed effects, captured by the term ν. Standard errors are clustered at the PCOM level. I expect β_1 to be positive, which indicates that reported corruption is higher for PCOMs that are no longer eligible for higher offices.

2.7   Main Results

Table 4 presents the results on the impact of promotability on overall bribery expenses as a share of revenue. The basic model looks at the effect of *Must Retire* conditioned on the running variable. Model 2 allows for the possibility of differential slopes on either side of the cutoff by including an interaction term between treatment and the assignment variable. In Model 3, I take into account the probability of a quadratic relationship between the assignment variable and bribery. Model 4 adds extra control variables, including several firm as well as PCOM characteristics. In Model 5 and 6, I included year and sector fixed effects.

Across all different specifications, there is clear evidence of a significant jump in extortion as PCOMs get past the cutoff age of 55 at the time of appointment. Results from the full model suggest that firms operating under a PCOM that is eligible for promotion reported 0.76 percentage point lower expenditure on informal payments (as a share of revenue). This is a significant number, especially taking into account the fact that the average reported bribe expenses is only 3.43 percent of firm revenue. This represents a reduction of more than 20 percent in total bribe amount.

Figure 1 illustrates this finding graphically. The left panel demonstrates a linear fit with differential slopes on either side of the cutoff. The right panel fits a quadratic relationship between bribery and the running variable. There is a clear jump in reported bribery at the cutoff age in both panels.

Table 2.4: Promotability and overall bribe expenses

	(1) Basic	(2) Interaction	(3) Quadratic	(4) Controls	(5) Year FEs	(6) Full
Must Retire	0.622**	0.729**	0.841**	0.666**	0.674**	0.755***
	(0.306)	(0.309)	(0.343)	(0.324)	(0.279)	(0.253)
Distance from cutoff age						
at time of appointment	-0.180**	-0.136	-0.421	-0.398	-0.186	-0.233
	(0.082)	(0.095)	(0.372)	(0.340)	(0.322)	(0.280)
Distance from cutoff squared			-0.070	-0.078	-0.010	-0.031
			(0.087)	(0.080)	(0.077)	(0.065)
Employment size at formation				-0.338***	-0.293***	-0.250***
				(0.033)	(0.030)	(0.035)
Equity at formation				-0.097***	-0.118***	-0.082**
				(0.029)	(0.028)	(0.032)
Owner: Former govt				1.083***	1.036***	0.959***
				(0.192)	(0.191)	(0.190)
Owner: Former military				0.520***	0.467***	0.576***
				(0.149)	(0.147)	(0.154)
Owner: Former SOE manager				0.418***	0.374***	0.376***
				(0.107)	(0.104)	(0.109)
Owner: Former SOE employee				0.525***	0.450***	0.413***
				(0.091)	(0.086)	(0.101)
Female				-0.190	-0.224	-0.458
				(0.823)	(0.491)	(0.325)
Age				-0.061*	-0.034	-0.033
				(0.033)	(0.025)	(0.026)
Constant	2.858***	2.942***	2.727***	6.098***	4.395***	3.985***
	(0.184)	(0.207)	(0.360)	(1.894)	(1.419)	(1.489)
Year FEs	No	No	No	No	Yes	Yes
Sector FEs	No	No	No	No	No	Yes
Legal Form FEs	No	No	No	Yes	Yes	Yes
Observations	57713	57713	57713	51155	51155	39067
R^2	0.001	0.001	0.001	0.015	0.025	0.094

Standard errors (clustered at the PCOM level) in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

These are multiple interesting results on the covariates. The evidence is clear and consistent that larger firms (measured by both employment and equity size) have to spend a smaller percentage of total revenue in informal fees. This does not suggest
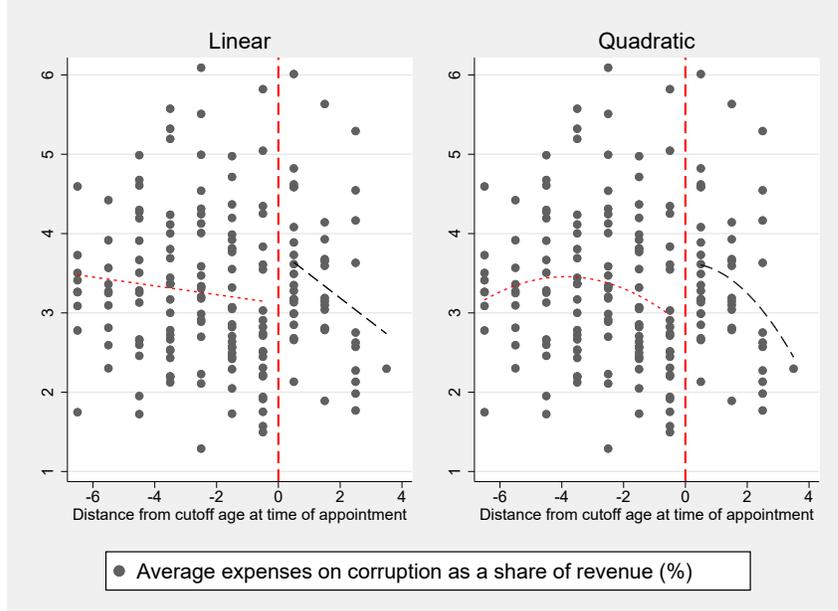
FIGURE 2.1: Discontinuity in extortion

that such firms have to pay less; in fact, they do spend more on bribes but the size-bribe relationship is concave. In addition, political connections have a positive relationship with bribes. The coefficients on proxies for connections — whether the business owner is formerly a government official, a military member, or a former SOE manager/employee — are all positive and statistically significant. The effect is also substantially large. An owner who is a former government official pays around one percent more of total firm revenue in bribes. Thus, the evidence seems to suggest that at least some of these bribes are rent-seeking bribes, i.e. firms paying in order to get access to business opportunities involving the state such as government contracts. There can also be collusive bribes where state agents get paid to ignore firms' regulatory violations. These stand in contrast to purely extortionate bribes where state agents extract payments from firms without any benefits for the latter.[6]

Table 5 shows evidence of a similar pattern when it comes to bribery for reg-

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[6] The terminology comes from Shleifer and Vishny (1993)

istration certificate. Bear in mind that a business license is quite straightforward and inexpensive to obtain for new business, with not a lot of stringent requirements. Therefore, any bribes paid to public officials at this step constitute a case of extortionate bribery — or what Shleifer and Vishny (1993) would consider *corruption without theft.* Such payments can also be considered "speed money" or "grease money".

The coefficient on *Must Retire* in the full model suggests that a barely promotion-ineligible PCOM lets extortion at this stage happens 23.8 percent more regularly than a counterpart on the other side of the cutoff.

Bribery also happens much more frequently during inspections under PCOMs that are ineligible for promotion. PCI respondents reported 24.4 percent higher frequency of such cases under provincial leaders who can no longer climb the ladder. It is very common for regulatory officials to take advantage of an unclear legal provisions and new policies to create difficulties for businesses in order to extract bribes. Although laws may be passed at the national level, concrete implementations in reality goes through several stages, from broad guidelines by the ministries to specific instructions and circulars at the provincial-level departments. Therefore, local leaders may benefits from creating an uncertain legal environment for the purpose of rent-grabbing. The PCI asks firms to rate, on a scale of 4, how much they agree with the statement *"Provincial officials use regulations as instruments to extract rents".* As shown in Table 7, businesses that operate under barely-ineligible PCOM agree more wholeheartedly with such sentiment.
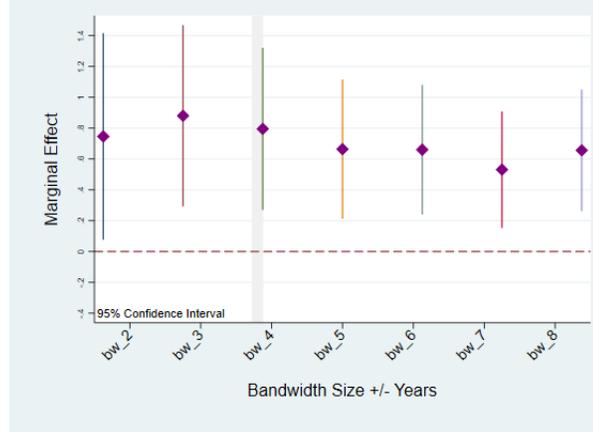
FIGURE 2.2: Alternative bandwidths

2.8   Robustness Checks

Next, I carry out a series of sensitivity analyses. Results from a regression discontinuity design are sensitive to two major specification choices: The bandwidth and the specific cutoffs. In order to the findings to be valid, they have to remain under different choices of bandwidth. In contrast, we need to cutoff point to be "special". If the change in promotability at the cutoff age is the main driver behind corruption outcomes, there should be no jump at other alternative values of the cutoff.

In the main analysis, I picked a bandwidth of four years on either side of the cutoff age. Figure 2 shows that the findings are robust to alternative bandwidth choices, from two years to eight years. Figure 3, on the other hand, shows that there is indeed something special about the cutoff age of 55. Even when we try out the same analyses with placebo discontinuities from 50 to 57, the threshold of 55 is the only place with a statistically significant jump in extortion as reported by PCI respondents.
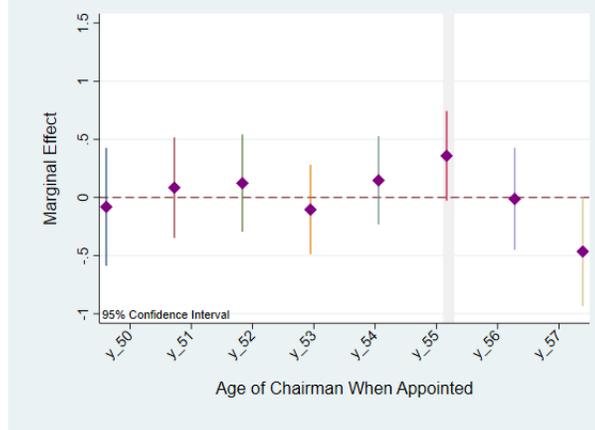
FIGURE 2.3: Placebo cutoffs

2.9 Promotability and Economic Growth

Results on firms' self-reported behavior confirm that they have to engage less in bribery under PCOMs who are promotable to higher offices. Is the reduced extortion of local businesses also reflected in a more vibrant economy? The literature has established a negative connection between corruption and economic growth, firm growth, and investment (Mauro, 1995; Knack and Keefer, 1995; Rock and Bonnett, 2004; Fisman and Miguel, 2007). As a result, I expect that provinces with chairmen who can still climb the ladder will record faster growth during the latter's tenure.

I test this additional hypothesis with this model:

$$y_{it} = \alpha + \beta_1 RetireMust_j + \beta_2 FakeAge_j + \mathbf{\Omega_j} + \mu + \epsilon_{it}$$

The unit of analysis in this model is a province-year. y_{it} indicates the economic growth performance of province i at year t under PCOM j. As above, *RetireMust* and *FakeAge* are PCOM-level variables. $\mathbf{\Omega_j}$ is a set of control variables including PCOM characteristrics. μ indicates province-level effects. I expect β_1 to be negative, which indicates that provinces under PCOM that are still eligible for promotion record faster economic growth.

Provincial GDP numbers in Vietnam are notoriously inaccurate. I use night-time luminosity (nightlight) to reliably capture local economic activity. Data on nightlight in Vietnam comes from the collection and standardization effort by Minh Trinh at MIT (Trinh 2019). These information are compiled from satellite imagery from two sources: The US Air Force Defense Meteorological Satellite Program's Operational Linescan System (DMSP-OLS) and the Visible Infrared Imaging Radiometer Suite (VIIRS). The dataset provides information on the nightlight emitted by all 64 provinces and major cities in Vietnam between 1992 and 2018. I created a growth variable aimed to capture annual changes in economic activity.

Table 8 provides supportive evidence for this hypothesis. Growth performance dropped significantly at the promotability cutoff — about 9.3 percent in the full model. This is a substantial effect, given that the average growth in night-time luminosity at Vietnamese provinces is only 21.8 percent.

The coefficient on the running variable is also positive, which suggests that, the cutoff aside, older PCOMs tend to perform better in terms of GDP growth. The fact that growth numbers move in the opposite direction right at the cutoff hints at the importance of promotability. Chances of higher offices weigh heavily in the minds of provincial leaders when picking their economic management strategy during their time in power. The results are robust to alternative bandwidth sizes and placebo cutoffs, as illustrated by Figures 4 and 5.

2.10   Conclusion

Can performance-based promotion substitute for electoral incentives in curtailing corrupt behavior amongst politicians? In this paper, I provide empirical evidence that promotion pressures motivate office holders to rein in wrongdoing. More specifi-
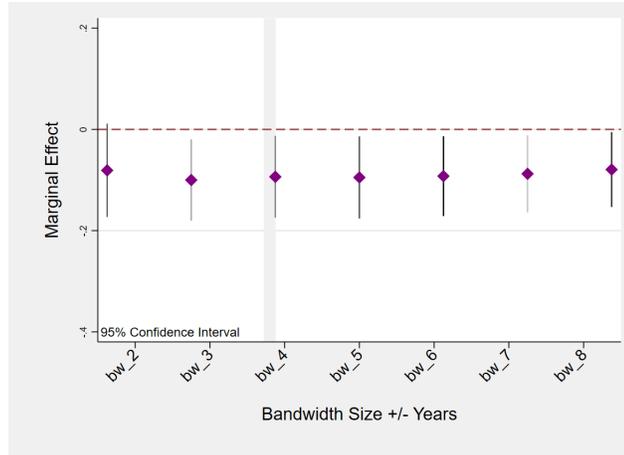
FIGURE 2.4: Alternative bandwidths
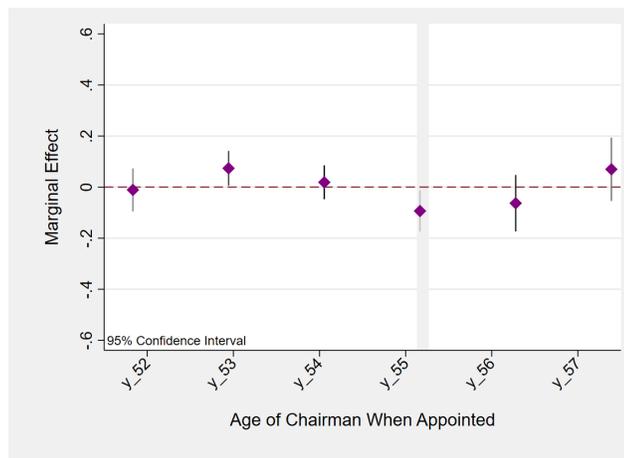
FIGURE 2.5: Placebo cutoffs

cally, I show that promotable provincial leaders in Vietnam dial down the extortion of local businesses and in doing so bring about greater economic growth. The outcome manifests itself in multiple facets of business. Firms have to bribe less to register their business during the start-up phase as well as during regulatory inspections throughout their operation. In addition, the overall burden of informal payments relative to firms' revenues is lower and they are also less likely to view regulations as instruments of extortion used by public officials. Moreover, the more comfortable business environment also comes with higher economic growth in the provinces led

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by PCOMs who can still climb the political ladder.

This paper contributes to the growing literature which argues that performance-based promotion can potentially be alternatives to elections in political selection. These findings also complement Yu and Li (2019) who find that promotable local leaders in China increase taxation in the search for impressive revenue numbers. This seems to suggest that taxation and extortion (informal taxation) act as substitutes. When necessary, local politicians can reduce extortion in return for faster economic growth and higher official tax revenues. The paper also clears the road for future research on trade-offs related to promotion incentives. On the one hand, these results suggest that party leaders should keep lower-level politicians incentivized by making promotability more universal, for example, by relaxing rules on mandatory retirement age. Such a move, however, may in itself reduce the promised gains of higher offices, since it necessitates increased turnover in desirable positions in the central government or an increase in the number of such positions. Another potential venue for future research concerns the optimal number of subnational units. Given a fixed number of central offices, too high the number of provinces means fiercer competition and lower chances of promotion, which might have a disheartening effect. On the other hand, local politicians can also be too complacent if there are too few provinces and promotion is perceived to be guaranteed. Either situations will weaken the incentivizing effect of promotion pressures.

Table 2.5: The impact of promotability on bribery for registration cerficate

	(1) Basic	(2) Interaction	(3) Quadratic	(4) Full
Must Retire	0.175*	0.223**	0.248**	0.238**
	(0.098)	(0.105)	(0.110)	(0.103)
Distance from cutoff age at time of appointment	-0.035	-0.015	-0.074	-0.025
	(0.022)	(0.023)	(0.099)	(0.102)
Must Retire X Distance		-0.101*	-0.001	-0.089
		(0.058)	(0.177)	(0.180)
Distance from cutoff squared			-0.014	-0.003
			(0.023)	(0.024)
Employment size at formation				-0.035***
				(0.013)
Equity at formation				-0.012
				(0.010)
Owner: Former govt				0.008
				(0.076)
Owner: Former military				0.062
				(0.082)
Owner: Former SOE manager				0.100**
				(0.045)
Owner: Former SOE employee				0.076**
				(0.036)
Female				-0.145
				(0.104)
Age				-0.002
				(0.012)
Constant	-0.715***	-0.677***	-0.721***	-0.544
	(0.049)	(0.050)	(0.087)	(0.691)
Observations	17564	17564	17564	15592
R^2				

Standard errors (clustered at the PCOM level) in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.6: The impact of promotability on bribery during inspections

	(1) Basic	(2) Interaction	(3) Quadratic	(4) Full
Must Retire	0.195*	0.175*	0.187*	0.244**
	(0.104)	(0.097)	(0.106)	(0.113)
Distance from cutoff age				
at time of appointment	-0.083**	-0.094**	-0.137	-0.160
	(0.032)	(0.037)	(0.142)	(0.148)
Must Retire X Distance		0.049	0.129	0.230
		(0.069)	(0.282)	(0.288)
Distance from cutoff squared			-0.011	-0.028
			(0.034)	(0.035)
Employment size at formation				0.002
				(0.009)
Equity at formation				-0.006
				(0.009)
Owner: Former govt				0.102
				(0.065)
Owner: Former military				0.375***
				(0.051)
Owner: Former SOE manager				0.159***
				(0.031)
Owner: Former SOE employee				0.141***
				(0.035)
Female				-0.214**
				(0.095)
Age				-0.065***
				(0.017)
Constant	-0.298***	-0.317***	-0.348***	3.174***
	(0.071)	(0.079)	(0.134)	(0.932)
Observations	19924	19924	19924	17573
R^2				

Standard errors (clustered at the PCOM level) in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.7: Firm agrees that provincial officials use regulations to extract rents

	(1)	(2)	(3)	(4)	(5)	(6)
	Basic	Interaction	Quadratic	Controls	Year FEs	Full
Must Retire	0.156	0.172	0.205*	0.214**	0.212**	0.206**
	(0.115)	(0.112)	(0.102)	(0.088)	(0.085)	(0.084)
Distance from cutoff age						
at time of appointment	-0.019	0.007	-0.082	-0.104	-0.106	-0.100
	(0.023)	(0.029)	(0.100)	(0.086)	(0.083)	(0.082)
Distance from cutoff squared			-0.021	-0.028	-0.028	-0.027
			(0.024)	(0.019)	(0.019)	(0.018)
Employment size at formation				-0.028**	-0.028**	-0.027**
				(0.013)	(0.013)	(0.013)
Equity at formation				-0.028**	-0.027**	-0.029**
				(0.012)	(0.012)	(0.013)
Owner: Former govt				0.209***	0.208***	0.193***
				(0.058)	(0.058)	(0.062)
Owner: Former military				0.141**	0.140**	0.141**
				(0.056)	(0.055)	(0.055)
Owner: Former SOE manager				0.128***	0.129***	0.136***
				(0.043)	(0.043)	(0.043)
Owner: Former SOE employee				0.109***	0.109***	0.101***
				(0.034)	(0.034)	(0.035)
Female				0.066**	0.062**	0.052*
				(0.027)	(0.027)	(0.029)
Age				-0.007	-0.005	-0.005
				(0.013)	(0.013)	(0.013)
Constant	2.261***	2.322***	2.252***	2.608***	2.508***	2.252***
	(0.076)	(0.090)	(0.096)	(0.747)	(0.752)	(0.814)
Year FEs	No	No	No	No	Yes	Yes
Sector FEs	No	No	No	No	No	Yes
Legal Form FEs	No	No	No	Yes	Yes	Yes
Observations	10302	10302	10302	6017	6017	6017
R^2	0.003	0.006	0.006	0.031	0.031	0.044

Standard errors (clustered at the PCOM level) in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.8: Promotablity and economic growth

	(1) Basic	(2) Interaction	(3) Quadratic	(4) Year FEs	(5) Full
Must Retire	-0.070*	-0.089**	-0.109**	-0.108**	-0.093*
	(0.040)	(0.044)	(0.051)	(0.042)	(0.047)
Distance from cutoff age					
at time of appointment	0.024**	0.018	0.080	0.111***	0.135***
	(0.011)	(0.011)	(0.051)	(0.042)	(0.046)
Distance from cutoff squared			0.015	0.025**	0.032***
			(0.012)	(0.010)	(0.011)
Constant	0.163***	0.150***	0.194***	-0.122**	-0.164**
	(0.026)	(0.027)	(0.048)	(0.052)	(0.069)
Year FEs	No	No	No	Yes	Yes
Province FEs	No	No	No	No	Yes
Observations	564	564	564	564	564
R^2	0.008	0.011	0.013	0.363	0.409

Standard errors (clustered at the PCOM level) in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

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3

Political Corruption Cycles

3.1 Introduction

Understanding the strategies that politicians use to engage in corruption is central to the design and implementation of anti-corruption policies, and ultimately towards achieving the goals of good governance and political reform. But as with most strategies, timing matters greatly with respect to whether the corrupt politician is caught, stays in power, and maximizes illicit returns. As a result, a large literature has established that timing affects the nature and extent of corruption. The reasoning is intuitive. Corruption is illegal yet the private benefits to corruption are large. Politicians strategize over when, and how much, to engage in nepotism, bribery, and embezzlement, to minimize their chances of getting caught, maximize their chances for reelection or promotion, and otherwise extract as much rents as they can, given their expected time-horizons.

But how does timing affect corruption? The empirical literature is surprisingly unclear. Some studies show that corruption is highest at the end of a politician's term (Sidorkin and Vorobyev, 2018; Mironov and Zhuravskaya, 2016; Cooper et al.,

2021; Figueroa, 2021; Nguyen, 2021). These studies generally follow an Olsonian logic: as their term ends politician's tenure becomes more uncertain, and as a result their time-horizons are short (Olson, 1993). Rational politicians therefore extract as much as they can before they are removed from power. There is also a reason for firms to engage in more illicit deals with politicians at the end of a term: firms would like to make new deals with their political connection before that connection loses power.

But other empirical studies have shown the opposite effect: corruption decreases at the very end of a politician's term (Buckley-Farlee, 2017; Vadlamannati, 2015). The logic for why this happens is also equally compelling. Politicians do not engage in corruption at the end of their term because they want to maximize their chances of reelection or promotion. If they get caught engaging in corruption near the end of their term this will be particularly deleterious to their reelection or promotion prospects. Existing literature has shown that voters have short memories: Politicians' achievements closer to election times are disproportionately rewarded, while scandals around this time are heavily punished (Huber et al., 2012; Pereira and Waterbury, 2019). There is also a reason for firms not to engage in corrupt exchanges at the end of a term. Their potential rents are much lower if they engaged in the corrupt activity at the end of the term versus the beginning or middle of the term, so a rational firm would rather engage in bribery at the beginning of the term than at the end. To compound this lack of clarity, the empirical literature is also equally unclear as to whether corruption is higher or lower at the beginning of a politician's tenure, relative to the middle or end of their term. The extant literature may be summarized as follows: timing matters for corruption, but how timing matters is still inconclusive.

This paper argues that a potential resolution for these disparate results lies in the nature of the corrupt activity. In particular, we make distinct predictions for

two different types of corruption: rent-seeking corruption and extractive corruption. Rent-seeking corruption happens when firms bribe or give kickbacks to state agents to get access to special privileges such as government contracts. This type of corruption sometimes takes the form of ongoing collusive relationships, where businesses wine and dine and give lavish gifts to government officials in order to get preferential treatment when opportunities to acquire rents arise. Extractive corruption — also called extortion — happens when state agents intimidate and harass businesses into bribing them. We posit that the level of rent-seeking corruption across a politician's term follows a U-shaped pattern. Rent-seeking corruption is high at the beginning, goes down towards the middle of the term, and rises again at the end. On the other hand, the relationship between the level of extractive corruption and tenure follows an inverse-U relationship: extractive corruption is low at the beginning, rises in the middle, and falls again at the end of the politician's tenure.

In turn, rent-seeking corruption follows a U-shape because of the interplay between two competing effects: the horizon effect and the sunset effect. The horizon effect leads corruption to be higher at the beginning of the term because, all things equal, firms would like to invest in rent-seeking relationships with politicians who have a long time horizon in their current position. This is offset by the sunset effect. Both politicians and firms benefit from ramping up rent-seeking activities right before the former's term ends. For the politicians, the goal is to get one last pay day from decision-making powers conferred to them by that position. For the firms, they would like to exploit the ties they have already built up with the politicians over the course of the latter's tenure, before those connections expire. Outgoing politicians will award their long-time allies with lucrative contracts that accrue into the future. These contracts will still be valid even if the politician is no longer in power.

The inverse U-relationship for extractive corruption is also the result of the interplay between two effects: the bandit effect and the promotion effect. At the beginning

of the term the politician would rather invest than extract, since extracting from a richer economy leads to larger profits, all things equal, than extracting from a poorer one. Towards the end of the term the politician will want to extract as much as possible at the end of the term to take what they can while they are still in power. The bandit effect is increasing as the term ends, and hence as time-horizons shorten. On the other hand, the promotion effect implies that corruption is lowest at the end of the politician's tenure, as politicians who hope for reelection or promotion engage less in corruption. The presumption is that getting caught engaging in corruption near the end of one's term is particularly bad for politicians' reelection prospects.

We test the implications of the theory by examining provincial chairmen (PCOMs) in Vietnam. This is appropriate for several reasons. First, corruption is prevalent in the context of Vietnam. The 2018 Corruption Perception Index (CPI) by Transparency International ranked Vietnam 117th out of 180 countries included in the survey. A considerable share of corrupt activities in business-to-government interactions take place at the provincial level (Kerkvliet and Marr, 2004; Malesky and Phan, 2019). Second, PCOMs wield significant discretionary power in the provinces, and hence are able to engage in corrupt activity if they choose to do so. Third, Vietnam's single-party political structure leads to promotion incentives for PCOMs, who aim to be promoted to high-ranking postions in the central government. Finally, promotion is at least partially meritocratic, and PCOM candidates for promotion are evaluated along a series of economic and social performance indicators, such as economic growth and poverty reduction. In summary, the high levels of corruption in Vietnam, the ability of PCOMs to pull the levers of corruption if they so choose, and the quasi-meritocratic promotion incentives that they face coalesce the ideal structural conditions to test our argument.

We test our argument with a nationally-representative dataset of over 8,000 firms, from the Provincial Competitiveness Index (PCI). This dataset includes questions on

both rent-seeking and extractive corruption as well as characteristics of the sample firms. Our results corroborate the theory. We find that the level of corruption that firms report follows a U-shape for rent-seeking corruption and an inverse U-shape for extractive corruption, throughout the tenure of these PCOMs. These results are robust to a variety of controls and sensitivty tests.

Our results build on several strands of literature. Most directly, we provide a framework that attempts to unify the thus-far divergent results linking levels of corruption with time-horizons and tenure (Campante et al., 2009; Cooper et al., 2021; Figueroa, 2021; Buckley-Farlee, 2017). Our key insight is that there are different political cycles for different types of corrupt exchanges. Second, we build on research that examines how institutional structures shape the nature of corruption of authoritarian regimes in general, and Vietnam in particular. Finally, our paper has real-world implications: by identifying the underlying mechansisms that incentivize politicians to be corrupt (or not be corrupt), our work can serve as a guide towards the institutional design of government and NGO programs that attempt to build systems that mitigate corruption.

3.2 Theoretical Framework

A large literature in both political science and economics has come to the consensus that timing affects the level of political corruption. But beyond this consensus that timing matters, there is surprisingly little agreement on how timing affects corruption. This confusion remains unresolved because strong empirical work in different contexts have shown disparate results. In some cases corruption peaks at the end of a politician's tenure (Gamboa-Cavazos et al., 2007; Campante et al., 2009; Mironov and Zhuravskaya, 2016; Cooper et al., 2021; Nguyen, 2021; Sidorkin and Vorobyev, 2018), while there are also arguments for corruption to fall at the end (Figueroa, 2021; Buckley-Farlee, 2017; Vadlamannati, 2015). Typical explanations

likewise may fall short of explaining why we see divergent results. For example, this does not seem to be the effect of the political system, broadly defined. The changing levels of corruption over time seem to accrue to both democractic or authoritarian governments.

Nor is this effect the product of the scale of corruption. Figueroa (2021) shows that low-level Argentinian bureaucrats collected more bribes in the two weeks leading up to elections than in the two weeks right after the election. Yet the same jump in the level of corruption near the end of the politician's term (sunset effects) can also see be seen at higher levels of government. For example, high-level officials in Vietnam sign an abnormally high number of public contracts in their last months in office (Bui et al., 2020). In the context of Russia, Mironov and Zhuravskaya (2016) found that corruption in government procurement increases as elections for regional governors approach.

We argue that one potential way to reconcile these results is to look at the nature of corruption. Specifically, we consider two types of corruption, rent-seeking corruption and extractive corruption, and argue that the level of corruption over time differs depending on the type of corruption in question. We define rent-seeking corruption as cases where firms bribe or establish collusive relationships with government officials to access rent-making opportunities such as government contracts. In these cases, firms actively participate in and benefit from corruption. As such, rent-seeking corruption is mutually beneficial for both sides. In contrast, we define extractive corruption as the extortion of businesses by public officials. In these cases, firms do not actively seek nor do they benefit from corruption. Only politicians benefit from extractive corruption. This is the key difference between the two types that underlies our theoretical predictions.

In rent-seeking corruption, corrupt officials and businesses are partners in illegal dealings, therefore trust is paramount. Firms first pay a fixed cost — in money and

time — to build relationships with government leaders (Coviello and Gagliarducci, 2017). These relationships allows them to get their foot in the door, be invited to dinners and be included in the politicians' inner circles. When the government puts out requests for tender, officials favor these trusted firms and find ways to help them win bids. In exchange, firms pay their government allies kickbacks — a variable cost — for each contracts awarded to them. The politician get paid, while the firm receives access to contracts and licenses they would not have received otherwise.

On the other hand, extractive corruption is zero-sum, with firms losing out from the transaction. For example, it is common for firms to have to pay an informal fee to acquire business registration. In this transaction, firms are legally entitled to the certificate, provided that they have prepared the required paperwork and an official payment that will go to the government coffers. However, the officials will effectively force firms to pay them an additional amount to get things done, by stalling the process, demanding extra paperwork, or creating other difficulties. Another example of extractive corruption takes place during regulatory inspections, such as those related to taxes, fire safety, food sanitation, labor safety etc. In many developing countries, it is common for businesses to pay inspectors an informal fee when they visit firms' premises to check for compliance with government regulations. Officials would threaten the firm with fines and closures, effectively intimidating them into paying bribes.[1] Extractive corruption thus leads to losses for the firm, and gains for the official.

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[1] These types of corruption correspond to what Shleifer and Vishny (1993) call corruption without theft. They are called corruption without theft since these are transfers from firms to government agents, without direct monetary losses for the state or society. By contrast, embezzlement is a type of corruption with theft.

Rent-seeking Corruption: A U-shaped Relationship with Tenure

We will now lay out our theoretical expectations, and then explain the logic behind the argument. For rent-seeking corruption, we predict a U-shaped relationship between level of corruption and the tenure of the politician. At the beginning of the politician's term, the level of corruption is high. Corrupt activities then cool down in the middle of the term before rising again at the end. The U-shaped curve is a function of two distinct effects: the *horizon effect* and the *sunset effect.* The horizon effect implies a high level of rent-seeking corruption at the beginning of the politician's tenure, and lower levels of corruption as the politician's term and their time-horizon shortens. The reasoning is as follows: Firms would like to invest in relationships (and pay the large fixed cost) with officials who have a long horizon (Gamboa-Cavazos et al., 2007). The earlier the bribe, the more money can be made over time. By paying the fixed cost early, the firm benefits from political networks made from working with the politician, the potential for winning contracts with that same politician's help at a later date, and other benefits such as exclusive access to the market and the restriction of potential competition. A corollary to this logic is that the returns to rent-seeking are lower the closer a politician is to the end of their term, and as such the horizon effect weakens as political time-horizons decrease. It is worth noting that this effect is a natural by-product of the nature of rent-seeking corruption: returns over time only happen because the politician now has access to streams of rents from the firm, which in turn only has access to those rents via the politician's largesse.

In contrast, the sunset effect implies a high level of rent-seeking corruption right before the end of the politicians' tenure (when their time horizons are short). The sunset effect can be stated simply: both politicians and firms have incentives to lock in future gains from their existing relationships before they expire, i.e. when the

politician leaves office. On the formers' part, since they get kickbacks from every contract signed, politicians would sign as many as possible right before they retire/get promoted to another position. Politicians also intensify wrongdoing right before the end of their term because at that point they are not accountable for the quality and effectiveness of government spending. If these government contracts turn out to be wasteful or ineffective — which would be discovered a few years down the line — it is their successors who have to bear the political and economic costs. Nguyen (2021) hints at this logic by showing that Vietnamese SOE managers intensify hiring to an abnormal degree in their last year in charge, with most of the new hires turning out to be unnecessary/redundant. Sidorkin and Vorobyev (2018) also propose a similar argument to explain why corruption increases in the last 12-18 months of Russian regional governors' terms. Similarly, firms are incentivized to maximize gains from these ties by locking in future contracts before the politician leaves office since they already paid the large fixed cost to establish a working relationship with the incumbent. In other words, firms would like some assurance of future income due to uncertainties over their future relationship with the incumbent's replacement. Current research has shown that predictability in the corrupt environment is important for firms' growth and investment (Malesky and Samphantharak 2008). A confluence of these effects incentivizes both firms and politicians to engage in higher levels of rent-seeking corruption as the politician's term is ending. Like the horizon effect, the sunset effect is also a natural by-product of rent-seeking: access to contracts is once again contingent on politician's largesse, otherwise firms would not be able to extract rents.

The U shape of rent-seeking corruption across a politician's term is thus an interaction between the horizon effect and the sunset effect. Early in the politician's term (when their time-horizons are longest) the horizon effect dominates the sunset effect, and thus corruption starts high and then falls. Later in the term, as the politician's

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tenure is ending (and time-horizons are short), the sunset effect now dominates the horizon effect, and the level of corruption again rises until the end of the politician's term.

Extractive Corruption: An Inverse U-shaped Relationship with Tenure

On the other hand, there is an inverse U-shaped relationship between extractive corruption and the tenure of the politician. At the beginning of the politician's term, the level of extractive corruption is low. At the middle of the term, extractive corruption rises. At the end of the term extractive corruption falls again. Two contrasting effects interact to create the inverse-U relationship: the *bandit effect* and the *promotion effect.* Bandit effects incentivize low levels of extractive corruption at the beginning of the term. The logic is Olsonian. At the beginning of their term, politicians are stationary bandits who do not maximize extraction. Because of their long time-horizons, politicians do extract a small amount, but for the most part keep the extortion of firms in check to foster a vibrant economic environment (Olson, 1993). In return, they can expect a steady and growing stream of rents in later years. As the politician's tenure in office continues, they become roving bandits. Because of these shortened time-horizons and uncertainty over whether they will continue to be in power, politicians ramp up extractive activities. The bandit effect is a by-product of the nature of extractive corruption. Extraction is low at the beginning precisely because it leads to losses on the firm side, and rises at the end precisely because the politician no longer cares about the negative effect of theft on both firms and the wider economy.

In contrast, the promotion effect moves in the opposite direction. The promotion effect implies that extractive corruption is highest at the beginning of the politician's term, goes down over time, and is lowest right at the end of the term. Promotion means an opportunity for more future rents, and existing research has shown that

officials may deliberately reduce their corrupt activities at a given point in time to increase the future duration of the stream of rents (Niehaus and Sukhtankar, 2013). The closer the politician is to the end of their tenure, the more being caught engaging in extractive corruption lowers their chances of promotion. This is due to the fact that extractive corruption increases the chances of scandals and directly harms economic activity in the politicians' locality. Due to recency bias, this effect implies reduced extortion in the immediate years before the promotion window. Extant literature has argued that scandals are particularly damning near the end of one's term as compared to earlier on in the term (Huber et al., 2012; Pereira and Waterbury, 2019; Besley, 2006). Like the bandit effect, the promotion effect is also particularly relevant to the nature of extractive corruption. Recent empirical work has shown that voters punish politicians who engage in extractive corruption more than rent-seeking corruption.

The inverse U-relationship is a product of the interaction between the bandit effect and the promotion effect. Early in the politician's term, extractive corruption rises because the bandit effect dominates the promotion effect: as politician's time-horizons get shorter they extract more. Later in the politician's tenure, the promotion effect now dominates the bandit effect: the desire for reelection or promotion outweighs the potential gains from extraction. As a result, extractive corruption goes down at the end of the term.

Figure 3.1 presents a stylized summary of the argument. There is a U-shaped relationship between the level of rent-seeking corruption and tenure. The horizon effect dictates that rent-seeking corruption decreases over time, since it suggests that corrupt activities are most lively early on in the term. The sunset effect implies more rent-seeking as the politician's term is ending, with firms trying to close as many deals with the politician as possible before the latter leaves office. In the early stages of the politician's term the horizon effect dominates, while at the latter stages the sunset effect dominates. On the other hand, extractive corruption starts

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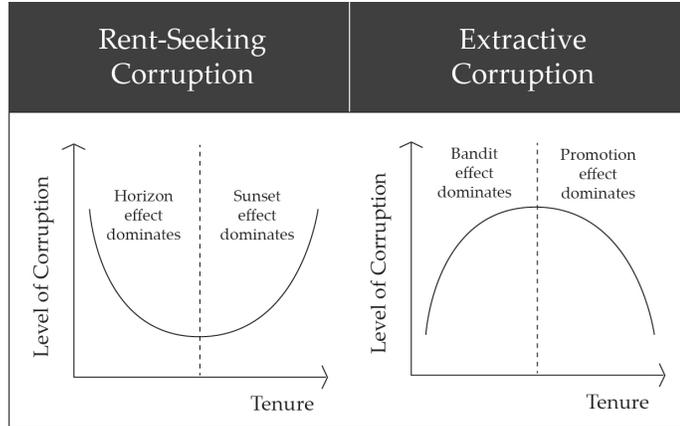
FIGURE 3.1: Type of Corruption and Tenure

low, rises and then falls again, in an inverted U-shaped pattern. The bandit effect dictates that extortion increases as politicians gradually transform from stationary bandits to roving bandits over their term. The promotion effect implies low levels of extortion right before politically sensitive times (at the end of their term), with the politicians being most restrained in extractive activities. In the early stages of tenure the bandit effect dominates while in the latter stages the promotion effect dominates. It is important to note that the symmetric U-shape is stylized: the theory merely requires that at some interval during tenure one effect dominates the other, and at an inflection point the other effect now dominates. This happens if at least one of the contrasting effects for both rent-seeking and extractive corruption is non-concave across the range of tenure, such that one effect overrides the other at a given point.

While the empirical implications of this argument are tested in the context of Vietnam, a single-party authoritarian state, we believe that the logic of the argument applies even beyond this specific authoritarian context. The competing effects for both rent-seeking and extractive corruption are driven by time-horizons and tenure, not by the particularities of democratic or authoritarian political systems. To take two examples, the bandit effect will hold in a democratic setting when an elected

mayor steals as much money as they can if they do not expect to be reelected, and will also hold for an appointed regional politician if they believe the party will not promote them or remove them from power. Likewise, the horizon effect will also hold across political systems. It does not matter if we are considering the case of a mayor in the democratic system or a bureaucrat in the authoritarian system. If both have long tenures, then firms will have incentives to establish collusive relationships with them as quickly as possible.

To bolster our argument and to provide some evidence for its generalizability, we compiled a series of papers that examine the relationship between tenure of the politician and levels of corruption. These paper do not explicitly typologize their form of corruption as rent-seeking or extraction in the way that we do, but if our theory is correct (and generalizeable) we should find that papers that implicitly use extractive corruption should show an inverse U-shaped relationship between tenure and levels of extractive corruption. This pattern is U-shaped for the studies that deal with rent-seeking corruption.

Indeed this is what Table B.1 in the Appendix demonstrates. Of the three studies that examine extractive corruption, two find a inverse U-shaped relationship between their outcome variable and some measure of tenure and time horizon. Of the six studies that examine rent-seeking corruption, all six empirically show a U-shaped relationship between tenure and levels of rent-seeking corruption. In other words, the empirical results of previous papers align with our theoretical predictions. Furthermore, the papers cover a range of countries across the world, including Mexico, Russia, India, and Ghana. As such, this is suggestive evidence to the theory's scope.

It is worth noting that this exercise comes with caveats. First, some of the corruption measures are somewhat vague, and the interpretation of these outcomes as extractive or rent-seeking corruption requires subjective judgment on our part. We err on the side of deferring to the authors when interpreting the outcome variables.

Second, a variety of different methodologies and timelines are used in these studies. For example, Sidorkin and Vorobyev (2018), Nguyen (2021), and Mironov and Zhuravskaya (2016) focus on the last year of tenure, while Figueroa (2021) zeroes in on the last two weeks before elections. Still we believe that the consistency of these empirical papers with our theory, despite these caveats, suggests that our theory has both explanatory power and generalizability.

3.3   Context

As discussed in Chapter 2, Vietnam is a country where business-to-government corruption is prevalent. PCOMs, as heads of the local executive branch, wield great power over how things are run in the provinces. On the other hand, central government control over promotion is strong. The Vietnamese Communist Party maintains a strong grip on the career paths of local officials. If promoted, PCOMs will either fill the Party Secretary position in the province or go to the central government in Hanoi to become (vice) ministers, (vice) chairmen of powerful Party organs, or for leadership positions in the National Assembly. No matter where the PCOMs are promoted next, their selection must be approved by the Communist Party's Central Committee, the Politburo and the Party Secretariat (Kerkvliet and Marr, 2004). This will be the first time in their career that promotion depends on approval from the Party elites. Their initial selection as PCOMs are outcomes of election by the provincial People's Councils without the need for formal approval from the central government.[2]

Furthermore, political selection is at least partially meritocratic in nominally Communist, single-party regimes such as Vietnam and China. Candidates are evaluated on a wide range of socio-economic achievements prioritized by the Party, such as economic growth, poverty reduction, employment, investment attraction (Jensen and

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[2] Law on the Organization of Local Governments 2015
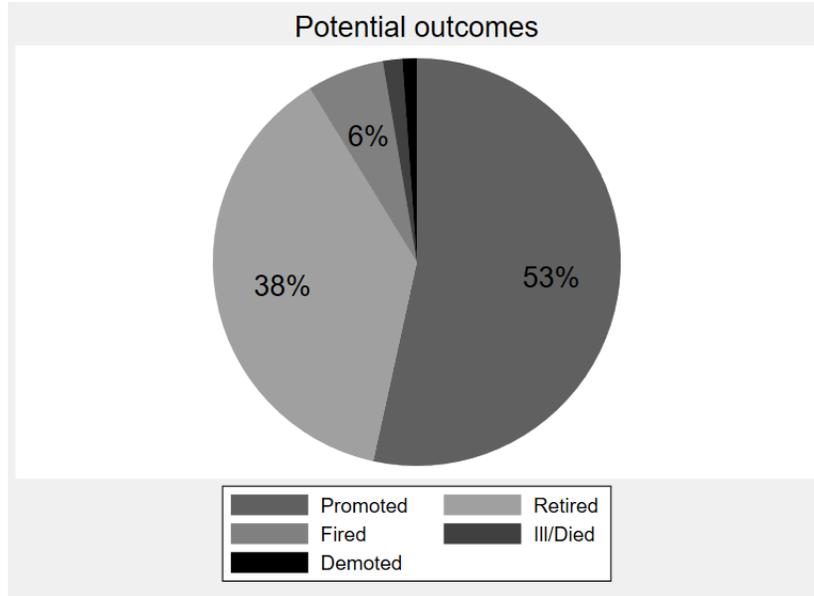
FIGURE 3.2: Outcomes Of PCOMs' Tenures

Malesky, 2018a), and pollution control (Shen, 2014). Hopeful candidates who seek promotion and higher Party status behave strategically so that their performance peaks during opportune time windows. In doing so, they create political cycles in public investment (Guo, 2009), pollution (Shen, 2014), and tax breaks (Chen and Zhang, 2020). Sometimes, the overzealousness to fulfill the higher-ups' criteria results in excessive fiscal extraction (Yu and Li, 2019) and even the loss of human lives (Kung and Chen, 2011). At other times, the PCOMs resort to the manipulation or downright fabrication of performance figures (Wallace, 2016), further implying that performance matters for promotion. As a result, it is reasonable to conclude that corruption allegations significantly diminish the PCOMs' perceived performance in the eyes of the central government, and thus considerably lowers their probability of promotion.

In summary, the prevalence of business-to-government corruption at the local level, PCOMs' considerable discretion in the provinces, the important role of the central government in personnel control, and the fact that promotion is partially

meritocratic make PCOMs particularly appropriate subjects for this paper's research
question.

3.4 The PCOMs' Political Incentive Structure

During their tenure, provincial governors seek to maximize their utility from three
broad factors: Public-spiritedness, income and benefits, and promotion. For a full
discussion, please refer to Section 2.4.1.

For PCOMs, a full term lasts five years. As shown in Figure 3.3, the vast ma-
jority of local chairmen, if they eventually get promoted, do so between the fourth
and sixth year of their tenure. The threshold of five years is also coded into law.
Regulations on Cadre Appointment by the Ministry of Internal Affairs states that
the first appointment need to leave enough time for the appointee to complete one
full term of five years.[3] [4] The window before the fifth year is particularly important
since this when they are being evaluated and considered for promotion. We expect
that PCOMs' approach to the two types of corruption would vary differentially over
the course of their tenure.

3.5 Data and Variables

Data on Firm-Level Corruption

Data on our outcome variables, the various types of rent-seeking and extractive
corruption, comes from the Vietnam Provincial Competitiveness Index (PCI) survey,
a nationally-representative survey of business firms throughout Vietnam. Established
in 2005, the PCI is the largest annual enterprise survey in Vietnam. Its goal is
to assess and rank provincial governments' efforts in creating a favorable business
environment for the development of the private sector. For example, in the 2020

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[3] Quy che bo nhiem can bo 2012, Clause 6.1.c, Ministry of Internal Affairs

[4] Decision 27/2003/QD-TTg
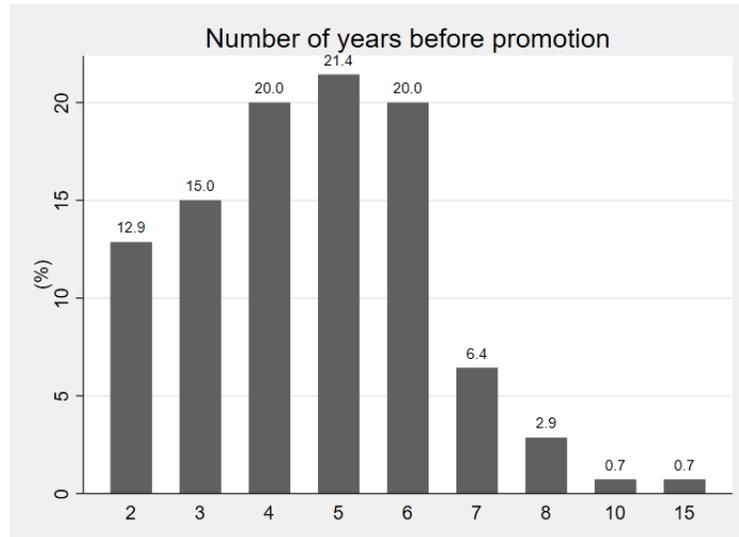
FIGURE 3.3: Timing Of Promotion

wave, 8,633 domestic private firms from all 63 provinces answered the full survey. The survey also collected responses from 1,564 foreign-invested enterprises (FIEs) from the 20 provinces and cities with the highest concentration of foreign direct investment.

The PCI uses a stratified random sampling strategy within each of provinces with strata based on the age (entered before or after 2010), broad sector (agriculture, manufacturing, services, natural resources), and investment type (sole proprietorship, limited liability, join stock, joint venture, and 100 percent foreign owned). In 2018, the uncorrected response rate was 40 percent for the domestic survey and 32 percent for the foreign survey, although after correcting for incorrect addresses and contact information, the final response rate was about 50 percent for both instruments. About 70% of surveys were answered by the owner, CEO, or top manager with the rest completed by other high managers or financial officers.

In this paper, we restrict the sample to domestic firms in the PCI (PCI-DDI) to focus on local Vietnamese businesses. Compared to FIEs, domestic firms are much less mobile, have less bargaining power vis-a-vis the state and are therefore more

vulnerable to extortion. The data cover a grand total of 119,987 respondents across 15 years from 2006 to 2020.

Data on Provincial Leaders

There is no publicly available dataset on Vietnamese political leaders. The information on PCOMs in this paper comes from a multiple-year data collection effort. We documented the tenures and basic characteristics of all People's Committee Chairmen from late 1990s to 2020. Information comes from various and disperse sources, including Wikipedia pages and the Administrative Almanacs (*Niem giam hanh chinh*), which contain snapshots of the leadership composition at Vietnamese provinces every five years. The bulk of the information was founded in online news articles from national and local outlets, which sometimes contain brief bios on the incoming and outgoing officials.

We cross-checked the various sources to compile a comprehensive dataset of 340 PCOM tenures.[5] The data include the exact years of the provincial leader's terms, year of birth (and date of birth whenever possible), hometown, and education. More importantly, we documented the outcome of the leaders' tenure, classifying them into five categories (1- Retired, 2- Promoted, 3- Fired, 4- Demoted, and 5- Ill or Died in Office). This represents the first attempt to paint a comprehensive picture of leadership at Vietnamese local governments.

Table 1 presents the summary statistics on some key variables. Overall, firms reported that bribe expenses account for about 3.3 percent of their total annual revenues. The share of PCI respondents that directly admitted to paying bribes during inspections is 41 percent. This questions is only asked for five years between 2016 and 2020, which explains the lower number of observations. Among firm owners, 77 percent are male, 57 percent hold bachelor degrees and higher, and three percent

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[5] Of these 340 PCOMs, 265 served during the years when the PCI data was collected.

Table 3.1: Summary statistics

	N	mean	sd	min	max	p25	p75
Bribe expenses (as % of revenues)	77484.00	3.29	5.85	0.00	35.00	0.50	3.50
Bribes during inspections	34699.00	0.41	0.49	0.00	1.00	0.00	1.00
Equity at formation	104499.00	2.53	1.20	1.00	8.00	2.00	3.00
Employment at formation	104499.00	2.08	1.07	1.00	8.00	1.00	3.00
Owner: Former govt	75235.00	0.03	0.16	0.00	1.00	0.00	0.00
Owner: Former military	75235.00	0.03	0.18	0.00	1.00	0.00	0.00
Owner: Former SOE manager	75235.00	0.08	0.28	0.00	1.00	0.00	0.00
Owner: Former SOE employee	75235.00	0.11	0.32	0.00	1.00	0.00	0.00
Owner: Bachelor degree	75235.00	0.57	0.50	0.00	1.00	0.00	1.00
Owner: MBA degree	75235.00	0.03	0.18	0.00	1.00	0.00	0.00
Owner: Male	75235.00	0.77	0.42	0.00	1.00	1.00	1.00
PCOM's age at appointment	265.00	51.56	3.60	36.00	58.00	50.00	54.00
Female PCOM	265.00	0.03	0.17	0.00	1.00	0.00	0.00
Retired at end of term	265.00	0.32	0.47	0.00	1.00	0.00	1.00
Promoted at end of term	265.00	0.37	0.48	0.00	1.00	0.00	1.00
Fired	265.00	0.05	0.21	0.00	1.00	0.00	0.00
Tenure at position	265.00	4.52	2.49	1.00	15.00	2.00	6.00

have MBA. In addition, 11 percent of them were previously SOE employees, eight percent were former SOE managers, and three percent each served in the government and the military.

The average age at appointment among the PCOMs in the regression sample is 51.56. The average duration of their tenures as PCOM is 4.52, with 75 percent having already left the position by the end of the sixth year. Thirty-percent of these PCOMs were promoted at the end of their tenure. On the other hand, five percent were fired and 32 percent retired. The rest are actively serving PCOMs. There is significant imbalance in terms of gender: Only three percent of PCOMs are female.

Dependent Variables

Rent-seeking corruption

We proxy for rent-seeking corruption with a measure of bribery in procurement activities. Our dependent variable is an estimated measure of firms' propensity to have paid bribes to win government contracts. These estimated probabilities are obtained by applying a method developed by Blair and Imai (2012) to a LIST experiment embedded in the PCI survey. Jensen and Malesky (2018b) successfully applied the same method to the PCI data to study the impact of the OECD Anti-Bribery Convention.

Governmental agencies post requests for tenders to invite firms to provide services such as construction, provision of materials such as stationary, machinery, or medical devices. This is an area rife with wrongdoings. In many cases, the government officials tasked with procurement pick certain bidders in exchange for kickbacks. These may not be the most qualified applicants, but the procurement team will rely on subjective criteria to rule out competitors. Furthermore, they could even influence the criteria-picking stage to select a profile that fits their pre-selected firms. In some cases, government officials would arrange for a chosen firm to win the contract by enlisting other firms to put in pretended bids (Tuan and Hoang, 2021). These fake opponents would deliberately fail but the fabricated competition will give the procedure a veneer of legitimacy. Procurement is a prime example of rent-seeking corruption Shleifer and Vishny (1993). Since both the bribing firms and the governmental personnel benefit from such collusive transactions, neither side has an incentive to expose the other.

Existing academic literature on corruption already addressed corruption in procurement activities (Di Tella and Schargrodsky, 2003; Coviello and Mariniello, 2014; Tran, 2008). In Vietnam, corruption during the bidding process for government

contracts is entrenched in areas such as the provision of transportation service (Viet-namnet, 2021), the construction of schools (Thanh, 2020), or the supply of medical devices (Hoang, 2020). The problem is so entrenched that multiple cases of corruption was revealed right in the middle of the COVID-19 epidemic under intense public scrutiny. Officials helped companies win contracts and overcharge the state in the procurement of COVID-19 diagnosis machines (Hoang, 2020), test kits (Hoang, 2021), and the provision of "rescue flights" for Vietnamese citizens stuck overseas (Ban and May, 2022). According to some analysts, these cases serve as evidence that the high-profile anti-corruption campaigns waged by the top leadership since 2016 has failed to root out systematic corruption.

The PCI survey includes a LIST experiment — or Uncounted Match Technique (UCT) — to measure the prevalence of this type of corruption. LIST experiments are designed to elicit honest responses to interview questions on sensitive topics such as corruption, racial bias, or sexual preferences. In this application, two versions of the questionnaire are randomly distributed to the respondents. In the "control" form, the question lists four different things that businesses regularly do while applying for government contracts, and ask firms to respond with the number of activities that they themselves carried out. In the "treatment" form, the question lists the same four items and adds an extra one *"Paid a special commission to ensure your business won the contract."* Since firms only need to respond with the number of items, they can indirectly admit to sensitive activities. Analysts can subtract the average of "control" form responses from the average of "treatment" form responses to obtain an estimate of the prevalence of bribery in the population. LIST experiments have been proven effective in revealing the true extent of sensitive behaviors such as racial bias (Kuklinski et al., 1997), bribery (Jensen and Malesky, 2018b), vote buying Gonzalez-Ocantos et al. (2012); Kiewiet de Jonge (2015), etc.[6]

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[6] This is the specific wording of the question in the "treatment" form:

While typical applications of LIST can estimate the aggregated prevalence of corruption, they fall short of doing so at the level of individual firms. Blair and Imai (2012) developed two-stage method to solve this problem. In the first stage, researchers regress the number of activities on the main explanatory variable and a host of controls, using only the sample of control observations. Then, researchers apply the estimated coefficients from this regression to observations in the treatment group to obtain predicted values, and subtract these predicted values from the actual responses by treatment firms. Consider a business in the treatment group. The predicted value indicates the number that would have been reported had that same firm been assigned to the control group. The discrepancy between the actual reported number of activities and the predicted value arises from the extra, sensitive item in the survey question. As a result, this difference is a measure of the probability that that business engaged in bribery during the procurement process. The larger the difference, the more likely it is that the firm in question has bribed to win government contracts.

In the second stage, researchers substitute this measure for the dependent variable in the regression in the first stage. Our regression tables report these results. The coefficient in the second stage provides the marginal effect of the covariate on bribery propensity.

"Please look at the following list of common activities that firms usually engage in to make their goods or services more attractive to government clients.

- Dropped off pamphlets or fliers at government offices advertising your goods or services
- Opened your business or a branch of your business near government offices for better approach to the decision-makers
- Paid a "commission" to ensure your business won the contract to deliver goods and services
- Appealed to a friend or relative in the office to win the contract to deliver goods and services
- Attended government functions or meetings in order to meet officials and make them aware of your goods or services

Please do not indicate any one of these activities specifically, we are only interested in the total number you may have utilized to win government business.

How many of the above activities did you engage in when competing for such a government contract?"

Extractive corruption

We turn to inspection activities to measure extractive corruption at the provinces. Our dependent variable is a binary variable indicating whether the firm had to pay bribes to government inspectors during such visits, equal to 1 if the respondent had to pay bribes and 0 if the respondent did not pay bribes. Among PCI-DDI respondents, 46 percent confirmed that they paid bribes in such scenarios.

Periodically, inspectors from the local government would visit firms to check on their compliance with a wide range of regulatory areas. These include fire safety, food sanitation, environmental protection, labor safety and labor insurance, tax payments, etc. This is a typical case of extractive corruption. Inspectors would use firms' violations as negotiating chips to extract bribes. Such visits take a toll on the firm since it disrupts regular business and production activities. The company must set aside working space for the inspection team, divert personnel to stay with and address the latter's questions and inquiries. Such costs extend to taking the government personnel to lavish lunches and dinners, sometimes karaoke and other entertainment activities. As a result, prolonged visits hamper firms' productivity. In many cases, businesses would need to pay a small bribe for the inspectors to go away despite not having violated any regulations. Firms that refuse to pay bribes risk increased regulatory scrutiny and further troubles with governmental agencies down the line (Quan, 2020). In the PCI-DDI dataset, 40 percent of respondents agree or strongly agree that local governments use compliance with regulations to extract rents.

Main Independent Variables

Our main independent variable indicates the number of years for which the PCOM has been in power. Specifically, since the observations are at the firm-year level, this variable concerns the incumbent PCOM that presided in the business' province in the year when the firm was interviewed. The variable indicates how deep, temporally,

that PCOM was into their tenure at that point. In addition, due to our focus on studying corruption patterns in the PCOM's first term, we limit this variable to the 1-6 range. Some PCOMs last 7-8 years or even more at their position but they are in the minority. Furthermore, PCOMs in their second term typically exceed promotion-eligible age and our theory does not make predictions for scenarios where the promotion incentives are removed.

Control Variables

Firm-level control variables include proxies for size (equity and employment size at formation), and owner characteristics. We control for firm size since large firms are likely to approach bribery in procurement and inspection differently than SMEs in various ways. For example, large companies with brand name recognition can win contracts based on the quality of their proposal and the fact that government officials value the inclusion of such prestigious participants in the project. Large firms are also less likely to be backyard companies. These are businesses set up by the politicians and their associates for the sole purpose of participating in tenders. If and when they win the bids, the backyard companies can outsource the jobs to secondary contractors who actually do the work. We also control for the owners' background, i.e. previous employment in government agencies, the military, or SOEs. Politically connected owners are more likely to participate in bids. They are also more well positioned to leverage such connections when visited by regulatory inspectors.

PCOM-level control variables include the PCOM's age and gender. It is plausible that younger PCOMs who have long horizons may behave more cautiously when it comes to corruption, compared to those in the twilight of their careers who have only limited time at the top. In all main specifications, we add province and sector fixed effects, as well as those indicating the firm's legal form. Bribery behaviors, both in procurement and inspection activities, tend to vary across sectors. "Younger" and

"older" firms may also behave differently. On the one hand, backyard companies tend to be relatively young since it is in the interest of politicians to retire such shady enterprises quickly after the business is done. On the other hand, older firms are more likely to have the contacts and connections in place to make the right bribes to win contracts.

3.6   Research Design and Results

Model Specification

The main specification to estimate the effect of tenure on levels of extractive and rent-seeking corruption is a straightforward OLS regression. Our full sample includes 102,015 firm-level observations from 15 years of the PCI dataset, spanning the tenures of 188 PCOMs. The main outcome variables are our measures of extractive corruption—whether the firm bribed during inspections—and rent-seeking corruption—the estimated propensity that the firm bribed during the procurement process. The main right-hand side variables is the number of years for which the PCOM member has been in his or her position. We also include the number of years variable squared to account for the quadratic relationship between tenure and level of corruption that our argument predicts.

Our specifications also include the controls mentioned previously, such as gender of the firm owner, whether the owner is a former government official, the equity of the firm at its formation, firm employment size, and so on. Finally, we also include sector, province, and legal form fixed effects.

Our main specification takes the form:

$Corruption = \beta_0 + \beta_1 Year_{position} + \beta_2 Year_{position}^2 + \beta_3 X + \rho + \gamma + \epsilon$

Where *Corruption* is our outcome variable for corruption (either the extractive or the rent-seeking type),[7] $Year_{position}$ is the number of years for which the PCOM

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[7] For a detailed description of the two-stage procedure to obtain this variable for rent-seeking

member has been in his or her position, X is a vector of controls at the firm level and at the PCOM level, ρ is the province fixed effects, γ is firm's legal form fixed effects, and ϵ is unobserved heterogeneity. Standard errors are clustered at the PCOM level.

Results: Rent-Seeking Corruption

We first examine the results of political tenure on the level of rent seeking corruption. The outcome variable is the estimated probability that the firm has bribed to increase their chances of winning government contracts, which we obtained from the LIST experiment using Blair and Imai (2012)'s method. Recall from our theoretical discussion that we expect that levels of rent-seeking corruption follow a U-shape over the tenure of the PCOM. In other words, rent-seeking corruption starts high at the beginning of the politician's tenure, falls in the middle and then rises again at the end. In terms of the right hand-side variables, we should see a negative coefficient on the years in position variable, and a positive coefficient on years in position squared. The results from Table 2 corroborate the theory's implications. Column (1) includes several control variables, including the firm's total equity and number of employees at the time it was founded, the firm owner's former occupation, gender, and age. We include province and legal form fixed effects, to account for time-invariant characteristics of the province and type of firm, respectively. Consistent with our theory, the results show a statistically significant quadratic relationship between year in position and corruption. The coefficient on year in position is -0.087, while the coefficient on year in position squared is 0.014. This implies a U-shape pattern that reaches its minima around year 3.

Column (2) adds sector fixed effects. The results continue to support the argument. The coefficient on year in position is negative, while the coefficient on the squared term is positive. One potential concern with the analysis is that it may be

corruption, see the first section in the Appendix.

driven by the inclusion of state-owned enterprises (SOEs). One reason that these SOEs may confound the results is that we may see higher levels of rent-seeking, as well as larger dips in the middle of the PCOM members tenure, in SOEs versus non-SOEs, owing to the potential connections, and hence, easier opportunities for bribery, that exist between businesses and the government in these companies. Column (3) thus removes all SOEs from the analysis. The results remain unchanged.

In Vietnam, the biggest political event is the Communist Party Congress which takes place every five years. The Party Congress is when the Party membership chooses their next crop of top leaders. A lot of PCOMs are promoted during this time, sometimes before they complete their full term. We define on-cycle PCOMs as PCOMs that are appointed in the year of the Party Congress. As such, they are coterminous with the Congress, and are more likely to to serve the full five-years term. Incentive structures for the off-cycle PCOMs are more complex. For example, it is unclear if their political horizon is the full term of five years or just the amount of time until the next Party Congress. In column (4), we restrict the analysis on-cycle PCOMs. The results are consistent with the base model.

We display the results graphically in Figure 3.4. The red line indicates the quadratic relationship between the prevalence of bribes in procurement and PCOMs' time in position, using the statistically significant coefficients from Column 1 of Table 2. Corruption is high early on in the PCOMs' tenure, drop steadily to its nadir around year 3 before rising again as PCOMs get close to the end of their term. The dot-and-whisker bars indicate the coefficient and confidence intervals obtained from regressing bribery prevalence on a set of dummies indicating the PCOM's years in position. In this regression, year 1 serves as the reference group. Although it is not statistically significant, we can see a quadratic pattern where corruption drops after the first year until the middle of the PCOM's term, before rising again at the end. Firms are about eight percent more likely to engage in procurement bribes in
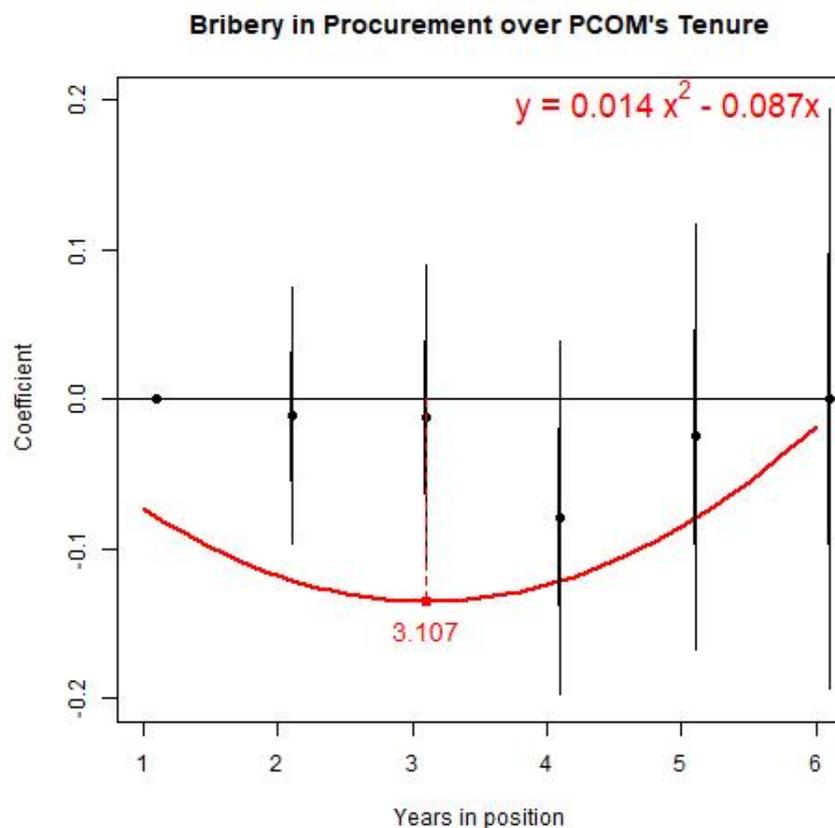
Figure 3.4: The Political Cycle of Bribery in Procurement

PCOMs' first and last years in power compared to year 4.

Appendix Table 4 includes even more robustness tests. Column (1) removes outliers on the dependent variable — defined as the top and bottom five percent of all observations. Column (2) increases the number of simulations during bootstrapping from 1,000 to 10,000. Column (3) removes joint-stock corporations from the analysis. Joint-stock companies are legally obligated to publicize their financial statements, which might change their approach to rent-seeking corruption. In column (4), we removes the two major cities — Hanoi and Ho Chi Minh City — to limit the analysis to local PCOMs in the provinces. PCOMs in Hanoi and Ho Chi Minh City tend to occupy much more prominent positions in the Party than PCOMs in other provinces.

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The results remain generally robust and similar to the main analysis.

In summary, we find strong empirical support for the U-shaped relationship between rent-seeking corruption and political time-horizons. These results are also robust to a variety of empirical specifications, such as the inclusion of several different control variables, restrictiong the sample in various ways, and alternative constructions of the dependent variable.

Results: Extractive Corruption

We now turn to the relationship between tenure and extractive corruption. Recall from the theoretical discussion that we expect to find an inverse U-relationship: extractive corruption starts high, falls in the middle, and rises again at the end of the term. The dependent variable is a dummy variable indicating whether firms admitted to paying bribes during inspections. If our argument of a U-shaped relationship between tenure and the level of exrtractive corruption is correct, then we should expect that the coefficient on years in position is positive, but the coefficient of years in position squared is negative.

Table 3 displays the results. Column (1) includes the full set of controls and legal form and province fixed effects. Consistent with our argument, we found evidence of a quadratic relationship, with bribery prevalent in the middle of the term (around year 3) and rarer at the beginning and end of the PCOM's term. Similar to the previous analysis, in Column (2) we also include sector fixed effects to account for time-invariant variation across economic sectors. The results remain the same. Column (3) removes all state-owned enterprises from the analysis, and Column (4) restricts the analysis only to on-cycle PCOMs. The results remain robust and significant across all these specifications as well.

We display the results graphically in Figure 3.6. The red line illustrates the quadratic relationship implied by Column 1 of Table 3. Bribery in inspection activi-
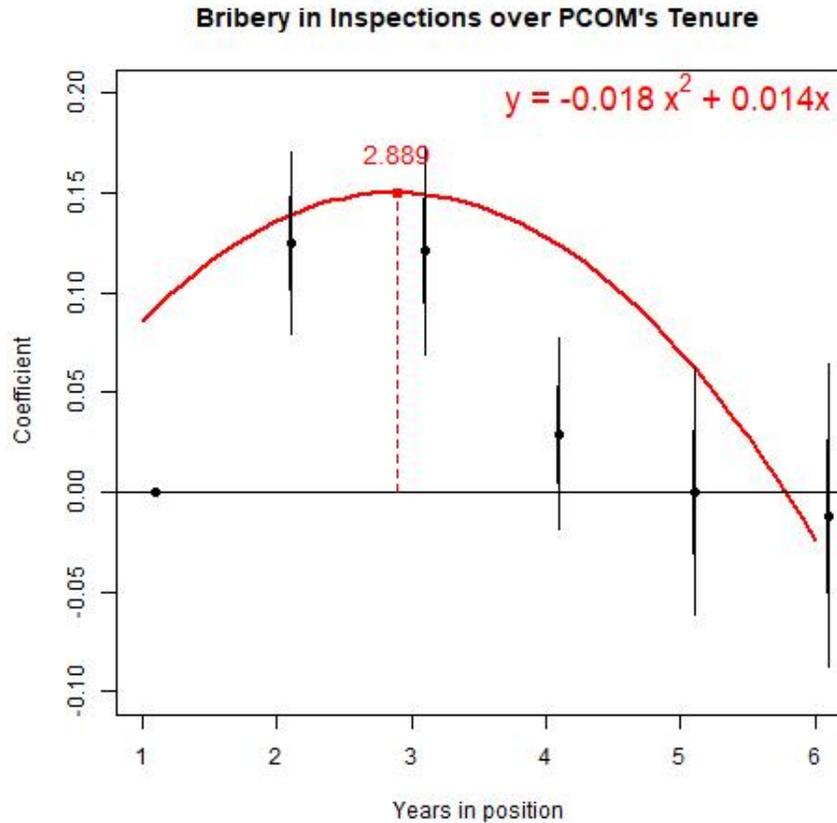
FIGURE 3.5: The Political Cycle of Bribery in Inspections

ties gradually climbs to its apex around year 3 of the PCOMs' term, before dropping steadily in the later years. The dot-and-whisker bars tell a similar story: Extraction is most severe in the middle of PCOMs' term. Firms are 12 percent more likely to have to pay bribes during inspections during PCOMs' second and third year in power compared to year 1 and year 5. This is a substantial effect, considering that 41 percent of respondents reported paying bribes in the entire sample.

We conduct additional robustness tests in Appendix Table 5. Column (1) restricts the sample to exclude joint-stock corporations, while Column (2) removes the outlier cities of Hanoi and Ho Chi Minh City. The results remain robust to these more restricted samples.

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In summary, we find strong empirical support for the inverse U-shaped relationship between extractive corruption and political time-horizons. These results are also robust to a variety of empirical specifications, such as the inclusion of several different control variables, restricting the sample in various ways, and alternative constructions of the dependent variable.

3.7   The Role of Promotability

It is clear from our analysis that promotion plays a big role in the calculations of the politicians. For politicians whose promotion is no longer a possibility, the pressure to achieve a certain level of economic performance and to reduce the chances of scandal is minimized. Therefore, we expect a difference in the behavior of PCOMs who are still promotable and that of those who are not. In addition, we expect this distinction to manifest itself in the case of extraction, given the role of the promotion effect in this type of corruption.

Promotability: Age at Appointment

We employ two different approaches to evaluate the role of promotability. First, we use the PCOMs' age at the initial appointment to separate them into promotable and non-promotable PCOMs. In a nutshell, there is a cutoff at 55, whereby the PCOMs appointed before this age are still eligible for promotion, while those whose first appointment takes place after this age can no longer be promoted to higher offices.

According to Vietnam's Labor Law, the retirement age for public officials is 60 for men and 55 for women.[8] However, there are exceptions for important posts in the Party, such as vice ministers, leadership positions in the National Assembly, and provincial Party Secretaries — essentially all the possible destinations for PCOMs

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[8] Labor Law 2012, Clause 187, Item 1

that are promoted.[9] Retirement age is extended by five years for these positions, making it effectively 65 for men and 60 for women.[10] [11]

Regulations on Cadre Appointment by the Ministry of Internal Affairs states that the first appointment need to leave enough time for the appointee to complete one full term of five years, echoing much earlier government resolutions.[12] [13] Effectively, this means that PCOMs need to be selected for these positions in the central government and as provincial Party bosses before the age of 60. To be able to meet such deadlines, the PCOMs' first appointment needs to happen before they turn 55 in order to allow the completion of one full term.

We argue that this cutoff at 55 is the key lever that separates the promotable PCOMs from those who no longer have any chance of climbing up the ladder. This plays out in practice. Figure B in the Appendix shows that the rate of promotion drops precipitously at this threshold. Among PCOMs who are appointed at age 53 and 54, the probability of promotion is both 26 percent. This share halves for the PCOMs appointed when they are just a little older. Only 13 percent of PCOMs who start their term at 55 are eventually promoted. The corresponding figure is a meagre five percent for those appointed at 56. For the promotable PCOMs, performance matters, so they will curtail extractive activities around the promotion window by the end of their term. In contrast, non-promotable PCOMs have no such incentives, and the bandit effect continues to reign. For this group, we expect extortion to increase even more toward the end of the PCOMs' tenure.

Table 4 shows that this is the case. The main results in the previous section are

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[9] Resolution 53/2015/TT-CP

[10] Labor Law 2012, Clause 187, Item 3

[11] I use the cutoff age for male PCOMs for the sake of brevity. In practice, only 3 percent of the politicians in the dataset are female.

[12] Quy che bo nhiem can bo 2012, Clause 6.1.c, Ministry of Internal Affairs

[13] Decision 27/2003/QD-TTg

driven solely by the promotable PCOMs. Column 1 demonstrates that the inverse U-shaped relationship holds among this group. In contrast, the relevant coefficients are statistically insignificant in Column 3 which investigates the provincial leaders who can no longer climb the ladder. Column 4 shows that, for non-promotable PCOMs, there is a linear and increasing relationship between extraction and time in position. In Column 2 and 5, we break down Years in Position into dummy variables, with Year 1 being the reference group. While the prevalence of bribery in inspections rises in Years 2 and 3 before declining for promotable PCOMs (Column 2), non-promotable politicians keep escalating extraction further in the later years (Column 5).

Figure 6 demonstrates these results graphically. The red curve line depicts the statistically significant quadratic relationship displayed in Column 1 of Table 4. Extortion increases in the early years of the promotable PCOMs' tenure, peaking around year 2.725, before declining toward of the end of the term. The red and black dot-and-whisker bars illustrate the results of the dummy analyses for promotable and non-promotable leaders, respectively. For promotable leaders, firms are between five and six percent more likely to have to pay bribes in year 2 and 3 compared to the first and last years of the PCOM's tenure. On the other hand, for non-promotable leaders, extractive corruption worsens steadily and becomes 21 percent more common in year 5 compared to early on in the PCOM's term.

Promotability: Second-Term PCOMs

Most of the PCOMs that get promoted do so by the end of their sixth year. Not many provincial leaders enter their second term, i.e. staying as PCOMs beyond their sixth year in power, and those that do rarely advance to higher positions. According to Figure 3.3, only 6.4 and 2.9 percent of PCOMs get promoted in their seventh and eighth year, respectively. By contrast, 61.4 percent are promoted within what we consider the promotion window between Year 4 and Year 6.

FIGURE 3.6: The Political Cycle of Bribery in Inspections: Promotable vs. Non-promotable PCOMs

As a result, PCOMs in this group should be aware of their limited promotability and act accordingly. Since promotion is no longer of concern, PCOMs who stay in their position beyond the sixth year is expected to ramp up extractive corruption after the promotion window has passed. Empirically, we predict a cubic relationship between time in position and extraction when we extend the analysis to include observations from PCOMs' later years in power. In the first six years of PCOMs' tenure, extractive corruption should display the same patterns as in the main results: Bribery starts out low, increases and peaks in the middle of the term, and comes back down by the fifth and sixth year. However, bribery in inspections should increase
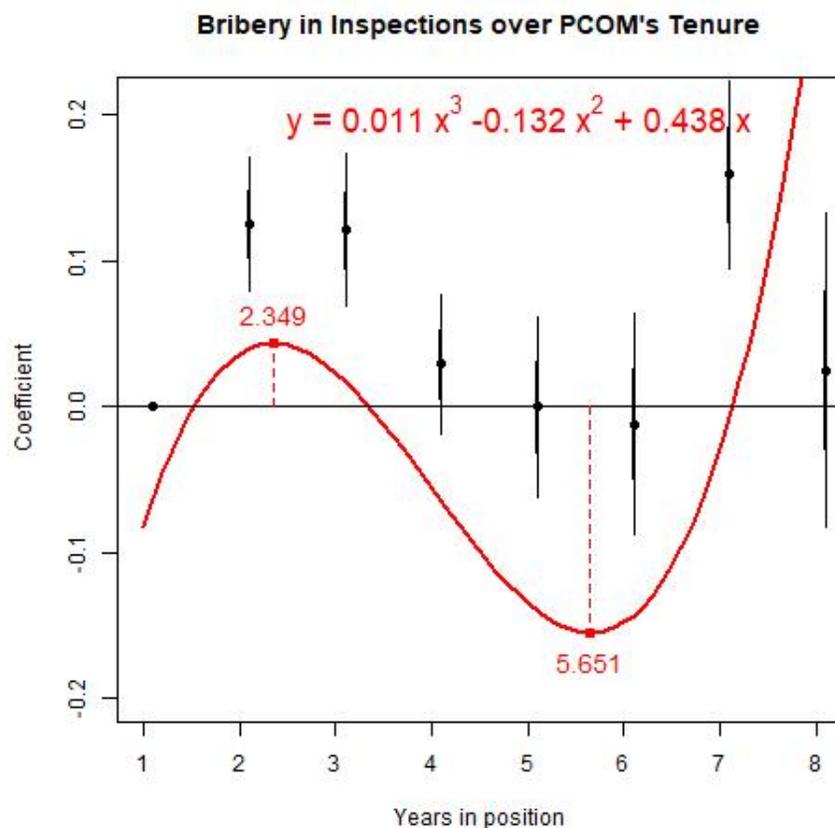
Figure 3.7: The Political Cycle of Bribery in Inspections: Second-Term PCOMs

again after the promotion window has passed.

The results in Table 5 provide supporting evidence. There is a statistically significant cubic relationship between time in position and extractive activities. The red line in Figure 3.7 shows that extraction peaks around year 2.5 and drops to its nadir around year 5.7 before increasing again.

3.8 Conclusion

A large literature in political science and economics has shown that timing affects the level of corruption that politicians and bureaucrats engage in. Yet it is not clear how timing affects corruption: some papers show that corruption rises and falls over

the corrupt politician's tenure; other papers argue the opposite: corruption falls and then rises again. We argue that the type of corruption—rent-seeking corruption and extractive corruption—reconciles these disparate results. Rent-seeking corruption first falls and then rises again over the tenure of the politician, following a U-shaped pattern. On the other hand, extractive corruption follows an inverse U-shaped pattern. Using 15 years of nationally-representative firm data, we find that Vietnamese PCOMs engage in corruption in a way that corroborates our theory. Our theory has implications beyond the Vietnamese context. Since our argument is predicated on time-horizons and career incentives, it can potentially extend to democratic settings as well. For example, mayors and governors who face electoral incentives, or expect to be in office for longer or shorter periods of time, would still follow the temporal relationship we have laid out.

Our paper opens up several potential avenues for further research. First, and most obviously, empirical testing in other contexts will examine whether the temporal dynamics of corruption that we have stated extends to other contexts, or if it is an artifact of the underlying scope conditions specific to authoritarian regimes (and career incentives). Second, a limitation of our paper is that it does not explicitly test the mechanisms at play. Future work can empirical examine the horizon effect, the bandit effect, the sunset effect, and the promotion effect and determine how these effects may interact with one another. Third, it is interesting to consider how the interaction between type of corruption and levels of corruption actually affects voter support. Implicit in our discussion is the idea that extractive corruption is unpopular and leads to lower levels of support. Whether true or not, this assumption animates politicians' political decisions. An explicit testing of this linkage has not yet been undertaken. Finally, while our paper regard politicians as self-interested individual actors — rather than as members of parties/factions — both politicians and businesses may have a different perception of time horizons if the incumbent's

replacement is a member of the politicians' close circles. This might undermine the horizon effect if the successor inherits the corrupt networks of the incumbent. It might also alter the sunset effect since there are fewer uncertainties over firms' relationship with the successor if the latter belongs to the same party/faction as their predecessor. Future research can explore the impact of parties and factions in determining the relevant time horizons and, consequently, the political cycles of corruption.

Table 3.2: Political cycles in procurement bribes

	(1) Base	(2) Sector FEs	(3) No SOE	(4) On-cycle PCOMs
Years in position (C)	-0.087**	-0.076**	-0.075*	-0.104*
	(0.042)	(0.038)	(0.042)	(0.061)
Years in position squared (C)	0.014**	0.012**	0.012**	0.012
	(0.006)	(0.006)	(0.006)	(0.009)
Equity at formation	-0.037**	-0.032**	-0.027	-0.054***
	(0.015)	(0.015)	(0.017)	(0.021)
Employment size at formation	-0.020	-0.038**	-0.037**	-0.013
	(0.017)	(0.017)	(0.017)	(0.022)
Owner: Former govt	0.215***	0.207**	0.195**	0.151
	(0.081)	(0.088)	(0.090)	(0.109)
Owner: Former military	0.027	0.023	0.006	0.017
	(0.079)	(0.096)	(0.082)	(0.105)
Owner: Former SOE manager	0.074	0.092	0.099*	0.079
	(0.051)	(0.057)	(0.060)	(0.067)
Owner: Former SOE employee	0.081*	0.071*	0.061	0.143**
	(0.048)	(0.042)	(0.048)	(0.061)
Gender of Firm owner	-0.082***	-0.077**	-0.111***	-0.086**
	(0.030)	(0.032)	(0.032)	(0.040)
Age	-0.001	-0.000	0.002	0.024*
	(0.007)	(0.007)	(0.007)	(0.012)
Female	-0.056	-0.109	-0.021	0.075
	(0.171)	(0.159)	(0.183)	(0.308)
Constant	0.635*	0.253	0.531	-0.590
	(0.360)	(0.415)	(0.368)	(0.643)
Sector FEs	No	Yes	No	No
Province FEs	Yes	Yes	Yes	Yes
Legal Form FEs	Yes	Yes	Yes	Yes
Observations	8159	8159	7466	4582
R^2	0.034	0.048	0.037	0.049

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.3: Political cycles in bribery during inspections

	(1) Base	(2) Sector FEs	(3) No SOE	(4) On-cycle PCOMs
Years in position (C)	0.104***	0.077**	0.104***	0.140***
	(0.022)	(0.038)	(0.022)	(0.030)
Years in position squared	-0.018***	-0.013*	-0.018***	-0.026***
	(0.003)	(0.007)	(0.003)	(0.003)
Equity at formation	-0.009***	-0.003	-0.009***	-0.009***
	(0.002)	(0.005)	(0.003)	(0.003)
Employment size at formation	0.001	-0.004	-0.001	0.000
	(0.003)	(0.006)	(0.004)	(0.003)
Owner: Former govt	0.079***	0.047*	0.085***	0.060**
	(0.022)	(0.026)	(0.022)	(0.028)
Owner: Former military	0.105***	0.066**	0.100***	0.109***
	(0.017)	(0.030)	(0.017)	(0.020)
Owner: Former SOE manager	0.084***	0.050***	0.090***	0.074***
	(0.010)	(0.016)	(0.010)	(0.011)
Owner: Former SOE employee	0.066***	0.032**	0.070***	0.077***
	(0.010)	(0.016)	(0.011)	(0.012)
Gender of Firm owner	0.005	-0.006	0.007	0.005
	(0.005)	(0.011)	(0.006)	(0.006)
Age	0.005	-0.042***	0.005	0.003
	(0.004)	(0.003)	(0.004)	(0.007)
Female	-0.135***	0.164***	-0.130**	0.027
	(0.043)	(0.025)	(0.056)	(0.026)
Constant	0.065	2.512***	0.030	0.124
	(0.150)	(0.177)	(0.154)	(0.300)
Sector FEs	No	Yes	No	No
Province FEs	Yes	Yes	Yes	Yes
Legal Form FEs	Yes	Yes	Yes	Yes
Observations	28866	10301	26474	20661
R^2	0.041	0.046	0.042	0.055

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.4: Impact of promotability: Bribery during inspections

	(1)	(2)	(3)	(4)	(5)
	Promotable	Promotable: Dummies	Not Promotable	Not Promotable	Not Promotable: Dummies
Years in position (C)	0.109***		0.020	0.063**	
	(0.038)		(0.079)	(0.021)	
Years in position squared	-0.020***		0.005		
	(0.007)		(0.010)		
Equity at formation	-0.006	-0.006	0.010	0.010	0.009
	(0.005)	(0.006)	(0.011)	(0.011)	(0.011)
Employment size at formation	-0.003	-0.000	-0.005	-0.005	-0.005
	(0.006)	(0.006)	(0.015)	(0.015)	(0.015)
Owner: Former govt	0.063**	0.068**	-0.038	-0.038	-0.040
	(0.029)	(0.030)	(0.052)	(0.052)	(0.051)
Owner: Former military	0.040	0.035	0.162**	0.162**	0.162**
	(0.033)	(0.033)	(0.059)	(0.059)	(0.059)
Owner: Former SOE manager	0.057***	0.059***	0.040	0.040	0.040
	(0.017)	(0.017)	(0.046)	(0.046)	(0.046)
Owner: Former SOE employee	0.040**	0.040**	0.004	0.004	0.003
	(0.019)	(0.019)	(0.024)	(0.024)	(0.024)
Gender of Firm owner	-0.004	-0.008	-0.011	-0.011	-0.011
	(0.012)	(0.012)	(0.027)	(0.027)	(0.027)
Age	-0.040***	-0.040***	-0.092**	-0.103**	-0.103***
	(0.004)	(0.004)	(0.032)	(0.038)	(0.029)
Female	0.142***	0.135***	0.000	0.000	0.000
	(0.027)	(0.029)	(.)	(.)	(.)
Years in position (C)=1		0.000			
		(.)			
Years in position (C)=2		0.051**			0.000
		(0.022)			(.)
Years in position (C)=3		0.056*			0.063*
		(0.030)			(0.031)
Years in position (C)=4		0.029			0.106**
		(0.043)			(0.037)
Years in position (C)=5		-0.058			0.211***
		(0.045)			(0.063)
Constant	2.414***	2.467***	5.569***	6.166**	6.270***
	(0.205)	(0.195)	(1.814)	(2.136)	(1.632)
Province FEs	Yes	Yes	Yes	Yes	Yes
Legal form FEs	Yes	Yes	Yes	Yes	Yes
Sector FEs	Yes	Yes	Yes	Yes	Yes
Observations	8213	7836	2088	2088	2088
R^2	0.048	0.050	0.076	0.076	0.076

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3.5: Political cycles in bribery during inspections after promotion window

	(1) Continuous	(2) Discrete
Years in position (C)	0.438***	
	(0.053)	
Years in position squared	-0.132***	
	(0.015)	
Years in position cubed	0.011***	
	(0.001)	
Equity at formation	-0.009***	-0.009***
	(0.002)	(0.002)
Employment size at formation	0.000	-0.000
	(0.003)	(0.003)
Owner: Former govt	0.077***	0.076***
	(0.022)	(0.021)
Owner: Former military	0.105***	0.106***
	(0.017)	(0.017)
Owner: Former SOE manager	0.082***	0.082***
	(0.010)	(0.010)
Owner: Former SOE employee	0.066***	0.068***
	(0.010)	(0.010)
Gender of Firm owner	0.006	0.005
	(0.005)	(0.005)
Age	0.004	0.003
	(0.003)	(0.003)
Female	-0.154***	-0.158***
	(0.037)	(0.039)
Years in position (C)=1		0.000
		(.)
Years in position (C)=2		0.125***
		(0.023)
Years in position (C)=3		0.121***
		(0.026)
Years in position (C)=4		0.029
		(0.024)
Years in position (C)=5		-0.000
		(0.031)
Years in position (C)=6		-0.012
		(0.038)
Years in position (C)=7		0.159***
		(0.032)
Years in position (C)=8		0.025
		(0.054)
Constant	-0.128	0.205
	(0.135)	(0.140)
Province FEs	Yes	Yes
Legal Form FEs	Yes	Yes
Observations	28866	29854
R^2	0.046	0.046

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

4

Safety in Numbers:
How Transparency Can Backfire in the Fight against Bureaucratic Corruption

In recent years, much has been written in the political science and development literatures on transparency[1] as an instrument to combat bureaucratic corruption and increase accountability. Proponents of transparency consider the problem through the lenses of the principal-agent framework, where bureaucratic corruption involves deviations on the part of the agents — the bureaucrats — against the interest of the principals — higher-level politicians or the public (Ackerman, 1978; Besley, 2006). Transparency addresses the information asymmetry in this relationship and thereby reduces corruption. Research has studied the role of information and transparency in reining in bureaucratic embezzlement (Olken, 2007; Di Tella and Schargrodsky, 2003) and improving public service outcomes (Björkman and Svensson, 2009; Peisakhin

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[1] While transparency in its broadest sense involves all factors that affect information flows, in this paper I follow Hollyer et al. (2011) (p. 1193) in defining transparency as the release of policy-relevant information such as data on past performance of government officials. The literature review also focuses on research on this particular type of transparency. This definition is consistent with the definition widely used in policy research — "the release of information by institutions that is relevant to evaluating those institutions" (Bellver and Kaufman, 2005) (p. 5).

and Pinto, 2010). In fact, the most prominent academic research on local anti-corruption interventions involved informational solutions. The academic interest in transparency reverberated through to the policy world. International organizations and NGOs have promoted transparency as a condition for good governance, public service provision, and economic growth (OECD, 2002; Ramkumar and Shapiro, 2010; TI-UNDP, 2004; UN, 2004; Kosack and Fung, 2014).

Despite transparency's rising prominence, evaluations of these interventions paint a mixed picture. While certain studies gave testimony to its effectiveness (Peisakhin and Pinto, 2010; Björkman and Svensson, 2009), others found a puzzling lack of results (Lieberman et al., 2014). Multiple research projects are starting to shine a light on underlying assumptions of the theory that are often not met, including the ability and willingness of principals to punish corrupt civil servants (Lindstedt and Naurin, 2010; Bauhr and Grimes, 2014; Callen et al., 2016), and the role of prior and posterior beliefs (Lieberman et al., 2014). Principals do not use the provided information effectively if they are powerless against agents, if their concerns and interests lie elsewhere, if they fail to coordinate collectively with other principals, or if their expectations of agents are already too low for reports of malfeasance to have a rallying effect.

Although these recent studies raised important qualifications about the use of transparency as an instrument against corruption, they still grappled with the question of how principals use new information. This paper departs from the current focus on principals, and instead investigates information's impact on the bureaucrats' decision-making. In practice, the agents are often the main consumers of information made available by transparency measures. Results of surveys, indices, and reports on bureaucrats' performance that reach a tiny portion of the public are

intensively studied by public officials themselves. Yet, how agents react to these information has been understudied. The overlooked effects on civil servants can confound studies that focus on public responses to transparency. Furthermore, in cases where the accountability channels are not active (Lindstedt and Naurin, 2010; Bauhr and Grimes, 2014), the only impact that transparency has on corruption will be through this pathway.

I inspect the impact of transparency in a different light — how it affects public officials' decision over whether to be corrupt. In doing so, this paper puts transparency and the associated literature in the context of the Becker-Stigler (1974) framework — one of the workhorse models of corruption and bureaucrats' decision-making (Van Rijckeghem and Weder, 2001; Di Tella and Schargrodsky, 2003; Shleifer and Vishny, 1993; Fisman and Miguel, 2007; Simpser, 2016). I argue that information affects corruption outcomes through updating public officials' beliefs on the risks of wrongdoings. Increasing the bureaucrats' perceived prevalence of bribery can breed further corruption by convincing the latter that wrongdoings are more widespread, more commonly tolerated, and less likely to lead to punishment than they had previously believed.

I isolate the impact of agents' reaction to information by examining bureaucratic corruption in Vietnam — a case where the principals' accountability channels are weak. Vietnam is a nominally Communist, single-party regime without a history of competitive elections. With legacies from decades of central planning, the public sector offers prospects of job security, low workload, seniority-based promotion, and cushy lifetime benefits (Rama, 2002). During the timeframe of this study, Vietnam had the highest recorded levels of corruption in recent history, with wrongdoings running rampant across all levels of government (Malesky and Phan, 2019). Cracking

down on corruption was not a priority of the central government, and the extortion of citizens and firms reached its peak between 2014 and 2015 (Malesky et al., 2019; CECODES et al., 2019). The latest research in this area has hypothesized that transparency alone is ineffective in such a setting where principals are unable or unwilling to punish rogue agents.

With that background, this paper investigates how information affects subsequent reported corruption through its interaction with the public officials' beliefs. The main dataset comes from the Vietnam Provincial Governance and Public Administration Performance Index (PAPI) — the largest annual national survey of citizens on the quality of public services. In Vietnam, provinces are the largest sub-national administrative units, each comprised of several districts. Corruption varies within provinces, with some districts more and some less corrupt than others. I exploit the fact that PAPI only released province-level statistics — which might diverge from how district-level bureaucrats perceived corruption in their localities — to study how public officials with different prior beliefs respond to the same information. The results demonstrate that newly introduced impression of widespread wrongdoings leads to subsequent surges in reported bribery.

4.1 Transparency as an Instrument to Improve Bureaucratic Performance and Reduce Corruption

The use of transparency against bureaucratic corruption is theoretically rooted in the principal-agent framework, as conceptualized by Rose-Ackerman (1978) and Besley (2006). The superiors seek to achieve certain objectives, using the agents to do their bidding. Public officials, however, have their own motivations which might diverge from those of the superiors. In an environment where information is lacking and monitoring is costly, civil servants might abuse their discretion at the superiors' ex-

penses. By filling the information gap, transparency empowers principals and forces bureaucrats to improve their performance and rein in wrongdoings. Transparency consolidates both downward accountability channels that run from bureaucrats to citizens and upward accountability from public officials to high-level politicians (Kelley and Simmons, 2019). Exploring this causal logic in more details, Winters et al. (2012) argued that transparency can reduce bureaucratic corruption through two channels. The first channel is *prospective response*, where bureaucrats correct their behavior in expectation of being watched. Alternatively, through *retrospective response*, citizens and politicians remove corrupt officials.

Despite sound theoretical foundations, empirical evaluations of transparency interventions paint a mixed picture. In certain cases, the threat of being exposed seems sufficient to improve bureaucratic performance and public service provisions. Bjorkman and Svensson's (2009) RCT in Uganda is a prime example. The dissemination of report cards and strengthening of community monitoring over local health providers resulted in reduced child mortality and increased child weight in the treatment communities. Besley and Burgess (2002) showed that information provided through the mass media makes Indian state governments more responsive to the distribution of food and calamity relief. According to Di Tella and Schargrodsky (2003), increased monitoring reduced overcharging in the procurement of necessary inputs for hospitals in Buenos Aires. Duflo et al. (2012) and Peisakhin and Pinto (2010) confirmed the same patterns in the context of public schools and ration cards in India.

For every success, however, there are cases of failure. In a randomized controlled trial, Callen et al. (2016) introduced smartphone-based monitoring to address public sector absenteeism at Pakistani health clinics. The intervention did not improve overall doctor attendance. A closer look revealed that this was a context where politi-

cians distributed public sector jobs as instruments of clientelism. Attendance was worse if doctors know the local representatives personally and when the latter faced little risks of being unseated. The intervention also had relatively weaker impact in politically uncompetitive constituencies. Other studies show that bureaucratic malfeasance also seems resistant to grassroots monitoring (Olken, 2007; Lieberman et al., 2014).

These null results call into question the theory's underlying assumptions. First, transparency matters not when the accountability channels are weak and the principals have no means to punish corrupt behavior. Using cross-national data from the World Bank, Lindstedt and Naurin (2010) showed that although the effect of transparency on corruption is indeed negative, the result is driven solely by countries with the right conditions of publicity and accountability. Without these prerequisites, rather than being empowered, the public may respond to information with disengagement. In a paper aptly titled *Indignation or Resignation*, Bauhr and Grimes (2014) argued that when the public is powerless against rampant bureaucrats, reports of high corruption have a deflating rather than rallying effect.

The effectiveness of transparency is also conditional on the ability of citizens to mobilize collectively. Lieberman et al. (2014) investigated whether providing Kenyan parents with information on school performance intensifies citizen pressure to improve public service delivery. They found that the informational treatment did not lead to any behavioral changes. Treated parents were not more likely to engage teachers regarding learning quality or their child's performance. The authors hypothesized that informational interventions can only be effective if they speak to an issue that people believe is their responsibility to address. Moreover, the principals must also know what actions to take and believe that others in the community will act as well.

The importance of overcoming the collective action hurdle is also evident in the case of Bjorkman and Svensson (2009). In addition to information dissemination, the intervention also involves several meetings with widespread participation from members of the community and health service providers.

Furthermore, information can only be effective if the principals care about the bureaucrats' performance in that particular area in the first place. Increased monitoring does not alleviate teacher absenteeism if the parents do not value extra school days for their children (Banerjee and Duflo, 2006), and neither does information reduce absenteeism if politicians only consider public sector jobs as vehicles for clientelism (Callen et al., 2016). In contrast, the successful intervention of Duflo et al. (2012), discussed above, involved education centers run by the NGO Seva Mandir that was very serious about addressing absenteeism among its teachers.

4.2 Bureaucrat Decision-making and Corruption

This paper provides further evidence that transparency is ineffective in a context where accountability channels are not active, i.e. the principals are unable or unwilling to punish corrupt civil servants. More importantly, the paper departs from the literature on transparency by reconsidering the latter's emphasis on how principals interact with new information. In this paper, I showed that transparency affects corruption outcomes by changing the calculations of the agents themselves.

In doing so, I examine transparency in the context of Becker and Stigler (1974) — one of the workhorse models of the literature on corruption. Becker and Stigler argued that public officials make the decision to be corrupt based on five factors: Current wages, reservation wages, the bribe size, the probability of punishment, and the size of the penalty. The rich literature that has built on this framework con-

sidered the impact of higher wages (Van Rijckeghem and Weder, 2001; Di Tella and Schargrodsky, 2003), lower returns to bribery (Shleifer and Vishny, 1993), and the social and cultural cost of wrongdoings (Fisman and Miguel, 2007; Simpser, 2016).

Neither this literature nor the one on transparency has paid enough attention to the bureaucrats' reaction to information, however. Maskin and Tirole (2005) and Winters et al. (2012) theoretically examined the impact of information in the Becker-Stigler context, arguing that increased information flows should raise the perceived probability of punishment and induce agents to rein in wrongdoings on their own. These arguments found empirical backing in Di Tella and Schargrodsky (2003), who showed that increased monitoring reduced embezzlement in hospital procurements in Argentina. Similarly, in Peisakhin and Pinto (2010), bureaucrats responded to ration card applications much more quickly when information was also requested under the Right to Information Act.

These findings, however, came from settings where the spotlight shone on the bureaucrats and the principals could inflict serious damages on wrongdoers. Di Tella and Schargrodsky took advantage of a very public crackdown in 1996-1997 by a newly elected city government that ran on an anti-corruption platform. According to Peisakhin and Pinto, the Right to Information Act was effective thanks to India's ultra-competitive bureaucracy, where any blemish can derail the bureaucrats' career. In settings where such accountability channels are not active, transparency does not increase the perceived probability of punishment as Maskin and Tirole (2004) and Winters et al. (2012) predict. In fact, it reduces the expected risk of wrongdoings if new information convinces bureaucrats that corruption is more prevalent than they previously thought. In such contexts, information may still affect corruption outcomes, but through bureaucrats' perception of corruption prevalence.

4.2.1 The Argument: The role of bureaucrats' perception

My argument concerns the role of information and beliefs in the Becker-Stigler context. A public official faces the decision of whether or not to engage in bribery, taking into account the potential benefits, costs, and risks of punishment. If they choose to remain honest, the public official receives their current wage with certainty. By engaging in malfeasance, they risk getting caught and dismissed, in which case they earn a reservation wage. If the wrongdoing goes unpunished, the official gains a bribe payment on top of the current wage. Transparency tackles corruption by deterring the bureaucrat from bribery by increasing the perceived probability of punishment (arrows 5 and 6 in Figure 1).
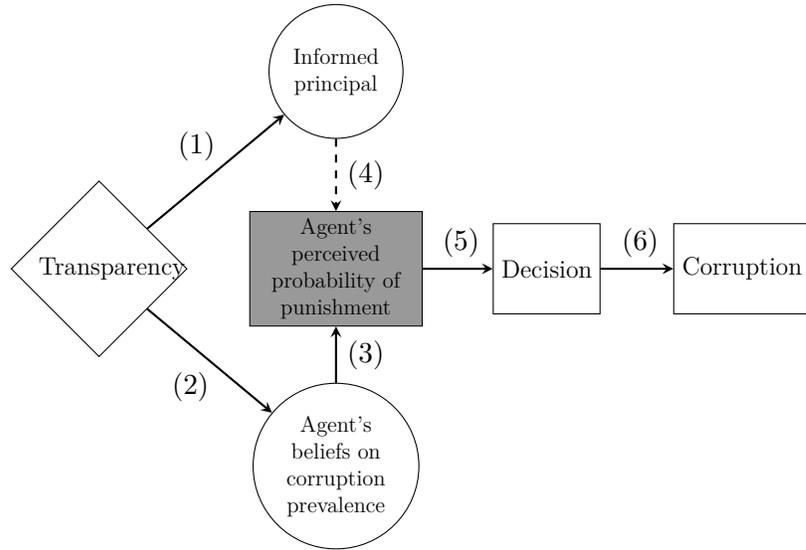
FIGURE 4.1: How information updates bureaucrats' beliefs and behavior

When the accountability channels are active, transparency is going to inform citizens and politicians (arrow 1) who have the means to punish bureaucrats for wrongdoings and weak performance. This increases the bureaucrats' perceived probability of punishment, thereby discouraging wrongdoings and reducing corruption (Maskin

and Tirole, 2004; Winters et al., 2012). This is what happened in the context of Di Tella and Schargrodsky (2003) and Peishakin and Pinto (2010). In settings where the accountability channels are weak, however, principals are unable or unwilling to punish corrupt agents. Information still informs principals but has little effect on the perceived probability of punishment, as denoted by the dashed arrow (4) (Lindstedt and Naurin, 2010; Bauhr and Grimes, 2014; Lieberman et al., 2014).

Information, however, can still influence corruption outcomes by updating the agent's beliefs on how prevalent malfeasance is (arrows 2 and 3). Where wrongdoing is rampant, bribery does not carry as much risk for the public officials. The victim is used to being extorted, and thus, is less likely to report or make a big deal of the incident. The public have less faith in the system and do not expect the bureaucrats' superiors to take action. The public officials' colleagues are more likely to be bad apples as well, and thus, will turn a blind eye or help cover up the incident. In addition, the psychological and social costs of wrongdoing are also lower in settings where bribery is the norm. Corbacho et al. (2016) showed that citizens who are reminded of the prevalence of corruption become more willing to bribe themselves.

These arguments are consistent with a sizable literature that views corruption as a coordination game subjected to multiple equilibria. Tirole (1996) emphasized the role of collective reputation in perpetuating a good or bad equilibrium. For example, taking bribes while working in an agency known for being corrupt is less psychologically and socially costly, thus making it more likely. In contrast, in a bureaucracy with a stellar reputation for honesty and integrity, being the only official to ask for bribes is very risky. Mishra (2006) applied evolutionary game theory to the question of corruption, suggesting that honest officials will be weeded out from a highly corrupt environment. Relatedly, Hauk and Saez-Marti (2002) argued that overlapping

generations may result in the persistence of a corrupt culture, with newcomers baptized in this environment by the old guards. Lui (1986) and Cadot (1987) explored theoretically why it is harder to audit corrupt officials where malfeasance is rampant. Klasnja et al. (2018) emphasized the interaction between different sets of actors and concluded that changing expectations among only one group can be insufficient to escape corruption traps.

Andvig and Moene (1990) exploited this idea in an attempt to explain why some countries that are similar in income, regime type, institutional settings, and cultural background have drastically different corruption levels. The logic is straightforward: Corruption breeds corruption, while the lack thereof deters wrongdoing. As a result, similar countries can arrive at different corruption outcomes due to idiosyncratic shocks at some point during their histories, which drives them inexorably toward a high- or low-corruption equilibrium. This paper adds to that idea by showing that changing the *beliefs* on corruption prevalence is enough to affect bureaucrats' decision.

There are three possible cases:

1. **No Revision** is when new information does not update the bureaucrats' perception of corruption prevalence. It has no impact on their decision and the actual incidence of bribery will not change.

2. **Upward Revision (Bad news)** is when the informational treatment reports a higher level of corruption than the bureaucrats' prior beliefs. It reduces the latter's perceived probability of punishment. Bureaucrats adjust their behavior, increasing the systemic incidence of bribery. Throughout this paper, I also call such treatment "Bad News" for the sake of brevity.

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3. **Downward Revision (Good news)** is when the informational treatment reports a lower level of corruption than the bureaucrats' prior beliefs. It increases the latter's perceived probability of punishment. Bureaucrats adjust their behavior, reducing the systemic incidence of bribery.

Though intuitively appealing, the idea that new information on the prevalence of wrongdoings can affect one's corrupt decisions is relatively under-tested. The few studies in this area have investigated the citizens' side of the equation. Dong et al. (2012) analyzed data from the European Values Survey and the World Values Survey, and found that citizens tend to engage in bribery more if they perceive others to be corrupt. This conclusion, however, succumbs to the chicken-and-egg problem: Individuals who have decided to be corrupt are probably more likely to tell themselves and others that wrongdoing is common to reduce the social and psychological costs. Survey experiments such as Corbacho et al. (2016) circumvent such endogeneity concerns. The authors showed that Costa Rican respondents who were given information on worsening corruption were more willing to bribe compared to the control group.

This paper advances this research agenda by examining how information influences behavioral changes and observed corruption outcomes among government officials. Leveraging particularities in the implementation of the Vietnam Provincial Governance and Public Administration Performance Index (PAPI), I investigate the unintended impacts of information in the context of Vietnam.

4.3 The Vietnam Provincial Governance and Public Administration Performance Index (PAPI)

4.3.1 The case of Vietnam

Vietnam is an ideal context to test the impact of information on the bureaucrats' decision-making where accountability channels are weak or non-existent. This is a nominally Communist single-party regime without a history of competitive elections. Although national elections for local and national legislatures take place every five years, all candidates are screened and vetted by the Vietnamese Fatherland Front, which is heavily influenced by the Party. The elections are manipulated with the Communist Party assigning important candidates to run against weaker opponents in non-competitive districts (Malesky and Schuler, 2009; London, 2014). The BertelsmannStiftung Transformation Index (BTI) gives Vietnam a score of 2 out of 10 in "Free and Fair Elections" and 1.8 in Political Participation, with 6 being the global median.[2] Although the country has transitioned away from central planning since 1986, the public sector is traditionally and still largely considered to be the easy career tracks that provide lifetime employment and benefits (Rama, 2002; Ohno, 2009). In democracies, bureaucrats are answerable to politicians who are then accountable to voters. In authoritarian settings, downward accountability channels are weak. Politicians are not democratically elected and bureaucrats are shielded from the public. In the language of Winters et al. (2012), there is no *incentive-prospective effect*: Officials do not feel directly threatened by the citizens' perception of their performance. Neither is there a *selection-retrospective effect*: Citizens do not have a ready reprisal against incompetent or corrupt bureaucrats.

Wrongdoers did not face a lot of pressure from upward accountability, either.

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[2] See `https://www.bti-project.org/en/reports/country-reports/detail/itc/VNM/`

The sub-literature on public sector absenteeism arrived at the consensus that transparency only improves agents' performance in areas that superiors actively target (Banerjee and Duflo, 2006; Callen et al., 2016). At the time of study (2010-2016), tackling corruption was not among the priorities of the central government. In fact, this was a time of unprecedentedly rampant wrongdoing and corruption in Vietnam. According to the Provincial Competitiveness Index (PCI) report, the leading enterprise survey in the country, corruption worsened markedly between 2012 and 2016, reaching its peak in 2014 and 2015, with around 65 percent of domestic firms admitting that it was common to pay bribes (Malesky et al., 2019). This finding is corroborated by the citizens' perception of corruption as measured by the Vietnam Public Administration Performance Index (PAPI).

Finally, it is also helpful to consider Vietnam in the rubric introduced by Kosack and Fung (2014). This paper reviewed the varying outcomes of 16 interventions that sought to use information to improve public service provision in developing countries. They listed three conditions needed for success. First, citizens should have the choice between different service providers, i.e. there is competition in the market. Second, front-line workers and managers should be motivated and willing to improve performance. In this case, the role of information would be to enhance the existing reform efforts. Third, politicians and policy-makers actively seek better performance from service providers under their jurisdictions. Using transparency to fight bureaucratic corruption in Vietnam fits into the most difficult scenario: Citizens are bound to bureaucratic services provided by local institutions and cannot vote with their feet. Bureaucrats, with their low-powered incentive structures, are not motivated to improve performance. As a result, I expect performance reports like PAPI to have no empowering effect for the principals.

Despite the lack of systematic efforts at tracking down and uprooting corruption at the time, instances of egregious malfeasance that the press and whistle blowers uncovered still led to public pressure for the punishment of the officials involved.[3] Therefore, although the Vietnamese central government and regular citizens did not actively use aggregated findings from PAPI to tackle corruption, these reports can still affect the bureaucrats' perceived risks of engaging in corrupt transactions. Impressions of widespread wrongdoing can lower the psychological costs of initiating a bribe, as well as the perceived risks of being resisted, exposed, and eventually punished.

4.3.2 The Provincial Governance and Public Administration Performance Index (PAPI)

PAPI is the foremost survey on citizens' experiences with public administration in Vietnam. Starting in 2010, it is an annual, nationally representative survey of between 13,000 to 15,000 Vietnamese citizens. PAPI is sponsored by the United Nations Development Programme (UNDP), the Vietnam Fatherland Front and the Vietnam National Assembly. The PAPI report evaluates and ranks the 63 provincial governments along six dimensions: (1) Participation at Local Levels, (2) Transparency, (3) Vertical Accountability, (4) Control of Corruption, (5) Public Administrative Procedures, and (6) Public Service Delivery.

PAPI is especially important for provincial governments and their public offi-

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[3] This pattern is consistent with the literature on non-electoral accountability which has found evidence of authoritarian responsiveness in China. These findings, however, are localized to specific settings. Accountability exists in village governments — the lowest level of the state where social networks play a big role (Tsai, 2007). Public officials are also responsive to complaints that are very personalized to individual bureaucrats in specific transactions (Distelhorst, 2012), especially when combined with threats of collective action and tattling to upper-level governments (Chen et al., 2016). That logic does not apply to aggregated information like PAPI. In fact, these findings further the point that the report can affect the bureaucrats' perceived risks in their everyday handling of the public.

cials.[4] The central government uses PAPI to monitor bureaucratic performance at the provincial level. As a result, many provinces hold annual seminars to take stock of PAPI's findings with their bureaucrats (Thuan, 2015). Local leaders issue directives to reprimand subordinates for bad performance and urge them to improve or maintain the province's PAPI score. The index is also highly visible in policy discourses. The most popular news pages in Vietnam widely publicize the release of annual PAPI reports and rankings (Thu, 2016; Giang, 2015). Local newspapers do the same, focusing on metrics and findings relevant to their home provinces (QNP, 2015; Giang and Quang, 2018).

4.3.3 Measuring local corruption

This paper focuses on PAPI's fourth dimension — Control of Corruption. This component includes questions asking respondents whether it is necessary to pay bribes in public services such as applications for land titles and construction permits. Respondents are also asked about bribery in public schools and hospitals. In addition to the official fees, it is very common for Vietnamese parents to give "thank you envelopes" to teachers in exchange for special attention for their children. Similarly, paying extra to doctors and nurses in public hospitals is a widespread and largely tolerated practice.

Table 1 reports district-level statistics on the prevalence of bribery. Vietnamese citizens perceive bribery to be very common occurrences. Corruption in public hospitals is widespread, with 42 percent of the respondents considering it necessary to pay hospital staffs in exchange for adequate treatment and care. The reported bribery in public schools as well as in the land title and construction permit applications are

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[4] In Vietnam, provinces are the primary subnational units. There are 58 provinces and five central-affiliated municipalities (Hanoi, Ho Chi Minh City, Hai Phong, Da Nang and Can Tho), making it 63 in total.

around 30 percent. Corruption was unevenly distributed across the country. While some districts saw relatively little malfeasance (below 10 percent), wrongdoing was rife in others (70-80 percent).

Table 4.1: Perception of the Prevalence of Bribery

(%)	Mean	Standard Deviation	min	max
Land titles	32.694	12.302	3.077	70.455
Public hospitals	41.953	14.907	7.692	78.846
Public schools	30.391	11.947	1.724	72.881
Construction permits	30.148	1.580	2.222	80.000

Questions D402b, D402c, D402d, D402e, The Viet Nam Provincial Governance and Public Administration Index Survey (2011-2016),

4.4 Empirical Set-Up and Results

4.4.1 The Divergence Between District- and Province-Level Corruption

In Vietnam, districts are the administrative units directly below the provinces. According to my argument, in a setting of weak accountability channels, transparency can affect corruption outcomes by altering the bureaucrats' beliefs regarding its prevalence. In this section, I exploit the fact that PAPI only released province-level statistics, which might diverge from how district-level bureaucrats perceived corruption in their localities.

Corruption varies within provinces, with some districts more and some less corrupt than others. For example, in land title applications, the average district-level reported bribery is 32.7 percent, but the estimated within-province standard deviation is a considerable 10.2 percent.[5] In 2016, the northern province of Hung Yen saw a rate of 29.4 percent in the least corrupt district and 62.5 percent on the other side

[5] Table 1 in the Online Appendix.

of the spectrum. Intended to be an indicator of provincial performance, however, PAPI only provides province-level statistics. Therefore, within each province, the less corrupt districts receive reports of higher corruption than actually is the case in their locality. In the theory, this is a case of Upward Revision. The more corrupt districts, in contrast, are subjected to Downward Revision.

In applying the theory to the empirical context of this paper, I assume that bureaucrats' beliefs on the prevalence of corruption is district-level. This is likely to be true, since the administrative procedures in question are all processed by district-level agencies. District-level Land Registration Offices grant land use certificates (Nguyen, 2014), while the district People's Committees are in charge of construction permits (Nguyen, 2020). In addition, the relevant PAPI questions specifically ask about gift-taking in district-level public hospitals. As a result, public officials' beliefs on the extent of wrongdoing mainly reflect the corruption environment in the district where they work.

PAPI estimates update the bureaucrats' perception on two factors that are tied to the perceived likelihood of punishment: (1) beliefs on district-level prevalence of bribery which determines the chances of being decried by the public and exposed by whistleblowers, and (2) beliefs on province-level corruption, which are linked to provincial leaders' tolerance of corruption. First, the new province-level information affects public officials' beliefs on how much malfeasance there is *in their district.* Since no official statistics of district-level bribery is available, bureaucrats use the best information that is available to them. While civil servants may be aware that the extent of corruption at different tiers of government might diverge, PAPI statistics still contain information collected from within their district, and is the most direct estimate that a district official would observe about corruption in their jurisdiction.

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As a result, reports of higher corruption from PAPI are likely to revise the officials' beliefs on district-level malfeasance upward, and vice versa. As discussed in the theory section, impression of widespread wrongdoings signals to the bureaucrats that the public in their locality more willingly accepts bad behaviors as the norm, which implies a lower risk of being decried and exposed. It also suggests to the officials that a higher-than-expected share of their colleagues are bad apples, which means lower chances of being exposed by whistle blowers. Bad incidents are more likely to be swept under the rug.

Second, the new information directly affects bureaucrats' perception on the corruptness of their colleagues *in the wider province.* Priors beliefs on province-level wrongdoings are likely to be extrapolated from or heavily influenced by district-level experiences since that is where the bureaucrats work. As a result, PAPI findings make bureaucrats in the less corrupt districts realize that wrongdoings are more rampant and unpunished in the province than they previously thought. The opposite is true in the more corrupt districts in the province. This also affects the perceived likelihood of punishment since it speaks to higher-level politicians' tolerance of wrongdoings. As discussed in sub-section 3.1, although fighting corruption is not a priority of the politicians, instances of wrongdoings exposed by the press and whistle blowers still attract bad publicity and public pressure for the punishment of the individuals involved. The provincial leadership is more affected by negative media coverage of cases in their jurisdiction than central-level politicians. They also have a strong grip on what happens in their locality. The provincial chairmen have full power of dismissal within the province and can suspend or annul decisions of People's Councils and Committees below at the district and commune levels (Kerkvliet et al. 2004). In fact, due to the relatively large number of local units in Viet-

nam,[6] the central government's influence over what happens inside the provinces can be weak. Some provinces become de facto fiefdoms under longstanding local leaders. Previous research on Vietnam has taken advantage of the province-specificity of corruption. Bai et al. (2019) found that inter-jurisdictional competition among provinces means that growing firms have to shoulder a relatively lighter burden of bribery. This effect is stronger for firms that can easily move to another province and those with operations in multiple localities. Another study, Le et al. (2020), compared contiguous commune pairs that straddle provincial borders to evaluate the impact of corruption on tax compliance. The province-specificty of corruption is also present in the management of state-owned enterprises. Nguyen (2021) showed that SOE managers hire redundant workers for kickbacks in their last year before retirement. The effect is driven by SOEs in provinces with worse corruption controls.

Access to raw PAPI data allows me to estimate the actual district-level frequency of bribery. The PAPI team randomly picked three to six districts from each province using probability-proportional-to-size sampling. The selection was done during the first nationwide PAPI in 2011, and the same districts have been surveyed every year. This is crucial because it provides a panel dataset of districts from 2011 to 2016. I use this data to investigate the impact of Upward Revision *(bad news)* and Downward Revision *(good news)*.[7] The theory predicts a subsequent increase in corruption in the former and the reverse in the latter group.[8]

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[6] There are 63 provinces and major cities, compared to 34 in China — a much larger country with a similar political system.

[7] The following analysis examines Upward Revision. As Upward Revision and Downward Revision are perfectly correlated by design, the latter has the opposite effect.

[8] The main empirical analysis examines cases where new information challenges existing beliefs. A supplemental empirical section in the Appendix investigates a case of information not affecting existing beliefs. I leverage a natural experiment in the roll-out of PAPI in 2010 to provide confirming evidence that transparency has no impact if accountability channels are not active and new information does not update the agents' priors.

> **IMPLICATION: (Upward Revision) The discouraging effect of bad news**
> *Between 2011 and 2016, districts that are less corrupt than provincial average see increased corruption in the next period.*

4.4.2   Empirical Model

The empirical model is as follows:

$$\Delta Y_{it} = \beta T_{it-1} + \boldsymbol{\gamma} \boldsymbol{X_i} + \boldsymbol{\lambda} \boldsymbol{I_j} + \epsilon_{it}$$

ΔY_{it} denotes the change in reported corruption for district i in province j from time $t-1$ to time t. T_{it-1} is a dummy indicating whether district i was less corrupt than the provincial mean at $t-1$.[9] $\boldsymbol{X_i}$ include control variables at the district level. $\boldsymbol{I_j}$ are the province fixed effects.

There were 867 district-year observations from 2011 to 2016. Standard errors are clustered at the district level. I control for potentially relevant district characteristics, such as population, areas in kilometer squared, the value of production in agriculture, manufacturing, and services, and whether the district is the provincial capital.

4.4.3   Results

The findings in Table 2 are evidence of a discouraging effect of bad news. In districts under Upward Revision, bribery in land title applications increased by 3.8 percent in the year after. Citizens were 4.1 percent and 3.8 percent more likely to report having to bribe in public hospitals and public schools, respectively. The rate of bribery in construction permit applications also increased by 4.4 percent. The coefficients are statistically significant across all four measures.

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[9] Table 2 in the Online Appendix considers an alternative, continuous measure indicating the gap between the district's actual score and the published provincial score. The results are similar.

Table 4.2: The impact of bad news on changes in reported bribery

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
Bad news	0.0378	0.0407	0.0376	0.0439
	(0.00818)	(0.00783)	(0.00719)	(0.00750)
Provincial capital	0.0249	0.0163	0.0127	0.0210
	(0.00496)	(0.00469)	(0.00461)	(0.00463)
Population (thousands)	0.188	0.0422	0.133	0.175
	(0.140)	(0.158)	(0.135)	(0.142)
Area (km2)	0.0315	0.0360	0.0124	0.0252
	(0.0159)	(0.0159)	(0.0151)	(0.0167)
Agriculture (billion VND)	-73.65	-165.8	-125.2	-343.2
	(391.0)	(519.0)	(450.2)	(427.0)
Manufacturing (billion VND)	33.54	78.36	60.43	50.15
	(42.21)	(51.76)	(56.90)	(59.30)
Services (billion VND)	10.69	-71.69	-81.73	-80.63
	(64.59)	(75.92)	(90.79)	(87.28)
Constant	-0.0594	-0.0705	-0.0390	-0.0238
	(0.0132)	(0.0148)	(0.0146)	(0.0116)
Observations	867	867	867	867
R^2	0.052	0.058	0.063	0.061

Standard errors in parentheses
Models with province fixed effects. Standard errors clustered at the district level.

The magnitude of the coefficients suggests sizable substantive effects. According to Table 1, the fraction of PAPI respondents reporting wrongdoings in land titles, public schools, and construction permits were 33 percent, 30 percent, and 30 percent, respectively. Bribery in public hospitals was the most common at 42 percent. As a result, corruption in districts under Upward Revision increased approximately by more than 10 percent in the next year.[10]

Table 2 in the Online Appendix demonstrates that the magnitude of the bad news

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[10] PAPI reports are usually released in early April and the next data collection round takes place between August and December. PAPI results in one year thus have between four to seven months to affect those in the next, depending on the survey wave to which a province belong. To guard against the possibility that this relatively short time window may explain the null results, I run additional analyses using average change over the next two years as the outcome variable. The results are similar (Table 3 in the Online Appendix).

also matters. In these regressions, I replace the dummy treatment variable with a continuous measure of the gap between the district's actual score and the published provincial score. The subsequent increase in corruption was greater in districts that deviated further from the provincial mean. An extra point in the district-provincial gap is associated with a 4.3-5.8 percent increase in reported bribery the year after across the four type of procedures.

4.5   Alternative Explanation: Regression to the Mean

In repeated tests or measurements, units with extreme high or low scores in one round tend to see more moderate scores in the next. For example, suppose that we ask a group of students to participate in a basketball shooting contest twice. The observed result is a combination of the student's "true score," which reflects their basketball ability and a random component that includes luck, the wind, and other idiosyncratic factors. The true score stays constant over time while the random component is specific to each period. We can make the reasonable assumption that both follow a bell-shaped or some other single-peak distributions.

For each of the highest-scoring students in the first round, there are two possible explanations. The first is that they got lucky. Their true mean is lower than the observed score, but they had a positive random component in the first test. Alternatively, their true mean is higher, but a negative random component pulled the score down. Conditional on the observed score, the first possibility is more likely due to the bell-shaped distribution of the true scores. As a result, in the second test when the random shocks were reset, those with previously extreme scores tended to revert toward the mean. In this paper, regression to the mean would lead to empirical patterns that are observationally equivalent to the theory's predictions.

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4.5.1 Isolating the effect of information

In this section, I use exposure intensity to demonstrate that the results are driven by the effect of information. Regression to the mean is a statistical phenomenon that occurs regardless of treatment status. If units with more exposure to information saw greater changes in outcomes, we can conclude that at least part of the results is explained by the model. In other words, in a world where the observed empirical patterns can come from both regression to the mean and information, the degree of exposure mattering is proof that the latter channel is active.

Bureaucrats in different districts have varying levels of exposure to PAPI. The PAPI reports reach them either through the media and the Internet, or are passed down from the upper echelons of the local government. Multiple factors determine the fraction of the bureaucrat population that are informed of the PAPI results. The subsequent analysis relies on two measures of exposure. First, I single out districts that also serve as the province's administrative capitals. Because these are the seats of local governments, their officials can be expected to be more well-informed of PAPI, especially when information is passed down from the top. The second measure is district-level Internet penetration rates, i.e. the fraction of the population with access to the Internet at home. Bureaucrats in digitally connected areas are likely to have greater exposure to PAPI results circulated by national and local online news pages.[11]

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[11] I derive district-level Internet penetration rates from PAPI data (Question A013-4: *What is your source of information about national affairs and government? [Internet]*).

4.5.2   Model with Interaction Terms

I modify the regression model, accommodating the role of exposure degree with an interaction term:

$$\Delta Y_{it} = \beta_1 T_{it-1} + \beta_2 W_{it-1} + \beta_3 T_{it-1} \times W_{it-1} + \boldsymbol{\gamma} \boldsymbol{X_i} + \boldsymbol{\lambda} \boldsymbol{I_j} + \epsilon_{it}$$

Here, ΔY_{it} is the change in reported bribery for district i in province j between time $t-1$ and t. T_{it-1} is a dummy variable indicating whether district i was less corrupt than the provincial average at $t-1$. W_{it-1} is the exposure intensity variable for district i at $t-1$. $\boldsymbol{X_i}$ includes control variables at the district level while $\boldsymbol{I_j}$ represents the province fixed effects. I expect β_3 to be positive, meaning that stronger exposure to information augments the effect of bad news on subsequent reported bribery.

4.5.3   Results

The effect of Upward Revision on subsequent corruption is positive and statistically significant across both non-capital and capital districts, confirming the findings in section 5. Crucially, capital districts consistently record larger impact of information. According to Figure 4.2, among districts with Upward Revision, those that are provincial capitals saw an extra four to six percent increase in corruption in public hospitals, public schools, and construction permits.[12] [13]

Regarding Internet penetration, among districts with Upward Revision, an increase of 10 percent in the fraction of population with Internet access is associated

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[12] Full regression results in Table 4 in the Online Appendix

[13] I follow the best practices in analyzing interaction effects laid out in Brambor, Clark and Golder (2006) and Hainmueller, Mummolo and Xu (2019). Figures 4.2 and 4.3 report the marginal effects of Upward Revision on corruption across the entire value range of the moderating variables. In these figures, the Y-axis indicates the marginal effect of Upward Revision on subsequent reported bribery. The X-axis illustrates the value range of exposure intensity variables.

FIGURE 4.2: The marginal effect of bad news on subsequent corruption (non-capital district vs. capital districts)
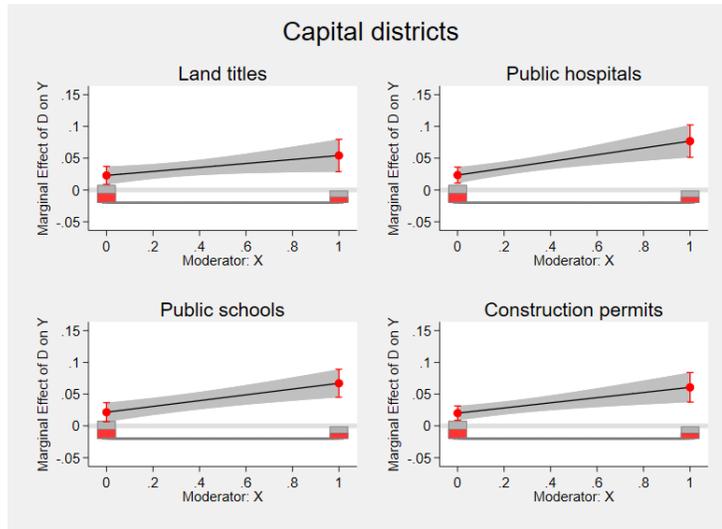
FIGURE 4.3: The marginal effect of bad news on subsequent corruption (less vs. more digitally connected districts)
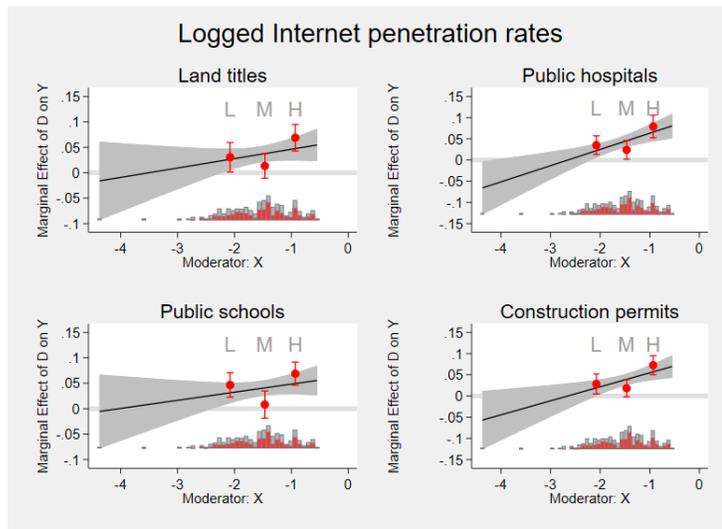
with an extra 1.4, 0.9, and 1.5 percent increase in bribery in public hospitals, public schools, and construction permits, respectively. The regression results are reported in Table 5 in the Online Appendix.[14]

Hainmueller, Mummolo and Xu (2019) warns of non-linear interaction effects and excessive extrapolation — the possibility that statistically significant coefficients on the interaction terms can be attributed to a few outliers that lie beyond the common support of the moderating variable. Following their recommendation, Figure 4.3 reports the binning estimators for each of the three terciles of Internet penetration (Low-Medium-High), 95-percent confidence intervals, and a histogram for the moderating variable. The binning estimators would show non-linear interaction effects — if there are any — and would also alleviate the outsized influence of outliers. The histogram would guarantee that there is sufficient common support in the range of the moderating variable for which the results are reported.

As shown in Figure 3, the effect was clearly driven by the top tercile — the 289 districts with the highest fraction of respondents having access to the Internet at home. In places with greater exposure intensity, the impact of bad news on subsequent corruption was distinctly positive and higher than in districts where information flows were more limited. Table 3 simulates the analysis done graphically in Figure 4.3. Across all of the four government services under consideration, the effect of bad news was much weaker in less digitally connected districts. For the 1st and 2nd terciles, the impact of Upward Revision was between three and seven

[14] A plausible concern is that Internet penetration rates might vary less among bureaucrats as compared to the general population. These results are robust to an alternative construction of the Internet penetration variable using only the subset of PAPI respondents who work for the government (Table 6 in the Online Appendix). Figure 3 in the Online Appendix shows that, although bureaucrats have markedly better access to online news and information, the variance is very similar to that of the entire population.

percent lower as compared to the top tercile (the reference group). These findings suggest that the observed changes in corruption outcomes did increase with stronger exposure to PAPI information, and, thus, were not simply an artifact of regression to the mean.

Table 4.3: Internet penetration as a measure of exposure intensity - Binning Estimators

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
Bad news	0.0654	0.0873	0.0769	0.0691
	(0.0152)	(0.0141)	(0.0119)	(0.0118)
1st tercile	-0.00814	0.00463	0.000125	0.00762
	(0.0123)	(0.0111)	(0.0105)	(0.0100)
2nd tercile	0.00280	0.0122	0.0144	0.00770
	(0.0113)	(0.0103)	(0.0103)	(0.00920)
Bad news X 1st tercile	-0.0330	-0.0588	-0.0335	-0.0471
	(0.0194)	(0.0171)	(0.0160)	(0.0157)
Bad news X 2nd tercile	-0.0425	-0.0584	-0.0650	-0.0375
	(0.0191)	(0.0175)	(0.0167)	(0.0157)
Population (thousands)	0.100	0.0913	-0.0789	0.0856
	(0.146)	(0.141)	(0.167)	(0.136)
Area (km2)	0.0297	0.0272	0.0422	0.0140
	(0.0182)	(0.0194)	(0.0175)	(0.0159)
Agriculture (billion VND)	-50.68	-217.0	-22.33	-15.60
	(411.3)	(454.4)	(577.6)	(451.0)
Manufacturing (billion VND)	41.89	56.28	90.48	65.23
	(47.72)	(60.54)	(55.21)	(60.04)
Services (billion VND)	-41.01	-131.5	-136.9	-115.1
	(81.64)	(103.2)	(83.30)	(97.14)
Constant	-0.0540	-0.0340	-0.0764	-0.0496
	(0.0148)	(0.0151)	(0.0146)	(0.0138)
Observations	867	867	867	867
R^2	0.056	0.073	0.071	0.071

Standard errors in parentheses
Models with province fixed effects. Standard errors clustered at the district level.
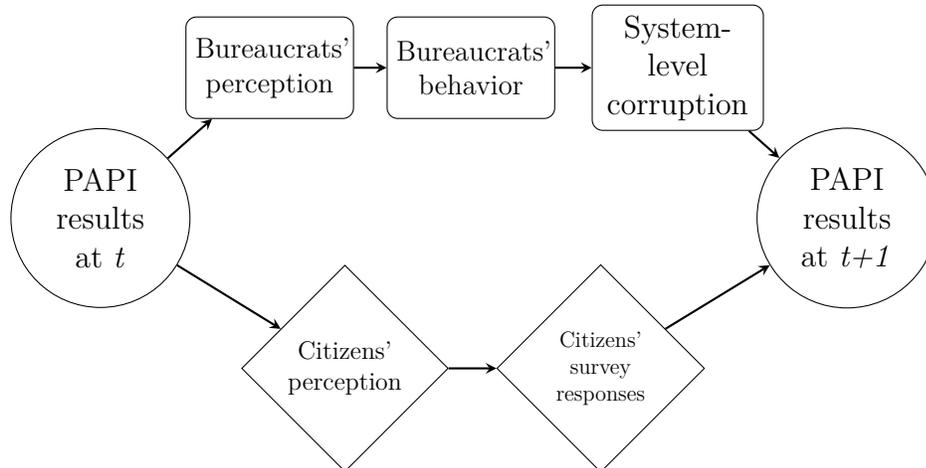
FIGURE 4.4: Bureaucrats' behavior vs. Citizens' perception

4.6 Alternative Explanation: Citizens' Reaction to Information

4.6.1 Citizens' survey responses

A second possible rebuttal concerns the channel that connects the PAPI results to subsequent change in reported corruption. My theory is built around the idea that information alters the bureaucrats' beliefs, thereby influencing their choices, and eventually the systemic prevalence of bribery. However, instead of the bureaucrats' beliefs, PAPI could affect the citizens' perception, which is then reflected in their survey responses in the later years (see Figure 4.4). The patterns observed in the data, then, could be an illusion brought about by pessimistic respondents rather than a reality driven by disheartened bureaucrats.

Because this alternative channel works through the citizens' perception of corruption, it can be bypassed by using a measure that reports actual experiences with bribery. The data used for analysis so far has come from section 4 of PAPI (Control of Corruption), which asks all respondents whether they consider it necessary to bribe to obtain certain public services. Some questions outside of section 4 explicitly target respondents who recently went through several government procedures. Un-

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like the general public's perception of corruption, reports of specific bribery incidents by recent users are less likely to be influenced by the previous PAPI results.

The downside of these measures is that using them entails dramatically shrinking the sample, as can be seen in Table 4.4. Among 82,851 individual respondents to the PAPI survey from 2011 to 2016, only 41 percent used government notary services. Only 31 percent went to public hospitals and 16 percent had children who were enrolled in public schools in the year of the survey. For less common procedures such as civil construction permits and land use rights certificates, the non-response rates were 94 percent and 96 percent, respectively.

Table 4.4: Experiences with bribery

	No	Yes	N/A
Notary services	2,456 (2.96%)	31,632 (38.18%)	48,763 (58.86%)
Civil construction permits	525 (0.63%)	4,691 (5.66%)	77,635 (93.7%)
Land use rights certificates	415 (0.5%)	2,769 (3.34%)	79,667 (96.16%)
Medical treatment	3,003 (3.62%)	22,401 (27.04%)	57,447 (69.34%)
Teachers' attention	1,336 (1.61%)	11,997 (14.48%)	69,518 (83.91%)

Questions D503f, D505ff, D507hi, D604dl, D606cdk. The Viet Nam Provincial Governance and Public Administration Index Survey (2011-2016),

Table 5 reports the impact of information on the new outcome variables. Upward Revision increased the rate of bribery in notary services and public schools by around two percent. The results suggest that PAPI did lead to actual changes in corruption outcomes as experienced by citizens and not just their perception.

Table 4.5: The impact of bad news on actual experiences

	(1) Notary	(2) Construction	(3) Land use	(4) Hospital	(5) School
Bad news treatment	0.0172	0.0183	0.0278	0.0158	0.0228
	(0.00736)	(0.0171)	(0.0348)	(0.00969)	(0.0115)
Population (thousands)	-0.0675	-0.426	0.694	0.183	0.229
	(0.102)	(0.348)	(0.909)	(0.167)	(0.258)
Area (km2)	0.0133	0.0302	-0.195	-0.0304	0.0312
	(0.0111)	(0.0389)	(0.0854)	(0.0198)	(0.0243)
Agriculture (billion VND)	459.7	1187.5	-2599.5	-175.9	-885.6
	(283.1)	(1022.7)	(2984.1)	(631.1)	(649.0)
Manufacturing (billion VND)	39.83	-121.6	748.9	-81.45	33.59
	(40.62)	(137.9)	(385.0)	(76.37)	(137.8)
Services (billion VND)	-10.24	206.9	-848.7	8.202	-59.26
	(59.50)	(243.6)	(590.8)	(150.6)	(216.8)
Observations	867	759	326	519	519
R^2	0.030	0.027	0.137	0.084	0.071

Standard errors in parentheses
Models with province fixed effects. Standard errors clustered at the district level.

4.6.2 Citizens' behavior

The results can also plausibly be an artifact of changes in citizens' behavior. Bad news may lead users of government services to believe that they need to bribe public officials to get things done. Impressions of widespread wrongdoing may convince citizens that bureaucrats are receptive to bribes, encouraging the former to initiate corrupt exchanges to speed things up or to ask for things that are not permitted. According to this interpretation, it is citizens', not bureaucrats', behavioral changes, that brought about the subsequent increase in reported bribery in districts under Upward Revision.

Government officials have distinct advantages over the general populace when it comes to access to PAPI. The reports are mostly circulated (1) within the bureaucracy and (2) through popular online news pages. According to Figure 3 in the Online Appendix, Internet penetration is markedly higher among government

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employees (52.2 percent) as compared to the entire population (26.9 percent).[15] Especially in remote areas where following current affairs online remains a privilege of the affluent and educated, PAPI may be *de facto* exclusively available to public officials. If this extra advantage in accessibility accentuates the effect of information, we can conclude that the bureaucrats were at least partially responsible for the observed changes.

In Table 6, I interact Internet access among bureaucrats with bad news, while controlling for general penetration rates in the population. A 10-percent increase in Internet coverage among government employees magnified the subsequent surge in reported bribery by an additional 0.8 to 1.1 percent. These numbers show that, holding the public's access constant, increases in bureaucrats' exposure to information still deepened the impact of information.

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[15] I construct a measure of Internet penetration among government employees at the district level by limiting the sample to PAPI respondents who, at the time of the survey, worked in the government or the military (Question A009).

Table 4.6: The magnifying effect of Internet access among bureaucrats, conditioned on general Internet penetration

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
Bad news	0.0254	-0.00511	-0.0134	-0.0243
	(0.0265)	(0.0227)	(0.0239)	(0.0224)
Internet penetration (bureaucrats)	-0.0252	-0.0545	-0.0396	-0.0569
	(0.0304)	(0.0274)	(0.0283)	(0.0247)
Bad news X Internet (bureaucrats)	0.00912	0.0799	0.0889	0.105
	(0.0504)	(0.0449)	(0.0446)	(0.0415)
Internet penetration (population)	0.0619	0.0638	0.0247	0.0244
	(0.0225)	(0.0203)	(0.0203)	(0.0207)
Population (thousands)	-0.120	-0.0532	-0.100	0.0644
	(0.119)	(0.0992)	(0.108)	(0.0939)
Area (km2)	0.0315	0.0182	0.0307	0.00555
	(0.0140)	(0.0136)	(0.0127)	(0.0113)
Agriculture (billion VND)	-154.5	-446.8	-354.6	-546.8
	(297.5)	(270.9)	(254.6)	(257.5)
Manufacturing (billion VND)	47.88	91.15	102.2	137.8
	(33.59)	(43.13)	(45.70)	(41.66)
Services (billion VND)	-42.06	-96.31	-124.8	-176.0
	(56.29)	(66.99)	(70.93)	(60.52)
Observations	867	867	867	867
R^2	0.022	0.035	0.028	0.034

Standard errors in parentheses
Models with province fixed effects. Standard errors clustered at the district level.

4.7 Conclusion

By examining the case of bureaucratic corruption in Vietnam, the paper provides evidence that simply fixing the information asymmetry problem does not align the interests of bureaucrats and citizens in an environment where accountability channels are weak and the principal has no reprisal power. Providing information on the bureaucrats' wrongdoings to politicians is also ineffective when the latter do not specifically seek to fight corruption. In contrast, by influencing the officials' perception of the risks of engaging in bribery, information increases corruption in certain settings. Therefore, pushing for transparency as a standalone cure for petty corruption is unlikely to work and may actually backfire.

The paper paves the path for important future research on transparency measures and bureaucrats' decision-making. Although this paper provides robust evidence for the downstream effects of belief updating on subsequent corruption levels, the difficulty of conducting a survey on public officials on the topic of corruption in an authoritarian country means that the intermediate mechanisms cannot be tested directly at the individual bureaucrat level. Future research can also take into account different possible forms of belief updating. One such possibility is asymmetric reaction to information. It is plausible that negative information has an outsized impact, i.e. upstanding officials exposed to reports of widespread wrongdoings are more likely to change behaviors than corrupt individuals given information to the opposite effect. If that is true, the distribution of individual bureaucrat's beliefs matters, and accurate reports on the average level of corruption can also shape subsequent corruption outcomes. In addition, it is also possible that information can influence bureaucrat's decision beyond changing the perceived probability of punishment. Like in the case of citizens' reaction to news on politician's malfeasance (Chong et. al. 2014 and Bauhr and Grimes 2014), reports of rampant wrongdoings can have deflating effects, which discourage honest job-seekers from entering the public sector and worsen corruption in the long run.

The academic literature has started moving away from a one-size-fit-all application of transparency as a means to curb corruption by re-evaluating the necessary conditions for sunshine measures to succeed. This paper adds to that growing body of evidence, departing from the current focus on how principals deal with information and considering instead the impact of transparency on the public officials' calculations over whether or not to be corrupt. The agents constitute a neglected but important group of consumers of information made available by transparency. It is crucial that academic researchers and policy-makers take their reaction into account

for transparency measures to succeed.

5

Conclusion

The three papers in my dissertation open up promising future avenues for research. The Gains from Graft vs. The Promise of Promotion paper shows that promotion pressures, like electoral incentives, improve politicians' performance, which seems to suggest certain benefits in extending promotion-eligible age and the removal of term limits. However, term limits and mandatory retirement age are put in place for a reason (Adams and Kenny, 1986). A large body of research has established that longer tenure comes with worsened corruption outcomes (Coviello and Gagliarducci, 2017; Samphantharak and Malesky, 2008; Klašnja, 2015). Term limits also allow turnover in personnel and lead to increased incentives for lower-level party members. Future research can address these trade-offs. Further work can also be done on the optimal number of subnational units. Too many provincial candidates for a small number of central offices means fiercer competition and lower chances of promotion, which might have a disheartening effect on local leaders. On the other hand, the incentives are also removed if promotion is easily attainable and perceived to be guaranteed.

Future research can build on the findings of the Political Corruption Cycles by

exploring more complicated scenarios. For example, there are settings where the politicians have weak control over lower-level bureaucrats. The findings of Cooper et al. (2021) show the complicated situation that manifests when bureaucrats act independently and influence corruption levels in their own interests. In addition, while both Political Corruption Cycles and the Power of the Carrot are set in a context where lower corruption is seen as beneficial for career prospects, the predictions will change in settings where corruption is seen as a source of campaign funding. Existing research has explored this possibility. Figueroa (2021) shows that the amount of illicit cash that bureaucrats channeled to Argentinian politicians peaked in the two weeks prior to elections compared to the two weeks after. The results strongly suggest that corruption money during this period is used to finance political expenses. When revenues from corruption is intricately tied to promotion and politicians need to raise money to buy entry to higher offices, the distinction between extractive and rent-seeking corruption could be less relevant and both types may vary in more similar patterns over the politicians' tenure.

Finally, the Safety in Numbers paper draws attention to bureaucrats as a group of consumers of information made available by transparency measures. Since the theory involves belief updating, future research can improve on my empirical design by implementing surveys of bureaucrats in settings where this is more politically feasible. Moreover, it would be interesting to see if reports of entrenched wrongdoing have long-term consequences. For example, impression of rampant corruption can have a deflating effect. Honest job-seekers would be discouraged from entering the public sector which feeds a vicious cycle where corruption is worsened in the long-run. Chong et al. (2014) and Bauhr and Grimes (2014) already found some evidence of this when it comes to the impact of information on citizens. Although the evidence is short term due to the nature of survey experiments, they show that citizens become

disengaged from politics when fed with information that makes them lose confidence in the integrity of politicians.

Appendix A

The Gains from Graft vs. The Promise of Promotion

Table A.1: Questions, Wording, and Time Span

Variable	Wording	Coverage
Overall bribe expenses as % of revenues	"On average, what percent of revenues do firms in your line of business typically pay per annum in unofficial payments to public officials?"	2009-2019
Bribery during inspections	"During any of the inspections, did you provide a gift or informal payment to the examiner?"	2016-2019
Bribery during registration	"Did you pay an informal charge to expedite the delivery of the registration certificate?"	2017-2019
Firm agrees that regulations are mainly used to extract rents	"Provincial government officials use compliance with local regulations to extract rents"	2006-2008

Table A.2: The impact of promotability on corruption - Fuzzy RD

	(1) First Stage	(2) Basic	(3) Quadratic	(4) Year FE	(5) Full
Must Retire	-0.162*				
	(0.085)				
Distance from cutoff age					
at time of appointment	-0.039***	-0.331**	-0.462***	-0.312**	-0.289***
	(0.010)	(0.151)	(0.160)	(0.128)	(0.106)
Predicted probability					
of promotion		-3.849**	-4.922**	-3.914**	-3.803***
		(1.895)	(1.971)	(1.560)	(1.307)
Distance from cutoff squared			-0.034		
			(0.022)		
Employment size at formation				-0.293***	-0.250***
				(0.030)	(0.036)
Equity at formation				-0.118***	-0.082**
				(0.028)	(0.032)
Partnership				0.051	-1.355
				(0.614)	(0.823)
Limited Liability				0.969***	0.520***
				(0.084)	(0.082)
Joint-stock				1.797***	0.905***
				(0.133)	(0.123)
Other				1.673***	0.197
				(0.536)	(0.518)
Owner: Former govt				1.035***	0.957***
				(0.191)	(0.190)
Owner: Former military				0.468***	0.584***
				(0.147)	(0.154)
Owner: Former SOE manager				0.374***	0.376***
				(0.104)	(0.109)
Owner: Former SOE employee				0.449***	0.412***
				(0.086)	(0.100)
Female				-0.221	-0.448
				(0.477)	(0.284)
Age				-0.033	-0.029
				(0.024)	(0.024)
Constant	0.295***	3.994***	4.301***	4.656***	9.673
	(0.052)	(0.402)	(0.446)	(1.427)	(.)
Observations	265	57713	57713	51155	39067
R^2	0.159	0.001	0.001	0.025	0.093

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix B

Political Corruption Cycles

Table B.1: Extant Literature on Tenure and Levels of Corruption

Extractive Corruption				Rent-seeking Corruption			
Paper	Setting	Relationship	Variable	Paper	Setting	Relationship	Variable
Buckley (2017)	Russia	Inverse U-shape	Whether citizens are asked by bureaucrats to pay bribes in everyday admin procedures	Campante et al. (2009)	Cross-country	U-shape	World Bank Control of Corruption Index
Valdaman-nati (2015)	India	Inverse U-shape (or U-shape)	Corrupt environment (or anti-corruption effort against lower-level bureaucrats, i.e. number of corruption cases registered by politicians)	Gamboa-Cavazos et. al. (2007)	Mexico	U-shape	Percentage of total revenues devoted to extra-official payments
Cooper (2021)	Five West African states	U-shape	Average extortion price of truck drivers by state officials such as police officers and customs officials	Sidorkin and Vorobyev (2018)	Russia	U-shape	Gifts and informal payments to get things done (as % of revenues)
				Nguyen (2021)	Vietnam	U-shape	Number of unnecessary new hires at state-owned enterprises
				Mironov and Zhuravskaya (2016)	Russia	U-shape	Tunneling, i.e. illegal transfer of cash out of firms to politicians
				Figueroa (2021)	Argentina	U-shape	Businessmen bought price-inflated public contracts in exchange for bribes

In estimating the pattern of rent-seeking corruption, we follow Blair and Imai (2012) and Jensen and Malesky (2018b) in implementing this two-stage analysis using the LIST question.

1. $NumberItems = \beta_0 + \beta_1 Year_{Position} + \beta_2 Year_{Position}^2 + \beta_3 X + \rho + \gamma + \epsilon$ (only for the **control** group)

2. $Difference = \delta_0 + \delta_1 Year_{Position} + \delta_2 Year_{Position}^2 + \delta_3 X + \rho + \gamma + \epsilon$ (only for the **treatment** group)

X is a vector of controls at the firm level and at the PCOM level, ρ is the province fixed effects, γ is firm's legal form fixed effects, and ϵ is unobserved heterogeneity. Standard errors are clustered at the PCOM level.

In the first stage, $NumberItems$ is the number of activities that that a firm in the control group reported to have done when competing for a government contract. We obtain a set of estimated coefficients in the first stage, and plug them in to generate predicted number of items for firms in the treatment group.

$Difference$ is the difference between the actual number of items that a firm in the treatment group reported and this predicted value. We present the results from the second stage in the Main Results section. Results from the first stage can be found in the Appendix.

Table B.2: First Stage (LIST Analysis for Bribery in Procurement)

	(1) Control group only
Years in position (C)	-0.072**
	(0.032)
Years in position squared (C)	0.011**
	(0.005)
Equity at formation	-0.021*
	(0.012)
Employment size at formation	-0.033***
	(0.013)
Owner: Former govt	0.246***
	(0.065)
Owner: Former military	0.137**
	(0.063)
Owner: Former SOE manager	0.210***
	(0.038)
Owner: Former SOE employee	0.111***
	(0.035)
Gender of Firm owner	0.010
	(0.023)
Age	-0.003
	(0.005)
Female	-0.092
	(0.134)
Constant	1.679***
	(0.288)
Legal Form FEs	Yes
Observations	9336
R^2	0.040

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
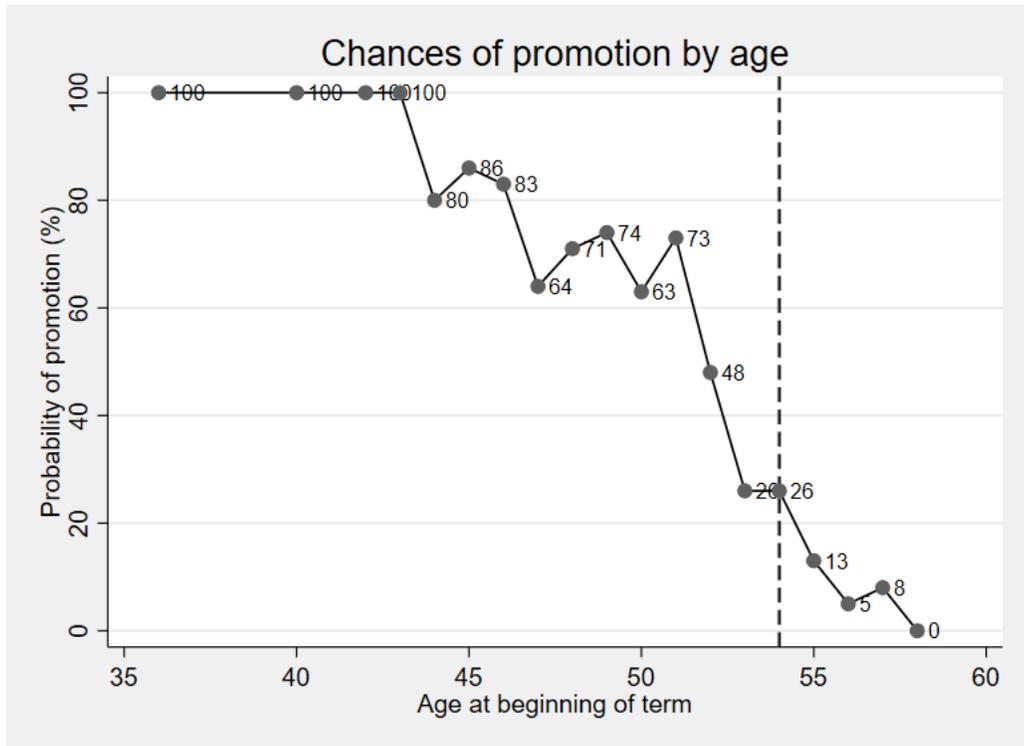
FIGURE B.1: Probability of Promotion by Age at Appointment

Table B.3: Political cycles in procurement and inspection (dummy variables)

	(1) Procurement	(2) Inspection
Year in Position = 1	0.000	0.000
	(0.000)	(.)
Year in Position = 2	-0.013	0.124***
	(0.040)	(0.024)
Year in Position = 3	-0.013	0.120***
	(0.050)	(0.027)
Year in Position = 4	-0.084	0.027
	(0.056)	(0.026)
Year in Position = 5	-0.033	-0.003
	(0.070)	(0.033)
Year in Position = 6	-0.012	-0.019
	(0.096)	(0.039)
Equity at formation	-0.036**	-0.009***
	(0.015)	(0.002)
Employment size at formation	-0.022	0.000
	(0.016)	(0.003)
Owner: Former govt	0.239***	0.076***
	(0.079)	(0.022)
Owner: Former military	0.006	0.105***
	(0.083)	(0.017)
Owner: Former SOE manager	0.070	0.083***
	(0.053)	(0.010)
Owner: Former SOE employee	0.084*	0.066***
	(0.047)	(0.010)
Gender of Firm Owner	-0.093***	0.006
	(0.031)	(0.005)
Age	-0.001	0.004
	(0.007)	(0.003)
Female	-0.046	-0.158***
	(0.181)	(0.039)
Legal Form FEs	Yes	Yes
Observations	7960	28866
R^2	0.033	0.047

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B.4: Political cycles in procurement bribes

	(1) No outliers	(2) 10,000 reps	(3) No joint-stock	(4) No HCMC/HN
Years in position (C)	-0.131***	-0.087**	-0.072**	-0.044
	(0.036)	(0.041)	(0.032)	(0.030)
Years in position squared (C)	0.019***	0.014**	0.010***	0.007**
	(0.005)	(0.006)	(0.003)	(0.003)
Equity at formation	-0.036***	-0.037**	-0.029	-0.033**
	(0.014)	(0.015)	(0.018)	(0.016)
Employment size at formation	-0.053***	-0.020	-0.031	-0.015
	(0.014)	(0.017)	(0.020)	(0.017)
Owner: Former govt	0.307***	0.215***	0.238**	0.205**
	(0.072)	(0.083)	(0.101)	(0.082)
Owner: Former military	0.129*	0.027	-0.043	-0.036
	(0.067)	(0.080)	(0.089)	(0.080)
Owner: Former SOE manager	0.219***	0.074	0.125**	0.086
	(0.045)	(0.052)	(0.060)	(0.053)
Owner: Former SOE employee	0.191***	0.081*	0.060	0.068
	(0.040)	(0.046)	(0.051)	(0.045)
Gender of Firm owner	-0.054**	-0.082***	-0.105***	-0.096***
	(0.027)	(0.030)	(0.036)	(0.032)
Age	0.004	-0.001	0.004	-0.004
	(0.006)	(0.007)	(0.008)	(0.007)
Female	-0.048	-0.056	-0.199	-0.065
	(0.155)	(0.174)	(0.192)	(0.177)
Constant	0.256	0.635*	0.413	0.797**
	(0.324)	(0.371)	(0.394)	(0.395)
Sector FEs	No	No	No	No
Province FEs	Yes	Yes	Yes	Yes
Legal Form FEs	Yes	Yes	Yes	Yes
Observations	7345	8159	6726	7836
R^2	0.049	0.034	0.038	0.030

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table B.5: Political cycles in bribery during inspections

	(1) No Joint-stock	(2) No HCMC/HN
Years in position (C)	0.101***	0.092***
	(0.024)	(0.024)
Years in position squared	-0.017***	-0.016***
	(0.003)	(0.003)
Equity at formation	-0.010***	-0.009***
	(0.003)	(0.003)
Employment size at formation	-0.002	0.001
	(0.004)	(0.003)
Owner: Former govt	0.083***	0.076***
	(0.024)	(0.023)
Owner: Former military	0.098***	0.102***
	(0.018)	(0.017)
Owner: Former SOE manager	0.071***	0.086***
	(0.012)	(0.010)
Owner: Former SOE employee	0.068***	0.070***
	(0.011)	(0.011)
Gender of Firm owner	0.011*	0.003
	(0.006)	(0.006)
Age	0.006*	0.007*
	(0.004)	(0.004)
Female	-0.144**	-0.130***
	(0.056)	(0.040)
Constant	-0.021	0.002
	(0.158)	(0.167)
Sector FEs	No	No
Province FEs	Yes	Yes
Legal Form FEs	Yes	Yes
Observations	22937	26575
R^2	0.043	0.043

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix C

Safety in Numbers

C.1 Survey Questions

D402. I am going to read several statements about events that occur sometimes. When I read them to you, please think about your own experience and tell me how much you agree with each statement. That is to say, you agree completely, you agree somewhat, you disagree or you disagree completely. *[Interviewer: please select corresponding answers in the following table]*

	Agree	Some-what agree	Disagree	[DK]	[RA]
D402a In my commune/ward, officials divert funds from the state budget for their personal benefit.	2	1	0	888	999
D402b People have to pay bribes in order to obtain a land title	2	1	0	888	999
D402c. People like me have to bribe to receive medical treatment in the district's hospitals.	2	1	0	888	999
D402d. Parents have to pay bribes to teachers for their children to be better attended at the primary school nearest to my house.	2	1	0	888	999
D402e. In my commune/ward, officials receive kickbacks in exchange for approval of construction permits.	2	1	0	888	999
D402f. In order to get a job in the government, people have to pay a bribe					

FIGURE C.1: Questions on perception of bribery

C.2 Tables

D505f. Please tell me whether you agree or disagree with the following statements about your most recent experience with the construction permit application process.
[Interviewer: please select corresponding answers in the following table]

	Yes	No	DK	RA
a. Clear information about the procedures was available.	1	0	888	999
b. The amount I would have to pay in fees for the service was publicly displayed.	1	0	888	999
c. The officials were competent.	1	0	888	999
d. The officials treated me with respect	1	0	888	999
e. The procedure required little paperwork.	1	0	888	999
f. I/my family don't have to pay bribes to obtain the service.	1	0	888	999
g. I was provided with a clear deadline by which the service would be performed.	1	0	888	999
h. The service was performed within the stated deadline.	1	0	888	999
i. I am satisfied with the service I received.	1	0	888	999
[Go to D506]				

FIGURE C.2: Example of a question on experience with bribery

Table C.1: Analysis of Variance: District-level bribery in land title applications

Source	SS	df	MS	F	Prob > F
Between provinces	6.410	62	0.103	9.86	0.000
Within provinces	12.343	1,177	0.010		
Total	18.753	1,239	0.015		
Estimated SD of province effect	0.069				
Estimated SD within province	0.102				

Number of obs = 1,240
R-squared = 0.342
Intraclass correlation = 0.311

Table C.2: The impact of bad news on changes in reported bribery: Continuous measure

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
District Score - Provincial Score	0.0431	0.0581	0.0480	0.0540
	(0.00920)	(0.00813)	(0.00808)	(0.00847)
Provincial capital	0.0268	0.0198	0.0151	0.0236
	(0.00511)	(0.00476)	(0.00469)	(0.00478)
Population (thousands)	0.185	0.0249	0.124	0.167
	(0.139)	(0.153)	(0.133)	(0.141)
Area (km2)	0.0388	0.0497	0.0222	0.0356
	(0.0195)	(0.0164)	(0.0165)	(0.0206)
Agriculture (billion VND)	-171.7	-294.4	-232.7	-464.8
	(405.7)	(503.1)	(448.8)	(459.3)
Manufacturing (billion VND)	22.18	71.18	51.36	38.70
	(43.76)	(54.22)	(60.38)	(64.58)
Services (billion VND)	43.75	-36.09	-48.89	-42.30
	(67.39)	(80.06)	(96.42)	(95.52)
Constant	-0.0404	-0.0541	-0.0219	-0.00307
	(0.0111)	(0.0131)	(0.0138)	(0.0101)
Observations	867	867	867	867
R^2	0.053	0.073	0.070	0.066

Standard errors in parentheses

Models with province fixed effects. Standard errors are clustered at the district level.

Table C.3: The impact of bad news on the level of reported bribery: Two-year average

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
Bad news	0.0394	0.0381	0.0396	0.0466
	(0.00845)	(0.00854)	(0.00738)	(0.00787)
Provincial capital	0.0224	0.0108	0.00690	0.0163
	(0.00670)	(0.00633)	(0.00680)	(0.00680)
Population (thousands)	0.188	0.260	0.0773	0.200
	(0.194)	(0.204)	(0.173)	(0.178)
Area (km2)	0.0296	0.0312	0.00700	0.0199
	(0.0226)	(0.0241)	(0.0211)	(0.0253)
Agriculture (billion VND)	-150.8	-816.3	-483.0	-693.7
	(618.1)	(604.5)	(552.7)	(589.8)
Manufacturing (billion VND)	2.724	-31.40	17.74	24.41
	(63.29)	(83.99)	(65.22)	(88.96)
Services (billion VND)	70.76	123.5	2.365	-8.756
	(87.54)	(112.9)	(96.47)	(126.0)
Constant	-0.0584	-0.0781	-0.0182	-0.00817
	(0.0185)	(0.0184)	(0.0163)	(0.0165)
Observations	692	692	692	692
R^2	0.108	0.112	0.119	0.118

Standard errors in parentheses
Models with province fixed effects. Standard errors are clustered at the district level.

Table C.4: Capital district as a measure of exposure intensity

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
Bad news=1	0.0288	0.0289	0.0288	0.0270
	(0.00922)	(0.00788)	(0.00887)	(0.00778)
Capital district	0.00832	-0.00671	-0.00572	-0.00679
	(0.00963)	(0.00895)	(0.00847)	(0.00829)
Bad news X Capital district	0.0362	0.0603	0.0481	0.0424
	(0.0169)	(0.0154)	(0.0149)	(0.0148)
Population (thousands)	0.161	0.130	0.00632	0.101
	(0.141)	(0.141)	(0.158)	(0.136)
Area (km2)	0.0376	0.0353	0.0441	0.0195
	(0.0164)	(0.0189)	(0.0168)	(0.0162)
Agriculture (billion VND)	19.63	-187.8	-42.05	-15.94
	(395.5)	(443.8)	(514.3)	(453.3)
Manufacturing (billion VND)	19.16	26.19	59.28	43.59
	(42.17)	(60.66)	(54.85)	(60.53)
Services (billion VND)	52.36	-11.21	-16.40	-32.94
	(65.82)	(91.35)	(81.39)	(98.02)
Observations	867	867	867	867
R^2	0.056	0.072	0.066	0.070

Standard errors in parentheses
Models with province fixed effects. Standard errors clustered at the district level.

Table C.5: Internet penetration as a measure of exposure intensity

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
Bad news	0.0121	0.00178	0.0105	-0.00785
	(0.0147)	(0.0121)	(0.0136)	(0.0123)
Internet penetration	0.0152	-0.0133	-0.0179	-0.0550
	(0.0363)	(0.0287)	(0.0293)	(0.0306)
Bad news X Internet	0.0711	0.137	0.0891	0.153
	(0.0517)	(0.0431)	(0.0422)	(0.0460)
Population (thousands)	-0.120	-0.0380	-0.0818	0.0886
	(0.137)	(0.110)	(0.113)	(0.105)
Area (km2)	0.0284	0.0157	0.0311	0.00431
	(0.0155)	(0.0145)	(0.0107)	(0.0101)
Agriculture (billion VND)	-152.1	-449.2	-360.1	-553.3
	(364.9)	(337.3)	(293.5)	(337.2)
Manufacturing (billion VND)	57.41	93.94	94.87	135.2
	(45.92)	(57.35)	(60.19)	(45.48)
Services (billion VND)	-52.63	-103.4	-121.5	-179.8
	(82.36)	(97.94)	(98.00)	(72.81)
Observations	867	867	867	867
R^2	0.023	0.038	0.028	0.038

Standard errors in parentheses
Models with province fixed effects. Standard errors clustered at the district level.

Table C.6: Internet penetration as a measure of exposure intensity (Bureaucrats only)

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
Bad news	0.0245	-0.00596	-0.0137	-0.0246
	(0.0249)	(0.0216)	(0.0250)	(0.0200)
Internet penetration	0.00220	-0.0263	-0.0286	-0.0461
	(0.0266)	(0.0220)	(0.0251)	(0.0230)
Bad news X Internet	0.0113	0.0821	0.0898	0.106
	(0.0459)	(0.0404)	(0.0444)	(0.0393)
Population (thousands)	-0.162	-0.0966	-0.117	0.0478
	(0.148)	(0.121)	(0.116)	(0.102)
Area (km2)	0.0284	0.0151	0.0295	0.00435
	(0.0158)	(0.0149)	(0.0105)	(0.0104)
Agriculture (billion VND)	-206.8	-500.8	-375.4	-567.4
	(363.1)	(341.9)	(287.7)	(324.9)
Manufacturing (billion VND)	71.47	115.5	111.6	147.1
	(50.02)	(60.48)	(60.62)	(47.63)
Services (billion VND)	-59.36	-114.1	-131.7	-182.8
	(88.95)	(103.4)	(97.03)	(71.60)
Observations	867	867	867	867
R^2	0.019	0.032	0.028	0.033

Standard errors in parentheses
Models with province fixed effects. Standard errors clustered at the district level.
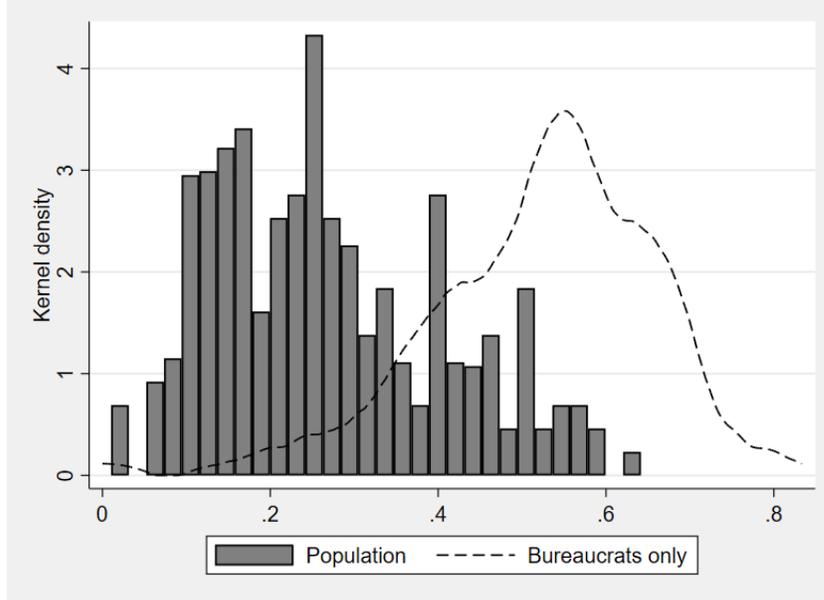
FIGURE C.3: District-level Internet penetration rates

C.3 Figures

C.4 Additional Analysis: A Case of No Revision

As discussed in the theory section, I expect transparency to be ineffective in Vietnam where the accountability channels are weak. In addition, when information does not update the bureaucrats' priors, i.e. the treatment simply confirms what they already know, it will have no impact on their calculations and subsequent corruption outcomes. I exploit a quasi-experimental experiment in the roll-out of PAPI to test this implication.

C.4.1 Empirical Set-up: A Province-Level Analysis

According to the 2010 PAPI Report, due to budget constraints, PAPI only covered 28 randomly chosen provinces in 2010, before expanding to all 63 provinces in the subsequent years (CECODES, VFF-CRT, & UNDP, 2011). The staggered roll-out of PAPI offers a quasi-experimental experiment, with the treatment being exposure to information on province-level corruption. At the end of 2010, bureaucrats in 28 pair-wise randomly selected provinces received reports on how widespread bribery was in

their localities (*the treatment group*), while the other provinces had no information until the end of 2011 (*the control group*).[1]

The PAPI statistics are unbiased estimates of province-level incidence of bribery. If bureaucrats have an accurate prior perception of how widespread bribery is in the province, new information from PAPI simply confirms their existing beliefs, and we expect no impact of treatment on subsequent corruption. Directly testing this assumption requires a survey of local bureaucrats on corruption in public services, which is difficult in the context of Vietnam. However, qualitative evidence offers support to that effect. According to my interviews with high-level PAPI personnel, despite denying findings of rampant bribery in public, provincial officials accept the report's conclusions in private conversations with the survey team during annual working sessions. Between 2010 and 2018, the PAPI team had such visits to local governments in 60 out of the 63 provinces. New information from PAPI does not seem to affect the provincial bureaucrats' perception of the extent of corruption.[2]

IMPLICATION: (No Revision)
Being included in the 2010 PAPI survey has no impact on the provinces' corruption level in 2011.

C.4.2   Empirical Model

I compare the outcomes of the treatment and control groups in 2011 with the following linear probability model:

$$Y_{i2011} = \beta T_{j2010} + \epsilon_i$$

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[1] The selection procedures is as follows: First, among 63 provinces, Hanoi and Ho Chi Minh City were left out for being potential outliers. Then, the 61 remaining provinces were matched into pairs using Coarsened Exact Matching (CEM). There were 28 matched pairs and five provinces with no suitable match. Finally, one province was randomly picked from each pair to be surveyed, resulting in 28 treated and 33 untreated provinces (CECODES, VFF-CRT, & UNDP, 2011).

[2] Interviews with Huyen Do — Co-author of the annual PAPI reports and manager of the PAPI project (2010-2018).

Y_{i2011} indicates whether respondent i in province j considered it necessary to pay bribes in public services in 2011. T_j is a dummy variable indicating whether province j was included in the 2010 PAPI. Standard errors are clustered at the province level. The regression sample includes 11,332 respondents from all 63 provinces in the 2011 PAPI survey.

The following balance table reports important variables used in selection procedures into the 2010 PAPI. The treatment and control groups, both of which include 28 provinces, are statistically indistinguishable across observable characteristics.

Table C.7: Balance Table

	Control (n_C=28) Mean	Treatment (n_T=28) Mean	Diff	p-value
Agricultural share (%)	33.31	34.44	1.13	0.77
Asphalted road (%)	73.81	74.18	0.38	0.95
Distance to Hanoi or HCMC (km)	264.00	282.79	18.79	0.76
GDP per capita (million VND)	19.50	14.60	-4.90	0.28
Population (million)	1.24	1.36	0.12	0.66
Secondary school graduates (%)	74.84	78.89	4.05	0.27
Telephone per capita	0.21	0.21	0.00	0.99
Business environment score (measured by PCI)	52.91	51.50	-1.41	0.23

C.4.3   Results

Randomization allows inferences on treatment effects without control variables. According to columns 1 to 4 in Panel 1 in Table 8, being included in PAPI 2010 has no impact on corruption in 2011. The difference between treatment and control provinces were statistically insignificant across bribery in land titles, medical treatment, public schools, and construction permit applications.

Table C.8: The impact of information on prevalence of bribery: Regression results

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
PANEL 1: Without controls				
Treatment	-0.00242	0.00407	0.0130	0.0164
	(0.912)	(0.914)	(0.548)	(0.389)
Observations	8224	9117	8965	7846
R^2	0.000	0.000	0.000	0.000
PANEL 2: With controls				
Treatment	0.00128	-0.00773	0.00248	0.0153
	(0.951)	(0.774)	(0.889)	(0.413)
Gender (1 = Female)	-0.0312	-0.0322	-0.0148	-0.0135
	(0.005)	(0.006)	(0.123)	(0.125)
Age of respondent	-0.00801	-0.00932	-0.00984	-0.00584
	(0.005)	(0.000)	(0.001)	(0.083)
Age squared	0.0000636	0.0000716	0.000109	0.0000503
	(0.035)	(0.009)	(0.001)	(0.154)
Years living in the province	-0.000497	0.0000921	-0.000517	-0.000874
	(0.229)	(0.869)	(0.304)	(0.120)
Permanent registration	-0.0354	-0.0685	-0.00525	-0.0126
	(0.474)	(0.114)	(0.885)	(0.777)
Education level	0.00788	0.00928	0.00839	0.0123
	(0.004)	(0.010)	(0.004)	(0.000)
Party position	-0.0190	0.00815	-0.0266	-0.0123
	(0.483)	(0.748)	(0.245)	(0.549)
Malnourishment at age 5 (weight) in 2018	0.00991	0.0109	0.000939	0.000171
	(0.104)	(0.107)	(0.800)	(0.968)
Registered FDI by 2018 (billions USD)	0.00276	0.00224	-0.00133	-0.000243
	(0.155)	(0.377)	(0.490)	(0.879)
% households with residential electricity	0.00279	0.00335	0.000808	0.000169
	(0.255)	(0.200)	(0.573)	(0.932)
% high school graduates in 2010	0.000198	0.00506	0.00127	-0.00124
	(0.908)	(0.010)	(0.275)	(0.310)
Agricultural land in 2018 (thousands of km2)	-0.00426	-0.00340	0.00210	-0.00357
	(0.745)	(0.784)	(0.819)	(0.707)
Monthly income in 2010 (millions VND)	-0.0933	-0.128	-0.0772	-0.0471
	(0.181)	(0.066)	(0.175)	(0.385)
Urban population in 2010 (millions)	0.0545	-0.0923	0.0430	0.0992
	(0.501)	(0.300)	(0.635)	(0.209)
Population density in 2011 (millions/km2)	0.121	0.209	0.114	0.0807
	(0.003)	(0.000)	(0.021)	(0.081)
Population in 2011 (millions)	0.00142	0.0241	0.00721	-0.0112
	(0.952)	(0.574)	(0.813)	(0.652)
Observations	7814	8673	8531	7486
R^2	0.017	0.047	0.013	0.013

Standard errors in parentheses
Standard errors clustered at the province level

In Panel 2, I add individual-level and province-level control variables. Reported

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bribery by female respondents are around three percent lower in land title applications and public hospitals. This finding is consistent with previous results in the literature that women are less tolerant of corruption and less likely to be involved in corrupt transactions (Dollar, Fisman, & Gatti, 2001; Swamy, Knack, Lee, & Azfar, 2001). Older respondents seem to get exposed to less corruption, with the effect leveling out at around 62-65 years of age. While more educated individuals report higher corruption in all procedures, Party leadership positions and permanent residential registration status do not have any effect. Among provincial characteristics, transactional corruption is more widespread in densely populated localities. Most importantly, the effects of treatment remain substantively close to zero and statistically insignificant. Probit estimation returns similar results, as shown by Table 9.

Table C.9: Probit Estimation - Impact of information on prevalence of bribery

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
PANEL 1: Without controls				
Treatment	-0.00695	0.0104	0.0402	0.0517
	(0.0624)	(0.0966)	(0.0664)	(0.0595)
Observations	8224	9117	8965	7846
PANEL 2: With controls				
Treatment	0.00505	-0.0193	0.00938	0.0508
	(0.0603)	(0.0701)	(0.0545)	(0.0597)
Gender (1 = Female)	-0.0931	-0.0865	-0.0482	-0.0458
	(0.0306)	(0.0297)	(0.0296)	(0.0276)
Age of respondent	-0.0217	-0.0242	-0.0298	-0.0163
	(0.00773)	(0.00632)	(0.00782)	(0.0101)
Age squared	0.000169	0.000184	0.000330	0.000136
	(0.0000847)	(0.0000698)	(0.0000862)	(0.000109)
Years living in the province	-0.00151	0.000177	-0.00169	-0.00291
	(0.00121)	(0.00151)	(0.00155)	(0.00176)
Permanent registration	-0.101	-0.181	-0.0151	-0.0353
	(0.135)	(0.111)	(0.111)	(0.133)
Education level	0.0227	0.0246	0.0260	0.0386
	(0.00768)	(0.00918)	(0.00888)	(0.00906)
Party position	-0.0563	0.0206	-0.0862	-0.0372
	(0.0794)	(0.0664)	(0.0716)	(0.0647)
Malnourishment at age 5 (weight) in 2018	0.0297	0.0287	0.00151	0.000283
	(0.0183)	(0.0182)	(0.0116)	(0.0136)
Registered FDI by 2018 (billions USD)	0.00811	0.00575	-0.00466	-0.000692
	(0.00559)	(0.00669)	(0.00614)	(0.00496)
% households with residential electricity	0.00819	0.00897	0.00276	0.000840
	(0.00708)	(0.00672)	(0.00455)	(0.00642)
% high school graduates in 2010	0.000462	0.0133	0.00402	-0.00413
	(0.00494)	(0.00510)	(0.00369)	(0.00391)
Agricultural land in 2018 (thousands of km2)	-0.0140	-0.00917	0.00851	-0.0108
	(0.0385)	(0.0332)	(0.0290)	(0.0305)
Monthly income in 2010 (millions VND)	-0.275	-0.348	-0.265	-0.155
	(0.211)	(0.188)	(0.188)	(0.174)
Urban population in 2010 (millions)	0.165	-0.228	0.144	0.298
	(0.241)	(0.238)	(0.276)	(0.238)
Population density in 2011 (millions/km2)	0.348	0.546	0.345	0.255
	(0.112)	(0.117)	(0.139)	(0.137)
Population in 2011 (millions)	0.00603	0.0600	0.0198	-0.0319
	(0.0681)	(0.111)	(0.0917)	(0.0788)
Observations	7814	8673	8531	7486

Standard errors in parentheses

Models with province level fixed effects. Standard errors clustered at the district level

PAPI reports are usually released in early April and the next data collection round takes place between August and December. PAPI results in one year thus have between four to seven months to affect those in the next, depending on the survey wave to which a province belong. To guard against the possibility that this relatively short time window may explain the null results, I run additional analyses using observations from 2012 only, as well as both 2011 and 2012. This approach allows me to more fully capture the impact of a province's inclusion in the 2010 PAPI, but the downside is that 2012 data might have been impacted by the 2011 PAPI which was carried out nationwide. According to Tables 10 and 11, this approach yields similar results as the main analysis. Of the eight coefficients of interest, only one is statistically significant at the five-percent level.

Table C.10: Impact of information on prevalence of bribery: 2011 and 2012

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
Treatment	-0.00415	-0.0304	-0.0197	0.00197
	(0.0171)	(0.0251)	(0.0162)	(0.0158)
Gender (1 = Female)	-0.0255	-0.0115	-0.00269	-0.0148
	(0.00866)	(0.00695)	(0.00752)	(0.00687)
Age of respondent	-0.00796	-0.00941	-0.0111	-0.00694
	(0.00237)	(0.00195)	(0.00195)	(0.00222)
Age squared	0.0000628	0.0000719	0.000120	0.0000592
	(0.0000254)	(0.0000218)	(0.0000209)	(0.0000239)
Years living in the province	-0.000336	0.000253	-0.000487	-0.000377
	(0.000433)	(0.000528)	(0.000441)	(0.000496)
Permanent registration	-0.0254	-0.0602	-0.0205	-0.0383
	(0.0353)	(0.0310)	(0.0296)	(0.0349)
Education level	0.00912	0.0114	0.00891	0.0161
	(0.00238)	(0.00262)	(0.00231)	(0.00236)
Party position	-0.0107	0.0233	-0.00192	-0.0165
	(0.0190)	(0.0172)	(0.0193)	(0.0167)
Malnourishment at age 5 (weight) in 2018	0.0104	0.0110	-0.000213	0.00234
	(0.00491)	(0.00667)	(0.00361)	(0.00390)
Registered FDI by 2018 (billions USD)	0.00495	0.00398	-0.0000348	0.00211
	(0.00180)	(0.00239)	(0.00175)	(0.00164)
% households with residential electricity	0.00148	0.00236	-0.000456	-0.000489
	(0.00183)	(0.00262)	(0.00154)	(0.00151)
% high school graduates in 2010	0.00112	0.00631	0.00194	0.000230
	(0.00125)	(0.00184)	(0.000969)	(0.000989)
Agricultural land in 2018 (thousands of km2)	0.00349	0.00815	0.00424	0.00536
	(0.00975)	(0.0128)	(0.00997)	(0.00883)
Monthly income in 2010 (millions VND)	-0.105	-0.129	-0.0561	-0.0407
	(0.0564)	(0.0696)	(0.0493)	(0.0505)
Urban population in 2010 (millions)	0.0834	-0.0541	0.0582	0.144
	(0.0641)	(0.0865)	(0.0843)	(0.0806)
Population density in 2011 (millions/km2)	0.0880	0.175	0.0777	0.0427
	(0.0351)	(0.0460)	(0.0451)	(0.0436)
Population in 2011 (millions)	0.000773	0.0160	0.0117	-0.0199
	(0.0208)	(0.0383)	(0.0292)	(0.0217)
Observations	15977	17630	17413	15391
R^2	0.018	0.042	0.011	0.017

Standard errors in parentheses

Models with province level fixed effects. Standard errors clustered at the district level

Table C.11: Impact of information on prevalence of bribery: 2012 only

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
Treatment	-0.00245	-0.0322	-0.0322	-0.00306
	(0.0178)	(0.0269)	(0.0172)	(0.0175)
Gender (1 = Female)	-0.0254	0.00784	0.00924	-0.0160
	(0.0101)	(0.00873)	(0.00929)	(0.00872)
Age of respondent	-0.00622	-0.00995	-0.0115	-0.00710
	(0.00325)	(0.00289)	(0.00253)	(0.00253)
Age squared	0.0000526	0.0000817	0.000125	0.0000654
	(0.0000341)	(0.0000301)	(0.0000263)	(0.0000263)
Years living in the province	-0.000499	-0.000137	-0.000309	-0.000545
	(0.000566)	(0.000648)	(0.000507)	(0.000600)
Permanent registration	-0.0164	-0.0740	-0.0524	-0.0465
	(0.0326)	(0.0446)	(0.0354)	(0.0434)
Education level	0.00988	0.0120	0.0102	0.0189
	(0.00304)	(0.00307)	(0.00317)	(0.00351)
Party position	-0.00859	0.0354	0.00857	-0.00216
	(0.0216)	(0.0238)	(0.0244)	(0.0232)
Malnourishment at age 5 (weight) in 2018	0.00459	0.00666	-0.00403	-0.00170
	(0.00450)	(0.00590)	(0.00364)	(0.00356)
Registered FDI by 2018 (billions USD)	0.00511	0.00311	0.000626	0.00371
	(0.00199)	(0.00278)	(0.00154)	(0.00161)
% households with residential electricity	-0.00106	-0.000472	-0.00231	-0.00186
	(0.00198)	(0.00300)	(0.00178)	(0.00156)
% high school graduates in 2010	0.00233	0.00714	0.00238	0.00144
	(0.00126)	(0.00196)	(0.00125)	(0.00119)
Agricultural land in 2018 (thousands of km2)	0.0123	0.0155	0.00671	0.0136
	(0.00831)	(0.0113)	(0.00934)	(0.00780)
Monthly income in 2010 (millions VND)	-0.0414	-0.0515	0.00403	0.0114
	(0.0559)	(0.0704)	(0.0373)	(0.0394)
Urban population in 2010 (millions)	-0.0336	-0.101	-0.0237	0.000970
	(0.0264)	(0.0376)	(0.0194)	(0.0282)
Population density in 2011 (millions/km2)	0.00852	0.121	0.0252	-0.0353
	(0.0291)	(0.0398)	(0.0306)	(0.0316)
Population in 2011 (millions)	0.0145	0.0305	0.0234	0.00873
	(0.0221)	(0.0325)	(0.0162)	(0.0215)
Observations	9728	10751	10615	9416
R^2	0.019	0.040	0.020	0.028

Standard errors in parentheses

The findings above are consistent with theoretical expectations. Information alone seems insufficient to reduce bribery in contexts where the public and politicians are unable or unwilling to address bureaucratic corruption and where new

information does not affect the public officials' calculations.

C.5 Additional Analysis: Convergence

This section presents an additional robustness check to address the concern that regression to the mean is responsible for the results shown in the main analysis. This set of evidence centers around the idea of convergence. In the context of this paper, the theory predicts that districts that are more corrupt than the provincial mean will see reduced corruption in the next period. The opposite is true for districts that are relatively less corrupt in the province. As a result, we should see a convergence in reported bribery rates among districts in the same province, i.e. reduced within-province variance in corruption. Regression to the mean will cause no such convergence.

In this section, I take advantage of the natural experiment discussed in Section 4 of the Online Appendix to show suggestive evidence in support of this prediction. Half of the province in the sample received information on their corruption levels at the end of 2010 while the other half did not. The theory predicts that in the next round of PAPI in 2011, the treated group will have, on average, smaller within-province variation in corruption than the untreated group. The natural experiment ensures that any such differences are caused by the information that the former group received in 2010. It also precludes the possible influences of other temporal trends that may affect within-province variance in reported bribery over time.

Table C.12: Within-province variation in 2011: Treated vs. Untreated provinces

	(1) Land titles	(2) Public hospitals	(3) Public schools	(4) Construction permits
Treatment	-0.0235	0.0152	-0.0106	-0.000864
	(0.0115)	(0.0129)	(0.0114)	(0.0122)
Observations	56	56	56	56
R^2	0.072	0.025	0.016	0.000

Standard errors in parentheses

In Table 12, the dependent variable is the 2011 district-level, within-province

standard deviation of reported bribery across four different measures of corruption. The explanatory variable is a dummy variable indicating whether the province was included in the 2010 PAPI. As Section 4 of the Online Appendix already showed, the treatment and control groups are balanced across observable characteristics. The random assignment of treatment allows the use of a simple comparison of means. Table 12 shows that among four measures, three coefficients have the expected sign, of which one is statistically significant at the five-percent level. In 2011, the district-level, within-province standard deviation in reported bribery in land title procedures is significantly lower for the treated provinces as compared to the control group. Given the small sample size and the fact that PAPI information had only between four and seven months to have an impact, the overall lack of statistical significance is understandable.

Next, I re-run the analysis using randomization inference. This procedure helps address the issue of small sample size since randomization inference does not require the subject pool to be large enough that the difference in means between treatment and control groups approximates a normal distribution. It takes advantage of my knowledge of the randomization procedure which entails random selection from 28 pairs of provinces matched on observable characteristics. The results in Figure 4 largely confirm the findings from Table 12. Despite constraints including small sample size and the possibility of weak treatment effects, there is suggestive evidence that there is a convergence in corruption levels among districts within provinces, which is predicted by the theory but not by the regression to the mean rebuttal.
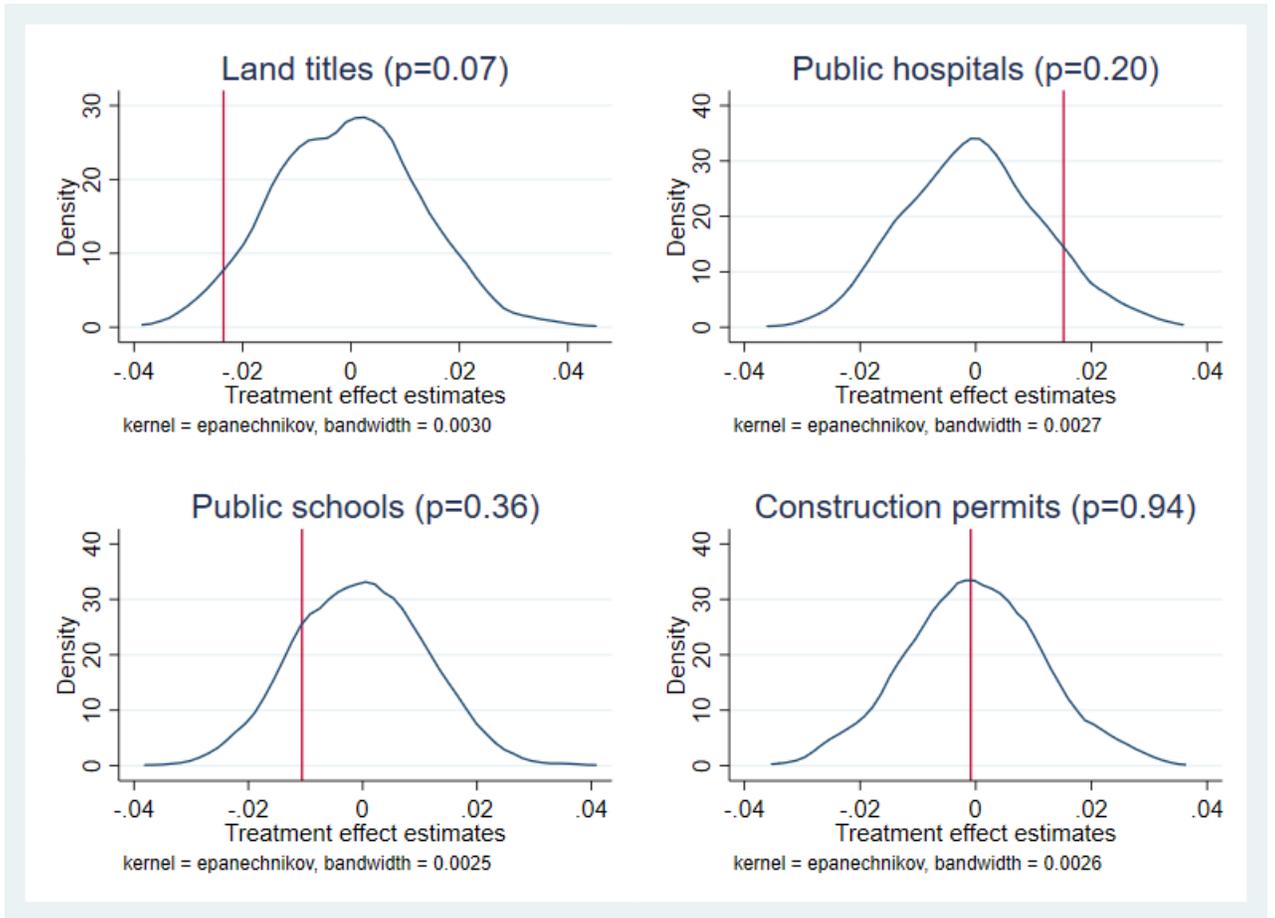
FIGURE C.4: Randomization inference results (1000 draws)

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