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The impact of recentralization reform on corruption: evidence from a quasi-natural experiment

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Abstract

How does government recentralization reform affect corruption? We utilize the pilot recentralization reform that transforms the legislative function, power, and responsibility of the district-level authorities to the higher level of the government organ in Vietnam as a quasi-natural experiment to address the aforementioned question. We find strong evidence that recentralization reform leads to lower corruption. The result illustrates that, among the firms which have the highest probability of making a bribe payment, those incorporated in jurisdictions experiencing the recentralization reform are 4.3% less likely to pay a bribe. In addition, the perception that bribery is a common and necessary practice is also significantly lowered in the post-recentralization period. We further show that the impact of recentralization is stronger for firms which lack a political connection. Overall, these results shed light on the real impact of the government recentralization reform and also the determinants of corruption, thereby providing important policy implications for policymakers to create a more conducive business environment.

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1 | INTRODUCTION

Recentralization is one of the most significant government reforms that can lead to substantial changes in various political and economic landscapes (Lewis, 2014). It can be explained as being the transfer of authorities, obligations, and resources from lower levels to higher levels of government (Dickovick, 2011).[1] In principle, recentralization reform can be promulgated when the central government authorities realize the dissatisfying outcomes of the existing over-decentralized system and seek to regain their authority from the localities (Dickovick, 2011; Lewis, 2014). Such a reform is expected to reduce overlapping functions, mitigate administrative burden, and improve government efficiency (Kostka & Nahm, 2017; Malesky et al., 2014).

However, a centralized system can have its own problems in reducing democracy (Panizza, 1999), weakening local officials' competencies (Biehl, 1989), and producing a "one size fits all" policy that does not reflect local needs (Oates, 1972). Thus, it is still unclear whether recentralization reform can achieve its intended purposes. Empirical research on assessing the impact of recentralization remains scarce, primarily because recentralization is a relatively new phenomenon (Lewis, 2014; Malesky et al., 2014), and there has been an absence of a natural experiment that randomly assigns jurisdictions to recentralization reform so that the outcome can be observed. In this paper, we augment the prior literature by exploiting the pilot recentralization reforms in some jurisdictions to investigate the impact of recentralization on corruption; this is one of the most prominent institutional failures in many countries.

Previous research often attributes corruption to institutional quality because institutions stand to regulate all social and economic activities in the society via incentivizing or curbing members' behaviors (Acemoglu & Johnson, 2005). For example, Luo (2002) suggests that, in countries with weak institutional systems, corruption is considered as the "norm" for business survival and growth. Subsequently, Campante et al. (2009) illustrate that a higher level of political instability incentivizes public officials to engage in rent-seeking activities to compensate for shortening the tenure. Accordingly, when the institutional quality is improved, corruption is reduced because corruptive activities are more easily detected and punished (Boehm & Olaya, 2006). In a similar vein, Lessmann and Markwardt (2010) document an inverse relationship between corruption and public monitoring/law enforcement. Another strand of research focuses on the role of the incumbents' attributes and shows that socio-demographic features of politicians including gender, educational attainment, experience, and political orientation can influence their value judgment and the quality of policies that they adopt toward the fight against corruption (Bauhr et al., 2019; Efobi, 2015). Based upon the insights from the aforementioned literature, we contend that, since recentralization reform induces dramatic changes in the institutional environment through the reallocation of bureaucratic personnel, monitoring functions, fiscal resources, and government-business interactions (Lewis, 2014), it can affect the extent to which corruption exists and hence its prevalence.

Existing theories on government reform and institutional changes provide conflicting predictions as to how recentralization may affect corruption. These theories are explained in more detail in Section 2, and we develop a number of channels through which recentralization reform may either breed or constrain corruption based on the theories here. Two competing hypotheses are then constructed. In the first hypothesis, we postulate that recentralization could lead to a mismatch between the central government policies and local preferences, the creation of an over-mighty government, the weakening of the monitoring powers of the localities, and the reduction in political competition among jurisdictions. All together, these can increase corruption. In the alternative hypothesis, we postulate that recentralization could reduce the hold-up process, increase administrative capacity, reduce dependency, lower local bureaucratic discretionary power in implementing biased policies, encourage a better quality of public officials, and increase media scrutiny. In contrast to what is mentioned earlier, these can actually be combined to restrain corruption.

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[1]This concept is the reversal of decentralization, that is, the phenomenon occurring when the public power and responsibility are shifted from central government to local government bodies (Cheema & Rondinelli, 2007). While the decentralizing wave has, essentially, swept away every jurisdiction over the last 40 years (Faguet, 2014), recentralization is much less prominent.

To this end, it is still an open empirical question as to whether recentralization breeds or restrains corruption. Unfortunately, testing the impact of recentralization on corruption is a challenge, mostly because of the endogeneity concern. In practice, recentralization is hardly an exogenous government decision, that is, it is less likely to be implemented on a random basis. Muro (2015) shows that the economic condition, ideology, and party politics can explain the recentralization decision. In addition, reverse causality may occur when the prevalence of the corruption levels in local jurisdictions persuades the central government to implement a recentralization reform to limit the corruption opportunities of the local officials (Kostka & Nahm, 2017). Another empirical challenge is that recentralization is often being implemented systematically, causing virtually all of the economic entities to experience the same changes in the institutional environment. In that way, it is inherently difficult to disentangle the real impact of recentralization reform on firms' corruption decisions.

To address these identification challenges, we conduct a quasi-natural experiment using a difference-in-difference (DiD) estimation that exploits the exogenous sources of variation in recentralization reform at the local government level. This method has been widely used in policy research to establish causal impact because of its advantages in dealing effectively with a potential endogeneity problem (Bertrand et al., 2004). The DiD approach evaluates the impact of a specific intervention (e.g., the recentralization reform) by comparing the change in outcome (e.g., the corruption level) of the group affected by the intervention in relation to the group that is unaffected by the intervention. This allows us to assess what the outcome would have been for the affected group in the absence of any intervention, that is, the true counterfactual.

We use Vietnam as a laboratory to test the impact of recentralization reform on firm-level corruption. This country provides an excellent testing ground for our study because of its interesting institutional background, which is an ideal shock for the DiD analysis and the unique comprehensive micro-level dataset. First, Vietnam adopts a single-party regime under the leadership of the Communist Party of Vietnam, where Rand and Tarp (2012) observe that corruption is pronounced and widespread. Despite a series of anticorruption campaigns over the past decade, corruption is still a national concern, partly because of weak enforcement and monitoring.[2] Anecdotal survey evidence shows that Vietnam performs relatively poorly in the fight against corruption, with the Corruption Perceptions Index rising from 27 in 2010 to 36 in 2020 (on a scale of 0–100, from highly corrupt to highly transparent), indicating a little improvement over the years. Thus, examining factors which can impact corruption is a question of first-order importance in Vietnam.

Second, we exploit the pilot abolishment of intermediate administrative units (i.e., the pilot recentralization reform) in some provinces in Vietnam as an exogenous shock for evaluating the impact of recentralization on corruption. The pilot recentralization reform happened at a provincial scale under which the legislative branches of district governments in some provinces were removed completely. Their functions were then transferred upward to provincial government bodies (Malesky et al., 2014). The unique feature of this pilot reform is that, between 2009 and 2015, only 10 (out of 63) provinces were selected to take part in the pilot program. In this way, only firms that were incorporated in the 10 selected provinces were influenced by the recentralization reform, whereas firms incorporated in other provinces were not affected by the reform. More importantly, the implementation of the pilot recentralization reform was influenced by a political process, which was enacted at the central government level and unanticipated by firms. Therefore, it should have no apparent impact on the firms' prior or intended future corruption practices. These unique features of the pilot recentralization reform in Vietnam constitute a clean shock that allows us to conduct a quasi-natural experiment using the DiD methodology to disentangle the impact of recentralization from any other shock that may have occurred simultaneously.

Third, we are able to obtain a very unique and comprehensive micro-level dataset compiled from different waves of enterprise surveys that contain unique information on how Vietnamese firms make bribe payments. To the best of our knowledge, this dataset, which will be discussed in more detail in Section 4.1, is the only existing

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[2]See, for example: Global Integrity Report 2009 – Qualitative Report – Vietnam. [Online] Available at: https://www.globalintegrity.org/resource/gir2009-report-vietnam/.

micro-dataset containing a frequently repeated cross-section of information about corruption and bureaucratic procedures faced by firms in developing countries (Bai et al., 2019). Prior empirical corruption studies often employ a corruption perception index at national (Alfano et al., 2019) or subnational level (Ko & Zhi, 2013) as measures of corruption, and then regress these macro-level measures with other macro- or micro-level determinants. However, a measure of corruption as the perception of firm about corruption situation might be influenced by media coverage and social norms (Fan et al., 2009). In addition, as we are assuming that all individual firms have a homogeneous corruption perception, this may undermine the breadth and accuracy of the empirical results. The number of investigated corruption cases is also used as another proxy for corruption (Shon & Cho, 2020). Unfortunately, this approach can have its own shortcoming as not every corruption case can be detected and become subject to enforcement actions. In this regard, the experience-based measure of corruption has been shown to cultivate more reliable results (Treisman, 2007). Using a micro-dataset containing a frequently repeated cross-section of information on certain firms' actual levels of engagement in bribery and careful attention to causal identification, our paper allows us to obtain more creditable results on factors affecting corruption behavior at these firms.

By way of preview, we find that recentralization results in significantly lower corruption in the post-recentralization period. Specifically, in the fully specified model, we show that the recentralization reform is associated with an approximate decrease of 2.2% in bribery payment probability. We also find that, among the firms which have a significant likelihood of paying a bribe, those incorporated in provinces experiencing the recentralization reform are 4.3% less likely to make the bribe payment, which is more than three times larger than that of the baseline estimation.

If recentralization reform actually reduces the likelihood of firms paying bribes, it should also exert a diminishing impact on the perceptions that corruption is a social norm that is essential for firm survival and growth. Our additional analyses confirm this proposition. We show that treated firms are 2.5% less likely to perceive that bribery is vital for the business operation, or that it is a widespread practice among peers. In addition, we also discover that the effects of recentralization reform are more prominent for firms which have no ex-ante political connections with other government agents.

Our results are also robust to a number of model specifications, assumptions about residual clustering, and falsification tests. Overall, these findings illustrate that recentralization relieves firms of the financial and administrative burden from corruption activities, and therefore, they also provide a credible explanation as to why firms make bribe payments.

This paper makes several important contributions. First, our paper contributes to the established strand of literature on the institutional determinants of corruption. This literature documents that corruption is associated with various institutional arrangements, such as institutional quality (Treisman, 2007), economic transition (Iwasaki & Suzuki, 2012), and public sector reform (Fitzsimons, 2009). We contribute to this literature by documenting that government restructuring can lead to significant changes in government–business interactions and thereby directly influence the perception and willingness of firms to make bribe payments.

More importantly, we contribute to the emerging strand of literature on the real socio-economic impacts of recentralization reform. While recentralization reforms have come to dominate the broader policy and the political agenda in many countries, the cost–benefit trade-off of such a reform has not been fully understood, and critical assessment of the real impact of recentralization remains scarce (Dickovick, 2011; Eaton & Dickovick, 2004; Falleti, 2010). There are a limited number of studies on the political and economic impacts of fiscal recentralization (e.g., Chen, 2004; Eaton & Dickovick, 2004). However, these results cannot be inferred to the broader concept of recentralization, which involves changes in government structure followed by the transfer of all respective fiscal, administrative, and political power. Possibly closely related to this paper is the recent study by Malesky et al. (2014), which uses a similar identification strategy to that employed in the current study to evaluate the impact of recentralization reform on public service provisions in Vietnam. They demonstrate that the removal of district councils leads to a remarkable improvement in the delivery of public health care, transportation, and communication. We complement this literature by providing empirical support to the beneficial outcomes of recentralization, that is,

reducing corruption. To the best of our knowledge, we are the first to estimate rigorously the causal impact of recentralization on firm corruption practice.

The rest of this paper proceeds as follows: Section 2 presents our hypotheses; Section 3 outlines the institutional background; Section 4 discusses the data and model specification; Section 5 reports the main empirical results; Section 6 provides additional analyses; and Section 7 concludes the paper.

2 | HYPOTHESIS DEVELOPMENT

In this section, we first discuss the several channels through which recentralization reform may affect corruption. We then provide different hypotheses which have been derived from these channels. Specifically, in subsection 2.1, we discuss several channels through which recentralization could give a rise to corruption, and in subsection 2.2, we discuss the alternative possibility that recentralization and corruption are inversely related.

2.1 | Channels through which recentralization reform exacerbates corruption

Central government policies-local preferences mismatch: Existing theories postulate that institutions are developed in response to a jurisdiction's differential preferences and demands (Lipset, 1960). In this regard, the existence of various small administrative units at the local level enables local governments to have better insights into the local social-demographic information, allowing a local government to tailor policies in a way that fits local preferences and demographic features (Faguet & Sánchez, 2014). Once public policies meet local demands, there would be fewer incentives for firms to make bribe payments in exchange for favorable treatments and policy incentives (Leff, 1964). In this way, recentralization reform may result in a mismatch between central government's policies and the local preferences, as higher-level officials with a lack of local knowledge may choose a uniform policy for all local jurisdictions (Oates, 1972). This consequently creates the demand for corruption.

Over-mighty government: Corruption has often been linked with bureaucratic powers. Extant research shows that over-regulation can lead to more corruption because it provides public officials with substantial power to demand and extract bribes (Shleifer & Vishny, 1993; Svensson, 2005). La Porta et al. (1999) also posit that the French and countries with Socialist legal origins (including Vietnam) are more heavily regulated which leads to more corruption. Thus, as recentralization can create an over-mighty government, it can give rise to corruption.

Weakening monitoring powers of local citizens: In a multi-layer governmental system, the close connection between low-level public officials and their constituents facilitates the monitoring powers of the locals (Alfano et al., 2019). Under these circumstances, decentralization makes it easier for localities to detect and discipline misconduct incumbents. This consequently forces local officials to pursue public interests with high accountability and responsiveness (Albornoz & Cabrales, 2013; Green, 2015). However, when the recentralization leads to an upward transfer of power and responsibilities, the new powerholders at the higher level might not be directly accountable to the voters. This creates opportunities for dishonest incumbents to pursue rent-seeking and extract bribes (Alfano et al., 2019).

Lessening political competition: Theories also posit that, when political competition is high, corruption is restrained (Aidt, 2003). Empirical evidence provides further support for this view by showing an inverse relationship between corruption and electoral competition, barriers to politician entry, and an incentive for reelection (Persson et al., 2013; Tavits, 2007). Arguably, a decentralized system could facilitate political competition by creating various smaller arenas which incumbents strive to control and, therefore, provide them with increased competitive incentives to be more accountable and responsive to local needs (Faguet, 2014). However, when recentralization reform reverses this process, meaning that the power is concentrated at higher-level officers, political competition among local politicians is lessened. This, in turn, may give rise to corruption.

Thus, the combination of these channels leads us to hypothesize that recentralization reform leads to an increase in corruption.

2.2 | Channels through which recentralization reform restrains corruption

Reduce the hold-up process: The existence of various small sub-national administrative units often leads to the overlapping of functions and a lack of coordination among units (Fan et al., 2009). Consequently, this can exacerbate the hold-up in the administrative process, thus impeding firms with significant effort, time, and cost burdens (Jones, 2008). One possible way to circumvent this problem is by paying a bribe. Kaufmann and Wei (1999) suggest that firms often choose to make a bribe payment to overcome the cumbersome bureaucratic process and speed up time-consuming procedures. Thus, by eliminating unnecessary administrative units, recentralization can reduce the hold-up process and subsequently relieve firms from the necessity of making the bribe payment.

Increase administrative capacity and reduce dependency: Under a decentralized system, subnational units often lack the scales and administrative capacity to deliver public goods and services to their local citizens (Billing, 2019). This gives rise to the dependency of local public officials on the central government for resources and support (Lewis, 2014). When the local administrative capacity is low and the dependency level is high, corruption and rent-seeking behavior can emerge because central bureaucrats, who are responsible for allocating scarce resources, may demand onerous costs for political support (Rose-Ackerman, 1999). Extant literature also suggests that lower-level public officials tend to collect more bribes and pass a share to their senior officials in their patronage network in exchange for preferential benefits (Fjeldstad, 2001; He, 2000). In this context, recentralization can increase local administrative capacity, reduce the dependency of local public officials on the central government, and curb patronage-driven corruption.

Lower local bureaucratic discretionary power in implementing biased policies: The discretionary power of public officials to distribute public resources and render services is often seen as a prolific breeding ground for corruption (Justesen & Bjørnskov, 2014). Arguably, decentralization provides local officials with a high degree of discretionary power (Prud'homme, 1995) and, consequently, allows them to adopt policies that could be utilized for rent-seeking purposes (Ivanyna & Shah, 2011). Thus, a recentralized regime can mitigate the discretionary power of certain subnational governments that could be utilized for rent-seeking purposes.

Better quality of public officials: Human capital theory posits that the quality of human capital contributes significantly to the effective operation of courts, legislation systems, other formal institutions, and the fight against corruption (Lipset, 1960; Svensson, 2005). In a decentralized system, the quality of local officials is relatively low because local administrative units with constraints on budget and bureaucratic procedures are often unable to attract and retain high-quality bureaucrats (Tanzi, 1996). In this context, recentralization reforms can allow local governments to attract more qualified incumbents by offering greater prestige and responsibility, higher salaries, and better career paths (Prud'homme, 1995). This can consequently restrain corruption.

Increase media scrutiny: Because of the unofficial and non-disclosed nature of bribery payments, corruption is often uncovered by chance or through media exposure (Tanzi, 1998). Extant literature suggests that the media can perform a watchdog function (Rose-Ackerman, 2008), and public officials tend to engage less in corruption activities in the face of media scrutiny (Brunetti & Weder, 2003; Treisman, 2007). However, the media's attention is not equally distributed across the government hierarchy. In a decentralized system, most low-level officials, especially those in remote localities, are often left unchecked because of the limited monitoring resources of the press (Lessmann & Markwardt, 2010). By contrast, higher-level incumbents tend to face intense scrutiny from watchdog groups and investigative journalists, probably because of a broader audience reach (Snyder & Strömberg, 2010) and higher rewards for revealing such grand corruption cases (Fan et al., 2009). When the recentralization reform transfers the power and responsibility upwards, higher levels of government are empowered with more authority and

prestige, and are subject to intensified media scrutiny. As a result, the chance of misconduct behaviors being exposed by the media is high, which subsequently forces public officials to refrain from corruption activities.

Thus, the combination of these channels leads us to hypothesizing that recentralization reform leads to a reduction in corruption.

3 | INSTITUTIONAL BACKGROUND

3.1 | The governmental system in Vietnam

Vietnam is a socialist country under the leadership of the one and only Communist Party of Vietnam (the Party). The Party holds a national congress once every 5 years to set the agenda for all aspects of the country. As a single-party regime, all organs of the state shall be subordinate to the Party's decisions and resolutions.

To formalize, specify, and execute the policies of the Party, the state powers are horizontally separated into three branches, namely legislative, executive, and judiciary. At the central level, the legislative power is vested in the National Assembly (NA), the executive power is controlled by the Central Government, and the judicial power is held by both the People's Court and the People's Office of Supervision and Control (POSC). This horizontal central division is replicated at three lower levels of vertical hierarchy which include provincial, district, and commune. Each sub-national unit in the country has a People's Council (holding legislative powers), a People's Committee (holding executive powers), a People's Court, and a POSC (holding judiciary powers).[3] The government system of Vietnam is shown in Figure 1.

In Vietnam, Vietnamese citizens are not entitled to directly elect their President, Prime Minister, or other key personnel in the executive and judicial branches. They only have the right to vote in elections for their deputies in the legislative branch (i.e., National Assembly and People's Councils) at all levels (Malesky et al., 2014). Subsequently, these deputies, in turn, elect, appoint, and supervise the key personnel in other branches.

### 3.2 | The role of the District People's Councils in Vietnam

People's Councils are the organs of the state holding legislative powers at the local levels (i.e., province, district, and commune). Among them, the District People's Councils (DPCs) located in 713 districts[4] in Vietnam are the intermediaries between the People's Councils in provinces and the commune level. The DPCs are elected by local citizens and have four main functions including: (i) representing constituents, (ii) making local policies, (iii) appointing district personnel, and (iv) supervising the execution of the policies and laws.

Regarding the first and second functions, each DPC has a daily open walk-in office and conducts regular or special public meetings to collect and respond to the requests of the constituents. DPCs have the authority (at the district level) to approve annual socio-economic development plans, decide the plan of district government revenues and expenditures, and decide the plans and measures to develop in several fields, including agriculture extension, infrastructure, education, health care, technology, and the environment. In the course of the government construction function, DPCs are entitled to elect, discharge, or dismiss the chairpersons and all other members of the District People's Committee (DPCOM) exercising the executive power. Under the fourth function, DPCs are given the authority to supervise the organization and the operation of all state organs within a district regarding the execution of the laws and policies promulgated by the representative organs at the same or the higher level. To exercise the

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[3]However, at the commune level, only People's Committees and People's Councils exist.

[4]Statistical Yearbook of Vietnam, 2017.
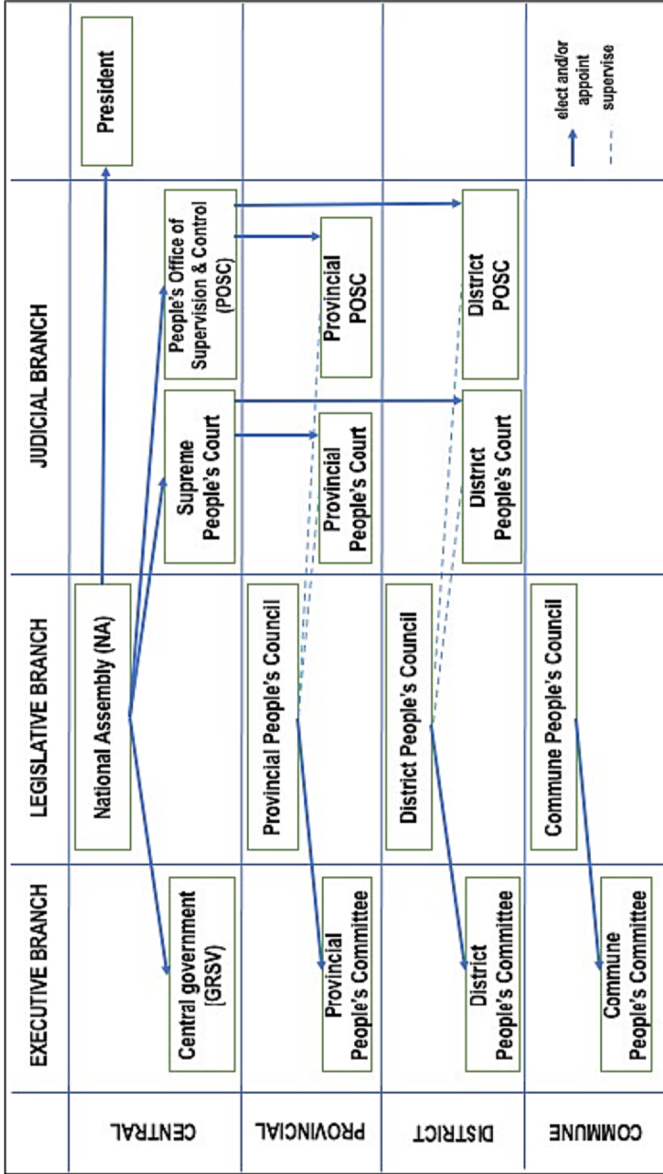
FIGURE 1 The government system of Vietnam (reproduced under the 1992 constitution of the Socialist Republic of Vietnam and relating documents). POSC, People's Office of Supervision and Control. [Colour figure can be viewed at wileyonlinelibrary.com]

aforementioned functions, DPCs promulgate resolutions on issues that fall within their duties and powers through a majority vote.

Despite being provided with certain powers by the laws, the actual role and necessity of DPCs in the Vietnamese political system are highly disputed, partly because of the lack of accountability and independence. Specifically, while the election turnout rate is always high,[5] the actual information on election processes or candidates possessed by the citizens is relatively limited (PAPI, 2011). Key candidates winning the highest votes are often vetted, nominated, and strongly promoted by the higher-level government. Therefore, candidates may have a high incentive to concentrate on gaining support from other politicians rather than campaigning to collect votes from ordinary constituents.

The DPC's independence from DPCOM is also subject to doubt. By convention, only 10% to 30% of deputies work full-time for the DPCs (Vu, 2012), and they may concurrently be a member of the DPCOM (de Wit, 2007). As a result, local elites who already hold the key positions in the DPCOM may take advantage of these to affect the final decision of the DPC (Malesky & Schuler, 2011), which can limit the DPC's oversight function over DPCOM. In addition, given that the long-term socio-economic plans, annual budgets, and other strategic projects are often predetermined by higher-level state organs, the district Party, or by the framework in laws, the room for DPCs to make initiatives is limited. This might, in turn, result in a lack of sufficient financial and human resources to be able to exercise some of their functions (Vu, 2012).

3.3 | Recentralization reform in Vietnam – the pilot removal of the DPCs

The above-mentioned issues placed the DPCs on the initiative of administrative reform. On August 1, 2007, the Party's Central Committee promulgated Resolution 17-NQ/TW on the promotion of administrative reform, improving the efficiency and effectiveness of public management. The resolution pointed out that the administrative system of the country is cumbersome while the functions and responsibilities of state bodies are unclear and overlapping. These limitations were partially because of the existence of the DPCs at the local level. As a result, the resolution proposes that removing the DPCs is for "restructuring local governments appropriately" to enhance efficiency, eliminate corruption, foster public engagement, and improve accountability at the local levels.[6] By removing such an "intermediary," the policy is expected to result in a great saving of time, as well as human and financial resources (Le, 2010). This initiative might also foster the transformation from indirect democracy to direct democracy, as the locals are allowed to approach and be heard directly by the local government (Van, 2010).

Accordingly, the Ministry of Home Affairs (MOHA) was entrusted with the task of designing the pilot removal of DPCs to ensure an "objective and scientific evaluation of DPC removal" (GSRV, 2009). To mitigate potential biases resulting from the selection of the treatment group, MOHA organized workshops nationwide to gather input from policymakers, economists, social scientists, and the general public. Based on these consultations, MOHA proposed a set of four criteria to select provinces to be participated in the pilot program (Malesky et al., 2014). Specifically, the selected provinces had to meet the following requirements: (1) they should provide sufficient data for a comprehensive evaluation of the reform's impacts; (2) they should be stratified according to the regions and subregions of the country; (3) they should be stratified by urban versus rural areas, delta versus mountainous regions, and midland versus internationally bordered lands; and (4) they should exhibit variations in socioeconomic and public administration

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[5]For example, turnout rates in 2011 were 99,51%. Further information is available from the Report No. 454/BC-HDBC (dated July 18, 2011) of the Election Council on the results of the election of deputies to the XIII National Assembly and the People's Councils at all levels for the 2011–2016 term, available at http://hoidongbaucu.quochoi.vn/tintuc/Pages/chi-tiet.aspx?ItemID=7532.

[6]Among various solutions listed in Resolution 17-NQ/TW for such issues, removing DPCs is the only policy for redetermining functions and responsibilities of a state's bodies applied on the local levels. It was hinted that the Party considers that the aforementioned failures existing at these levels are attributable to the existence of the DPCs.

performance. These criteria were carefully applied to ensure the representativeness of the provinces in the treatment group (Malesky et al., 2014).

Upon reviewing MOHA's proposal, the Vietnamese National Assembly passed Resolution 724 in January 2009, which listed the 10 provinces selected to participate in the pilot reform. These provinces were Lao Cai, Vinh Phuc, Hai Phong, Nam Đinh, Quang Tri, Da Nang, Phu Yen, Ho Chi Minh, Ba Ria - Vung Tau, and Kien Giang. Consequently, on April 25, 2009, a total of 99 DPCs located in these 10 provinces were removed. Figure 2 provides an illustration of the relative distribution of these 10 selected provinces across the country.

According to the resolution, no further DPC election shall be held in the trial locations until a suspension of the pilot has been decided by the National Assembly. The term for the 2004–2009 DPC personnel ended on the same day, and their tasks were transferred to upper-level bodies (Malesky et al., 2014).

4 | DATA AND MODEL SPECIFICATION

4.1 | Data

To examine the impact of recentralization on corruption, we employ a comprehensive firm-level dataset compiled from different waves of the Vietnamese Provincial Competitiveness Index (PCI) survey jointly conducted by the United States Agency for International Development (US-AID) and the Vietnam Chamber of Commerce and Industry
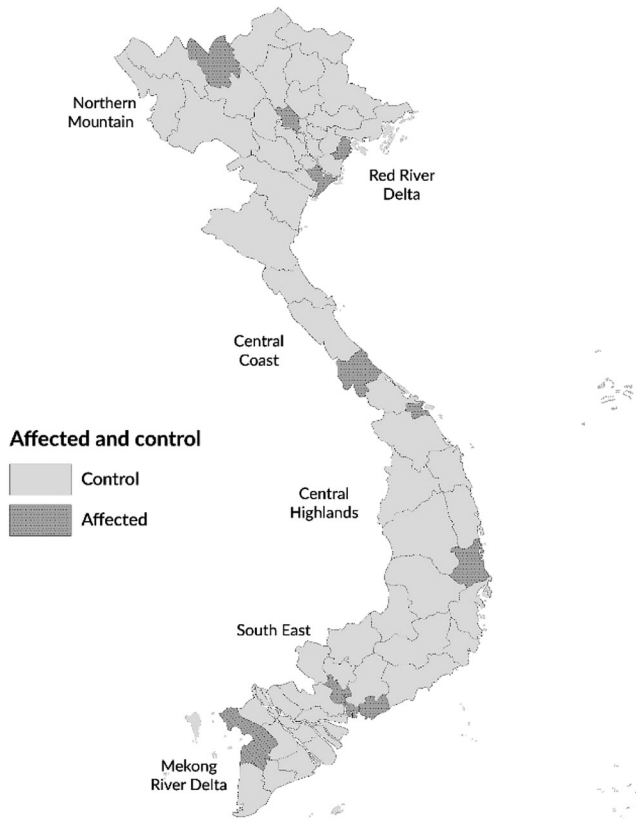
FIGURE 2 The relative allocation of 10 affected provinces. *(Source: synthesized by authors).*

(VCCI) since 2006. The main purpose of the survey is to assess the provincial institutional quality based on the actual experiences and the perceptions of the firms (Malesky et al., 2020). Approximately 10,000 firms across all provinces in Vietnam are surveyed each year, and the annual response rate varies from 56% to 63% (Malesky et al., 2020). A random stratification sampling strategy based on firm size, age, and sector is utilized to ensure that the sample is representative of the population of firms in each province (Bai et al., 2019; Malesky et al., 2020).

The survey contains identification and financial information of the firms, including the main sectors of operation, year of establishment, employment, and ownership structure. More importantly, in the PCI survey, there is a module on the engagement of firms in corruption activities and their bribery perception. We construct our measure of corruption based on the information on the amount of unofficial payments firms have made to corrupt officials in a given year. (More detailed measures will be discussed in Section 4.2.) We retrieve the PCI survey data for the period from 2006 to 2015, because the recentralization program was ended after this period with the enactment of the 2015 law on organization of the local governments.[7] This time frame covers 3 years before and 7 years after the pilot recentralization program in 2009.

In our paper, we use the unique firm identification code to append different waves of the survey and create a comprehensive firm-year longitudinal dataset. The firm-specific data are then linked with the provincial-level data capturing different provincial socio-economic aspects that may influence corruption. Macro-level data are retrieved from the General Statistics Office of Vietnam.

In the next step, we drop all firms that appear only once in the dataset. In addition, all continuous variables are winsorized at the 1% level for both tails. To this end, our final dataset contains a maximum of 54,777 firm-year observations for around 9000 firms, spanning 10 years from 2006 to 2015.

4.2 | Model specification

To evaluate the impacts of recentralization on firm-level corruption, we conduct a quasi-natural experiment using the pilot removal of DPCs in some provinces in Vietnam as an exogenous shock.[8] Following Malesky et al. (2014), we employ a DiD[9] estimator to compare the corruption practices of affected and control firms in the period spanning before and after the recentralization reform. In our paper, we define the affected firms to be firms incorporated in provinces that all experience a recentralization reform, and control firms to be firms incorporated in other provinces. The baseline regression model is specified as follows:

$$BRIBE_{ipt} = \beta_0 + \beta_1 AFFECTED_{ip} + \beta_2 POST_t + \boldsymbol{\beta_3 AFFECTED_{ip} \times POST_t} + \sum \beta_k Z_{ipt} + \varepsilon_{it} \qquad (1)$$

where $BRIBE_{ipt}$ is the dependent variable, capturing the corruption practice of firm i in province p at time t. We rely on the following question in the PCI survey to construct our measure: "*On average, what percentage of revenues do firms in your line of business typically pay per annum in unofficial payments to public officials?*" Firms are then given the

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[7]The law on organization of the local governments No. 77/2015/QH13 of the National Assembly states, "The pilot removal of the district People's Council in accordance with the Resolution No. 26/2008/QH12 of the National Assembly, the Resolution No. 724/2009/UBTVQH12 of the National Assembly Standing Committee shall be terminated starting from January 1, 2016".

[8]There might be concerns about sample selection bias in our study, as the affected provinces were chosen through a stratification strategy rather than a randomized control trial (RCT). However, in their earlier study on recentralization in Vietnam, Malesky et al. (2014) conducted a balance test to demonstrate that before the recentralization reform, the affected and control provinces exhibited remarkable similarity across 46 economic, natural, demographic, governance, infrastructural, and legal indicators. Their findings indicate that the probability of being selected for the pilot program was not significantly associated with the observable provincial characteristics. Furthermore, the study found no significant differences in the characteristics of the provincial leaders between the affected and control province groups, such as intelligence, creativity, law adherence, or willingness to accept the risk of punishment. Overall, Malesky et al. (2014) provide evidence that the criteria for selecting the treatment group were exogenous to the outcomes, thereby validating the use of the pilot recentralization reform as a quasi-experiment.

[9]DiD is a popular method to evaluate the causal effects of policies or programs instituted at a certain point of time, especially in the field of public policy and public administration (Asthana, 2012). This method proves useful for its potential replaceability for exorbitant large-scale field experiments (Bertrand et al., 2004), and more importantly, its effectiveness in handling the issues of selection bias and endogeneity (Bertrand & Mullainathan, 2003).

intervals for their answer: 0%, <1%, 1–2%, 2–10%, 10–20%, 20–30%, and >30%. Thus, we define our dependent variable, *BRIBE*, as a dummy variable, equal to 1 if the firm has made unofficial payments to public officials in a given year, and 0 otherwise.[10]

$AFFECTED_{ip}$ is a dummy variable and takes the value of 1 if firm i is located in province p, which is part of the pilot recentralization reform, and 0 otherwise. $POST_t$ is a time dummy variable which equals 1 for the period following the pilot recentralization reform (i.e., from 2009 to 2015), and 0 otherwise. β_3 is the DiD term and the main coefficient of interest. It captures the average treatment effect of recentralization on a firm's bribe payment. A negative (positive) coefficient implies that affected firms are less (more) likely to make a bribe payment in the post-recentralization reform.

We also follow the literature and incorporate a set of control variables **Z** that may influence firm corruption (Bai et al., 2019; Rand & Tarp, 2012). In particular, we account for firm age (*FIRM AGE*), measured as the natural logarithm of the number of years of operation, and firm size (*FIRM SIZE*), measured as the natural logarithm of the total employees at the firms. We further control for property ownership (*LAND OWN*), measured as a dummy taking the value of 1 if firm owns the land it occupies, and 0 otherwise, and ownership of property rights certificate (*LAND USE*), measured as a dummy variable taking the value of 1 if the firm possesses a land use right certificate (LURC), and 0 otherwise. In addition, we also include several province-level controls to capture a number of provincial socio-economic features that may influence corruption practices at firms (Brunetti & Weder, 2003; Fisman & Gatti, 2002). Specifically, we add local gross domestic products (*GDP*), measured as the natural logarithm of provincial GDP; trade openness (*TRADE OPENNESS*), measured as the sum of total import and export values over total provincial GDP; and urbanization rate (*URBAN RATE*), measured as the rate of people in urban areas over the total population in the province. Table 1 reports variable definitions and summary statistics, whereas Table 2 presents the correlation matrix and variance inflation factor (VIF) test for the main variables in our analysis.

Various types of fixed effects are incorporated into our model specification, comprising year fixed effects, industry fixed effects, province-industry fixed effects, and industry-year fixed effects. It is worth noting that, despite the binary nature of our dependent variable (*BRIBE*), we estimate the model (1) using the linear probability model, instead of the logit or probit models. This is because the inclusion of a set of fixed effects, along with several dimensions in the maximum likelihood estimations (i.e., logit or probit models), could lead to an incidental parameter issue (Lancaster, 2000).[11] Finally, standard errors (ε_{it}) are clustered at the industry-year level to account for the presence of serial correlation in the data (Bertrand & Mullainathan, 2003).

5 | RECENTRALIZATION AND CORRUPTION

5.1 | Baseline result

Table 3 reports the results of the baseline model to analyze the impact of recentralization on firm corruption. Column (1) shows the result of the basic model without any fixed effects. We then sequentially add different fixed effects in Columns 2 to 5. In Column 2, we add industry fixed effects to control for time-invariant industry-specific factors. In Column 3, we add province-industry fixed effects to control for any unobservable time-invariant differences across industries in different provinces (Aghion et al., 2008). In Column (4), along with province-industry fixed effects, we also add year fixed effects. Column (5) shows the tightest specification where we include province-industry fixed effects and industry-year fixed effects in the model specification. These fixed effects allow us to control for unobservable time-invariant characteristics between different provinces and industries, as well as the

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[10]We also use different thresholds in bribe payments to construct the *BRIBE* dummy. When we lift the threshold to define the *BRIBE* dummy to >10% or >30% thresholds, the main result is qualitatively unchanged. These results are available upon request.

[11]To ensure the robustness of our result, we also re-estimate model (1) using logit and probit models. The results are provided in Section 5.3.

TABLE 1 Definition of variables.

Variable	Definition	N	Mean	SD	P25	P50	P75
BRIBE	This variable is constructed based on the answer to the question: "*On average, what percentage of revenues do firms in your line of business typically pay* per annum *in unofficial payments to public officials*?" The question is categorical with the following responses: 0%; <1%, 1–2%, 2–10%, 10–20%, 20–30%, and >30%. *BRIBE* is equal to one if the answer to this question is different from 0%, and zero if the response is 0%.	54,777	0.786	0.410	1.000	1.000	1.000
AFFECTED	A dummy variable equal to 1 if the firm is incorporated in the province that experiences the pilot recentralization reform, and 0 otherwise.	54,777	0.211	0.408	0.000	0.000	0.000
POST	A dummy variable equal to 1 for the years 2009 and 2010, and 0 otherwise. It indicates the period following the recentralization reform in 2009.	54,777	0.709	0.454	0.000	1.000	1.000
FIRM AGE	A firm's years of operation, measured as the natural logarithm of the number of years of operation.	54,777	6.282	5.278	3.000	5.000	8.000
FIRM SIZE	The size of a firm, measured by taking the natural logarithm of the total number of the firm's employees.	54,777	3.014	1.401	1.946	3.384	3.384
LAND USE	A dummy variable constructed based on the answer to the question: "*Do you have a formal land use right certificate (LURC) for this land?*" This variable is encoded 1 if the response is "Yes", and 0 if the response is "No".	54,777	0.423	0.494	0.000	0.000	1.000
GDP	The natural logarithm of the provincial GDP.	54,777	7.370	1.122	6.658	7.270	7.854
TRADE OPENNESS	The ratio of the total provincial imports and exports to the total provincial GDP.	54,777	0.922	1.246	0.238	0.504	1.093
URBAN RATE	The rate of people in the urban area over total population in the province.	54,777	0.297	0.202	0.153	0.226	0.380

Note: This table provides the definition and descriptive statistics of all the variables used in our analysis. The sample period is from 2006 to 2015.

heterogeneities that vary simultaneously across both industries and years (i.e., industry-wide investment opportunities and business cycles). Thus, this model will be the main model that is used for our analysis.

As can be seen from the above table, the DiD terms on *AFFECTED* × *POST* are always negative and strongly significant across all the specifications. This indicates that, following the recentralization reforms, firms are less likely to

TABLE 2 Correlation matrix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	VIF
(1) BRIBE	1									
(2) AFFECTED	0.0084	1								1.41
(3) POST	−0.0517*	0.0296*	1							1.21
(4) FIRM AGE	0.0111*	0.0130*	0.1414*	1						1.12
(5) FIRM SIZE	0.0938*	0.006	−0.0826*	0.2093*	1					1.07
(6) LAND USE	0.0233*	−0.0779*	−0.1163*	0.1719*	0.1077*	1				1.08
(7) GDP	0.003	0.3453*	0.3616*	0.0981*	−0.0444*	−0.1686*	1			2.06
(8) TRADE OPENNESS	0.0025	0.0287*	0.1019*	−0.005	0.0269*	−0.0828*	0.4346*	1		1.28
(9) URBAN RATE	0.0075	0.5112*	0.1288*	0.0293*	−0.0167*	−0.1403*	0.5826*	0.2590*	1	1.84

Note: This table presents the pair-wise correlation matrix among variables used in our analysis. See Table 1 for detailed variable definitions.

*Statistically significant at the 5% level.

TABLE 3 The impacts of recentralization on corruption.

	Dependent variable: *BRIBE*				
	No FEs (1)	Industry FEs (2)	Province-industry FEs (3)	Province-industry FEs and year FEs (4)	Province-industry FEs and industry-year FEs (5)
AFFECTED × *POST*	**−0.026*****	**−0.024*****	**−0.024*****	**−0.023*****	**−0.022****
	(0.010)	**(0.009)**	**(0.009)**	**(0.009)**	**(0.009)**
AFFECTED	0.017*	0.016**			
	(0.008)	(0.008)			
POST	−0.042***	−0.046***	−0.068***		
	(0.005)	(0.006)	(0.010)		
FIRM AGE	−0.000	−0.000	0.001	0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FIRM SIZE	0.028***	0.028***	0.023***	0.023***	0.023***
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
LAND USE	0.011***	0.015***	0.024***	0.023***	0.022***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
GDP	0.012***	0.013***	0.040***	0.008	0.007
	(0.002)	(0.003)	(0.012)	(0.012)	(0.012)
TRADE OPENNESS	−0.003*	−0.002	−0.001	−0.001	−0.001
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
URBAN RATE	0.007	0.003	0.166***	0.126**	0.130**
	(0.012)	(0.013)	(0.051)	(0.054)	(0.055)
CONSTANT	0.643***	0.634***	0.410***	0.607***	0.618***
	(0.015)	(0.016)	(0.078)	(0.089)	(0.092)
Year FEs	NO	NO	NO	YES	NO
Industry FEs	NO	YES	NO	NO	NO
Province-industry FEs	NO	NO	YES	YES	YES
Industry-year FEs	NO	NO	NO	NO	YES
Observations	54,777	54,777	54,777	54,777	54,777
R-squared	0.013	0.020	0.092	0.098	0.108

Note: Standard errors (in parentheses) are clustered at the industry-year level. The estimation results for the dependent variable of interest are in bold.
***Statistically significant at the 1% level.
**Statistically significant at the 5% level.
*Statistically significant at the 10% level.

make bribe payments. The magnitude of the DiD terms remains highly stable as we sequentially incorporate different fixed effects into the specification, implying that the omitted variables are unlikely to affect our results. The impact is also economically significant. For instance, in the tightest specification with the inclusion of both province-industry fixed effects and industry-year fixed effects (Column 5), the recentralization reform is associated with an approximate 2.2% decrease in bribe payment probability. This effect is similar in magnitude in comparison to the other

included covariates. For example, a 100% increase in total assets is associated with an increase of 2.3% in bribery propensity, whereas the ownership of a LURC increases the bribery propensity by 2.2%. Overall, our findings corroborate the prior studies, emphasizing that an over-decentralized government system may be a prolific breeding ground for rent-seeking and corrupt actions (Fan et al., 2009; Lessmann & Markwardt, 2010). In this circumstance, the recentralization reform could help to reduce the number of places where firms must pay bribes and release firms from excessive rent extraction by corrupt bureaucrats (Malesky, 2019; Shleifer & Vishny, 1993).

The results of control variables also provide some important insights. We find evidence that both larger firms, and firms with more operating experience, have a higher tendency to make bribe payments, as indicated by positive and statistically significant coefficients of *FIRM SIZE* and *FIRM AGE*. These results are in line with the earlier findings by Rand and Tarp (2012). In addition, we document that firms having a LURC are more likely to make bribery payments, which is indicated by the positive and significant coefficient of *LAND USE*. Regarding the impact of macro-level factors, we find some evidence that firms are less likely to pay bribes when local economic conditions (which is reflected by provincial GDP) and the degree of urbanization are increased.

Section 5.3 presents a wide variety of robustness tests using different sets of model specifications and time periods which show that our baseline results are robust.

5.2 | Falsification tests

To ensure the validity of our DiD design, we conduct two falsification tests to rule out the concern that our baseline results are affected by omitted variables or an unobserved shock occurring at approximately the same time as the recentralization reform in 2009.

Specifically, in the first falsification test, we re-estimate our baseline model using a placebo event time window. In this test, we falsely assume that the pilot recentralization reform took place in 2007, which is 2 years prior to the actual event in 2009. Thus, our testing window is adjusted accordingly, spanning from 2006 to 2008. In this context, *AFFECTED* remains unchanged, whereas the *POST* variable is recoded as having the value of 1 for the post-placebo treatment period (i.e., from 2007 to 2008), and 0 for the pre-placebo treatment period (i.e., 2006). Since no actual reform happened during the 2006–2008 period, we expect that the DiD estimations *AFFECTED* × *POST* are not statistically significant.

For the second falsification test, we substitute 10 actual affected provinces with 10 random control provinces (i.e., those that never actually took part in the pilot recentralization reform). This approach maintains the actual event window from our baseline specification (i.e., the pilot recentralization reform still happened in 2009), although it disrupts the proper assignment of provinces taking part in the pilot reforms. In this context, *AFFECT* is a dummy variable indicating the firms located in provinces that are being falsely selected to be the affected provinces, whereas *POST* is a dummy variable equal to 1 for the years 2009 and 2015, and 0 otherwise. Because the falsely assigned group is not actually affected by the recentralization reform, our DiD estimator should reveal no significant impact on the bribery probability.

Table 4 reports the results of our falsification tests. Column (1) presents the results of the placebo experiments in 2007, while Column (2) displays the results when an artificially affected group is selected. As can be seen from Table 4, neither of the estimated coefficients of *AFFECTED* × *POST* in the two columns is statistically significant. Therefore, these results confirm that the reduced corruption practices are indeed influenced by the recentralization reform in 2009, rather than being affected by omitted variables or an unobserved shock.

5.3 | Testing for parallel trend assumption

One may be concerned that our previously observed relationship between the recentralization reform and firm corruption may suffer from pre-treatment trends or reverse causality problems. If this is the case, the key assumption

TABLE 4 Falsification tests.

	Dependent variable: BRIBE	
	Placebo event in 2007 (1)	Random assignment (2)
AFFECTED × POST	**−0.031**	**−0.003**
	(0.021)	**(0.009)**
Controls	YES	YES
Province-industry FEs	YES	YES
Industry-year FEs	YES	YES
Observations	6,859	54,777
R-squared	0.195	0.108

Note: Control variables are included, yet not reported for brevity. Standard errors (in parentheses) are clustered at the industry-year level. The estimation results for the dependent variable of interest are in bold.
***Statistically significant at the 1% level.
**Statistically significant at the 5% level.
*Statistically significant at the 10% level.

underlying a DiD design (i.e., the parallel trend assumption) would be violated, and thus, our previous findings would become invalid. In this paper, to satisfy the parallel trend assumption, the average change in the bribery probability should be the same for affected and unaffected firms before the recentralization reform took place.

To examine the validity of the parallel trend assumption empirically, we first use the result obtained from the baseline regression as illustrated in the prior session (Column 5 of Table 3) to predict the bribery probability for each firm. We then perform an independent *t*-test to compare the average growth rate of bribery probability between the affected group and control group. The result presented in Table 5 reveals that there is not a statistically significant difference in the bribery trend between the two groups prior to the adoption of the recentralization reform in 2009. Thus, our DiD approach satisfies the parallel trend assumption.

In addition, we follow prior studies and carry out a dynamic timing test (Bertrand & Mullainathan, 2003; Hoang et al., 2020). Specifically, we allow the effect of the recentralization reform to vary across time by augmenting the baseline Equation (1) and replacing POST with six dummies, namely BEFORE1 – indicating 1 year before the reform; BEFORE2 – 2 years before the reform; AFTER0 – the time of the reform; and AFTER1, AFTER2, and AFTER3_plus which indicate 1 year, 2 years, and more than 2 years after the reform, respectively. Then we sequentially interact AFFECT with these four dummies. The coefficients of these interactions show the differences in the probability of paying bribes between affected and unaffected firms across different time periods. If the change in firms' corruption incidence is indeed an outcome of the recentralization reform, the regression results for this dynamic timing test should show a significant effect only after, and not before, the recentralization is adopted.

As can be seen from Table 6, the coefficients of AFFECT × BEFORE1 and AFFECT × BEFORE2 are not statistically different from 0. By contrast, the coefficients of AFFECT × AFTER1, AFFECT × AFTER2, and AFFECT × AFTER3_plus are negative and significant. These results confirm that our DiD design satisfies the parallel trend assumption. In other words, this implies that the recentralization reform has profound and sustainable impacts on firm corruption.

5.4 | Other robustness test

In this section, we conduct a number of sensitivity analyses to ensure the robustness of our results. The results of these analyses are reported in Table 7.

TABLE 5 Testing for parallel trend assumption.

Variable	Mean growthaffected group	Mean growth control group	Difference	p-value
Bribe probability growth	−0.0067	−0.0060	−0.0007	.6506

Note: This table presents the results of the statistical test for parallel trend assumption by comparing the average change of the dependent variables (the probability of paying bribe) between firms in affected provinces and those in control provinces in the pre-recentralization period from 2006 to 2008.

TABLE 6 Dynamic timing effects.

	Dependent variable: *BRIBE*
AFFECT×BEFORE1	**0.010**
	(0.021)
AFFECT×BEFORE2	**−0.036**
	(0.027)
AFFECT×AFTER0	**−0.036**
	(0.026)
AFFECT×AFTER1	**−0.043***
	(0.025)
AFFECT×AFTER2	**−0.038****
	(0.016)
AFFECT×AFTER3_plus	**−0.061*****
	(0.021)
CONSTANT	0.617***
	(0.101)
Controls	YES
Observations	54,777
R-squared	0.098
Province-industry FEs	YES
Industry-year FEs	YES

Note: Standard errors (in parentheses) are clustered at the province-industry-year level. The estimation results for the dependent variable of interest are in bold.
***Statistically significant at the 1% level.
**Statistically significant at the 5% level.
*Statistically significant at the 10% level.

In a DiD specification, if the treatment effects are randomly assigned, the magnitude of this effect should not be contingent on the incorporation of the control variables in the model (Roberts & Whited, 2013). To check if there is any potential endogenous association between the control variables, which could lead to biased estimates of the main explanatory variables, we exclude all of the control variables and re-estimate our baseline specification (1) accordingly. The result is reported in Column 1 of Table 7. We find that the magnitude of the coefficient of interest *AFFECTED × POST* remains largely unchanged.

Next, we check the sensitivity of our results further with a range of econometric specifications. First, in Column (2), instead of clustering the standard errors at the industry-year level, we cluster the standard errors at the firm level

TABLE 7 Additional robustness tests.

	No controls (1)	Cluster at firm level (2)	Two-way cluster (3)	Regional FEs (4)	Industry-year trends and regional FEs (5)	Logit model (6)	Probit model (7)	Exclude crisis (8)	DiD-matching. (9)	Bribe severity as dependent variable (10)
AFFECTED × POST	**−0.025***	**−0.022**	**−0.022***	**−0.028***	**−0.026***	**−0.158**	**−0.088**	**−0.020**	**−0.014***	**−0.158**
	(0.009)	(0.010)	(0.013)	(0.009)	(0.009)	(0.064)	(0.036)	(0.007)	(0.007)	(0.065)
Controls	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES
Province-industry FEs	YES	YES	YES	NO	NO	NO	NO	YES	YES	NO
Industry-year FEs	YES	YES	YES	NO	NO	YES	YES	YES	NO	NO
Regional FEs	NO	NO	NO	YES	YES	NO	NO	NO	NO	YES
Industry-year trends FEs	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO
Year FEs	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
Observations	54,777	54,777	54,777	54,777	54,777	54,349	54,349	36,509	37,844	54,777
R-squared	0.103	0.108	0.108	0.022	0.032	0.036	0.036	0.115	0.113	0.027

Note: Control variables are included, yet not reported for brevity. Standard errors (in parentheses) are clustered at the industry-year level. The estimation results for the dependent variable of interest are in bold. DiD, difference-in-difference.
***Statistically significant at the 1% level.
**Statistically significant at the 5% level.
*Statistically significant at the 10% level.

to account for heterogeneity among different firms. Alternatively, Column (3) employs the two-way clustered standard errors at the industry and province-year levels. Next, in Column (4), we substitute all fixed effects in the baseline model with regional fixed effects to capture unobserved time-invariant factors across the economic regions (i.e., regional culture and regional economic condition). In Column (5), we add industry-year trend fixed effects into the model to add further control for time-varying confounding factors within an industry. In all cases, the DiD estimates *AFFECTED* $\times$ *POST* remain negative and strongly significant.

In the next set of robustness tests, instead of using the linear probability model, we re-estimate the baseline specification using the logit and probit models. The results are shown in Columns (6) and (7), respectively. The main results hold for both of these tests.

One may be concerned that our result can be affected by the economic shock from the global economic crisis occurring during the time of the pilot recentralization reform being implemented. To mitigate this concern, we exclude the crisis period of 2007 to 2008 from our analysis and re-estimate model (1) accordingly. The result, which is reported in Column (8), illustrates that our findings remain quantitatively unchanged.

In addition, one may cast doubt regarding the validity of our results on the ground that firms operating in provinces which experience the recentralization reform might be fundamentally different from those incorporated in other provinces. To ensure the comparability between our treatment and control samples, we employ the DiD-matching technique. Specifically, each treated firm in the affected provinces is matched with one control firm (which is incorporated in an unaffected province) in the same industry based on firm age and size in the year immediately before the recentralization reform (i.e., 2008). The nearest neighbor matching criteria and a caliper of 1% are used to ensure that a valid control firm must have its propensity scores falling within the appropriate range. Next, we re-estimate our baseline model using the matched sample and report the results in Column (9). As expected, the estimated coefficient of *AFFECTED* $\times$ *POST* remains negative and statistically significant.

Finally, to test the sensitivity of our results for different measures of corruption, we follow the method proposed by Malesky et al. (2020) to construct a continuous measure of bribery severity that firms have to endure. Specifically, we use the variable that represents the share of bribe payment to the total revenue of firms. We replace our dummy variable (*BRIBE*) in Equation (1) with the new dependent variable and present the result in Column (10) of Table 7. The coefficient of *AFFECTED* $\times$ *POST* remains negative and significant, suggesting that firms in recentralized provinces spend a smaller share of their revenues on bribery than those in other provinces. This result further confirms the effect of recentralization on mitigating corruption.

6 | ADDITIONAL ANALYSIS

6.1 | Recentralization reform and perceived corruption practices

Extant literature documents that firms are often involved in corruption activities where making bribe payments is a social norm and is a widespread practice in the industry (You & Nie, 2017; Vu et al., 2018). In this circumstance, even when firms are unsure about whether they should pay a bribe, they may still follow their peers and proceed to make a bribe payment because of the fear of being "punished" for not complying with such a "social norm." Thus, if recentralization reform relieves firms from the corruption burden, it should also exert a diminishing impact on firms' perceptions that bribery is necessary and that it is also a widespread practice among peers.

The PCI surveys provide us with reliable information to test this implication. Specifically, in the surveys, each firm was asked to what extent they agree with the following statement: "*It is common for firms in my line of business to have to pay some irregular additional unofficial payments*". Firms can select either one of the four following answers to this question: (1) "*Strongly agree*"; (2) "*Agree*"; (3) "*Disagree*"; and (4) "*Strongly disagree*". Based on this information, we create a new dummy variable, *BRIBE PERCEPTION*, which reflects the perception of firms about the prevalence of

bribery payments among their peers. Accordingly, *BRIBE PERCEPTION* is recoded to take the value of 1 if a firm agrees or strongly agrees with this statement, and 0 otherwise.

To test the impact of recentralization reform on a firm's perception to a bribe payment, we replace the independent variable *BRIBE* with *BRIBE PERCEPTION* in Equation (1). Regression results are presented in Table 8. As can be seen in the above table, the estimated coefficients of *AFFECTED × POST* are always negative and statistically significant across all columns. The effect is also economically substantial. For instance, in our tightest setting (Column 5), the recentralization reform results in an approximate reduction of 2.5% in bribery perception. This indicates that the

TABLE 8 Recentralization and bribery perception.

	Dependent variable: *BRIBE PERCEPTION*				
	No FEs (1)	Industry FEs (2)	Province-industry FEs (3)	Province-industry FEs and year FEs (4)	Province-industry FEs and industry-year FEs (5)
AFFECTED × POST	−0.031***	−0.028**	−0.027***	−0.028***	−0.025**
	(0.011)	(0.011)	(0.010)	(0.010)	(0.010)
AFFECTED	0.023***	0.020**			
	(0.008)	(0.008)			
POST	−0.065***	−0.072***	−0.080***		
	(0.011)	(0.007)	(0.010)		
FIRM AGE	−0.000	0.000	0.001**	0.001*	0.001**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
FIRM SIZE	0.035***	0.032***	0.025***	0.026***	0.025***
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
LAND USE	0.003	0.009	0.019***	0.018***	0.017***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
GDP	0.014***	0.017***	0.026**	−0.024*	−0.024*
	(0.003)	(0.003)	(0.012)	(0.014)	(0.014)
TRADE OPENNESS	−0.002	−0.001	−0.002	−0.001	−0.002
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
URBAN RATE	−0.009	−0.014	0.054	−0.005	−0.011
	(0.016)	(0.016)	(0.061)	(0.066)	(0.067)
CONSTANT	0.486***	0.471***	0.402***	0.732***	0.738***
	(0.021)	(0.018)	(0.080)	(0.103)	(0.103)
Year FEs	NO	No	NO	YES	NO
Province-industry FEs	NO	NO	YES	NO	YES
Industry-year FEs	NO	NO	NO	YES	YES
Observations	53,661	53,660	53,631	53,631	53,628
R-squared	0.015	0.025	0.096	0.099	0.110

Note: Standard errors (in parentheses) are clustered at the industry-year level. The estimation results for the dependent variable of interest are in bold.
***Statistically significant at the 1% level.
**Statistically significant at the 5% level.
*Statistically significant at the 10% level.

recentralization reform reduces the perception of firms that bribery is prevalent among their peers. Thus, this provides support for our previous finding that recentralization is effective in reducing corruption.

6.2 | Economic significance

The inclusion of firms with low likelihood of paying bribes in the sample may bias the real impacts of recentralization on the corruption of firms. To evaluate the economic magnitude of our results further, we re-estimate the baseline model (1) using different sub-samples consisting of firms with a different probability of making a bribe payment (i.e., firms with the lowest probability of bribery versus firms with a significant probability of bribery). We suspect that firms with the higher probability of making bribe payments will be the most affected by the recentralization reform.

To test our proposition, we first predict which firms are more (less) likely to make bribe payments using the model in Column (5) of Table 3. The predicted bribery probability (p) for each firm-year observation is estimated and takes a value from 0 to 1. In Column (1) of Table 9, we restrict the sample to firms with p whose value is in the first

TABLE 9 Economic significance.

	Dependent variable: BRIBE		
	First tercile (1)	Second tercile (2)	Third tercile (3)
AFFECTED × *POST*	**−0.021**	**−0.009**	**−0.045*****
	(0.026)	**(0.021)**	**(0.015)**
FIRM AGE	0.001	0.001	0.001**
	(0.001)	(0.001)	(0.001)
FIRM SIZE	0.036***	0.030***	0.013***
	(0.006)	(0.007)	(0.004)
LAND USE	0.010	0.032***	0.029***
	(0.009)	(0.009)	(0.007)
GDP	−0.027	0.007	0.032
	(0.026)	(0.026)	(0.023)
TRADE OPENNESS	0.007	−0.010	−0.001
	(0.007)	(0.006)	(0.004)
URBAN RATE	−0.211	0.201**	0.095
	(0.191)	(0.101)	(0.081)
CONSTANT	0.899***	0.591***	0.460**
	(0.198)	(0.191)	(0.178)
Province-industry FEs	YES	YES	YES
Industry-year FEs	YES	YES	YES
Observations	17,112	17,594	18,194
R-squared	0.158	0.152	0.146

Note: Standard errors (in parentheses) are clustered at the industry-year level. The estimation results for the dependent variable of interest are in bold.
***Statistically significant at the 1% level.
**Statistically significant at the 5% level.
*Statistically significant at the 10% level.

sample tercile (i.e., those having the lowest probability of making a bribe payment). In Column 2, we restrict the sample to firms with p having a value which is in the second sample tercile. Finally, in Column 3, we evaluate the impact of recentralization reform on bribe propensity in the sample consisting of firms which have a significant probability of making bribe payment (i.e., where the value of p is in the third sample tercile).

As can be seen from Table 9, the estimated coefficient of *AFFECTED* × *POST* is only negative and statistically significant in the sample of firms having the highest probability of making bribe payments (Column 3). The magnitude of this coefficient also provides an important insight. Specifically, after restricting the sample to firm-year observations with the highest probability of bribery, we find that the recentralization reform lowers the bribe payment probability by 4.5% for affected firms as compared to control firms. This is more than double the magnitude reported in the baseline model (Column 5 of Table 3). This result illustrates that firms with the greatest likelihood of paying bribes are the most affected by the recentralization reform. Overall, the result further corroborates our previous findings that recentralization reduces corruption.

6.3 | Ex-ante political connection

Studies on the businesses–government interactions often highlight the important role of political connection (Khwaja & Mian, 2005). Because political capital might protect firms against institutional demand and curb regulatory pressures (Du, 2015), politically connected firms may not have to engage much in bribery with corrupt officials (Jia & Mayer, 2017). By contrast, firms with fewer political connections may frequently resort to unofficial payments for the removal of institutional barriers and access to better governmental services (Giannetti et al., 2021). In this regard, the impact of recentralization reform may be more pronounced for those firms which are subject to higher bribe payments because of a lack of political connections.

To test this proposition, we split firms in our sample into two groups according to whether they have specific political connections with government bodies. A firm is defined as having political connections when (i) its owner is a government official or a manager at a state-owned enterprise (SOE), or (ii) it is owned partly by the government. Arguably, an owner who serves the position of responsibility, or is a manager at a SOE, might have to maintain relationships with other politicians and officers. Such relationships can be through friendship, being former colleagues, having connections with politicians, or having recognized cases of relationships with political parties (Faccio, 2006). Likewise, if a firm is partly or fully owned by the government, it should have well-established relationships with other government agencies. Information on the background of managers and the type of ownership is retrieved from the PCI survey data. In the survey, the respondent was asked: (i) whether or not the firm's owner is a government official or a manager at a state-owned enterprise (SOE) and (ii) whether or not the firm is owned partly by the government. We then re-estimate Equation (1) for these three pairs of groups to evaluate how recentralization affects firm bribe payments in groups, with and without political connections, and present the results in Panel A of Table 10.

As expected, the estimated coefficients of *AFFECTED* × *POST* in Columns 2 and 4 end up being negative and are significant, whereas those in Columns 1 and 5 are not statistically significant. These results illustrate that the impact of recentralization reform is only significant in the absence of a certain level of political connection.

In addition, we construct a dummy variable (*CONNECT*) that takes the value of 1 if the firm has political connections as previously defined and 0 otherwise, and incorporate the three-way interaction term *AFFECTED* × *POST* × *CONNECT* into Equation (1). The result is reported in Panel B of Table 10. The coefficient of the three-way interaction term is positive and statistically significant in Column 1, suggesting that the effect of the recentralization reform in reducing bribe probability is smaller for firms with political connections, particularly when its owner is a government official or a manager at a state-owned enterprise.

TABLE 10 Political connection and corruption.

	Dependent variable: *BRIBE*			
Panel A	Owner is either a government official or SOE manager (1)	Owner is neither a government official nor SOE manager (2)	Government holds positive shares (3)	Government does not hold positive shares (4)
AFFECTED × *POST*	0.012	−0.029***	−0.109	−0.018*
	(0.015)	(0.010)	(0.121)	(0.010)
FIRM AGE	0.000	0.000	−0.003	0.001*
	(0.001)	(0.000)	(0.003)	(0.000)
FIRM SIZE	0.020***	0.024***	0.006	0.024***
	(0.003)	(0.002)	(0.015)	(0.002)
LAND USE	0.018**	0.017***	0.060	0.018***
	(0.008)	(0.005)	(0.041)	(0.005)
GDP	−0.006	0.006	0.191	−0.002
	(0.019)	(0.014)	(0.138)	(0.011)
TRADE OPENNESS	0.003	−0.001	−0.023	−0.001
	(0.005)	(0.003)	(0.033)	(0.002)
URBAN RATE	−0.071	0.095	−0.377	0.009
	(0.086)	(0.063)	(0.454)	(0.052)
CONSTANT	0.827***	0.624***	−0.499	0.720***
	(0.135)	(0.105)	(1.071)	(0.089)
Province-industry FEs	YES	YES	YES	YES
Industry-year FEs	YES	YES	YES	YES
Observations	15,748	44,049	842	54,046
R-squared	0.167	0.117	0.546	0.108

Panel B	Owner is either a government official or SOE manager (1)	Government holds positive shares (2)
AFFECTED × *POST*	−0.023*	−0.016
	(0.010)	(0.016)
CONNECT	0.070***	−0.021
	(0.013)	(0.020)
AFFECTED × *CONNECT*	−0.030*	0.029
	(0.013)	(0.042)
POST × *CONNECT*	−0.015	0.000
	(0.016)	(0.000)
AFFECTED × *POST* × *CONNECT*	0.018*	−0.000
	(0.008)	(0.032)
CONSTANT	0.572***	0.646***
	(0.097)	(0.064)
Controls	YES	YES
Observations	54,771	49,523

(Continues)

TABLE 10 (Continued)

Panel B	Owner is either a government official or SOE manager (1)	Government holds positive shares (2)
R-squared	0.059	0.056
Industry-year FEs	YES	YES
Province FEs	YES	YES

Note: Standard errors (in parentheses) are clustered at the industry-year level. The estimation results for the dependent variable of interest are in bold. SOE, state-owned enterprise.
***Statistically significant at the 1% level.
**Statistically significant at the 5% level.
*Statistically significant at the 10% level.

6.4 | Satisfaction with the local government

Finally, we examine the impact of recentralization on the satisfaction of people with the local government. The purpose is to provide further justification for the channels through which recentralization may restrain corruption. As proposed in Section 2, the hypotheses development, because recentralization can enhance the effectiveness of the administrative function and the capability of local government in serving its citizen, we expect that the satisfaction of people with the local government will increase following the reform.

We rely on the data from the Vietnam Provincial Governance and Public Administration Performance Index (PAPI), provided by the collaboration of the Centre for Community Support Development Studies (CECODES), the United Nations Development Programme (UNDP) in Vietnam, and the Vietnam Fatherland Front. This is the largest sociological survey in Vietnam, and the first that gathers the perspective of citizens to provide an objective evaluation of local governance. In the surveys, three mutually reinforcing processes were evaluated: policy making, policy implementation, and the monitoring of public service delivery. For our analysis, we rely on the question asking citizens to rate their satisfaction (on a scale of 0 to 100) with the local executive, including the People's committees at commune, district, and provincial levels; the local Police; and the district Court. After cleaning the data, we obtain a sample of 47,150 observations of citizens in all 63 provinces from 2011 to 2015.

Unfortunately, the PAPI data were only available from 2011 (2 years after the reform took place), which inhibits the arrangement of a DiD setting. Therefore, it is impossible to evaluate the change in governance quality of affected provinces directly following recentralization in comparison with control provinces. We follow Malesky et al. (2014) and merely assess the differences in the average effect between the provinces that were involved in the pilot recentralization reform and those that were not. Hence, the following model specification is employed:

$$
\begin{aligned}
SATISFACTION_{ikt} = {} & \gamma_0 + \gamma_1 AFFECT_k + \gamma_2 GENDER_{it} + \gamma_3 AGE_{it} + \gamma_4 ETHNIC_{it} + \gamma_5 EDU_{it} \\
& + \gamma_6 ECONSIT_{it} + \gamma_7 GDP_{kt} + \gamma_8 POPULATION_{kt} + \gamma_9 TRADE\ OPENNESS_{kt} \\
& + \varphi_t + \tau_r + \varepsilon_{it}
\end{aligned}
\tag{2}
$$

where, *i*, *k*, *t*, and *r* denote respondent, province, region, and year, respectively. *SATISFACTION* is the dependent variable that measures the satisfaction of people with the following five components of the local executive: (i) the commune People's committee, (ii) the commune People's committee, (iii) the commune People's committee, (iv) the local Police, and (v) the district Court. We also construct a composite index that captures the overall satisfaction by simply taking the average of these components.

The main explanatory variable is *AFFECT*, a dummy variable that takes the value of 1 if the province was involved in the pilot recentralization reform, and 0 otherwise. We incorporate other controls in our model for

individual characteristics that may affect their perception of the local governance quality. Specifically, *GENDER* is a dummy variable taking the value of 1 if the respondent is a male, and 0 if female; *AGE* is the age of the respondent; *ETHNIC* is a dummy variable equal to 1 if the respondent belongs to an ethnic minority, and 0 otherwise; *EDU* is a dummy variable indicating whether the respondent has obtained tertiary education; and finally, *ECONSIT*, taking the value of 1 if the respondent indicates a good or a very good economic situation. In addition, other controls for the provincial socio-economic condition include *GDP*, which is the logarithm of the provincial gross domestic product; *POPULATION*, which is the population density; and *TRADE OPENNESS*, which is the ratio of the sum of export and import to the total GDP. Year fixed effects (φ_t) and regional fixed effects (τ_r) are also included in the model specification.

TABLE 11 Recentralization and satisfaction with the local government.

	Satisfaction with the commune people's committee (1)	Satisfaction with the district people's committee (2)	Satisfaction with the provincial people's committee (3)	Satisfaction with the local police (4)	Satisfaction with the district court (5)	Overall satisfaction with the local government (6)
AFFECT	**0.831*****	**0.517***	**0.239**	**0.684****	**0.360**	**0.526****
	(0.272)	**(0.264)**	**(0.258)**	**(0.288)**	**(0.274)**	**(0.239)**
GENDER	−2.482***	−2.531***	−2.015***	−3.043***	−2.240***	−2.462***
	(0.170)	(0.165)	(0.161)	(0.179)	(0.171)	(0.149)
AGE	0.045***	0.019***	0.015**	0.067***	−0.019***	0.025***
	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)	(0.006)
ETHNIC	−2.054***	−0.010	1.002***	−1.291***	0.035	−0.464**
	(0.257)	(0.250)	(0.244)	(0.272)	(0.259)	(0.226)
EDU	0.391	−1.147***	−2.512***	−1.011***	−2.199***	−1.296***
	(0.253)	(0.245)	(0.240)	(0.267)	(0.255)	(0.222)
ECONSIT	2.528***	2.085***	2.080***	2.241***	1.774***	2.142***
	(0.247)	(0.240)	(0.234)	(0.261)	(0.249)	(0.217)
GDP	−0.425***	−0.055	0.119	−0.541***	−0.241*	−0.229*
	(0.137)	(0.133)	(0.130)	(0.145)	(0.138)	(0.120)
POPULATION	0.035	−0.010	−0.027	0.059**	−0.004	0.011
	(0.022)	(0.022)	(0.021)	(0.023)	(0.022)	(0.020)
TRADE OPENNESS	−0.446***	−0.348***	−0.241***	−0.291***	−0.339***	−0.333***
	(0.087)	(0.084)	(0.082)	(0.092)	(0.087)	(0.076)
CONSTANT	87.524***	86.874***	86.868***	87.280***	90.190***	87.747***
	(1.053)	(1.022)	(0.999)	(1.113)	(1.060)	(0.925)
Observations	47,150	47,150	47,150	47,150	47,150	47,150
R-squared	0.020	0.020	0.022	0.023	0.019	0.023
Region Fes	YES	YES	YES	YES	YES	YES
Year Fes	YES	YES	YES	YES	YES	YES

Note: Standard errors are in parentheses. The estimation results for the dependent variable of interest are in bold.

***Statistically significant at the 1% level.

**Statistically significant at the 5% level.

*Statistically significant at the 10% level.

Table 11 reports the estimation results of Equation (2). The coefficients of *AFFECT* are positive and statistically significant in Columns (1), (2), (4), and (6), implying that the satisfaction of people with the performance of the local executive in affected provinces is higher than that of other control provinces. The differences in the satisfaction levels between the two province groups are salient in many components, leading to the difference in overall satisfaction. These results lend support to our proposition that the recentralization reform may mitigate corruption by enhancing governance capacity.

7 | CONCLUSION

Although decentralization has been perceived as being one of the most crucial forms of institutional design during the past few decades, its expected benefits are rarely being realized in practice (Falleti, 2010). The widespread concern is that decentralization can lead to a high possibility of elite capture, inadequate administrative capacity, fiscal burden, and more dependence on central government resources for both financial and human resources (Lewis, 2014; Green, 2015). This has recently led to many countries across the world bringing the recentralization reform initiative to the agenda. Surprisingly, even though recentralization reform can lead to fundamental changes in various governance relationships and social-economic outcomes, the empirical assessment of the real impact of recentralization reform remains scarce.

Our paper addresses a central question, that is, whether recentralization reform exacerbates or alleviates corruption. By exploiting the pilot recentralization reform in Vietnam as a quasi-natural experiment, we find that recentralization significantly reduces the likelihood that firms make bribe payments. Among the firms with the highest probability of paying a bribe, those incorporated in jurisdictions experiencing the recentralization reform are 4.5% less likely to make a bribe payment. Furthermore, we show that the perception that bribery is necessary and widespread in the industry is significantly lowered following the recentralization reform. However, the impact of recentralization reform was only prominent for firms having no established ex-ante political connections.

Overall, this paper contributes to a better understanding of the reason why firms make bribe payments and demonstrates how to ameliorate this situation in the context of a developing country. This paper also provides policymakers, especially in those countries which are considering implementing the recentralization reform, an insight into the government–businesses relations and the potential economic impacts of recentralization. In this way, politicians can be more aware of the role of recentralization in facilitating a favorable business environment so that the implementation of such government reforms would serve to achieve its development objectives.

This paper also presents several limitations that could serve as avenues for future research. First, although we propose multiple hypotheses regarding the effects of recentralization on corruption, we acknowledge that we were not able to directly test all of them, primarily because of constraints in available data. However, additional analysis indicates that recentralization may alleviate bottlenecks in decentralized systems and enhance the administrative capacity of local governments. Consequently, this could reduce the need for firms, especially those lacking political connections, to engage in bribery as a means to navigate through cumbersome bureaucratic procedures. To further advance the field, future studies should aim to investigate the specific mechanisms through which recentralization influences corruption, potentially by gathering more comprehensive data or exploring other country settings.

Second, our examination of the dynamic timing only covers a relatively short time period after the reform, which may limit our ability to demonstrate how firms learn and adapt to the new political environment over time. Therefore, it is recommended that future studies expand the duration of analysis to assess the long-term effects of recentralization on firms' bribery behaviors. By doing so, a more comprehensive understanding of the sustained impact of recentralization can be obtained.

CONFLICT OF INTEREST STATEMENT

The authors declare none.

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