Firms and Regional Favoritism

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We examine formal firm behavior in response to regional favoritism by top-ranked politicians using a balanced panel of 444 rural districts (yearly observations) in Vietnam during 2000 to 2011 and census microdata of firms, politicians' home towns, and climate and population microdata. The study finds that the number of firms and aggregated employment of firms increase in the home town districts of politicians after they resume office. The findings suggest that regional favoritism in a single–party system maintains the continuous development of firms in politicians' home town districts and widens the gaps among rural districts.

Keywords: Firms, Favoritism, Politician, Rural, Vietnam
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I. Background on Regional Favoritism in Vietnam

We investigate the decisions of formal firms on their location and the number of employed workers in response to regional favoritism.[1] Regional favoritism is where concurrent politicians favor a certain location over others. Regional favoritism occurs in both developed and developing countries and under democratic or authoritarian rule. Hodler and Raschky (2014) find regional favoritism in evidence in 38,427 regions from 126 countries in the world. They find that the nighttime light data are intensified in politicians' places of birth.

However, one of the most important factors in regional favoritism is economic activities and, consequently, employment in the target regions. While the nighttime light data used in Hodler and Raschky (2014) could be a proxy for economic activities, past literature has not provided any direct evidence of the economic consequences of regional favoritism. For instance, strong infrastructure (e.g., electricity) with less economic activity does not benefit the local population. To fill this gap in the literature, investigating firms' behaviors in response to regional favoritism is crucial. The past literature was lacking partially due to a lack of comprehensive information on firms' activities and potential reverse causality: regions with more economic activities might have politicians with greater political power. We overcome the latter concern by investigating authoritarian Vietnam. To the best of our knowledge, this is the first study to consider the responses of formal firms to regional favoritism. The census panel data of formal firms located at the district level with yearly observations allow insights into the issues with information before, during, and after political terms. The data accounts for every single change by year. The formal firms help us to contribute to the literature through important economic activities that occur mostly in the daytime, which the nighttime light intensity cannot capture.

[1] In this paper, we define a formal firm as one with at least 30 workers.

In the context of authoritarian Vietnam where the state is barely accountable to voters, Do et al. (2017) find home town favoritism: native politicians' promotions led to a broad range of home town infrastructure improvements. The home town communes of politicians received 0.23 additional infrastructure projects within the first three years of the political term in Vietnam.[2] However, the interest is mainly for infrastructure projects. Our study is built on and departs from the previous study and uses rich firm level data.

Concretely, we set up a panel data of 444 rural districts in Vietnam during the period 2000 to 2011 with yearly observations. The panel data are composed of census information of formal firms, information on top-ranked politicians[3] (members of the Central Committee of the Communist Party of Vietnam (CPV)) including the home town district and the exact term when they were in office, information on the climate constructed from the microdata of daily climate, and information on the population aged 15 to 55 for each year. All data belonging to districts are from the census[4]. The time range covers three different and consecutive political terms of the Central Committee. We consider the change in the number of formal firms and the change in the aggregate employment among those firms located in rural districts. We apply district and time fixed effects with clustered standard errors at the district level for the panel and include lagged values to manage mean reversion.

We believe this study has at least three contributions. First and as already mentioned, this is the first study to investigate the consequences of regional favoritism in terms of direct evidence of economic activities using firm-level census data. Second, we test the hypothesis that firms alter their behavior

[2] Article 3 of the Laws on the organization of local governments (MOJ, 2017b) legalized the geographical administrative units into three levels: level 1 (provincial level) including provinces and cities (province equivalent) (with 64 units), level 2 (district level) including districts, wards, towns, and cities belonging to province or province equivalents (about 708 units), and level 3 (communes) (about 11,000 units).

[3] We refer to politician from now on as the members of the Central Committee of the CPV.

[4] See Section 3 for detailed information on data and data selection.

within two years after the political term ends. Third, we consider the difference in firm ownership (private-owned, foreign-owned, and state-owned) to seek possible connections between politicians and firms located in their home town districts.

We find that formal firms respond positively to regional favoritism. The home town district of the concurrent politician facilitates a 17.3 to 52.8 percent increase in the number of formal firms and some increases in the aggregate employment of these firms once the politician resumes office. We show that despite a shortfall just after the term ends, the number and aggregate employment of formal firms continues to grow. We also find that different types of firm ownership respond differently to regional favoritism. While private domestic firms and foreign-affiliated firms act almost in parallel implying that these firms respond positively to regional favoritism, state-owned firms do not. We propose and discuss several possible explanations for the findings and offer policy implications.

The study is organized as follows. Section 2 reports the political specifics and related literature. Section 3 details the data and data selection. Section 4 provides the econometric method and specifications. Section 5 presents the findings and discussions followed by the conclusions in Section 6.

II. Political Specifics and Literature Background

A. The Central Committee of the Communist Party of Vietnam

In this subsection, we describe the political system of Vietnam, particularly the key roles of members of the Central Committee because this study focuses on regional favoritism of members of the Central Committee.

Vietnam is a single-party country. The power of the CPV is secured by the 4th Article of the National Constitution 1992 (and consolidated in the National Constitution 2013), and it is the only legal party in the country. The CPV is

"the force leading the state and society" (MOJ, 2017a). The 10th Article of the Regulations of the Party state "administrative organization of CPV corresponds with the state administrative organization" (CPV, 2017). Therefore, the CPV covers both geographical locations (provincial organizations/local authorities) and the branches of central state organizations (constitutional, executive, and legislative bodies). The Central Committee is the top agency of the CPV according to CPV constitutional regulations.

Members of the Central Committee have real and enough direct and indirect power to impose all (important) policies in all constitutional, executive, and legislative bodies in Vietnam. Committee members are elected from the CPV's National Congress once every five years. Each National Congress is numbered in ascending order. For example, the 9th (10th and 11th) National Congress was held in January 2001 (April 2006 and January 2011) to select the Committee members who remained in power until the next National Congress. We denote the term in power as "term 9" (10 and 11, correspondingly). The number of Committee members was approximately 100 to 200 individuals and tended to increase over time. The candidates selected for the Central Committee and participants of the National Congress of CPV (or the voters) are not necessarily geographical representatives (particularly at the district level).[5] They are also representatives of those communists working for ministerial agencies, the People's Army Force, the People's Police Force, and other central association agencies. There is no restriction on the number of terms for which a person can serve. The members vote for the Politburo and the General Secretariat. Although the Politburo (often composed of less than

[5] According to the E–Portal of Bac Giang Province (http://www.bacgiang.gov.vn/ves-portal/29500/Dang-Cong-san-Viet-Nam-qua-cac-ky-Dai-hoi.html), there were 1,377 participants in the 12th National Congress of the CPV. Of those participants, 1,188 were participants in elections for the lower bodies of the CPV, and 168 were participants according to the Regulations (they were members of the Central Committee of the previous term). Eleven were specially appointed from overseas bodies. The number of communists and participants of the National Congress of the CPV are increasing over time. The number was 1,168 and 2.47 million in term 9, 1,176 and 3.1 million in term 10, and 1,377 and 3.6 million in term 11. Additionally, there were only 100 to 200 members in the Central Committee despite the fact that the total number of districts is approximately 700.

20 people) are the most powerful politicians, their collective decisions must be approved by the Central Committee via the Central Committee Meetings organized twice a year for the members of the National Congress of the CPV.

The Central Committee members hold top and crucial positions in all state authority bodies thanks to the nomination from the CPV or from CPV's wings for the election. Ordinary citizens vote among the list of nominated candidates to choose members of the National Assembly[6], the top constitutional body who can pass/amend the Constitution and Laws. In turn, the members of the National Assembly vote for top positions in the government, and legislative bodies in an uncontested list (Do et al., 2017). The members of the Central Committee also lead/control senior government officials who belong to and are under CPV's designations but are not members of the Committee. Although the members of the Central Committee do not have direct formal power to regulate policy decisions at the district level, they can use their personal influence in society down to the grassroots (who are also communists) (Do et al., 2017).

B. Regional Favoritism, Firm Decisions, and Formal Jobs in Rural Areas

This study is related to three streams of literature, which are not necessarily mutually exclusive: (1) regional favoritism, (2) firms' decision making on their locations, and (3) formal job creation in rural areas.

Almost all the previous literature agrees with the detection of regional favoritism of politicians, and its explanations are accumulating. The core explanation concerns rent-seeking and corruption (Hodler and Raschky, 2014). Regional favoritism helps politicians share public spending with clans and pork barrel spending to win over the support of local voters (Fiva and Halse, 2016). It is also a contribution to ancestors and expanded patrilineal families (Do et al., 2017) in the Confucian culture context. The strength of regional

[6] Out of 500 14th National Assembly Representatives (elected in 2016), 475 were from the CPV.

favoritism varies according to the poverty level of political institutions and citizens' education levels (Hodler and Raschky, 2014).

Regional favoritism is not necessarily linked to the place of birth (home town) of the politician; it could be an ethnic similarity. Burgess et. al (2015) found that the districts that represent the ethnicity of the president receive twice (five times) the investment on (length of paved) roads in Kenya. In other cases, it can be an exchange. Faccio (2006) found that politically connected firms are common among 35 of 47 countries and are more often larger firms. Politically connected firms might be favored by special privileges such as lower tax rates, light regulation, and high accessibility to bank loans. In exchange for privileges and benefits, firms extract rents for politicians. The rent as well as firm value increase with the political power of the connected politician (Khwaja and Mian, 2005). However, the political connection is endogenous, and the causal effects are not easy to identify in empirical studies.

Unfortunately, few studies identify the long-term effect of regional favoritism on home town development especially direct evidence of the economic consequences of regional favoritism. Hodler and Raschky (2014) found that the nighttime light intensity, a proxy for economic activity, was brighter during the term, faded away as the term ended, and disappeared when the political reign ended. However, this proxy might not work well for daytime economic activities and when universal electrification naturally eases all areas to converge in the nightlight intensity given that population density is controlled. Do et al. (2017) identified an increase in the number of infrastructure projects in a politician's home town within three years of being in power in Vietnam. However, unfortunately, the authors did not measure the economic consequences and examine the period after the political term.

Meanwhile, the theory on the location decision of firms on location dates back to Weber's work in 1909 (Weber, 1929), in which firms are supposed to minimize total transportation cost for both their inputs and outputs when choosing a location. Firms in an area would compete with rivals on the selling

price (Hotelling, 1929). Meanwhile, the firms also agglomerate if the trade cost is low enough (Krugman, 1991) and if products are differentiated. As a result, firms consider location according to both agglomeration (market area) and dispersion (price competition). Artz, Kim, and Orazem (2016) suggested that agglomeration economies are important to firms in rural area in the United States. However, to the best of our knowledge, this is not verified among developing economies or medium and large-size firms.

In addition to the theory based on formal job creation, rural areas would rely on the location choice of firms and on the theory for structural change in those areas (urbanization). Structural change in rural areas is a process where the main economic activity transforms into nonfarm production. The process occurs in four phases: integrated farm-nonfarm households, market exchange, specialization, and spatial concentration in towns (Haggblade, Hazell, and Reardon, 2007). The scenario is that increasing labor productivity on the farm increases family income, provides more capital for investment, releases workers from farm work, and provides more investment in education. Formal firms are first formulated from household businesses and then evolve. The process of later change can be illustrated as a flying geese pattern: one sector takes off and is followed by another (Matsuyama, 2002). A detailed study on the mechanisms of structural transformation is the work of Syrquin (1988).

However, to the best of our knowledge, there are limited empirical studies on the combination of the two areas: that is, how firms respond to the "big" push (particularly from increased infrastructure rather than a natural and gradual transformation to urban areas) from regional favoritism. Tracking the economic consequences (formal employment) after the push in rural areas in a developing country is a unique endeavor and would be inferable to other developing (newly emerging) countries at a similar development stage.

III. Data

We construct balanced panel data for Vietnamese rural districts (as the unit) by year for the period from 2000 to 2011. The district is at level 2 of the geographical administrative division by General Statistics Office of Vietnam GSO (2015)[7]. We connect all district data using the consistent name of the districts and using the district latitude and longitude information.

A. Data Sources

We collected data from four major sources. First, we obtained detailed official and public profile information for each politician[8] who was an official member of the Central Committee during the period 2000 to 2011 from the CPV website (CPV, 2017). We extracted information on the term when the politician held the position and the corresponding home town district. Before joining the CPV, all candidate profiles were screened and strictly verified including a possible on-site investigation at the home town where the candidate was born and spent their early years. Second, we acquired firm data from the Vietnam Enterprise Survey (VES) of the GSO of Vietnam. GSO has collected annual information on firms operating in Vietnam since 2000. The information includes general firm information such as ownership, main business activities, the number of workers, and the districts where firms are located. Third, we obtained information on the Vietnam climate, the Daily Climate Summary, during the period 2000 to 2011 from the US National Oceanic and Atmosphere Administration (NOAA). The data detail all measured climate indicators such as average daily temperature and daily

[7] See footnote 2 for the detail.

[8] We do not consider middle and highly ranked government officials because of several reasons. The top-ranked officials would overlap with members of the Central Committee and might hold several positions at the same time. The mid-ranked officials might be led by the top-ranked officials and are more likely (than members of the Committee) to be designated to different positions of different levels in different places for a shorter time (than the fixed five-year term). It is difficult to mark exactly either the beginning or the end of each term and to weight the importance of each position.

rainfall for all 114,725 days from January 1, 2000 to December 31, 2011 from every meteorological station in service (30 stations in total) in Vietnam. Fourth, we obtained from Minnesota Population Center (2017) information on the Vietnamese population. That is, the 2009 Population and Housing Census Survey (PHCS) conducted by GSO in Vietnam in April 1, 2009. The survey is composed of 15 percent of the Vietnamese population (14,177,590 individuals), randomly sampled, with estimated sampling weight for individuals. The PHCS data also contain geographical information at the district level 2.

B. Sample Selection

The sample selection is crucial to our identification strategy. We learned that there are many reasons for firms to choose urbanized areas as a location over rural areas. Examples are agglomeration economies such as labor market pooling, knowledge spillover, common input sharing, transportation convenience, better supporting services, and the economic scale of a firm's concentration. Therefore, we applied the division by GSO (2015) and excluded all urban districts from a census of 708 districts. We also omitted Hanoi and Ho Chi Minh City because Ho Chi Minh City is the largest city and Hanoi is the capital and second largest city in Vietnam. Thus, the remaining districts were rural districts until 2015. Additionally, we retained only rural districts that did not change their borders or have involvement in administrative mergers and new establishments during the period 2000 to 2011. After this restriction, we had 444 distinct rural districts during 2000 to 2011 for our analysis.

We selected the districts as the home town of each politician in power during 2001 to 2011: term 9 (January 2001 to April 2006), term 10 (April

2006 to January 2011), and term 11 (January 2011 to January 2016).[9] Then, we limited the data within the scope of the 444 rural districts. Politician home towns were 85 (105 politicians), 106 (134 politicians), and 113 (150 politicians) rural districts for the political terms 9, 10, and 11, respectively[10]. The politicians' home town districts by political term are shown in Figure 1.

[Insert Figure 1 here]

We applied several methods to ensure that the firm data from the census was representative of the districts. For the VES data in the 444 districts, we only considered firms with 30 or more workers by the end of the year prior to the year of the survey, which covered mid and large-size formal firms. Coincidentally, those firms were naturally chosen as a census survey target by GSO regardless of firm ownership.[11] Concretely, we followed Vu, Yamada, and Otsuki (2017) to verify the data in each year. We used tax code information and the last six digits of telephone numbers to construct the first identifier, the anonymously coded identity of the firm within a province and within a year. Additionally, only when the tax code was not available, we used a secondary identifier which is set up from a unique combination of the anonymously coded "identity" by GSO[12] and the last six digits of the firm telephone number. The different combinations and two identifiers ensured that the selected firms were not duplicated. We deleted the duplicated copies of firms based on the two identifiers.

[9] We did not consider term 8 because we have firm information for the politicians' home town districts only for the year 2000.

[10] The total number of politicians in the Central Committee was 150, 181, and 200 for terms 9, 10, and 11, respectively. Thus, the number of politicians in the selected sample were 70 to 75 percent of all Central Committee members.

[11] GSO applied different sampling methods based on firm ownership and the number of workers since 2000. For example, in 2009, GSO selected 15 percent of domestic private firms with fewer than 10 workers and raised the limit to 20 for Hanoi and 30 for Ho Chi Minh city.

[12] Vu, Yamada, and Otsuki (2017) reported duplication of firms in the VES even with "identity" provided by GSO.

We connected the 444 rural districts with the meteorological data using geographical information for the two locations: the districts and the meteorological stations. We matched them by judging the nearest linear geographical distance between the two using their latitude and longitude information.

The descriptive statistics for the 444 districts were as follows. We explain the definition of each variable in detail in the following section.

[Insert Table 1 Here]

IV. Econometric Method and Specifications

We assume that the decision of an entrepreneur to either set up a new formal business identity or increase the number of workers above 30 would depend on the prospective market of the outputs, natural and economic environment of the location for the inputs, and firm endowments. The prospective market of the outputs and natural and economic environment would include both time-constant and time-varying factors at the district level. Therefore, when district fixed effect and time-specific effects are controlled, the decisions of firms would only depend on policy changes, (past) natural environment changes, past firm endowments and decisions, and their expectation concerning the changes in the output market. We argue that any policy change at the district level is endogenous and attached to political decisions in Vietnam, a single-party country. Top-ranked politicians have the most potential to initiate change. In this case, we consider only members of the Central Committee of the Communist Party of Vietnam as the top-ranked politicians.

For firm decisions on location and size, we examine two outcomes in a district: the number of formal firms ($ln(FIRMS)$) defined as a logarithm of the number of formal firms located in a district, and the aggregated number for

the employed among formal firms ($ln(WORKERS)$) at the end of the year defined as a logarithm of the total employment in all formal firms located in a district[13].

We use the same specification for both outcomes using district fixed effects with clustered standard errors at the district level. For convenience, we only illustrate the former outcome, $ln(FIRMS)$. Each observation represents a district in a specific year, and the empirical specification is:

$$ln(FIRMS_{it}) = \beta_{1n}.T_{i,n} + \mu_i + \varphi_t + \varepsilon_{it} \quad (1)$$

where $ln(FIRMS_{it})$ is a logarithm of the number of formal firms located in district *i* in year *t*. $T_{i,n}$ is the dummy for the district *i*, which was the home district of a politician in power in term *n*. Among districts having politicians, $T_{i,n}$ takes one if the year *t* was from the second year of the term *n* onward and zero otherwise. The exclusion of the first year is appropriate because there would be an interim of time between terms. This time is for the politicians to set up his/her power and influences and for the firms' subsequent responses. Additionally, we notice that term 9 (10) began in April. We set $T_{i,9} = 1$ if the district *i* has a politician in power in term 9, the year was 2002, and so on. Similarly, $T_{i,10} = 1$ if the district *i* has a politician in power in term 10, the year was 2007, and so on. The exception is that $T_{i,11} = 1$ if the district *i* has a politician in power in term 11 and the year was 2011. μ_i and φ_t are district and year fixed effect, respectively.

[13] In addition, we apply a logarithm adjustment for all variables to construct balanced panel data. We notice that some districts did not have any firms with 30 or more workers in a certain year. We impute $ln\,(X) = \ln\,(\mathrm{x} + (\mathrm{x}\text{^}2 + 1)\text{^}(1/2))$ where x is the original value of the variable and $ln\,(X)$ is the adjusted value. This transformation will help to distinguish the two cases: $x = 1$ and where x is not available. All displayed variables in logarithm form take the value of $ln(X)$.

We extend (1) to (2) by considering additional lagged (at t-1) time-varying factors in district i, such as the number of firms (in logarithm form), extreme climate conditions ($CLIMATE_{it\text{-}1}$), and population ($ln(POPULATION_{it\text{-}1})$). The past values also help to manage mean reversion. Particularly, α_1 might also show the preference on agglomeration of the firms. We also examine the years just before (T_{BEFORE}) and the years just after (T_{OVER}) the change in the political term. Then, the specification is:

(2)

$$ln(FIRMS_{it}) = \alpha_1.ln(FIRMS_{i,t\text{-}1}) + \alpha_{2n}.T_{BEFORE,i,n} + \alpha_{3n}.T_{i,n} + \alpha_{4n}.T_{OVER,i,n} + \sum_{m=1}^{2}\alpha_{5m}.CLIMATE_{i,t\text{-}1,m} + \alpha_6.ln(POPULATION_{i,t\text{-}1}) + \mu'_t + \varphi'_t + \epsilon_{it}$$

$T_{BEFORE,i,n}$ ($T_{OVER,i,n}$) is a dummy and captures the changes in a district having the politician in term n, shortly before (after) the politician resumes (leaves) office. The time span is a year or two consecutive years. A year is applied only for $T_{OVER,i,10}$. For example, $T_{AFTEROVER,9,i} = 1$ if the district i had the politician in term 9 and it was 2007 or 2008. $T_{BEFORE,i,10} = 1$ if it was 2004 or 2005 in the district i that had the politician in term 10. $CLIMATE_{i,t\text{-}1,m}$ are variables for two district climate indicators ($m = 1\ or\ 2$) in the previous year. The first is the average temperature of the previous year ($TEMPERATURE_{i,t\text{-}1}$), which is calculated from the average temperature in all measured months from the nearest meteorological station. The second ($EXTREME\_RAIN_{i,t-1}$) is the number of days in the previous year having a rainfall among the top highest 5 percent of measured rainfall of all meteorological stations during the whole period 2000 to 2011. $ln(POPULATION_{it\text{-}1})$ is the logarithm of the district population aged between

15 and 55 in the previous year. Vu and Yamada (2017) noticed that this age range is typical for the age of the labor force since the retirement age for women was 55 during the period 2000 to 2011. We extract and estimate the data from the PHCS under the assumption that the dead rate would be minor during 12 and 64 years of age. We acknowledge that we must make a strong assumption that internal migration among rural districts is also minor. Then, we estimate the similar models for $ln(WORKERS)$.

We also exercise similar estimations separately for private domestic firms (or privately owned enterprises, POE), foreign-affiliated firms (or foreign-owned enterprises, FOE), and state-owned firms (or state-owned enterprises, SOE). FOEs include solely foreign-owner(s) (without any domestic partnership) firms and joint ventures (with domestic partners[14]). SOEs include all firms with solely domestic ownership where the ownership is solely the state and where the state holds more than 50 percent of the total shares. POEs are the remaining firms. The firm ownership information is from the VES. For instance, we estimate (3) and (4) for POEs.

(3) $$ln(POE_{it}) = \gamma_{1n}.T_{i,n} + \pi_i + \theta_t + \varepsilon_{it}$$

(4) $$ln(POE_{it}) = \delta_1.ln(POE_{i,t\text{-}1}) + \delta_{2n}.T_{BEFORE,i,n} + \delta_{3n}.T_{i,n} + \delta_{4n}.T_{OVER,i,n} + \sum_{m=1}^{2} \delta_{5m}.CLIMATE_{i,t\text{-}1,m} + \delta_6.ln(POPULATION_{i,t\text{-}1}) + \pi'_t + \theta'_t + \epsilon_{it}$$

We estimate the similar models for FOEs and SOEs.

[14] GSO (2013a) showed that the capital share of joint ventures among all types of ownership reduced from 14.62 percent in 2000 to 6.51 in 2007 while that of solely foreign firms jumped from 8.4 percent up to 11.74 percent in the same period. GSO (2013b) showed the number of solely foreign firms rocketed by approximately 5.4 times to 4,612 firms during the period 2000 to 2008 while that of joint ventures increased by 1.5 times (1,014 firms). During 2000 to 2011, the number of joint ventures was approximately 22.9 percent of all FOEs while the number of joint ventures formed with state partners was approximately 12 percent of all FOEs (Vu, Yamada, and Otsuki (2017): Table 2).

V. Findings

A. Firms and Regional Favoritism

We find that a rural district that is the politician's home town attracts more formal firms, and the number employed by those firms increases. Specifically, such a district would absorb 17.3 to 52.8 percent[15] more formal firms after the first year of the term of the politician as in column (6) of Table 2. Another example is term 10. The number employed by firms increases by approximately 33.9 percent annually as in column (6) of Table 3. Hodler and Raschky (2014) demonstrated that regional favoritism occurred in the birth place of the politician during the term, which suggests no long-term effect. Meanwhile, we find that firms in politicians' home town districts remain and continue their business even after the term ends. This is confirmed because the coefficients of *T9*, *T10*, and *T11* are positive (the number of firms increases compared to the pre-term) and are statistically significant in Table 2. We also identify a downturn within two years of the term's end, which is approximately 14 to 15.2 percent for term 9. In term 10, the decrease in the number of firms is not statistically significant although the signs of the coefficients are negative. Additionally, the number employed among formal firms grows continuously without any statistically significant down trend after term 10 as seen in Column (6) of Table 3.

[Insert Tables 2 and 3 Here]

Our result is consistent across different specifications for estimations with the number of firms (in logarithm form) as a dependent variable. The only exception is *T11* in column (5) of Table 2. However, *T11* is captured only in

[15] The interpretation of dummies is based on a conversion formula by Kennedy (1981) from the original coefficient, such as T11 at column (6) will be

$$17.3\% = 100\times\left\{\left(\exp\left(\hat{\alpha}\text{-}0.5\hat{V}(\hat{\alpha})\right)\right)\text{-}1\right\}$$
$$= 100\times\{(\exp(0.162 - 0.5\times 0.069\text{^}2))\text{-}1\}.$$

the first year (2011) of the term, which might be too soon for the influence of regional favoritism to be recorded. In contrast, *T9* and *T10* were counted from the second year of the term.

We also verify that reverse causality of favoritism is unlikely. One hypothesis of reverse causality is that in a developing district with good business, firms might lobby or provide stronger financial support for the local (rooted) politician to win and become the member of the Central Committee. When holding the power, the politician exercises regional favoritism to favor the development of local district firms. Another hypothesis is as follows. Before being nominated as a Central Committee member, the politicians might already be successful local politicians in terms of developing the local economy, which coincides with the growth of more medium and large firms in the district. Thanks to this success, the politicians are later selected to the Central Committee. However, the coefficients of $T_{BEFORE,i,10}$ and $T_{BEFORE,i,11}$ prove that this is not the case. The coefficients are either statistically insignificant or with negative signs as in column (4) to (6) in Tables 2 and 3. The dummies show that two years before the term, firms in the district with the later appointed politician were not too different from the years before (the baseline).

Table 2 shows a negative association between average temperature (extreme heavy rain) and the number of formal firms. Our result agrees with the findings of Hsiang, Burke, and Miguel (2013). Hsiang, Burke, and Miguel (2013) showed a sharp rise from mild temperatures and normal precipitation to the probability of human conflict from 10,000 BCE to the present in all major areas in the world.

B. Different Firm Ownership Toward Regional Favoritism

We find that firms with different ownership react differently under regional favoritism. While private firms and foreign-affiliated firms are much more

alike, state-owned firms are less likely to be influenced or respond to regional favoritism.

[Insert Tables 4 and 5 Here]

Similar to the full sample case, the number of formal POEs and the number employed by those firms increases in response to regional favoritism as shown in columns (1), (2) and (3) of Tables 4 and 5. The coefficient of *T11* becomes statistically insignificant in column (3) of Table 4. However, this might be because few observations are in the data for term 11 and because regional favoritism would take some time to be effective. *T11* captures only the first 11 months of the term, whereas *T9* and *T10* capture from the second year of the term. Similarly, FOEs respond as much as private domestic firms as seen in columns (4), (5) and (6) of Table 4. Particularly, Table 5 shows that in response to regional favoritism, FOEs increase their employment rate faster than POEs.

In contrast with POEs and FOEs, Table 4 shows that state-owned firms (SOEs) do not alter in number to respond to regional favoritism as all corresponding coefficients are statistically insignificant. Interestingly, the employment growth in these SOEs tends to stand still during the political term. We argue that SOEs are relatively inflexible compared with private and foreign firms in terms of personnel, decision making, and capital mobility. Additionally, SOEs in rural district areas might also act as public service providers or nonprofit-oriented organizations. As evidence, columns (8) and (9) in Table 4 shows that SOEs grow positively along with population growth. However, we acknowledge that medium and large-size SOEs may behave in a complex manner in response to regional favoritism and in terms of employment growth across terms.

C. Discussions and Policy Implication

The most plausible explanation as to why formal firms respond to regional favoritism is because the home town communes of the politicians receive more infrastructure projects. They received 0.23 additional infrastructure projects within the first three years of the political term in Vietnam. Home town communes of politicians receive more productive and more information infrastructure (Do et al., 2017). These public infrastructure investments could be attractive to formal firms. However, why firms continue to maintain the scale and choose to remain in the district after the political term cannot be explained from previous literature.[16]

We have several arguments against the explanation that firms located in district home towns must have connections with politicians in Vietnam. As shown in Table 3, foreign-affiliated firms also respond to regional favoritism while state-owned firms do not. This is counterintuitive. FOEs also increase employment more rapidly compared with POEs in response to regional favoritism. FOEs are the least likely to have connection with politicians, and FOEs are bound to additional regulations from their own countries, which have greater transparency than those of Vietnam. However, they continue to grow after the political term ends.

Another explanation is that politicians contribute to their home town to benefit later when they retire (nepotism) and return to their home towns. We could not obtain direct evidence of the first part of this explanation. However, we agree with Do et al.'s (2017) arguments that the politicians would have lived far away from their home towns. We would further argue that urban areas offer superior living conditions, particularly health care services for retirees in Vietnam.

[16] Do et al. (2017) did not find any effect of home town favoritism on the local economy because it may take time for the newly constructed infrastructure to produce an effect.

Instead, we have three possible explanations for the differences compared to the findings of Hodler and Raschky (2014). First, the single-party system might enable politicians to wield underground power or influence via political connections with future politicians even after leaving office. They can vote (nominate) for their successors. Particularly, in our selected data, 13 districts continuously had politicians from term 9 to term 11, and another 20 (30) districts had politicians for both terms 9 and 10 (10 and 11). The home town clans might help to maintain a constant policy of favoritism toward the home town district.

Second, top-ranked politicians may be able to integrate regional favoritism into a regional master plan for the state from top-down policies, which could partially explain the continuing development of the districts after the politicians left office.

Third, any public investment in infrastructure during the term would remain in the district reducing the cost of operations such as transportation, electricity, clean water, and linkages with other parts of the country. Mu and Walle (2011) showed that 5,000 km of rural road rehabilitation during 1997 to 2001 in Vietnam significantly improved the local markets, which would be grounds for our argument. Thus, firms who benefit from improvements in infrastructure will continue to grow while firms that directly implement the public investment might suffer. The gain might last longer than the political term because infrastructure will not disappear immediately after the political term.

This interpretation does not contradict the findings of Do et al, (2017) who found that the neighboring communes of the same district do not gain from infrastructure. Do et al. (2017) defined the neighboring communes using the shortest Mahalanobis distance based on geographical distance, the difference in average individual income, and population. Their definition is excellent for their identification strategy but does not capture other neighboring communes that might directly benefit from connective road construction. The

infrastructure of the home town communes of the politicians would be worthless if the commune is still a beautiful isolated island. Additionally, we argue that the district level would be more appropriate for firms' responses. Firms can respond by locating near or at the central point (the home town commune).

However, we also acknowledge the limitations of our data. We cannot track the districts as Hodler and Raschky (2014) did to verify whether the districts that are not home to the politicians can catch up with the home town districts of the politicians.

In addition, firms in rural areas are influenced by agglomeration. The coefficients of $ln(FIRMS_{i,t\text{-}1})$ are positive and significant, which implies that firms are more likely to gather together. This result in addition to the third argument on connective road construction might explain why firms locate in rural areas and why firms respond to regional favoritism.

Our results suggest that firms still respond positively to regional favoritism even after the political term ends, which represents positive private sector growth (rather than SOEs). This provides better efficiency within the home town districts of politicians. However, the downside is that favoritism is also discriminatory at the national level, which keeps the districts that are not home towns of politicians at lower levels of development. However, we acknowledge that the expansion in the distribution of politician's home town districts in recent terms toward inland districts would lessen the negative affect of favoritism.

VI. Conclusion

We examined the changes in the number of formal firms and the aggregated number of those employed by those firms in 444 rural districts during the period 2000 to 2011 in Vietnam. We found that formal firms, specifically, formal private domestic firms and foreign affiliated firms, respond positively

to regional favoritism. However, state-owned firms do not. Our findings suggest that within the home town districts of politicians, regional favoritism might be locally efficient because only private sectors respond. However, our findings also suggest that persistent favoritism keeps the districts that are not home to politicians at the lower levels of economic development. The key policy implications and challenges are whether this unbalanced regional growth induced by regional favoritism is tolerable and acceptable to Vietnam as a country. Unfortunately, as already mentioned, we cannot track districts in the long run due to data limitations. However, research in this direction could be fruitful.

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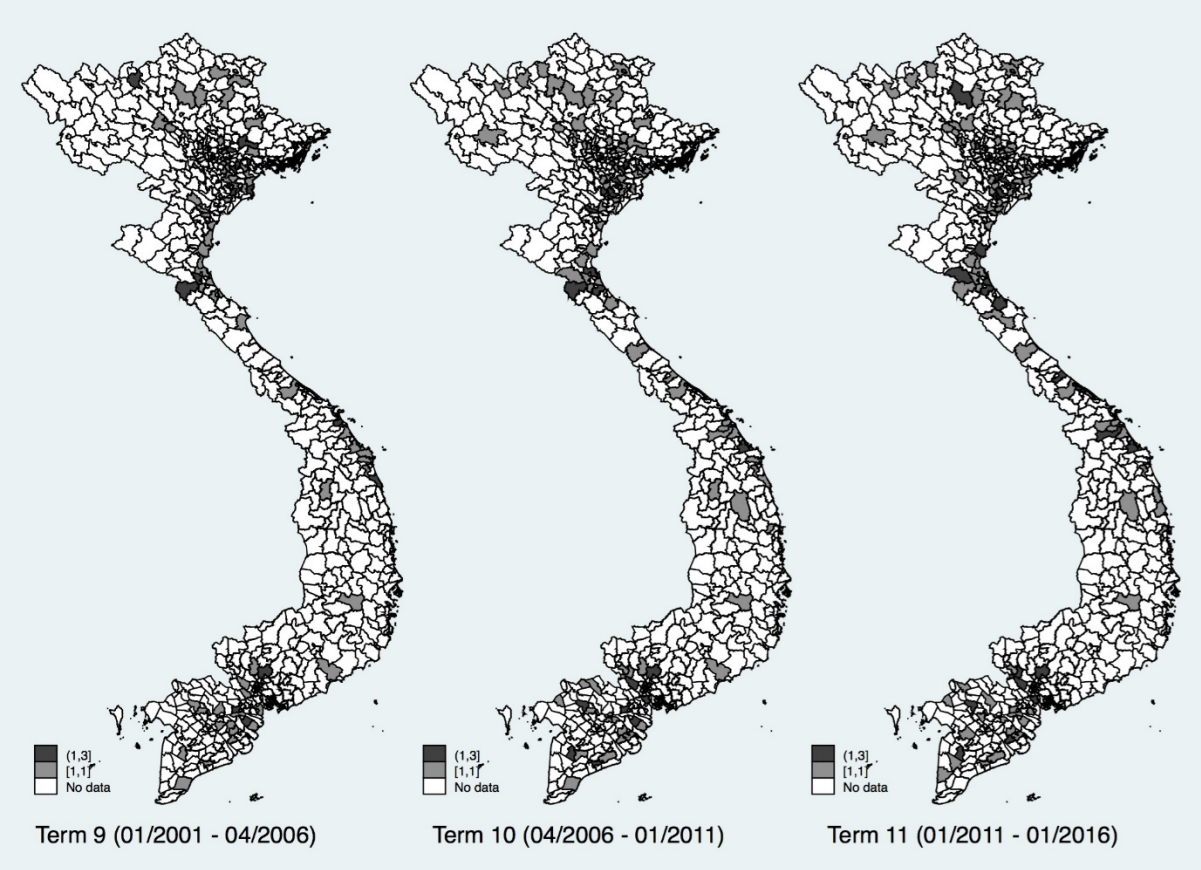
FIGURE 1 DISTRIBUTION OF POLITICIANS' DISTRICT HOME TOWNS IN THE SELECTED SAMPLE



Note: We could display only 82 of 85, 102 of 106, and 109 of 113 rural home town districts in the political terms 9, 10 and 11 in the inland territory of Vietnam with a total of 678 districts. "No data" reflects the exclusion of Hanoi, Ho Chi Minh city, and urban districts. The source file for the GIS map shape was obtained from http://www.diva–gis.org/gdata.

TABLE 1 DESCRIPTIVE STATISTICS

Variable	Descriptions	Mean	Std. Dev.	Min	Max
ln (FIRMS)	ln (Total number of firms)	2.401	1.279	0	6.657
ln (POE)	ln (Total number of private firms)	2.107	1.308	0	6.148
ln (FOE)	ln (Total number of foreign firms)	0.354	0.832	0	6.131
ln (SOE)	ln (Total number of state–owned firms)	0.774	0.835	0	3.738
ln (WORKERS)	ln (Total number of workers)	6.619	2.593	0	12.207
ln (WPOE)	ln (Total number of workers in POE)	5.807	2.706	0	11.548
ln (WFOE)	ln (Total number of workers in FOE)	1.545	3.032	0	11.979
ln (WSOE)	ln (Total number of workers in SOE)	3.546	3.419	0	10.378
T9	=1 if the district was term–9 politician(s) home town and year>2001, =0 otherwise	0.160	0.366	0	1
T10	=1 if the district was term–10 politician(s) home town and year>2006, =0 otherwise	0.099	0.299	0	1
T11	=1 if the district was term–11 politician(s) home town and year=2001, =0 otherwise	0.021	0.144	0	1
T9_OVER	=1 if T9=1 & Year=2007 or 2008, =0 otherwise	0.099	0.299	0	1
T10_OVER	=1 if T10=1 & Year=2011, =0 otherwise	0.020	0.140	0	1
T10_BEFORE	=1 if the district was term–10 politician(s) home town and year=2004 or 2005, =0 otherwise	0.016	0.125	0	1
T11_BEFORE	=1 if the district was term–11 politician(s) home town and year=2009 or 2010, =0 otherwise	0.103	0.304	0	1
TEMPERATURE	Annual average temperature (Celsius)	24.898	1.990	20.826	28.054
EXTREME_RAIN	Number of days in the year with extremely heavy rain (top 5% of rainfalls) day measured	3.284	1.945	0.500	11.182
ln (POPULATION)	ln (district population aged 15–55)	11.821	0.599	10.082	13.128

Note: All variables are at the district level and on an annual basis. Variables in logarithm form are adjusted values for unavailable data (See Section 4 for a detailed explanation). Number of districts is 444 (N=5,328).

TABLE 2 NUMBER OF FIRMS WITH 30 OR MORE WORKERS AND REGIONAL FAVORITISM

	ln (FIRMS)					
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
T9	0.315***	0.524***	0.526***	0.523***	0.422**	0.438**
	(0.100)	(0.162)	(0.161)	(0.167)	(0.164)	(0.169)
T9_OVER			–0.162*	–0.155*	–0.153*	–0.148*
			(0.084)	(0.084)	(0.084)	(0.084)
T10_BEFORE			0.085	0.078	0.078	0.073
			(0.060)	(0.068)	(0.060)	(0.067)
T10	0.248***	0.224***	0.263***	0.209***	0.203**	0.162**
	(0.071)	(0.070)	(0.079)	(0.067)	(0.083)	(0.069)
T10_OVER			–0.063	–0.087	–0.064	–0.087
			(0.073)	(0.072)	(0.074)	(0.073)
T11_BEFORE			0.004	0.002	–0.057	–0.048
			(0.059)	(0.052)	(0.058)	(0.052)
T11	0.162***	0.159***	0.184**	0.191***	0.102	0.124*
	(0.054)	(0.055)	(0.078)	(0.069)	(0.079)	(0.071)
TEMPERATURE (t–1)		–0.151**	–0.154**	–0.137**	–0.116*	–0.107
		(0.067)	(0.067)	(0.067)	(0.068)	(0.067)
EXTREME_RAIN (t–1)		–0.035***	–0.035***	–0.031***	–0.032***	–0.029***
		(0.011)	(0.011)	(0.010)	(0.011)	(0.010)
ln (FIRMS(t–1))				0.185***		0.177***
				(0.022)		(0.024)
ln (POPULATION(t–1))					–8.748***	–7.131***
					(2.174)	(1.956)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.732***	6.822***	6.879***	5.918***	109.099***	89.291***
	(0.036)	(1.697)	(1.699)	(1.694)	(25.463)	(22.952)
Observations	5,328	4,884	4,884	4,884	4,884	4,884
R–squared	0.357	0.348	0.349	0.373	0.356	0.378
Number of districts	444	444	444	444	444	444

Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

TABLE 3 EMPLOYMENT AMONG FIRMS WITH 30 WORKERS OR MORE AND REGIONAL FAVORITISM

	ln (WORKERS)					
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
T9	0.208	0.608*	0.578	0.614*	0.567	0.607
	(0.211)	(0.356)	(0.352)	(0.364)	(0.359)	(0.371)
T9_OVER			0.207	0.211	0.208	0.211
			(0.232)	(0.235)	(0.232)	(0.235)
T10_BEFORE			0.129	0.111	0.128	0.111
			(0.155)	(0.167)	(0.156)	(0.167)
T10	0.337**	0.308**	0.367**	0.309**	0.360**	0.305*
	(0.150)	(0.155)	(0.173)	(0.156)	(0.179)	(0.161)
T10_OVER			–0.201	–0.230	–0.201	–0.230
			(0.164)	(0.165)	(0.165)	(0.165)
T11_BEFORE			–0.215*	–0.187	–0.221*	–0.191
			(0.126)	(0.117)	(0.129)	(0.120)
T11	0.043	0.048	0.141	0.186	0.132	0.180
	(0.110)	(0.111)	(0.160)	(0.151)	(0.164)	(0.155)
TEMPERATURE (t–1)		–0.272*	–0.275*	–0.290*	–0.271*	–0.287*
		(0.152)	(0.152)	(0.151)	(0.153)	(0.152)
EXTREME_RAIN (t–1)		–0.058**	–0.057**	–0.055**	–0.057**	–0.055**
		(0.027)	(0.027)	(0.025)	(0.028)	(0.025)
ln (WORKERS(t–1))				0.119***		0.119***
				(0.024)		(0.024)
ln (POPULATION(t–1))					–0.930	–0.580
					(5.077)	(4.683)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Constant	5.728***	14.441***	14.520***	13.993***	25.386	20.774
	(0.102)	(3.836)	(3.849)	(3.831)	(59.619)	(55.010)
Observations	5,328	4,884	4,884	4,884	4,884	4,884
R–squared	0.175	0.183	0.183	0.196	0.183	0.196
Number of districts	444	444	444	444	444	444

Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

TABLE 4 NUMBER OF FIRMS WITH 30 WORKERS FOR MORE BY FIRM OWNERSHIP AND REGIONAL FAVORITISM

	ln (POE)			ln (FOE)			ln (SOE)		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
T9	0.395***	0.529***	0.443***	0.186**	0.178*	0.149	0.001	0.188	0.252*
	(0.104)	(0.150)	(0.152)	(0.083)	(0.101)	(0.102)	(0.080)	(0.141)	(0.144)
T9_OVER		–0.221***	–0.214**		–0.095	–0.093		0.005	–0.000
		(0.085)	(0.085)		(0.063)	(0.063)		(0.079)	(0.078)
T10_BEFORE		0.096	0.089		0.035	0.033		0.020	0.026
		(0.067)	(0.066)		(0.056)	(0.055)		(0.050)	(0.050)
T10	0.245***	0.205***	0.157**	0.273***	0.114***	0.097**	–0.108*	–0.087	–0.050
	(0.069)	(0.062)	(0.064)	(0.075)	(0.043)	(0.044)	(0.063)	(0.057)	(0.056)
T10_OVER		–0.087	–0.086		–0.048	–0.048		0.063	0.064
		(0.075)	(0.076)		(0.052)	(0.052)		(0.055)	(0.055)
T11_BEFORE		0.011	–0.041		0.064*	0.047		–0.062	–0.024
		(0.053)	(0.053)		(0.036)	(0.035)		(0.041)	(0.041)
T11	0.158***	0.179***	0.111	0.158**	0.116*	0.094	–0.043	–0.072	–0.022
	(0.054)	(0.069)	(0.071)	(0.064)	(0.059)	(0.059)	(0.051)	(0.066)	(0.065)
TEMPERATURE (t–1)		–0.080	–0.049		–0.029	–0.018		–0.053	–0.076
		(0.061)	(0.062)		(0.025)	(0.025)		(0.058)	(0.060)
EXTREME_RAIN (t–1)		–0.026**	–0.023**		–0.009***	–0.008**		0.009	0.007
		(0.010)	(0.010)		(0.004)	(0.004)		(0.007)	(0.007)
ln (POE(t–1)/FOE(t–1)/SOE (t–1))		0.217***	0.206***		0.557***	0.556***		0.150***	0.142***
		(0.018)	(0.019)		(0.030)	(0.030)		(0.024)	(0.024)
ln (POPULATION(t–1))			–7.339***			–2.463***			5.466***
			(1.740)			(0.762)			(1.551)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.117***	4.263***	90.077***	0.150***	0.985	29.775***	1.043***	1.822	–62.046***
	(0.038)	(1.544)	(20.438)	(0.022)	(0.625)	(8.884)	(0.028)	(1.467)	(18.062)
Observations	5,328	4,884	4,884	5,328	4,884	4,884	5,328	4,884	4,884
R–squared	0.455	0.451	0.456	0.148	0.401	0.403	0.206	0.232	0.236
Number of districts	444	444	444	444	444	444	444	444	444

Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

TABLE 5 EMPLOYMENT AMONG FIRMS WITH 30 WORKERS OR MORE BY FIRM OWNERSHIP AND REGIONAL FAVORITISM

	ln (WPOE)			ln (WFOE)			ln (WSOE)		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
T9	0.391	0.761**	0.783**	0.704**	0.704*	0.517	–0.251	0.430	0.667
	(0.242)	(0.343)	(0.349)	(0.300)	(0.408)	(0.412)	(0.311)	(0.498)	(0.510)
T9_OVER		–0.047	–0.049		–0.252	–0.238		0.268	0.248
		(0.234)	(0.234)		(0.308)	(0.307)		(0.372)	(0.372)
T10_BEFORE		0.192	0.193		–0.130	–0.142		0.288	0.307
		(0.156)	(0.157)		(0.175)	(0.174)		(0.199)	(0.199)
T10	0.177	0.227	0.240	1.052***	0.538***	0.434**	–0.295	–0.241	–0.102
	(0.148)	(0.152)	(0.156)	(0.276)	(0.187)	(0.188)	(0.241)	(0.207)	(0.203)
T10_OVER		–0.284*	–0.284*		–0.381	–0.382		0.391*	0.395*
		(0.166)	(0.166)		(0.261)	(0.260)		(0.234)	(0.231)
T11_BEFORE		–0.189	–0.176		0.303*	0.193		–0.289	–0.147
		(0.132)	(0.134)		(0.176)	(0.176)		(0.184)	(0.185)
T11	–0.007	0.173	0.190	0.692***	0.709**	0.564*	–0.244	–0.403	–0.217
	(0.108)	(0.149)	(0.152)	(0.267)	(0.292)	(0.291)	(0.234)	(0.267)	(0.269)
TEMPERATURE (t–1)		–0.089	–0.097		–0.074	–0.007		–0.044	–0.131
		(0.178)	(0.179)		(0.095)	(0.096)		(0.208)	(0.213)
EXTREME_RAIN (t–1)		–0.052*	–0.052*		–0.036**	–0.031*		0.048*	0.041
		(0.028)	(0.029)		(0.017)	(0.017)		(0.029)	(0.029)
ln (WPOE(t–1)/WFOE(t–1)/WSOE(t–1))		0.117***	0.117***		0.420***	0.415***		0.191***	0.184***
		(0.019)	(0.019)		(0.026)	(0.026)		(0.021)	(0.021)
ln (POPULATION(t–1))			1.839			–15.921***			20.431***
			(4.103)			(4.134)			(6.063)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	3.945***	8.575*	–12.914	0.702***	3.305	189.400***	4.372***	3.397	–235.354***
	(0.113)	(4.504)	(48.107)	(0.082)	(2.430)	(48.596)	(0.110)	(5.253)	(70.698)
Observations	5,328	4,884	4,884	5,328	4,884	4,884	5,328	4,884	4,884
R–squared	0.261	0.244	0.244	0.141	0.278	0.282	0.173	0.212	0.216
Number of districts	444	444	444	444	444	444	444	444	444

Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.