Journal of Development Economics 151 (2021) 102673

Contents lists available at ScienceDirect

Journal of Development Economics

journal homepage: www.elsevier.com/locate/devec

Regular Article

Last corrupt deed before retirement? Evidence from a lower middle-income country

Cuong Viet Nguyen [a,b,*,1]

[a] International School, Vietnam National University, Hanoi, Viet Nam
[b] Mekong Development Research Institute, Hanoi, Viet Nam

ARTICLE INFO

JEL classification:
D72
L32
J23

Keywords:
Term limits
Retirement
Corruption
State-owned enterprise
Privatization

ABSTRACT

We provide evidence of the effect of term limits on the rent-seeking behavior of directors of state-owned enterprises (SOEs) in Vietnam by showing that these directors recruit substantially more employees just before retirement. We argue that a possible motive of these directors for the over-recruitment is to obtain bribes from employees, since the increase in employment is not associated with higher output, and the effect of these directors' last year in office on SOE labor is smaller in provinces with better corruption control. This finding also provides an explanation why SOEs tend to have an excess of labor and suggests that privatization can reduce this excess.

1. Introduction

There is an influential hypothesis that term limits or certain re-election can encourage shirking and rent-seeking behavior among politicians (e.g., Barro, 1973; Zupan, 1990; Bender and Lott, 1996; Besley and Case, 1995; Besley and Burgess, 2002; List and Sturm, 2006; Bernecker, 2014). While this literature has long been discussed, few empirical studies have tested the hypothesis, especially in low-income countries where data on the behavior of politicians is very limited. Moreover, little is known about the effect of term limits on corruption. An exceptional study, perhaps, is that of Ferraz and Finan (2011), who find that when facing a term limit, Brazilian mayors become more fraudulent in public procurement.

This paper provides evidence concerning the effect of term limits on the rent-seeking behavior of managing directors of state-owned enterprises (henceforth referred to as SOEs) in Vietnam, using age before retirement as an exogenous shock and firm fixed-effect estimator.[2] Large sample data from Vietnam Enterprise Censuses allow us to compare SOEs with directors just before retirement and SOEs with directors close in age. We find a strong effect on the number of employees in SOEs with a director 59 years of age, i.e., the age before retirement. Compared with other firms with similar assets, revenue and other observed variables, SOEs with a director aged 59 have about 20% more employees. Privatized firms with a 59-year-old director also have an excess of labor.[3] However, the effect of 59-year-old directors on labor is smaller for privatized firms than for SOEs, and the effect is only significant at the 10% level.

On several grounds, we argue that a possible motive of SOE directors for increasing the labor pool just before their retirement is to obtain bribes from employees. Firstly, our finding on the labor excess in SOEs with a director aged 59 is not accidental. It is consistent with observations of several cases where public officials have been criticized for recruiting a large number of additional employees just before retirement. A number of cases have been featured in the mass media (among others, see e.g., Duy, 2015; Gia, 2018). A typical example is the director of a health department in Thanh Hoa province who recruited around 3.7

* International School, Vietnam National University, Hanoi, Viet Nam.
E-mail address: cuongnv@isvnu.vn.

[1] I would like to express my thanks to Vu Manh Tien, Ian Coxhead, Malcolm Elliot-Hogg, Peter Lanjouw, Matthias Rieger, Benjamin Olken for their comments. I would also like to thank editor Jeremy Magruder and two anonymous reviewers from the *Journal of Development Economics* for their very helpful comments and suggestions.

[2] The director can also be called a managing director or a chief executive officer (CEO). However, in Vietnam the term 'director' is more widely used than the term 'CEO'.

[3] In this study, SOEs have 100% public capital, whereas privatized firms have less than 100% public capital.

https://doi.org/10.1016/j.jdeveco.2021.102673
Received 29 August 2018; Received in revised form 7 April 2021; Accepted 14 April 2021
Available online 22 April 2021

thousand staffs before retirement (Le, 2016).[4] This incident is mentioned in a Wikipedia article,[5] and there are even special terms for this phenomenon "Sunset term", "Sunset at age 59", and "the Last deed before retirement". The problem is so serious that the government once considered issuing a regulation preventing leaders from recruiting employees within six months before retirement (e.g., Tienphong Newspaper, 2014; Hang and Nhi, 2015). There is also the concern that public officials' overspending and corruption before retirement can lead to an increase in public debt (Le and Tan, 2016; Truong, 2016).

Secondly, according to Jain (2001), corruption takes place under three conditions: corrupt managers have "discretionary power"; this power can secure an economic rent; and there is low risk of punishment for corruption. These three conditions are all present for managing directors of SOEs in Vietnam. Managing directors have considerable power. Like civil servants, managing directors of SOEs in Vietnam are appointed by ministries or People's Committees of provinces. They can be supervised but cannot be fired by a board of directors (or management board). Moreover, SOE managing directors are commonly also the chairman of the management board or board of directors (Ngan, 2018). Vietnam is a country with a high level of corruption (World Bank, 2010; Bai et al., 2019), which implies a low risk of punishment. Although SOEs made an accumulated loss estimated at 12.5 trillion VND (around 545 million USD) until 2016, almost no one was held responsible or punished because of losses incurred (e.g., Nguyen, 2018; Linh, 2019). Paying bribes to get jobs in the public sector is not uncommon in Vietnam. In the Vietnam Governance and Public Administration Performance Index (PAPI) 2017 survey, 53% of respondents believed that paying bribes was necessary to get employment in the public sector (CECODES,VFF-CRT & UNDP, 2018).

Thirdly, obtaining bribes by over-recruitment just before retirement is a rational decision for directors to make. The decision of public officials to engage in corruption depends on their expected income and tenure in the current position, and the probability and cost of detection (Becker, 1968; Alt and Lassen, 2012). Although the probability of bribery detection is low, there is a trade-off between bribes from new recruits and enterprise performance. According to the 2003 Law of State-Owned Enterprises, directors of SOEs can be dismissed if their firms incur losses during two consecutive years (National Assembly of Vietnam, 2003; Ministry of Home Affairs, 2008). Over-recruitment can increase SOE labor costs and reduce profit, which in turn may affect a director's tenure and income. However, increasing the number of employees just before retirement is a safe bet for directors; if their firms get lost one or two years later, they have already retired.

Fourthly, we show that an increase in the number of employees recruited by directors at age 59 is not associated with an increase in SOE revenue and profit. Moreover, we find that the effect of 59-year-old directors on over-recruitment tends to be higher in provinces with less corruption control. There are data sets which measure the level of corruption control in provinces in Vietnam and by combining these data sets with enterprise data, we can examine the heterogeneous effect of 59-year-old directors on SOE labor across levels of corruption control in the provinces. Empirical analysis shows a negative association between provincial-level corruption control and the effect of the director's age on labor, i.e., the effect of a 59-year-old director is smaller in provinces with better corruption control.

Our study makes several contributions to the literature related to term limits, corruption and SOEs. First, there is an influential view that public officials have lower work incentives in "the last period." When politicians decide to retire, they tend to shirk or fail to act for the benefit of their constituents (e.g., Barro, 1973; Zupan, 1990; Bender and Lott, 1996). Related literature on term limits and electoral accountability suggests a relation between term limits and politicians' behavior (e.g., Besley and Case, 1995; Besley and Burgess, 2002; List and Sturm, 2006). Recently, Bernecker (2014) shows that German Members of Parliament who face a little threat to their re-election have higher absentee rates from parliamentary sessions. Ferraz and Finan (2011) demonstrate that Brazilian mayors in their second term (with a two-term limit) are more likely to perpetrate fraud in public procurement than those in their first term. Most previous studies focus on the behavior of politicians and political outcomes. Micro-evidence of the effect of term limits on corruption is minimal, especially in low-income countries where data on politicians' behavior as well as on corruption is very limited. To our knowledge, our study is the first attempt to provide evidence of corruption among directors of SOEs. It shows that rent-seeking behavior by SOE directors is encouraged in their final term, and this term limit effect is negatively associated with corruption control in the provinces.

Endogeneity constitutes a challenge for estimating the effect of term limits or threats to re-election. In this study, we measure the term limit by the age before retirement, which is largely exogenous. We compare SOEs (and privatized firms) with directors near retirement and those with directors close in age. We also control for the effect of 59-year-old directors who do not face a term limit or retirement. This age 59 effect is estimated using a sample of directors of private firms who do not face the necessity of retirement, unlike directors of SOEs or privatized firms. Thus, our identification strategy relies on the exogeneity of age, and is similar to a difference-in-differences estimator. More importantly, using panel data, we can control for firm fixed-effects and reduce the endogeneity caused by time-invariant unobserved variables. We also conduct a series of robustness analyses to verify the estimates.

Secondly, our study aims to shed light on why SOEs have such large, inefficient labor pools. There is a wide consensus that SOEs are less efficient mainly because their chief objectives consist not only of profit maximization but also include other political purposes (see e.g., Megginson and Netter, 2001; Estrin et al., 2009). One political purpose is to ensure employment. Berkowitz et al. (2017) argue that SOEs in China are more profitable, partly because they are able to avoid taking on the problem of excess labor. Boycko et al. (1996) argue that politicians who are owners of enterprises care about laborers' votes and are also influenced by trade unions, and as a result maintain a larger labor pool than is needed for mere efficiency. Our study provides a different explanation of labor redundancy in Vietnamese SOEs: SOE directors recruit more employees just before their retirement.

The failure of SOEs in some countries has led to the major worldwide phenomenon of SOE privatization. Although there are numerous studies on the effect of privatization, the findings remain inconclusive (for a review see Megginson and Netter, 2001; Parker and Kirkpatrick, 2005; Estrin et al., 2009). SOEs still play an important role, with the proportion of SOEs among the world's 2000 largest firms increasing from 10% to 14% from 2011 to 2013 (Kowalski et al., 2013; and Christiansen and Kim, 2014). Our study contributes to this debate by showing that privatization can partly solve the problem of excess labor by reducing the labor-increasing effect of directors' retirement. The effect on employee numbers of having a 59-year-old director is still positive for privatized firms but much smaller than for SOEs. This finding implies that privatization may increase supervision by the board of directors, reducing over-recruitment and possible corruption arising from managing directors as a result.

The remainder of this paper is structured as follows. The next section presents the data sets used in this study. The third section provides an overview of Vietnam and describes data from the Vietnam Enterprise Censuses that are used in this study. The fourth section presents the empirical method used in the paper. The fifth section discusses the main

[4] Numerous examples of public officials recruiting many employees and appointing new officials just before retirement in Vietnam can be found in the mass media. For example, Mr. Le Manh Hung, director of the Airports Corporation of Vietnam, appointed 76 officers before retirement (Phungand Cong, 2018). During the six months prior to his retirement, Mr. Huynh Phong Tranh, a government inspector, appointed 35 inspectors (Hoang, 2016).

[5] àôhttps://vi.wikipedia.org/wiki/Hoàng_hôn_nhiệm_kỳ#cite_note-4.

results of the effect of the retirement age of directors on the performance of SOEs in Vietnam. Finally, the six section presents the conclusion.

2. Data set

In this study, we use firm-level data from the Vietnam Enterprise Censuses (henceforth referred to as VEC) 2011 and 2013. The 2011 VEC was conducted in April and May 2012 by the General Statistics Office of Vietnam (GSO) to collect information on firm performance for 2011, while the 2013 VEC was conducted by the GSO from March to May 2014 to collect information on firm performance for 2013.

The VECs contain detailed information on firms, including firms' ownership, their main industries, the number of employees, labor costs, assets, turnover, and firm profits. The main reason why the 2011 and 2013 VECs are used in this study is that they contain demographic data about the directors of enterprises, including age, gender, ethnicity and education. This information is not contained in other data sets.

The number of enterprises or firms in the 2011 and 2013 VECs is 337,442 and 379,717, respectively. There are panel data from the 2011 and 2013 VECs. The data set includes firm codes which can be used to merge firms over time, and in addition to using the firm codes, we also merge firms using their name. Thus firms are merged if they have the same codes and names. Using the firm code and information on firm names, we can identify 267,232 firms which were surveyed in both years. The drop-out rate is equal to 21%. No information is available on the reasons for the dropping-out of a particular firm, but firms are dropped from the sample due to non-response or bankruptcy.

In this study, we classified enterprises into three types: SOEs with 100% public capital, privatized enterprises with less than 100% of public capital, and private enterprises without public capital. Privatized firms and private firms include firms with foreign capital. According to Vietnam's Enterprises Law. For each firm there must be a managing director or general director, who oversees day-to-day business operations. In this study, enterprise managers are also called managing directors or simply directors.[6] They may or may not be the owner of the enterprise.

Enterprises are presented in Table A1 in the Appendix by firm ownership and gender of managing directors. Vietnam has reduced the size of the public economic sector. During the 2011–2013 period, the proportion of SOEs in the total number of firms decreased from 0.5% in 2011 to 0.42% in 2013. The number of privatized firms also decreased from 1.51% to 1.04% during the same period.

The VECs were carried out from March to May in 2012 and 2014 to collect information on firms in the previous year. The surveys include a question on the birth year of directors, and we compute the directors' age in the 2011 and 2013 VECs by subtracting the birth year of directors from 2011 to 2013, respectively. In this study, we use data on firms with male directors and focused on their behavior in SOEs and privatized firms before retirement. The proportion of SOEs with female directors is very small, accounting for only 6% of the total number of SOEs. More specifically, the number of SOEs with female directors aged from 51 to 55 in the two data sets is only 78 and of these, 16 are 54 years of age, and 9 are 55. The retirement age for female directors of SOEs is 55. Thus, there are not enough SOEs with female directors near retirement age for the analysis.

3. Country context and data description

In 1986, Vietnam implemented an economic reform program to move the country from a centrally planned economy towards a socialist oriented market economy.[7] Since this economic reform in the late 1980s, Vietnam has achieved an annual economic growth rate of around 6%. Since 1998, the government has implemented the privatization of SOEs to improve the efficiency of SOEs. According to data from the Vietnam Enterprise Censuses, the number of SOEs with 100% state capital decreased from 5591 in 2000 to 1596 in 2013. However, the share of the state sector in the economy remains high, at round 31% in 2016 (according to the Statistical Yearbook of Vietnam).

In this section, we discuss the relation between directors' age and firm employment numbers. As mentioned in the previous section, we focus on firms with male directors in this study. Fig. 2 presents the distribution of firms with male directors according to their age, using pooled data from VEC 2011 and 2013. We pool the two data sets to increase the number of SOEs with directors of retirement age. It should be noted that since there is one director per firm, the distribution of firms by the age of the director is the same as the distribution of directors by age. This shows that SOE directors are the oldest, followed by directors of privatized firms, then directors of private firms. The average age of the directors of SOEs, privatized firms, and private firms is 51, 48, and 42, respectively. The mode age of an SOE director is 53.

The main outcome in this study is the number of employees. Several firms have a very high number of employees. To avoid outliers, we drop firms with employee numbers greater than the mean plus five times the standard deviation of the distribution of this variable. In this study, firms excluded for this reason make up 0.3% of the total. We also conducted our analysis using the original data without trimming, and the results are very similar to those based on the trimmed data. In this paper, we present the results using the trimmed data for interpretation. Another issue is that firms with young directors tend to be of smaller size than those with older directors. We limit the sample to firms with male directors aged 55 to 65. This allows us to compare firms with directors aged 59 with firms whose directors are at similar ages and who are also in their last term. In Vietnam, the upper age limit for the first appointment of male SOE directors is 55 and the duration of a directorship is 5 years (National Assembly of Vietnam, 2003; Ministry of Home Affairs, 2008). Thus, most directors of SOEs who are older than 55 are in their last term. The number of SOEs, privatized enterprises and private ones used in the final analysis is 891, 1,848, and 52,984, respectively. Observations by directors' age and firm ownership, used for the final analysis, are presented in Table A2 in the Appendix.

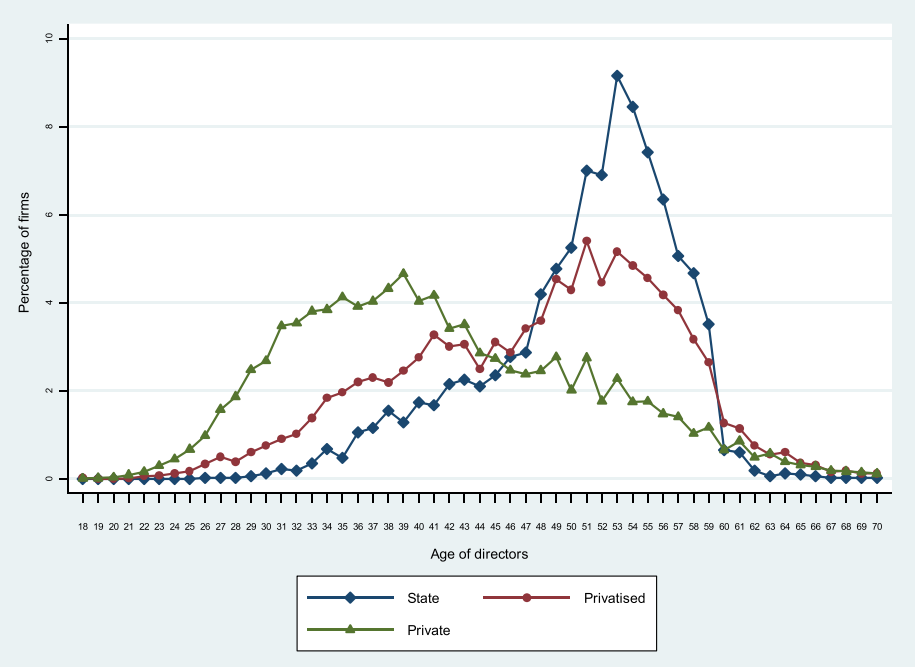
Directors of SOEs are civil servants, who are appointed by a government ministry or the Provincial People's Committee. Directors of SOEs cannot hold the same directorship position for more than two terms or 10 years (Government of National Assembly of Vietnam, 2003, 2012). Male directors of SOEs often retire when they reach 60 years of age (National Assembly of Vietnam, 2003 and 2008). In some cases, if a new director is not found, directors of SOEs can work to age 65. Although male directors of private firms can retire and receive pensions at age 60, they can continue to work as private firm's directors if they are hired by a firm's owners. There are no limits or terms for directors of private enterprises.

Fig. 1 shows that the number of SOE directors drops sharply after the age of 59. Most directors retire at 60, and their firms are managed by new directors. Only a few SOEs have directors aged 60 or over. In privatized firms, the number of managing directors aged 60 also drops significantly at the age of 60, but not as much as in SOEs. For private enterprises, the number of directors at age about 59 decreases slightly. For the whole sample, the proportion of SOEs with directors older than 61 is very small, at 0.6%. For privatized and private firms, this rate is 3.6% and 3.3%, respectively.

Using the panel data, we can examine the retirement compliance rate. Table A3 in the Appendix reports the drop-out rate of directors between the 2011 VCE and 2013 one by their age in 2011. It is expected that some directors aged 57 and most directors from the age of 58 will retire after two years. Column (4) shows that the drop-out rate is very similar for SOE directors aged from 51 to 56, at around 18%. The drop-out rate

[6] The director may also be called a managing director or a chief executive officer (CEO). However, in Vietnam the term 'director' is more widely used than the term "CEO".

[7] Vietnam is a large country in Southeast Asia with a population of around 96 million (in 2017) living in an area of 331,000 square km. Vietnam is a low middle-income country with a GDP per capita of $2343 in 2017.



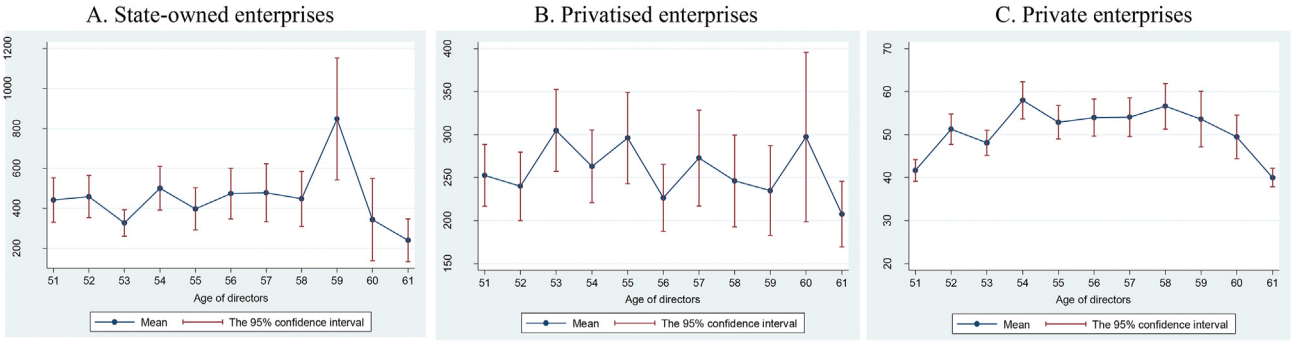
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.
Note: The above figure shows the distribution of firms by their director's age, using the pooled data from the Vietnam Enterprise Censuses 2011 and 2013. The distribution includes SOEs, privatized and private firms. Only firms with male directors are included in the figure. The age range for directors is from 18 to 79. The age of SOE directors varies from 26 to 70, while the age of directors of privatized and private firms varies from 18 to 79. The figure shows that directors of SOEs and privatized firms are significantly older than directors of private firms.

Fig. 1. Distribution of firms by director's age.

increases to 39% for directors aged 57, 83% for directors aged 58 and 75% for directors aged 59. This indicates that most directors aged 58 and older in 2011 retired in 2013. It should be noted that the drop-out rate of SOE directors aged 60 and older is 64%, which is lower than the drop-out rate of directors at ages 58 and 59. However, there were only 14 SOE directors in this age bracket in 2011. As a result, the difference in the drop-out rate between directors aged from 60 and younger directors is not statistically significant. The drop-out rate of private firm directors is very similar between age groups (column 6 in Table A3 in the Appendix). Older directors do not have a higher drop-out rate than younger directors. This means that directors of private firms are more likely to work after 60 than directors of SOEs and privatized firms.

Fig. 2 presents the mean of the number of employees at the different ages of the managing directors. In SOEs with directors aged 59, the average number of employees is 848. This is considerably higher than the number of employees in SOEs with directors aged around 59. More specifically, the average number of employees in SOEs with directors aged 58 and 60 is 448 and 348, respectively. The difference is statistically significant at the 10% level. The phenomenon of the increase in firm size at age 59 of directors is not observed for privatized and private firms.

As mentioned above, most directors of SOEs and privatized firms retire at retirement age. Some directors, however, especially directors of private firms, may continue to work after 60. Fig. 2 shows that the number of employees tends to decreases in firms with directors aged 60 and over. It implies that directors of large firms tend to retire at 60, whereas directors of small firms are more likely to work after that. In the next sections, we will use different models to examine the effect of 'age 59' on the labor size of firms.



Note: The figure presents the mean and the 95% confidence interval of the number of firm employees by director's age. The estimates are disaggregated by SOEs, privatized and private firms. Only firms with male directors aged 55 to 65 are included in the estimates.

Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Fig. 2. The number of employees and age of directors.

4. Estimation method

In this study, we aim to examine the effect of a director's age before retirement on the size of the SOE labor in Vietnam using firm fixed-effects regressions. We estimate the effect of a director's age at 59 on the number of employees using the following regression:

$$Log(Y_{it}) = \alpha_1 + Age_{it}.\delta_1 + X_{it}.\gamma_1 + T_t.\theta_1 + u_i + \varepsilon_{it}, \quad (1)$$

where $Log(Y_{it})$ is the log of the number of employees of firm i in year t. $Age59_{it}$ is a vector of age dummy variables. X_{it} are control variables, and T_t is a year dummy. u_i and ε_{it} are time-invariant (firm fixed-effects) and time-variant unobserved variables, respectively. We estimate equation (1) using a separate sample of SOEs and a separate sample of privatized firms. To obtain similar control and treatment groups, we limit the sample of firms to those with male directors aged 55 to 65, i.e., most SOE directors who are in their last term.

In equation (1), firms with directors aged 55 are used as the reference group. We can also compare firms with directors aged 59 with other firms, using only one dummy variable of firms with directors aged 59, as follows:

$$Log(Y_{it}) = \alpha_2 + Age59_{it}.\delta_2 + X_{it}.\gamma_2 + T_t.\theta_2 + u_i + \varepsilon_{it}. \quad (2)$$

An issue with the models in equations (1) and (2) is that the coefficient of the variable *Age59* might simply capture the effect of the directors' age at 59, not the effect of the last year before retirement of state firm directors. To examine this issue, we can estimate equations (1) and (2) for the sample of private firms and look at the magnitude and significance of the coefficient *Age59*. Our assumption is that directors of private firms do not face a term limit or mandatory retirement and therefore do not have an incentive to engage in corruption at that age. As a result, there is a small and insignificant effect of age 59 on labor size in private firms.

Using a type of difference-in-differences estimator, we can correct for the age effect in estimating the effect of directors' "imminent retirement" on the labor size of SOEs. More specifically, we run a regression of the labor size on directors' age dummies, ownership dummies, and interactions between these variables using the sample of all firms (including SOEs, privatized and private firms):

$$\begin{aligned} Y_{it} = {} & \beta_0 + State_{it}.\beta_1 + Privatized_{it}.\beta_2 + Age_{it}.\beta_3 + State_{it}.Age_{it}.\beta_4 \\ & + Privatized_{it}.Age_{it}.\beta_5 + X_{it}.\beta_6 + T_t.\beta_7 + u_i + \varepsilon_{it}, \end{aligned} \quad (3)$$

where $State_{it}$ is a dummy variable indicating a state-owned enterprise, and $Privatized_{it}$ is a dummy variable indicating a privatized firm. Private firms constitute the reference group. The main reason why private firms are used as the comparison group is that directors of private firms do not face a term limit or mandatory retirement and therefore do not have an incentive to engage in corruption at age 59.

The model in equation (3) is similar to the difference-in-differences estimator, in which the variables '*State*' and '*Privatized*' show the differences in firm outcomes between SOEs and private firms and between privatized firms and private firms, respectively. The age variable *Age59*, which is included in the age dummy variables (Age_{it}), presents the common difference in firm outcomes between firms with directors aged 59 and firms with directors older or younger. The interaction variables show the effect of directors aged 59 in SOEs and privatized firms after controlling for the common effect of the age of 59. They indicate the effect of 'imminent retirement' of directors in SOEs and privatized firms.

The main outcome in this study is the number of employees of a firm. In addition, we also consider other outcome variables, including firm revenue, assets and profit. The control variables include the education and ethnicity of directors, urban areas, and industries comprising the firms' main business. We estimate the three models above using firm fixed-effects regression, which control for time-invariant unobserved variables, u_i. The standard errors can be correlated in panel data models (Bertrand et al., 2004). Thus, we cluster standard errors at the firm level.

It should be noted that we can estimate the variables $State_{it}$ and $Privatized_{it}$ in equation (3) using firm fixed-effects regression, since there are firms which changed ownership over time. More specifically, among the firms in the panel, 5.9% of SOEs in 2011 were converted to privatized firms in 2013, and 2.5% of SOEs in 2011 became the private firms in 2013. Among the privatized firms in 2011, 22.7% were transformed into the private firms. Thus the coefficients of $State_{it}$ and $Privatized_{it}$ are still identified. We tried models without controlling for $State_{it}$ and $Privatized_{it}$, and the estimates of the interactions between these two variables and the director age 59 variable are very similar to models controlling for $State_{it}$ and $Privatized_{it}$.

5. Empirical results

5.1. The effect of term limits

In what follows, we show that directors of SOEs recruit significantly more workers just before retirement, and specifically at the age of 59. As mentioned in the second section, we focus only on firms with male directors. Before estimating the effect of retirement age, we test the exogeneity of the age of 59 by examining differences in several exogenous variables between firms with directors aged 59 and firms with directors older or younger. These variables should not be affected by a director's age. The summary statistics of explanatory variables used in this study are reported in Table A4 in the Appendix. Table 1 presents the mean and standard error of demographic characteristics (ethnicity, education, and urban dummy) of directors at age 59 and other directors.[8] For SOEs, there are no significant differences in education, ethnicity and urban dummy between directors aged 59 and other directors. The main business industry is also very similar between SOEs with directors aged 59 and SOEs with directors older or younger.[9] There is only a significant difference in the proportion of firms operating in the 'wood and paper' industry. However, there are only a few firms with this industry and the magnitude of the difference is very small.

In the sample of privatized firms, the proportion of Kinh people among directors aged 59 is higher than among directors younger or older. However, the magnitude of the difference is not very high. Compared with privatized firms with directors older or younger than 59, firms with directors aged 59 show a significant difference in the proportion of operating in three industries including manufacture, garments and textiles, and service.

For additional analysis, we regress the dummy variable indicating age 59 on characteristic variables of firms, using the sample of SOEs and privatized firms with directors aged 55 and above. Regression results, which are presented in Table A5 in the Appendix, are similar to those in Table 2. In the SOE sample, with the exception of the dummy variable for the wood and paper industry, none of the explanatory variables are statistically significant at the conventional level. In the sample of privatized firms, the variable 'Kinh' and the four industry dummies are significant. However, R-squared is still small, at around 0.01. Thus, overall, we do not find significant differences in the observed variables between SOEs with directors aged 59 and those with directors older or younger.

Table 2 estimates equation (1) by regressing the log of the number of employees on age dummy variables of directors and other control variables. We estimate this regression using separate samples of SOEs, privatized firms, and private firms. For each sample, there are three specifications which differ in their set of control variables. In the first

[8] There are 54 ethnic groups in Vietnam. Vietnamese or Kinh account for 85% of population. In this study, 53 ethnic minorities are grouped into one group.

[9] A firm can operate in different business industries. In the data set, there is information on the main industry of firms.

Table 1
Variable means of enterprises with directors aged 59 and those with directors older or younger.

Variables	Means of variables of state-owned enterprises			Means of variables of privatized enterprises		
	Enterprises with directors aged 59	Enterprises with directors older or younger	Difference	Enterprises with directors aged 59	Enterprises with directors older or younger	Difference
	(1)	(2)	(3)=(1)–(2)	(4)	(5)	(6)=(4)–(5)
Director with a bachelor's degree	0.9174	0.9488	−0.0314	0.9245	0.9138	0.0107
	(0.0265)	(0.0079)	(0.0298)	(0.0182)	(0.0069)	(0.0194)
Kinh (Kinh = 1; ethnic minorities = 0)	0.9725	0.9783	−0.0058	0.9528	0.9034	0.0494***
	(0.0157)	(0.0052)	(0.0205)	(0.0146)	(0.0073)	(0.0160)
Urban (urban = 1; rural = 0)	0.8807	0.8440	0.0367	0.9151	0.8888	0.0263
	(0.0312)	(0.0130)	(0.0329)	(0.0192)	(0.0078)	(0.0203)
Agriculture	0.1651	0.2033	−0.0382	0.0377	0.0202	0.0176
	(0.0357)	(0.0144)	(0.0367)	(0.0131)	(0.0035)	(0.0133)
Mining	0.0183	0.0077	0.0107	0.0236	0.0189	0.0046
	(0.0129)	(0.0031)	(0.0132)	(0.0104)	(0.0034)	(0.0103)
Processing	0.0459	0.0396	0.0062	0.0519	0.0636	−0.0117
	(0.0201)	(0.0070)	(0.0206)	(0.0153)	(0.0060)	(0.0158)
Wood and paper	0.0000	0.0077	−0.0077**	0.0142	0.0244	−0.0103
	(0.0000)	(0.0031)	(0.0036)	(0.0081)	(0.0038)	(0.0087)
Manufacture	0.2936	0.2417	0.0519	0.2925	0.2372	0.0553*
	(0.0438)	(0.0153)	(0.0432)	(0.0313)	(0.0105)	(0.0319)
Garments and textiles	0.0092	0.0090	0.0002	0.0236	0.0422	−0.0186*
	(0.0092)	(0.0034)	(0.0085)	(0.0104)	(0.0050)	(0.0108)
Construction	0.0459	0.0793	−0.0334	0.1415	0.1577	−0.0162
	(0.0201)	(0.0097)	(0.0222)	(0.0240)	(0.0090)	(0.0245)
Trade	0.0826	0.1176	−0.0351	0.2264	0.1840	0.0424
	(0.0265)	(0.0115)	(0.0274)	(0.0288)	(0.0096)	(0.0300)
Service	0.3394	0.2941	0.0453	0.1887	0.2518	−0.0632**
	(0.0456)	(0.0163)	(0.0466)	(0.0269)	(0.0107)	(0.0287)
Observations	109	782	891	212	1636	1848

Note: This table reports the means of several variables of SOEs and privatised enterprises with directors aged 59 and enterprises with directors older or younger. Standard errors of the means in parentheses.
***p < 0.01, **p < 0.05, *p < 0.1 indicate the significance level of the means of differences in columns (3) and (6).
Source: Estimations from Vietnam Enterprise Censuses 2011 and 2013.

specification, the control variables contain firm characteristics. First, we try to use a small set of exogenous explanatory variables.[10] In the second specification, however, we include total assets and total revenues as additional explanatory variables. Although these two variables can be regarded as outcomes, we still control for them to illustrate that directors near the age of retirement tend to increase the number of employees, even if this increase is not associated with an increase in assets or revenue. Putting it differently, given a level of outputs as well as assets, an increase in employment will lead to a decrease in labor productivity. The third specification includes firm fixed-effects in addition to the control variables as in the second specification. For interpretation we use the results from the large specification model with firm fixed-effects.

For SOEs, there is a large gap in employment numbers between firms with a 59-year-old director and other firms. The coefficient of SOEs is positive and significant in the three specifications. According to the fixed-effect model (column 3), which is the most robust model, the number of employees in SOEs with directors aged 59 is likely to be 20% higher than that of SOEs in the reference group (aged 55), which have similar control variables, assets and revenue.[11] Other age dummy variables are of similar magnitude and are not statistically significant, meaning that firm size increases only for SOEs with directors aged 59.

In the sample of privatized firms, the coefficient of the age of 59 is not significant in OLS but significant at the 10% level in the fixed-effect regression. Column 6 shows that the number of employees in privatized firms with directors 59 years of age is around 15% higher than that of firms with directors of other ages.

For the sample of private firms, the coefficient of age 59 is very small and not statistically significant in the first and third specifications (columns 7 and 9 in Table 3). It is significant at the 10% level in the second specification, but the magnitude of the effect is very small (column 8). The age dummies have very similar magnitudes. This finding is consistent with our assumption that directors of private firms do not recruit more employees when they are close to 60 years of age. Directors in private firms do not face the problem of term limits and retirement at age 60. To examine the issue further, we split private firms into two types: private firms owned a single individual and private firms owned by a group of individuals such as the board of directors (in Vietnam, these are termed limited companies and joint-stock companies, respectively). Private firms with a single owner are often managed by their owners. Thus for single owner firms, directors are expected to be more responsible for the performance of their firms and face no problems with term limits. The regression results are reported in Table A.6 in the Appendix. According to the firm fixed-effects models, all the dummy variables of the director's age are very small and insignificant in the sample of private firms with a single owner as well as the sample of private firms with more than one owner.

Table 3 reports the difference in firm size between firms with directors aged 59 and firms with directors aged 55 (the reference group). To compare the difference between firms with directors aged 59 and other firms, we regress the log of the number of employees only on the dummy of age 59 and other control variables, i.e., estimating the model in equation (2). The regression results are reported in Table A.7 in the Appendix. The age 59 variable in the sample of SOEs is very similar to that in Table 3, and is positive and significant in the three specifications. Compared with SOEs with directors above or below the age of 59, SOEs with directors aged 59 have 16% more employees (column 3 in Table A.7). Privatized firms with directors aged 59 also tend to have a higher number of employees than those with directors older or younger.

[10] In estimating the effect of a treatment, control variables should be exogenous and unaffected by the treatment variable (Angrist and Pischke, 2009; Heckman et al., 1999).

[11] The dependent variable is in the log form: $\ln(Y) = \alpha + \beta X$. If explanatory variable, X, changes by one unit, the relative change in Y is computed as $\exp(\beta)$-1.

Table 2
Regression of the log of the number of employees.

Explanatory variables	Sample of state-owned enterprises			Sample of privatized enterprises			Sample of private enterprises		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Director aged 55	Reference								
Director aged 56	0.0167	−0.0265	0.0535	−0.0992	−0.0659	0.1152	0.0293	0.0137	−0.0243
	(0.1375)	(0.0828)	(0.1321)	(0.1035)	(0.0670)	(0.0967)	(0.0198)	(0.0130)	(0.0226)
Director aged 57	0.1926	0.0175	0.0384	−0.0604	−0.0465	0.0694	0.0194	0.0204*	0.0094
	(0.1173)	(0.0735)	(0.0453)	(0.1001)	(0.0598)	(0.0468)	(0.0179)	(0.0123)	(0.0141)
Director aged 58	0.0286	0.0140	0.0338	0.0240	0.0961	0.0786	−0.0003	−0.0008	−0.0116
	(0.1514)	(0.0904)	(0.1421)	(0.1105)	(0.0728)	(0.0976)	(0.0222)	(0.0144)	(0.0229)
Director aged 59	0.3589**	0.2539**	0.1859**	−0.0595	0.0831	0.1475*	−0.0138	0.0241*	0.0016
	(0.1776)	(0.1119)	(0.0807)	(0.1180)	(0.0744)	(0.0811)	(0.0210)	(0.0138)	(0.0197)
Director aged 60+	−0.3884	0.0459	0.0068	−0.2171*	−0.0436	0.0391	−0.0645***	0.0237**	−0.0101
	(0.2508)	(0.1604)	(0.1432)	(0.1179)	(0.0703)	(0.1005)	(0.0177)	(0.0115)	(0.0240)
Director with a bachelor's degree	0.9830***	0.2548	−0.0301	1.0342***	0.2366***	−0.0551	0.4488***	0.1665***	−0.0067
	(0.3115)	(0.2032)	(0.0620)	(0.1579)	(0.0898)	(0.1338)	(0.0137)	(0.0088)	(0.0138)
Kinh (Kinh = 1; ethnic minorities = 0)	1.1744***	0.2076	0.1992	−0.0190	0.3073***	−0.0999	−0.9253***	−0.1180***	0.0270
	(0.4267)	(0.2641)	(0.1513)	(0.1578)	(0.0970)	(0.1266)	(0.0301)	(0.0177)	(0.0493)
Urban (urban = 1; rural = 0)	0.3488**	−0.0031	0.0502	−0.0305	0.1282	−0.1390	−0.1970***	−0.0209**	0.0177
	(0.1409)	(0.1096)	(0.0880)	(0.1214)	(0.0783)	(0.1276)	(0.0146)	(0.0101)	(0.0761)
Year 2013 (year 2013 = 1; year 2011 = 0)		0.2184***	−0.0617		0.2175***	−0.1120***		0.2178***	−0.1341***
		(0.0345)	(0.0457)		(0.0236)	(0.0341)		(0.0036)	(0.0081)
Log of total assets		0.2929***	0.3196***		0.2682***	0.1719***		0.2043***	0.0820***
		(0.0337)	(0.1148)		(0.0142)	(0.0495)		(0.0020)	(0.0061)
Log of revenue	0.0576	0.0006	0.0621	0.0354	−0.0474	0.1633***	−0.1406***	−0.1963***	0.1211***
	(0.0718)	(0.0439)	(0.0405)	(0.0523)	(0.0326)	(0.0485)	(0.0084)	(0.0064)	(0.0047)
Industry dummies	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Firm fixed-effects	No	No	Yes	No	No	Yes	No	No	Yes
Constant	2.6685***	−0.8635**	0.4849	3.7723***	−1.0737***	1.3037*	3.2481***	−0.1095***	1.1381***
	(0.5118)	(0.3437)	(1.4249)	(0.2378)	(0.2766)	(0.7203)	(0.0332)	(0.0325)	(0.1210)
Number of observations	891	891	891	1848	1848	1848	52,983	52,983	52,983
Number of firms			676			1383			38,370
R-squared	0.0611	0.6445	0.1346	0.0454	0.6385	0.2320	0.0796	0.6046	0.1836

Note: This table reports OLS regressions of the log of the number of employees of firms using separate samples of SOEs, privatized and private enterprises. The samples include enterprises with male directors aged 55 to 65.
Robust standard errors in parentheses (corrected for heteroskedasticity and within-firm correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

In Table 3, we estimate equation (3) using a pooled sample of SOEs, privatized and private firms. The identification strategy is similar to difference-in-differences estimation. Columns 1 to 3 present different regression specifications, using the full sample of private firms. Since private firms have a smaller number of employees than SOEs and privatized firms, they might not be a good comparison group. Thus, we construct a sample of private firms with a similar number of employees as the SOEs and privatized firms using the nearest matching. For each SOE as well as privatized firm, we find a private firm which has the closest number of employees. The matched private firms are used as the comparison group and are pooled with the SOEs and privatized firms to estimate the difference-in-differences model in columns 4 to 6 in Table 3.

The variable 'age 59' is very small and not significant in most regression specifications, indicating that in general there is no difference in employment numbers between firms with and firms without 59-year-old directors. The interaction between the age 59 variable and the variable of SOEs yields an estimate of the effect of the age 59 variable on the number of employees of SOEs. The results are very similar to those in Table 3. SOEs with directors aged 59 are more likely to overuse labor, even though this increase in labor is not associated with higher SOE assets or revenue. According to the fixed-effect regression (in column 3), the number of employees of SOEs with a director aged 59 is around 35% higher than that of SOEs with a director aged 55 (the reference group). The effect of 'age 59' on the number of employees of SOEs is very similar in the sample using matched private firms (columns 4 to 6).[12] Interactions between the SOEs and dummies of other ages are not statistically significant, indicating that the increase in the number of employees is only observed for SOEs with directors aged 59.

It should be noted that in Table 3, firms with a director aged 55 are used as the reference group. In Table A.8 in the Appendix, we use only the dummy variable 'age 59' and its interactions with firm ownership. The reference group is firms which have a director older or younger than 59. The interaction between the age 59 variable and the variable of SOEs is positive and significant in all regression specifications. According to fixed-effects regression (column 6 in Table A.8), the number of employees of SOEs with a director aged 59 is around 25% higher than that of SOEs with a director older or younger.

The effect of the age 59 variable on the number of employees of privatized firms is not statistically significant in most specifications. Although privatization is not exogenous in this study, the fact that the effect of the age 59 variable on employment is smaller for privatized firms implies that privatization might reduce the amount of excess labor. The traditional literature on privatization argues that private owners of privatized firms tend to eliminate redundant labor to minimize costs for a given output level (e.g., Boycko et al., 1996). A reduction in the labor force due to privatization has been found in several empirical studies, such as those of La Porta and López-de-Silanes, (1999) and Harper (2002) for the Czech Republic. In the case of Vietnam, Loc et al. (2006) do not find a significant effect on employment numbers from the privatization of

[12] We also tried to limit the sample of private firms to only include firms with a large number of employees so that the average number of employees in this limited sample is similar to that in SOEs and privatized firms. In other words, we dropped private firms with a small number of employees, and this reduction makes the sample of private firms more similar to the SOEs and privatized firms in terms of employee numbers. Using this sample, we also find a similar and significant effect of 'age 59' on the number of employees of SOEs.

Table 3
Difference-in-differences regression of the log of the number of employees.

Explanatory variables	Sample of SOEs, privatised enterprise and all private enterprises			Sample of SOEs, privatised enterprise and matched private enterprises		
	(1)	(2)	(3)	(4)	(5)	(6)
Director aged 55	Reference					
Director aged 56	0.0298	0.0137	−0.0251	−0.0940	0.0291	0.0019
	(0.0198)	(0.0130)	(0.0222)	(0.0893)	(0.0591)	(0.0912)
Director aged 57	0.0201	0.0211*	0.0077	0.0723	0.0595	0.0201
	(0.0179)	(0.0123)	(0.0140)	(0.0802)	(0.0588)	(0.0506)
Director aged 58	0.0006	−0.0005	−0.0147	−0.0221	0.0137	−0.0331
	(0.0222)	(0.0144)	(0.0227)	(0.0976)	(0.0680)	(0.0868)
Director aged 59	−0.0134	0.0249*	−0.0025	−0.0826	−0.0005	−0.0613
	(0.0210)	(0.0138)	(0.0198)	(0.0991)	(0.0676)	(0.0697)
Director aged 60+	−0.0635***	0.0249**	−0.0137	−0.0004	0.0620	−0.0241
	(0.0177)	(0.0115)	(0.0240)	(0.0788)	(0.0543)	(0.0809)
State-owned enterprise	2.5483***	0.9546***	−0.1949	0.3480***	0.0065	−0.1986
	(0.0908)	(0.0589)	(0.1586)	(0.1085)	(0.0723)	(0.1479)
Privatized enterprise	2.1397***	0.7284***	−0.1753**	−0.0044	−0.2348***	−0.1452
	(0.0778)	(0.0509)	(0.0707)	(0.0987)	(0.0653)	(0.1035)
State-owned enterprise × director aged 56	0.0174	−0.0221	0.1049	0.1392	−0.0460	0.0197
	(0.1423)	(0.0887)	(0.1646)	(0.1659)	(0.1021)	(0.1461)
State-owned enterprise × director aged 57	0.1374	0.0246	0.0950	0.1015	−0.0239	0.0245
	(0.1271)	(0.0807)	(0.0816)	(0.1490)	(0.0950)	(0.0736)
State-owned enterprise × director aged 58	0.0457	0.0101	0.1936	0.0825	0.0065	0.0572
	(0.1541)	(0.0976)	(0.1610)	(0.1816)	(0.1148)	(0.1404)
State-owned enterprise × director aged 59	0.3603*	0.2371**	0.3068***	0.4507**	0.2536*	0.2559**
	(0.1995)	(0.1192)	(0.1146)	(0.2172)	(0.1327)	(0.1009)
State-owned enterprise × director aged 60	−0.4053	−0.0758	0.2727	−0.4198	−0.0756	0.0441
	(0.2548)	(0.1708)	(0.1742)	(0.2623)	(0.1762)	(0.1414)
Privatized enterprise × director aged 56	−0.0985	−0.0559	0.1569	−0.0034	−0.0845	0.1146
	(0.1078)	(0.0700)	(0.0955)	(0.1380)	(0.0898)	(0.1153)
Privatized enterprise × director aged 57	−0.1014	−0.0663	0.1132*	−0.1459	−0.0959	0.0060
	(0.1050)	(0.0636)	(0.0586)	(0.1304)	(0.0848)	(0.0646)
Privatized enterprise × director aged 58	0.0072	0.0983	0.1261	0.0309	0.0957	0.0617
	(0.1142)	(0.0762)	(0.0910)	(0.1483)	(0.1004)	(0.1080)
Privatized enterprise × director aged 59	−0.0214	0.0580	0.1880**	0.0341	0.0980	0.1333
	(0.1227)	(0.0777)	(0.0813)	(0.1556)	(0.1012)	(0.0872)
Privatized enterprise × director aged 60	−0.2821**	−0.1342*	0.0664	−0.2859**	−0.1194	−0.0126
	(0.1186)	(0.0720)	(0.0857)	(0.1399)	(0.0884)	(0.0972)
Director with a bachelor's degree	0.4596***	0.1671***	−0.0074	0.5549***	0.0821*	−0.0478
	(0.0137)	(0.0088)	(0.0132)	(0.0649)	(0.0434)	(0.0492)
Kinh (Kinh = 1; ethnic minorities = 0)	−0.8861***	−0.0926***	0.0282	−0.3838***	0.1568***	0.0294
	(0.0297)	(0.0174)	(0.0404)	(0.0726)	(0.0463)	(0.1174)
Urban (urban = 1; rural = 0)	−0.1915***	−0.0168*	0.0112	−0.3349***	−0.0813**	−0.1286
	(0.0145)	(0.0100)	(0.0754)	(0.0547)	(0.0386)	(0.2773)
Year 2013 (year 2013 = 1; year 2011 = 0)	−0.1308***	−0.1877***	−0.1315***	0.0135	−0.0498**	−0.0458**
	(0.0082)	(0.0062)	(0.0076)	(0.0287)	(0.0197)	(0.0184)
Log of total assets		0.2184***	0.0834***		0.2030***	0.0901***
		(0.0035)	(0.0043)		(0.0145)	(0.0155)
Log of revenue		0.2072***	0.1202***		0.2682***	0.0680***
		(0.0020)	(0.0028)		(0.0108)	(0.0100)
Industry dummies	No	Yes	Yes	No	Yes	Yes
Firm fixed-effects	No	No	Yes	No	No	Yes
Constant	3.1974***	−0.1766***	1.1605***	4.8461***	−0.0672	3.5136***
	(0.0328)	(0.0321)	(0.1102)	(0.1000)	(0.1625)	(0.4179)
Number of observations	55,722	55,722	55,722	5478	5478	5478
Number of firms			40,215			4236
R-squared	0.1942	0.6555	0.1820	0.0578	0.6125	0.1148

Note: This table reports the regression of the log of the number of employees with interactions between firm ownership and directors' ages. The sample includes firms with male directors aged 55 to 65. In all the regressions, the dependent variable is the log of the number of firm employees, but the regressions differ in the number of explanatory variables.
Robust standard errors in parentheses (corrected for heteroskedasticity and within-firm correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

121 SOEs. Our findings suggest a possible labor-reducing effect of privatization, but through a different channel: privatization can act as a restraint on the over-recruitment of employees by managing directors (compared with directors of SOEs), possibly due to better monitoring by the board of directors, and as a result the directors of privatized firms cannot get away with increasing the number of employees before retirement.

5.2. Robustness analysis

To examine the sensitivity of estimates of the effect of the retirement age on employment levels in SOE firms, we conduct several analyses. First, we try different data samples. As mentioned in the data section, to avoid outliers we dropped firms with more employees than the mean plus 5 times the standard deviation of the distribution of this variable. We also estimate equations (2) and (4) using the full data without trimming. The

results are very similar to those based on the trimmed sample. Directors of SOEs and privatized firms tend to increase the number of employees before retirement. Another issue is that firms with directors older than 60 tend to be of smaller size than others. To examine whether this issue can affect estimates of the effect of the age 59 variable, we exclude firms with directors older than 61 and re-estimate equations (2) and (4). The results are also similar to those based on the sample, including firms with directors over 61.[13]

Secondly, we estimate the model of the number of employees using quantile regression at the median, which is less sensitive to the outliers. The results are reported in Table A.9 in the Appendix. The estimates of the effect of the retirement age of directors are very similar to those from the linear models in Table 2. SOEs (and privatized firms) which have a director aged 59 have a higher median labor size than do SOEs (and privatized firms) with a director older or younger.

Thirdly, we use panel data of SOEs for the 2011–2013 period to run regression of the log of the number of employees of SOEs in 2013 on age dummy variables with controlling for the log of the number of employees in 2011 and other firm outcome variables (columns 1 and 2 in Table A.10 in the Appendix). The results show that SOEs with directors aged 59 have a higher number of employees than other SOEs, even though they show similar firm performance and number of employees in the base year, i.e., 2011. Next, we regress the log of the number of employees of SOEs in 2013 on age dummy variables in 2011 (column 3 and 4 in Table A.10). We find a positive effect of the age 57 variable on the labor size of SOEs after two years, confirming that directors of SOEs tend to increase the number of employees of their firms when they reach the age of 59.

5.3. Term limits and corruption

In this section, we discussion possible explanations why SOE directors increase the number of employees substantially just before their retirement. The first explanation is that directors of SOEs might aim to improve firm performance by increasing the number of employees. To examine this issue, we first show that SOEs tend to overuse labor. Table A.11 in the Appendix reports regressions of the log of the number of workers, the log of total revenue, and the log of revenue per worker on firm ownership and control variables. The results show that SOEs and privatized firms have a remarkably higher number of employees than do private firms. The number of employees in SOEs is around double that of private firms, even though they have similar observed explanatory variables and the same level of assets and revenue. Privatized firms also have more employees than do private firms. This finding is consistent with the hypothesis of labor excess in SOEs (Boyckoet al., 1996). The regressions of revenue and revenue per employee also show a consistent finding, that SOEs have lower revenue as well as revenue per employee than private firms which have a similar number of employees. Compared with private firms which have the same size of labor pool and other control variables (columns 6 and 9 in Table A.11), SOEs have a total revenue as well as revenue per employee around 30% lower.

Next, we run a regression of several firm performance indicators on the age dummies and control variables for SOEs. Table 4 does not find any significant effects of the age 59 variable on the firm performance of SOEs. According to the fixed-effect regressions, the effects of directors aged 59 on revenue and profit are negative but not statistically significant. Table A.12 in the Appendix also show insignificant effects of directors aged 59 on the performance of privatized firms. For robustness analysis, we run regression of the difference-in-difference model (the regression specifications are similar to those in Table 3). The results are reported in Table A.13 in the Appendix, and also show insignificant effects of age 59 on firm performance.

The effect of 59-year-old directors on firm performance can be seen in the medium or long term. To test this, we use the firm panel data and run regressions of the performance outcomes of SOEs in 2013 on directors' age in 2011 and other control variables in 2011. As shown in Table A.14 in the Appendix, there are no significant effects of directors' age in 2011 on the firm performance in 2013. The point estimates of the effect of 59-year-old directors in 2011 on revenue per employee and level of profit are even negative, though not statistically significant at the conventional levels.

Another possible explanation for the correlation between older directors and larger SOEs is that larger SOEs may need more experienced directors. However, we argue that this is not the case. Firstly, as shown in Fig. 2, firm size is very similar among SOEs with directors aged from 51 to 58. If larger SOEs needed older directors, we would expect a positive correlation between the age of directors and firm size for SOEs with directors younger than 59. Secondly, in the difference-in-differences regression using a sample of private firms which have similar size to the SOEs (Table 3), the age 59 variable is very small and not statistically significant. To illustrate this issue more intuitively, we matched each SOE with one privatized or private firm with the closest number of employees. In so doing, we construct a sample of privatized and private firms, which can 'mimic' the distribution of SOE firm size. Using this matched sample, we graph the number of employees across the age of directors. From Figure A1 in the Appendix, we do not see an increase in the number of employees aged 59.

Another plausible explanation is that there is a correlation between the initial size of the enterprise and norms for retirement age. If directors of smaller enterprises tend to retire earlier (say between 55 and 59 years old) than those of larger enterprises, the effect that we capture may be merely the fact that smaller enterprises are dropping out of the sample. To test this hypothesis, we first use firm panel data to estimate the drop-out rate of firms between 2011 and 2013 by the age of directors in 2011. The drop-out rate is similar among firms with directors of different ages (Table A3 in the Appendix). Secondly, we compare the drop-out rate of directors by quintiles of firm size in 2011 (Table A.15 in the Appendix). The drop-out rate of directors is also very similar across the firm size in the 2011 base year. Thus the hypothesis that directors of smaller enterprises tend to retire earlier is not supported in our data set.

When a new SOE director is appointed, the enterprise would take advantage of this recruitment/appointment effort to recruit other employees also. Thus another possible explanation is that directors of SOEs are appointed near the age of 59 and can implement reforms including expansion of firm size. However, according to the Law of State-Owned Enterprises and government regulations on the appointment of SOE directors (Government of Vietnam, 2015), a man should be 55 or younger to be appointed director for the first time. Thus, if a new director is appointed, he should be 55 or younger, not at an age close to 59.

The above arguments do not explain the over-recruitment of employees in SOEs. In this study, we argue that the possible reason why directors of SOEs recruit more employees before retirement is to collect bribes from employees. Although good governance is increasingly recognized within Vietnam as an important factor for economic growth (Acuna-Alfaro et al., 2015; Giang et al., 2017), the country still has high levels of corruption (World Bank, 2010; Bai et al., 2019). According to Transparency International's 2017 Corruption Perception Index, Vietnam was ranked 107th of 180 countries in terms of corruption.[14] Bribery is not uncommon in Vietnam. According to estimates from the Vietnam Governance and Public Administration Performance Index (PAPI) 2017 survey, one-third of responses agreed that bribes were needed to obtain better public services such as health, education and land certificates (Fig. 3). Civil service management in Vietnam is affected by bribes and

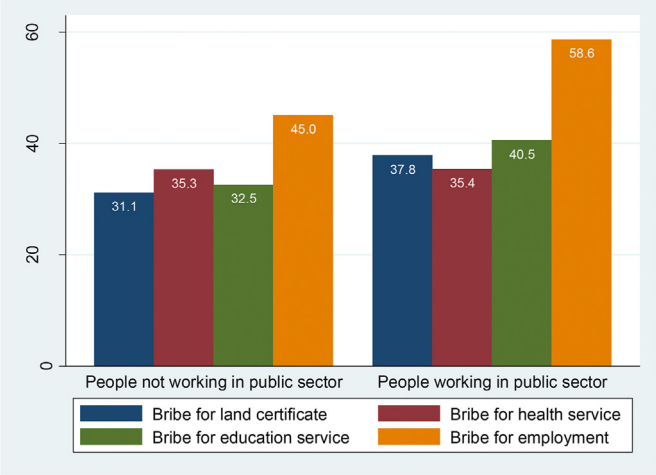
[13] We do not report these results in this paper, since they are not very important and the current paper is already lengthy. Readers who are interested in the results can request them from the author.

[14] The rank ranges from 1 (cleanest or least corruption) to 180 (highest level of corruption). Available at https://www.transparency.org/news/feature/corruption_perceptions_index_2017.

Table 4
Regression of performance outcomes of SOEs.

Explanatory variables	OLS regression					Firm fixed-effect regressions		
	Dependent variable is Log of total assets	Dependent variable is Log of revenue per employee	Dependent variable is Profit margin	Dependent variable is Log of profit	Dependent variable is Log of total assets	Dependent variable is Log of revenue per employee	Dependent variable is Profit margin	Dependent variable is Log of profit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Director aged 55	References							
Director aged 56	0.0615	0.0889	−0.4445	−0.0111	−0.1162	−0.0751	−0.2613	0.0065
	(0.1957)	(0.1354)	(0.3631)	(0.0130)	(0.1198)	(0.3191)	(0.9369)	(0.0250)
Director aged 57	0.1891	0.1799	0.1706	−0.0072	−0.0729	0.0077	0.1116	0.0024
	(0.1760)	(0.1124)	(0.3214)	(0.0125)	(0.0588)	(0.1565)	(0.4595)	(0.0123)
Director aged 58	0.1957	−0.1375	−0.2006	0.0009	−0.1285	−0.3319	−0.6394	−0.0116
	(0.2099)	(0.1660)	(0.3925)	(0.0147)	(0.1295)	(0.3450)	(1.0129)	(0.0271)
Director aged 59	0.2051	−0.1821	−0.4278	0.0013	−0.1555*	−0.2541	−0.4624	−0.0107
	(0.2720)	(0.1917)	(0.4828)	(0.0189)	(0.0928)	(0.2473)	(0.7259)	(0.0194)
Director aged 60+	−0.4136	−0.6477**	−1.9717***	−0.0319**	−0.2061	−0.8122**	−1.4199	−0.0250
	(0.3377)	(0.2905)	(0.6162)	(0.0147)	(0.1508)	(0.4016)	(1.1791)	(0.0315)
Director with a bachelor's degree	1.5755***	0.3118	0.7199	0.0098	0.0709	−0.1147	−0.4496	−0.0000
	(0.4144)	(0.2599)	(0.5155)	(0.0171)	(0.1232)	(0.3282)	(0.9633)	(0.0257)
Kinh (Kinh = 1; ethnic minorities = 0)	1.5289***	0.6898	1.1741*	−0.0053	0.2212	−0.2565	−2.9108	−0.0096
	(0.4641)	(0.4610)	(0.6898)	(0.0376)	(0.2886)	(0.7687)	(2.2566)	(0.0603)
Urban (urban = 1; rural = 0)	0.9723***	0.3600**	1.2606***	0.0003	−0.0486	0.1934	0.2517	0.0090
	(0.2478)	(0.1669)	(0.4517)	(0.0121)	(0.4925)	(1.3117)	(3.8507)	(0.1029)
Year 2013 (year 2013 = 1; year 2011 = 0)	0.2160**	−0.0110	0.1803	−0.0008	0.2133***	0.0532	0.3526	0.0045
	(0.1044)	(0.0812)	(0.2104)	(0.0069)	(0.0407)	(0.1083)	(0.3181)	(0.0085)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed-effects	No	No	No	No	Yes	Yes	Yes	Yes
Constant	7.5777***	3.8614***	3.3244***	0.0741	11.4600***	6.2380***	10.4525**	0.0723
	(0.5500)	(0.4840)	(0.8511)	(0.0505)	(0.5403)	(1.4390)	(4.2244)	(0.1129)
Number of observations	891	891	891	891	891	891	891	891
Number of firms					676	676	676	676
R-squared	0.0960	0.2172	0.0483	0.0331	0.1818	0.0548	0.0544	0.0186

Note: This table reports regressions of several firm performance indicators on age dummies of directors. The sample includes SOEs with male directors aged 55 to 65. Robust standard errors in parentheses (corrected for heteroskedasticity and within-firm correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.



Note: This figure presents the proportion of respondents (aged 18 and above) agreeing with statements that bribes are needed to obtain better services in health, education, and obtaining a land use-right certificate, and to gain employment in the public sector. The estimates are disaggregated for people working and those not working in the public sector.

Source: author's estimation using data from the Vietnam Governance and Public Administration Performance Index (PAPI) 2017 survey.

Fig. 3. The percentage of people agreeing with some statements about bribery

fraud in recruitment (e.g., Poon et al., 2009; Bai et al., 2019). Paying bribes to get jobs or promotion in the public sector is common and is sometimes regarded as a social norm in Vietnam (Poon et al., 2009; CECODES, VFF-CRT & UNDP, 2018; Nguyen, 2017). Fig. 3 shows that more than half of respondents believe that bribes are needed to get employment in the public sector, and people working in the public sector were more likely to agree with this statement.

The fact that public officials tend to employ more workers before retirement has been mentioned in the newspapers (e.g., Duy, 2015; Gia, 2018), though no representative empirical evidence has been recorded. A typical example is the director of health department in Thanh Hoa province, who recruited around 3.7 thousand additional staff members before retirement (Le, 2016). Numerous examples of public officials in Vietnam making appointments just before retirement can be found in the mass media. For example, a director of the Airports Corporation of Vietnam, appointed 76 officers before retirement (Phungand Cong, 2018), and a government inspector appointed 35 additional inspectors during the six months prior to his retirement (Hoang, 2016). This phenomenon is mentioned in a Wikipedia article,[15] and there are even popular terms for this phenomenon, such as "sunset term", "sunset at age 59", and "last deed before retirement" in Vietnam. This situation has led to the current discussion among policymakers in the National Assembly and Communist Party whether public officials should be prohibited from

[15] https://vi.wikipedia.org/wiki/Ho%C3%A0ng_h%C3%B4n_nhi%E1%BB%87m_k%E1%BB%B3#cite_note-4.

Table 5
Regression of the number of employees with interactions between director age and corruption control variables.

Explanatory variables	Sample of SOEs		Sample of privatized enterprises		Sample of matched private enterprises		Sample of all enterprises	
	Interaction with PAPI variable	Interaction with PCI variable	Interaction with PAPI variable	Interaction with PCI variable	Interaction with PAPI variable	Interaction with PCI variable	Interaction with PAPI variable	Interaction with PCI variable
Director aged 55	Reference							
Director aged 56	0.0189	0.0149	−0.0611	−0.0587	−0.0226	−0.0815	−0.0355	−0.0495
	(0.1343)	(0.1347)	(0.0970)	(0.0974)	(0.0758)	(0.0768)	(0.0565)	(0.0564)
Director aged 57	0.1590	0.1573	−0.0612	−0.0750	0.0441	−0.0516	0.0002	−0.0135
	(0.1145)	(0.1136)	(0.0933)	(0.0930)	(0.0700)	(0.0702)	(0.0515)	(0.0514)
Director aged 58	0.0105	0.0089	0.0610	0.0653	−0.0097	−0.0551	0.0265	0.0154
	(0.1484)	(0.1488)	(0.1040)	(0.1045)	(0.0817)	(0.0820)	(0.0618)	(0.0615)
Director aged 59	1.0408	1.8733*	−0.4743	−0.3974	−0.6875	0.0838	−0.0878	−0.0956
	(1.3655)	(1.1147)	(0.9671)	(0.6201)	(0.5893)	(0.4151)	(0.0802)	(0.0803)
Director aged 60+	−0.3854	−0.3991	−0.2068*	−0.2088*	−0.0116	−0.0424	−0.1009*	−0.1052*
	(0.2542)	(0.2555)	(0.1090)	(0.1088)	(0.0674)	(0.0681)	(0.0570)	(0.0569)
PAPI corruption control variable	−0.1918**		−0.1510**		0.7434***		0.2402***	
	(0.0846)		(0.0612)		(0.0457)		(0.0353)	
Director aged 59 × PAPI corruption control variable	−0.1233		0.0787		0.1128			
	(0.2304)		(0.1628)		(0.1014)			
PCI corruption control variable		−0.0439		−0.0934**		0.4845***		0.2113***
		(0.0572)		(0.0427)		(0.0298)		(0.0222)
Director aged 59 × PCI corruption control variable		−0.2854		0.0692		−0.0349		
		(0.2032)		(0.1118)		(0.0769)		
State-owned enterprise							0.5000***	0.5132***
							(0.0757)	(0.0748)
Privatized enterprise							−0.0663	−0.0529
							(0.0509)	(0.0504)
State-owned enterprise × director aged 59							2.9585**	3.2150***
							(1.3664)	(1.0341)
Privatized enterprise × director aged 59							1.4768	0.8878
							(0.9823)	(0.5825)
State-owned enterprise × director aged 59 × PAPI corruption control variable							−0.4397*	
							(0.2273)	
Privatized enterprise × director aged 59 × PAPI corruption control variable							−0.2347	
							(0.1645)	
State-owned enterprise × director aged 59 × PCI corruption control variable								−0.5223***
								(0.1896)
Privatized enterprise × director aged 59 × PCI corruption control variable								−0.1433
								(0.1059)
Director with a bachelor's degree	0.9766***	0.9523***	0.8968***	0.8946***	0.3318***	0.3187***	0.5036***	0.5016***
	(0.3205)	(0.3211)	(0.1536)	(0.1531)	(0.0598)	(0.0607)	(0.0625)	(0.0620)
Kinh (Kinh = 1; ethnic minorities = 0)	1.0985**	1.0604**	−0.0660	−0.0657	−0.0198	−0.1488*	−0.0722	−0.0988
	(0.4456)	(0.4439)	(0.1430)	(0.1444)	(0.0782)	(0.0774)	(0.0678)	(0.0668)
Urban (urban = 1; rural = 0)	0.4272***	0.4585***	0.2016*	0.1948	−0.3387***	−0.2139***	−0.0944*	−0.0709
	(0.1631)	(0.1638)	(0.1183)	(0.1188)	(0.0605)	(0.0589)	(0.0531)	(0.0524)
Year 2013 (year 2013 = 1; year 2011 = 0)	0.1431*	−0.0010	0.0474	−0.0813	−0.3810***	0.5333***	−0.0900***	0.1947***
	(0.0781)	(0.0767)	(0.0538)	(0.0573)	(0.0409)	(0.0471)	(0.0310)	(0.0325)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	3.7654***	3.0143***	3.8070***	3.5051***	0.8258*	2.0100***	2.7211***	2.8025***
	(0.7081)	(0.5856)	(0.4299)	(0.3762)	(0.4250)	(0.3447)	(0.2385)	(0.1900)
Observations	891	891	1848	1848	2739	2739	5478	5478
R-squared	0.1413	0.1394	0.1803	0.1788	0.3384	0.3238	0.2087	0.2129

Note: This table reports the regression of the log of the number of employees on interactions between directors aged 59 and variables of corruption control. The corruption control variables are measured at the provincial level. They have a scale from 0 to 10, with higher values indicating better control of corruption. The sample includes firms with male directors aged 55 to 65.
Robust standard errors in parentheses (corrected for heteroskedasticity and correlation within the commune).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

employing workers 6 months before retirement (e.g., Tienphong Newspaper, 2014; Hang and Nhi, 2015).

The decision of a public official to act corruptly depends on his/her expected income and tenure in the current position, and the probability and cost of detection (Becker, 1968; Alt and Lassen, 2012). The common practice of paying a bribe to get a job in Vietnam suggests a low probability of detection. If this is so, the question arises why directors of SOEs do not over-recruit employees before the age of 59 to obtain bribes. The reason is that there is a trade-off between bribes from new recruits and enterprise performance. Over-recruitment can lead to a reduction in firm profit, which in turn affects the position and wages of directors. According to the Law of State-Owned Enterprises in 2003, directors of SOEs can be dismissed if their firms have losses during two consecutive years (National Assembly of Vietnam, 2003; Ministry of Home Affairs, 2008). Increasing labor costs can increase the risk of incurring losses. Increasing firm size just before retirement is safer for directors, since if a firms makes losses one or two years later, they have already retired.

The salary and bonus that SOE directors receive depend on the profit the SOE makes in the previous year (Government of Vietnam, 2004; 2016). According to the latest regulations on payment for SOE directors, the salary of directors ranges from 36 to 126 million VND per month (Government of Vietnam, 2016). The maximum monthly bonus can be 1.5 times the monthly salary. Salary and bonus increase with the profit of SOEs but have an upper limit. Operating firms at a loss not only increases the risk of being dismissed but also decreases salary for directors in the following year. However, in the last year before retirement, bribes from over-recruitment can exceed the maximum bonus that directors may receive. Firm loss can affect salary in the coming year, but directors are less concerned since they have tired by that time. When retired, directors receive fixed pensions.

To test the hypothesis of corrupt practice before retirement, we investigate whether the effect of the age 59 variable on SOEs varies for areas with different levels of corruption. If SOE directors employ more workers before retirement in order to solicit bribes, the effect of upcoming retirement or the effect of the age 59 variable should be greater in areas where there is more corruption. In Vietnam, the most commonly used, well-designed data for measuring corruption at the provincial level are obtained from the Vietnam Provincial Competitiveness Index (PCI) surveys and the Vietnam Governance and Public Administration Performance Index (PAPI) surveys. The PCI surveys collect data from around 8000 firms on their experience and perception of governance and public administration, including corruption (Malesky, 2017). Likewise, the PAPI surveys focus on the experience and perception of citizens on similar topics. The sample size of the PAPI surveys is around 14,000 people (CECODES, VFF-CRT & UNDP, 2018). These studies create aggregate indexes of corruption control for all 63 provinces of Vietnam, and higher index values mean better control of corruption or a lower level of corruption.

We include interactions between the provincial-level indexes of corruption control with the age 59 variable in regressions of the log of the number of employees (Table 5). We first estimate equation (2) using only the SOE sample. Both the corruption control indexes are negative, suggesting that on average, SOEs in provinces with better corruption control (or lower corruption levels) have a smaller number of workers. The interactions are negative, albeit insignificant. Negative interactions imply a lower effect of the age 59 variable in provinces with lower corruption. In the sample of privatized and private firms, the interactions are of smaller magnitude.

The last two columns of Table 5 report the difference-in-differences estimation (using equation (3)). The triple interactions (e.g., state-owned enterprise × director aged 59 × PAPI corruption control variable, or state-owned enterprise × director aged 59 × PCI corruption control variable) measure the difference in the effect of the age 59 variable on SOE labor across corruption levels.[16] The triple interactions between SOEs, the age of 59, and corruption control are negative and statistically significant. Overall, all the estimates show the consistent trend that the effect of the retirement age on SOE employment is smaller in provinces with lower corruption levels, even though some estimates are not statistically significant at the conventional level.

6. Conclusions

Most SOEs in Vietnam are capital intensive. Yet compared with private firms, SOEs employ a remarkably large number of workers for the same level of output. One of the reasons for the labor excess of SOEs is the effect of imminent retirement. Male SOE directors, particularly at the age of 59, employ more workers before retirement. This pattern persists with different model specifications. The number of employees in SOEs with a director aged 59 is around 20% higher that of other SOEs which have similar assets, revenue and observed variables but where the age of directors is other than 59. The effect of the imminent retirement of directors on employment in privatized firms is also positive but smaller than in SOEs.

The possible motive for SOE directors to suddenly increase the labor size of their firms before retirement is to take bribes. The labor excess is not associated with an increase in firm performance. This finding also confirms discussion by the government and the mass media that public officials tend to abuse State resources and over recruit employees just before retirement. In addition, we show that the effect of upcoming retirement or the age 59 variable tends to be smaller in provinces with better control of corruption. Put differently, provinces with less corruption show a lower retirement effect among directors on SOE employment numbers. This finding is consistent with the theory that term limits can induce shirking and rent-seeking behavior among politicians.

These findings have several potential implications. First, attention should be paid to employment recruitment in SOEs as well as other public sectors, especially in the interval just before the director's retirement. Secondly, privatization can help SOEs to reduce the retirement effect of directors on labor excess. Finally, better control of corruption might also reduce the retirement effect of directors on labor excess in SOEs.

A limitation of this study is that there are no data on bribes received by directors of SOEs. It is difficult to collect this kind of data set in Vietnam. Although we are seeking supporting evidence of the bribery of directors by over recruitment, we are acutely aware of the difficulties in establishing this fact without actual data on bribery and are therefore cautious in interpreting our findings. The collection of data measuring bribery directly lies beyond the scope of this study but is certainly important for future research.

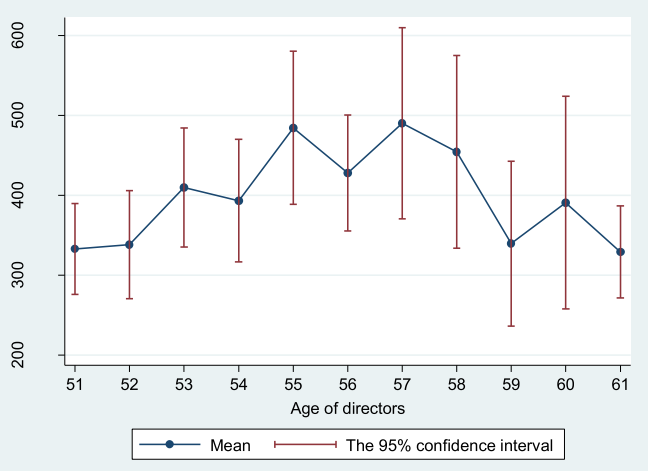
Signed disclosure statement

I would like to submit my paper entitled "Last Corrupt Deed before Retirement? Evidence from a Lower Middle-Income Country" to the Journal of Development Economics for possible publication.

I confirm that the paper is being currently submitted to only the Journal of Development Economics. There is no conflict of interest in connection with the paper. There is no outside funding on this study.

[16] We do not include "State-owned x corruption control" and "Director aged 59 x corruption control" in the regressions because of the difficulty in interpretation. With "State-owned x corruption control" and "Director aged 59 x corruption control", the coefficient of the triple interpretation does capture the heterogeneous effect of "Director aged 59" across the control variable. To explore how the effect changes across the control variable, we need to combine the coefficients of the triple interaction "State-owned x corruption control" and "Director aged 59 x corruption control". This complicates the interpretation as well as the computation of the standard error of the heterogeneous effect.

Appendix



Note: The figure graphs firm size across the age of directors of privatized and private firms which have the closest number of employees as SOEs.

Fig. A.1. The average number of employees by age of directors in the matched sample .

Table A.1The number and percentage of firms by ownership type and directors' gender

Firm types	2011		2013		Pooled sample	
	Obs.	%	Obs.	%	Obs.	%
All enterprises						
SOEs	1701	0.50	1596	0.42	3297	0.46
Privatized firms	5095	1.51	3934	1.04	9029	1.26
Private firms	330,646	97.99	374,187	98.54	704,833	98.28
Total	337,442	100	379,717	100	717,159	100
Male-managed enterprises						
SOEs	1598	0.63	1502	0.53	3100	0.57
Privatized firms	4480	1.76	3563	1.25	8043	1.49
Private firms	248,039	97.61	280,588	98.23	528,627	97.94
Total	254,117	100	285,653	100	539,770	100
Female-managed enterprises						
SOEs	103	0.12	94	0.10	197	0.11
Privatized firms	615	0.74	371	0.39	986	0.56
Private firms	82,607	99.14	93,599	99.51	176,206	99.33
Total	83,325	100	94,064	100	177,389	100

Note: This table reports the number of observations in the Vietnam Enterprise Censuses 2011 and 2013 by the type of firm ownership and gender of directors of firms. The number of SOEs with female directors is notably lower than the number of SOEs with male directors.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.2
The sample size for the analysis

Age of directors	SOEs	Privatized firms	Private firms	Total
55	230	366	9213	9809
56	197	333	7717	8247
57	157	308	7347	7812
58	144	256	5357	5757
59	109	212	6126	6447
60	20	101	3461	3582
61	19	91	4505	4615
62	6	60	2537	2603
63	2	44	3024	3070
64	4	49	2039	2092
65+	3	28	1658	1689
Total	891	1848	52,984	55,723

Note: This table reports the final number of observations (enterprises) used in this study. This sample includes enterprises with male directors aged from 55 to 65.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.3
Drop-out rate by age of directors

Age of directors in 2011	Panel of firms: The drop-out rate of firms (%)				Panel of directors: The drop-out rate of directors (%)			
	Sample of state-owned enterprises	Sample of privatized enterprises	Sample of private enterprises	All enterprises	Sample of state-owned enterprises	Sample of privatized enterprises	Sample of private enterprises	All enterprises
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
51	7.9	6.0	22.9	22.2	18.4	31.1	31.9	31.6
	(1.8)	(1.1)	(0.4)	(0.3)	(3.6)	(3.1)	(0.6)	(0.6)
52	5.1	3.9	16.6	15.8	17.8	23.2	27.8	27.3
	(1.5)	(1.0)	(0.4)	(0.4)	(3.5)	(3.1)	(0.7)	(0.7)
53	7.0	3.9	16.7	16.1	18.4	31.0	30.3	30.0
	(1.5)	(0.9)	(0.3)	(0.3)	(3.3)	(3.2)	(0.7)	(0.7)
54	8.8	5.4	14.8	14.2	17.8	29.3	29.2	28.9
	(1.8)	(1.1)	(0.4)	(0.4)	(3.5)	(3.3)	(0.7)	(0.7)
55	7.4	3.6	14.5	13.9	19.0	26.7	32.0	31.4
	(1.7)	(1.0)	(0.4)	(0.3)	(4.4)	(3.3)	(0.8)	(0.8)
56	5.6	4.2	14.6	13.9	16.9	21.9	30.1	29.4
	(1.6)	(1.1)	(0.4)	(0.4)	(4.4)	(3.4)	(0.9)	(0.8)
57	3.2	3.9	14.1	13.5	38.7	31.4	29.8	30.1
	(1.4)	(1.1)	(0.4)	(0.4)	(5.6)	(3.9)	(0.9)	(0.8)
58	3.5	3.9	14.2	13.5	83.3	57.0	31.5	34.8
	(1.5)	(1.2)	(0.5)	(0.5)	(4.6)	(4.6)	(1.1)	(1.1)
59	6.4	4.7	14.3	13.9	75.0	64.4	32.9	35.0
	(2.3)	(1.5)	(0.4)	(0.4)	(6.5)	(5.0)	(1.0)	(1.0)
60+	11.5	3.8	14.3	14.1	63.6	32.6	29.9	30.1
	(4.1)	(0.9)	(0.2)	(0.2)	(14.5)	(5.0)	(0.9)	(0.9)
Total	6.6	4.3	16.0	15.5	28.7	32.5	30.5	30.5
	(0.6)	(0.3)	(0.1)	(0.1)	(1.6)	(1.2)	(0.3)	(0.2)

Note: Columns from (1) to (4) report the drop-out rate in the panel, which is the percentage of firms surveyed in both the 2011 and 2013 VECs among all the firms in the 2011 VEC. Columns from (5) to (8) report the drop-out rate of directors, which is the percentage of directors who were in both the 2011 and 2013 VECs among all the directors in the 2011 VEC. The drop-out rate of directors is computed for only firms in the panel data.
Robust standard errors in parentheses.
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.4
Summary statistics of dependent and independent variables

Variables	Type	Year 2011		Year 2013	
		Mean	Std. Dev.	Mean	Std. Dev.
Outcome variables					
The number of employees	Continuous	51.9	175.4	48.8	201.2
Total revenue (million VND)	Continuous	49943	451295	61641	1286481
Revenue per employee (million VND)	Continuous	968	6007	1098	7762
Profit margin	Continuous	0.034	0.083	0.036	0.101
Control variables					
Director with a bachelor's degree	Binary	0.492	0.500	0.518	0.500
Kinh (Kinh = 1; ethnic minorities = 0)	Binary	0.902	0.298	0.908	0.289
Urban (urban = 1; rural = 0)	Binary	0.690	0.463	0.698	0.459
Total assets (million VND)	Continuous	56420	669605	93537	3048389
The main industrial sector of enterprises					
Agriculture	Binary	0.095	0.294	0.087	0.282
Mining	Binary	0.015	0.123	0.014	0.116
Processing	Binary	0.035	0.183	0.030	0.170
Wood and paper	Binary	0.025	0.157	0.024	0.152
Manufacturing	Binary	0.145	0.352	0.140	0.347
Garments and textiles	Binary	0.027	0.163	0.027	0.162
Construction	Binary	0.146	0.353	0.150	0.357
Trade	Binary	0.274	0.446	0.289	0.453
Services	Binary	0.237	0.425	0.239	0.427
Number of observations		23,729		31,994	

Note: The table reports the mean and standard deviation of dependent and independent variables used in this study.
Source: Estimates from the Vietnam Enterprise Censuses 2011 and 2013.

Table A.5
Regression of age 59

Explanatory variables	Sample of state-owned enterprises		Sample of privatized enterprises	
	Small specification	Large specification	Small specification	Large specification
	(1)	(2)	(3)	(4)
Director with a bachelor's degree	−0.0662	−0.0716	0.0096	0.0165
	(0.0589)	(0.0581)	(0.0251)	(0.0254)
Kinh (Kinh = 1; ethnic minorities = 0)	−0.0137	−0.0036	0.0599***	0.0533***
	(0.0920)	(0.0933)	(0.0194)	(0.0206)
Urban (urban = 1; rural = 0)	0.0325	0.0294	0.0255	0.0362
	(0.0279)	(0.0303)	(0.0210)	(0.0224)
Year 2013 (year 2013 = 1; year 2011 = 0)	−0.0027	−0.0031	0.0015	0.0027
	(0.0234)	(0.0236)	(0.0152)	(0.0152)
Agriculture	Reference			
Mining		0.1491		−0.0601
		(0.1577)		(0.0797)
Processing		0.0330		−0.1104*
		(0.0609)		(0.0655)
Wood and paper		−0.1019***		−0.1362*
		(0.0236)		(0.0719)
Manufacture		0.0312		−0.0701
		(0.0323)		(0.0620)
Garments and textiles		0.0132		−0.1417**
		(0.1052)		(0.0661)
Construction		−0.0411		−0.1106*
		(0.0401)		(0.0631)
Trade		−0.0275		−0.0768
		(0.0371)		(0.0634)
Service		0.0238		−0.1189*
		(0.0325)		(0.0619)
Constant	0.1722	0.1596	0.0280	0.1123*
	(0.1216)	(0.1229)	(0.0351)	(0.0640)
Observations	891	891	1848	1848
R-squared	0.0034	0.0110	0.0037	0.0110

Note: This table reports OLS regression of directors' age at 59 on several explanatory variables. The dependent variable is the dummy indicating whether directors are aged 59. The sample includes SOEs and privatized firms with male directors aged 55 to 65. The table seeks to examine differences in the explanatory variables between firms with directors aged 59 and firms with directors of other ages. In other words, this regression aims to test the selection bias of firms with directors aged 59. Robust standard errors in parentheses (corrected for heteroskedasticity and within-firm correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimations from Vietnam Enterprise Censuses 2011 and 2013.

Table A.6
Regression of the log of the number of employees in private firms with a single owner and private firms with more than one owner

Explanatory variables	Sample of private enterprises with a single owner			Sample of private enterprises with more than one owner		
	(1)	(2)	(3)	(4)	(5)	(6)
Director aged 55	Reference					
Director aged 56	0.0314	0.0187	−0.0228	0.0328	0.0160	−0.0290
	(0.0358)	(0.0239)	(0.0410)	(0.0225)	(0.0149)	(0.0267)
Director aged 57	0.0460	0.0417*	0.0028	0.0229	0.0198	0.0094
	(0.0314)	(0.0221)	(0.0272)	(0.0205)	(0.0142)	(0.0164)
Director aged 58	−0.0159	−0.0112	0.0347	0.0212	0.0102	−0.0291
	(0.0381)	(0.0259)	(0.0406)	(0.0254)	(0.0166)	(0.0273)
Director aged 59	0.0487	0.0351	0.0018	−0.0160	0.0279*	−0.0018
	(0.0369)	(0.0247)	(0.0372)	(0.0242)	(0.0160)	(0.0232)
Director aged 60+	−0.0364	0.0038	0.0092	−0.0389*	0.0414***	−0.0205
	(0.0307)	(0.0204)	(0.0441)	(0.0203)	(0.0133)	(0.0284)
Director with a bachelor's degree	−0.0465*	0.0427**	−0.0287	0.4235***	0.1334***	0.0016
	(0.0259)	(0.0169)	(0.0276)	(0.0155)	(0.0102)	(0.0161)
Kinh (Kinh = 1; ethnic minorities = 0)	−0.0557	0.1007***	0.0604	−0.9173***	−0.1121***	0.0134
	(0.0567)	(0.0360)	(0.0740)	(0.0317)	(0.0190)	(0.0621)
Urban (urban = 1; rural = 0)	0.0424*	0.0307*	−0.0751	−0.2755***	−0.0709***	0.0255
	(0.0239)	(0.0157)	(0.1231)	(0.0169)	(0.0125)	(0.0903)
Year 2013 (year 2013 = 1; year 2011 = 0)	−0.1161***	−0.1976***	−0.1414***	−0.1536***	−0.1889***	−0.1307***
	(0.0144)	(0.0117)	(0.0156)	(0.0098)	(0.0074)	(0.0094)
Log of total assets		0.2081***	0.0767***		0.2018***	0.0835***
		(0.0071)	(0.0111)		(0.0041)	(0.0070)
Log of revenue		0.1690***	0.1139***		0.2146***	0.1218***
		(0.0044)	(0.0102)		(0.0022)	(0.0052)
Industry dummies	No	Yes	Yes	No	Yes	Yes
Firm fixed-effects	No	No	Yes	No	No	Yes
Constant	2.6685***	−0.8635**	0.4849	3.7723***	−1.0737***	1.3037*
	(0.5118)	(0.3437)	(1.4249)	(0.2378)	(0.2766)	(0.7203)

(*continued on next column*)

Table A.6 (*continued*)

Explanatory variables	Sample of private enterprises with a single owner			Sample of private enterprises with more than one owner		
	(1)	(2)	(3)	(4)	(5)	(6)
Number of observations	10,998	10,998	10,998	41,985	41,985	41,985
Number of firms			7926			30,554
R-squared	0.0611	0.6445	0.4364	0.0454	0.6385	0.5451

Note: This table reports OLS regressions of the log of the number of employees of firms using separate samples of SOEs, privatized and private enterprises. The samples include enterprises with male directors aged 55 to 65.
Robust standard errors in parentheses (corrected for heteroskedasticity and within-firm correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.7
Regression of the log of the number of employees on a dummy of age 59

Explanatory variables	Sample of state-owned enterprises			Sample of privatized enterprises			Sample of private enterprises		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Director aged 59	0.3215**	0.2510***	0.1492***	0.0429	0.1003*	0.0818*	0.0046	0.0101	0.0039
	(0.1482)	(0.0958)	(0.0454)	(0.0908)	(0.0590)	(0.0444)	(0.0156)	(0.0110)	(0.0104)
Director with a bachelor's degree	1.0144***	0.2492	−0.0424	0.9074***	0.2328**	−0.0341	0.4009***	0.1668***	−0.0057
	(0.3342)	(0.2002)	(0.0481)	(0.1529)	(0.0904)	(0.1255)	(0.0129)	(0.0088)	(0.0139)
Kinh (Kinh = 1; ethnic minorities = 0)	1.1082**	0.2036	0.2128	−0.0204	0.3126***	−0.0821	−0.5690***	−0.1189***	0.0227
	(0.4315)	(0.2618)	(0.1589)	(0.1411)	(0.0942)	(0.1839)	(0.0268)	(0.0177)	(0.0494)
Urban (urban = 1; rural = 0)	0.4399***	−0.0038	0.0274	0.1922	0.1340*	−0.1593	−0.0212	−0.0208**	0.0092
	(0.1618)	(0.1091)	(0.0341)	(0.1181)	(0.0780)	(0.3205)	(0.0144)	(0.0101)	(0.0755)
Year 2013 (year 2013 = 1; year 2011 = 0)	0.0440	−0.0020	−0.0580*	−0.0154	−0.0471	−0.1076***	−0.1285***	−0.1964***	−0.1332***
	(0.0708)	(0.0452)	(0.0338)	(0.0485)	(0.0324)	(0.0218)	(0.0079)	(0.0064)	(0.0063)
Log of total assets		0.2190***	0.3163***		0.2165***	0.1709***		0.2176***	0.0819***
		(0.0345)	(0.1165)		(0.0237)	(0.0358)		(0.0036)	(0.0061)
Log of revenue		0.2919***	0.0657*		0.2690***	0.1658***		0.2043***	0.1211***
		(0.0340)	(0.0394)		(0.0142)	(0.0216)		(0.0020)	(0.0047)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed-effects	No	No	Yes	No	No	Yes	No	No	Yes
Constant	2.6654***	−0.8499**	0.5317	2.8616***	−1.0893***	1.2055**	2.9429***	−0.0934***	0.9589***
	(0.5080)	(0.3397)	(1.4669)	(0.2795)	(0.2748)	(0.5513)	(0.0309)	(0.0315)	(0.0912)
Number of observations	891	891	891	1848	1848	1848	52,983	52,983	52,983
Number of firms	676	676	676	1383	1383	1383	38,370	38,370	38,370
R-squared	0.1285	0.6444	0.1321	0.1732	0.6372	0.2248	0.2003	0.6045	0.1759

Note: This table reports OLS regressions of the log of the number of employees of firms using separate samples of SOEs, privatized and private enterprises. The samples include enterprises with male directors aged 55 to 65. Models 1 and 2 differ in the number of explanatory variables.
Robust standard errors in parentheses (corrected for heteroskedasticity and within-firm correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.8
Difference-in-differences regression of the log of the number of employees

Explanatory variables	Sample of SOEs, privatised enterprise and all private enterprises			Sample of SOEs, privatised enterprise and matched private enterprises		
	(1)	(2)	(3)	(4)	(5)	(6)
Director aged 59	0.0017	0.0102	0.0003	−0.0752	−0.0387	−0.0611
	(0.0166)	(0.0110)	(0.0104)	(0.0804)	(0.0546)	(0.0394)
State-owned enterprise	2.5831***	0.9455***	−0.0735	0.3792***	−0.0267	−0.1737
	(0.0603)	(0.0398)	(0.1303)	(0.0693)	(0.0487)	(0.1195)
Privatized enterprise	2.0484***	0.6872***	−0.0889*	−0.0977*	−0.2872***	−0.1320*
	(0.0421)	(0.0275)	(0.0481)	(0.0533)	(0.0340)	(0.0764)
State-owned enterprise × director aged 59	0.3256*	0.2464**	0.1798**	0.4155**	0.2859**	0.2235***
	(0.1765)	(0.1031)	(0.0780)	(0.1881)	(0.1130)	(0.0657)
Privatized enterprise × director aged 59	0.0701	0.0994	0.0839	0.1237	0.1504*	0.1228**
	(0.0999)	(0.0622)	(0.0597)	(0.1263)	(0.0812)	(0.0578)
Director with a bachelor's degree	0.4592***	0.1675***	−0.0074	0.5637***	0.0815*	−0.0410
	(0.0137)	(0.0088)	(0.0132)	(0.0650)	(0.0434)	(0.0487)
Kinh (Kinh = 1; ethnic minorities = 0)	−0.8789***	−0.0927***	0.0296	−0.3683***	0.1578***	0.0438
	(0.0297)	(0.0174)	(0.0403)	(0.0722)	(0.0461)	(0.1167)
Urban (urban = 1; rural = 0)	−0.1930***	−0.0167*	0.0145	−0.3411***	−0.0806**	−0.1731
	(0.0145)	(0.0100)	(0.0753)	(0.0545)	(0.0385)	(0.2749)
Year 2013 (year 2013 = 1; year 2011 = 0)	−0.1322***	−0.1878***	−0.1303***	0.0086	−0.0515***	−0.0549***
	(0.0082)	(0.0062)	(0.0057)	(0.0289)	(0.0198)	(0.0135)
Log of total assets		0.2182***	0.0832***		0.2024***	0.0911***
		(0.0035)	(0.0043)		(0.0145)	(0.0154)
Log of revenue		0.2072***	0.1201***		0.2687***	0.0682***

(*continued on next column*)

Table A.8 (*continued*)

Explanatory variables	Sample of SOEs, privatised enterprise and all private enterprises			Sample of SOEs, privatised enterprise and matched private enterprises		
	(1)	(2)	(3)	(4)	(5)	(6)
		(0.0020)	(0.0028)		(0.0108)	(0.0099)
Industry dummies	No	Yes	Yes	No	Yes	Yes
Firm fixed-effects	No	No	Yes	No	No	Yes
Constant	3.1777***	−0.1608***	1.1495***	4.8277***	−0.0253	3.5352***
	(0.0310)	(0.0311)	(0.1092)	(0.0860)	(0.1591)	(0.4129)
Number of observations	55,722	55,722	55,722	5478	5478	5478
Number of firms			40,215			4236
R-squared	0.1932	0.6554	0.1813	0.0542	0.6119	0.1083

Note: This table reports regression of the log of the number of employees with interactions between firm ownership and directors' age of 59. The sample includes firms with male directors aged 55 to 65. In all the regressions, the dependent variable is the log of the number of firm employees, but the regressions differ in the number of explanatory variables.
Robust standard errors in parentheses (corrected for heteroskedasticity and within-firm correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.9
Quantile regression of log of the number of employees

Explanatory variables	OLS regressions			Firm fixed-effects regressions		
	Sample of SOEs	Sample of privatized enterprises	Sample of private enterprises	Sample of SOEs	Sample of privatized enterprises	Sample of private enterprises
	(1)	(2)	(3)	(4)	(5)	(6)
Director aged 55	Reference					
Director aged 56	−0.0537	−0.0387	0.0216	0.0535	0.1152	−0.0241
	(0.1101)	(0.0970)	(0.0184)	(0.1020)	(0.0760)	(0.0151)
Director aged 57	0.0721	−0.0291	0.0248	0.0384	0.0694*	0.0092
	(0.1180)	(0.0989)	(0.0187)	(0.0350)	(0.0368)	(0.0095)
Director aged 58	−0.0202	0.1097	−0.0008	0.0338	0.0786	−0.0114
	(0.1213)	(0.1044)	(0.0205)	(0.1098)	(0.0767)	(0.0154)
Director aged 59	0.2461*	0.0651	0.0151	0.1859***	0.1475**	0.0034
	(0.1322)	(0.1105)	(0.0197)	(0.0623)	(0.0638)	(0.0132)
Director aged 60+	0.0668	−0.1161	0.0206	0.0068	0.0391	−0.0100
	(0.1741)	(0.0953)	(0.0154)	(0.1106)	(0.0790)	(0.0161)
Director with a bachelor's degree	0.3124*	0.2681**	0.1811***	−0.0301	−0.0551	−0.0055
	(0.1717)	(0.1102)	(0.0112)	(0.0479)	(0.1052)	(0.0093)
Kinh (Kinh = 1; ethnic minorities = 0)	0.5402**	0.3153***	−0.3657***	0.1992*	−0.0999	0.0217
	(0.2607)	(0.1077)	(0.0181)	(0.1169)	(0.0995)	(0.0329)
Urban (urban = 1; rural = 0)	−0.0316	−0.0302	−0.2806***	0.0502	−0.1390	0.0069
	(0.1086)	(0.0965)	(0.0117)	(0.0679)	(0.1003)	(0.0502)
Year 2013 (year 2013 = 1; year 2011 = 0)	−0.0226	−0.0047	−0.2630***	−0.0617*	−0.1120***	−0.1339***
	(0.0776)	(0.0599)	(0.0107)	(0.0353)	(0.0268)	(0.0054)
Log of total assets	0.3077***	0.2900***	0.2441***	0.3196***	0.1719***	0.0818***
	(0.0268)	(0.0210)	(0.0034)	(0.0887)	(0.0389)	(0.0041)
Log of revenue	0.2546***	0.2464***	0.1754***	0.0621**	0.1633***	0.1211***
	(0.0226)	(0.0137)	(0.0021)	(0.0313)	(0.0381)	(0.0031)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed-effects	No	No	No	Yes	Yes	Yes
Constant	−2.0813***	−1.7288***	−0.4242***			
	(0.3442)	(0.2520)	(0.0337)			
Number of observations	891	1848	52,984	891	1848	52,983
Number of firms				676	1383	38,370

Note: This table reports quantile regression of the log of the number of employees at the median. The sample includes firms with male directors aged 55 to 65. In all the regressions, the dependent variable is the log of the number of firm employees. The quantile firm fixed-effects regression is estimated using the method of Machado and Santos Silva (2018, 2019).
Robust standard errors in parentheses.
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.10
Robustness analysis

Explanatory variables	Dependent variable is log of the number of employees in 2013			
	(1)	(2)	(3)	(4)
Director aged 55 in 2013	Reference			
Director aged 56 in 2013	0.0708			
	(0.0918)			

(*continued on next column*)

Table A.10 (*continued*)

Explanatory variables	Dependent variable is log of the number of employees in 2013			
	(1)	(2)	(3)	(4)
Director aged 57 in 2013	0.0702			
	(0.0893)			
Director aged 58 in 2013	0.0132			
	(0.1058)			
Director aged 59 in 2013	0.2114**	0.1662***		
	(0.0987)	(0.0624)		
Director aged 60+ in 2013	−0.0313			
	(0.1222)			
Director aged 54 in 2011			Reference	
Director aged 55 in 2011			0.0127	
			(0.0523)	
Director aged 56 in 2011			−0.0294	
			(0.0968)	
Director aged 57 in 2011			0.1054*	0.1140**
			(0.0600)	(0.0502)
Director aged 58 in 2011			−0.0009	
			(0.1557)	
Director aged 59 in 2011			−0.0189	
			(0.0788)	
Director aged 60+ in 2011			−0.1501	
			(0.1395)	
Director with a bachelor's degree in 2013	−0.0179	−0.0142	−0.0350	−0.0286
	(0.1056)	(0.1083)	(0.1006)	(0.1094)
Director in Kinh majority in 2013 (Kinh = 1; ethnic minorities = 0)	0.2406	0.2457	0.2297	0.2348
	(0.1936)	(0.2084)	(0.2121)	(0.2083)
Urban (urban = 1; rural = 0)	−0.2087*	−0.2184*	−0.2061*	−0.2113*
	(0.1141)	(0.1123)	(0.1139)	(0.1126)
Log of the number of employees in 2011	0.9253***	0.9237***	0.9191***	0.9208***
	(0.0348)	(0.0350)	(0.0362)	(0.0356)
Log of total assets in 2011	−0.2013***	−0.1951***	−0.1991***	−0.1939***
	(0.0657)	(0.0646)	(0.0654)	(0.0653)
Log of revenue in 2011	−0.0158	−0.0180	−0.0159	−0.0157
	(0.0365)	(0.0360)	(0.0362)	(0.0360)
Log of total assets in 2013	0.2200***	0.2130***	0.2180***	0.2119***
	(0.0675)	(0.0662)	(0.0664)	(0.0672)
Log of revenue in 2013	0.0597*	0.0645*	0.0636*	0.0644*
	(0.0356)	(0.0345)	(0.0348)	(0.0346)
Constant	−0.4507*	−0.4169*	−0.3763	−0.4007*
	(0.2363)	(0.2363)	(0.2338)	(0.2365)
Observations	327	327	327	327
R-squared	0.9185	0.9181	0.9175	0.9172

Note: This table reports regression of the log of the number of employees of SOEs in 2013 on the age of directors in 2011 and explanatory variables using the 2011–2013 panel data.
Robust standard errors in parentheses (corrected for heteroskedasticity and within-commune correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.11
Regression of the number of employees and revenue on enterprise ownership

Explanatory variables	Dependent variable is log of the number of employees			Dependent variable is log of total revenue			Dependent variable is log of revenue per employee		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Private enterprise	*Reference*								
State-owned enterprise	2.5967***	1.2350***	0.9805***	3.6913***	1.2249***	−0.2681***	1.0282***	−0.0512	−0.2789***
	(0.0615)	(0.0447)	(0.0400)	(0.1035)	(0.0713)	(0.0660)	(0.0683)	(0.0582)	(0.0606)
Privatized enterprise	2.0296***	0.9185***	0.6920***	3.2758***	1.0905***	−0.0199	1.2205***	0.1705***	0.0012
	(0.0396)	(0.0306)	(0.0257)	(0.0768)	(0.0610)	(0.0511)	(0.0501)	(0.0428)	(0.0437)
Age of directors	−0.0054	0.0319*	0.0308**	−0.0891*	0.0054	−0.0332	−0.0770*	−0.0210	−0.0269
	(0.0227)	(0.0176)	(0.0147)	(0.0525)	(0.0425)	(0.0356)	(0.0393)	(0.0329)	(0.0325)
Age of directors squared	−0.0001	−0.0002*	−0.0002**	0.0005	−0.0001	0.0002	0.0005	0.0001	0.0002
	(0.0002)	(0.0001)	(0.0001)	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Director with a bachelor's degree	0.4465***	0.1121***	0.1681***	0.3452***	−0.2695***	−0.4050***	−0.0616***	−0.3355***	−0.3562***
	(0.0128)	(0.0096)	(0.0083)	(0.0284)	(0.0228)	(0.0198)	(0.0209)	(0.0179)	(0.0179)
Kinh (Kinh = 1; ethnic minorities = 0)	−0.8527***	−0.1233***	−0.0778***	−1.4100***	−0.2190***	−0.0699**	−0.5613***	−0.1234***	−0.1007***
	(0.0277)	(0.0191)	(0.0161)	(0.0543)	(0.0420)	(0.0354)	(0.0356)	(0.0315)	(0.0314)
Urban (urban = 1; rural = 0)	−0.1885***	−0.0479***	−0.0117	−0.0184	−0.1743***	−0.1164***	0.1797***	−0.1114***	−0.1026***
	(0.0139)	(0.0107)	(0.0095)	(0.0300)	(0.0243)	(0.0216)	(0.0228)	(0.0194)	(0.0195)
Year 2013 (year 2013 = 1; year 2011 = 0)	−0.1269***	−0.3108***	−0.1858***	−0.1625***	−0.6016***	−0.2259***	−0.0019	−0.2520***	−0.1947***
	(0.0075)	(0.0064)	(0.0058)	(0.0180)	(0.0159)	(0.0143)	(0.0137)	(0.0125)	(0.0127)
Log of total assets		0.3961***	0.2167***		0.8635***	0.3847***		0.4583***	0.3852***

(*continued on next column*)

Table A.11 (*continued*)

Explanatory variables	Dependent variable is log of the number of employees			Dependent variable is log of total revenue			Dependent variable is log of revenue per employee		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		(0.0033)	(0.0033)		(0.0068)	(0.0080)		(0.0048)	(0.0066)
Log of revenue			0.2077***						
			(0.0019)						
Log of the number of employees						1.2089***			0.1843***
						(0.0114)			(0.0102)
Industry dummies	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Constant	3.6629***	−1.0804*	−1.1801**	12.1109***	0.4802	1.7863	8.2611***	1.5310	1.7302*
	(0.7118)	(0.5519)	(0.4617)	(1.6467)	(1.3361)	(1.1184)	(1.2311)	(1.0323)	(1.0215)
Observations	63,176	63,176	63,176	63,176	63,176	63,176	63,176	63,176	63,176
R-squared	0.1827	0.5333	0.6505	0.0844	0.4102	0.5583	0.0203	0.3072	0.3138

Note: Robust standard errors in parentheses (corrected for heteroskedasticity and within-firm correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.12
Regression of firm performance outcomes of privatized firms

Explanatory variables	OLS regression				Firm fixed-effect regressions			
	Dependent variable is Log of total assets	Dependent variable is Log of revenue per employee	Dependent variable is Profit margin	Dependent variable is Log of profit	Dependent variable is Log of total assets	Dependent variable is Log of revenue per employee	Dependent variable is Profit margin	Dependent variable is Log of profit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Director aged 55	References							
Director aged 56	0.0005	0.0790	−0.0082	−0.0097	0.0103	0.0579	0.0119	1.0876**
	(0.1282)	(0.1230)	(0.0070)	(0.2717)	(0.1174)	(0.1619)	(0.0185)	(0.5504)
Director aged 57	−0.0130	−0.0341	−0.0036	−0.1010	−0.0040	0.0236	0.0025	0.3923
	(0.1180)	(0.1192)	(0.0074)	(0.2526)	(0.0671)	(0.0925)	(0.0106)	(0.3144)
Director aged 58	−0.1172	−0.1134	−0.0052	−0.0800	−0.0292	0.0891	0.0171	1.3541**
	(0.1385)	(0.1265)	(0.0081)	(0.2916)	(0.1236)	(0.1705)	(0.0195)	(0.5795)
Director aged 59	−0.0831	−0.2775**	−0.0047	−0.2301	0.0935	−0.0225	0.0041	0.6295
	(0.1496)	(0.1369)	(0.0076)	(0.3104)	(0.1058)	(0.1459)	(0.0167)	(0.4960)
Director aged 60+	−0.1667	−0.2688**	0.0061	−0.3016	0.0349	0.0537	0.0301	1.5481**
	(0.1451)	(0.1367)	(0.0083)	(0.2963)	(0.1325)	(0.1827)	(0.0209)	(0.6210)
Director with a bachelor's degree	1.2541***	0.5450***	0.0139**	1.7716***	−0.0713	−0.0567	0.0232	1.0797
	(0.2017)	(0.1541)	(0.0065)	(0.3288)	(0.1707)	(0.2353)	(0.0269)	(0.7999)
Kinh (Kinh = 1; ethnic minorities = 0)	−1.0925***	−0.4783**	−0.0301**	−0.7912*	0.1895	0.0710	−0.0689*	0.1091
	(0.1996)	(0.1984)	(0.0125)	(0.4080)	(0.2500)	(0.3446)	(0.0394)	(1.1717)
Urban (urban = 1; rural = 0)	0.0746	0.0082	−0.0071	0.6187*	−0.3876	−0.0703	0.0383	−0.4247
	(0.1591)	(0.1507)	(0.0091)	(0.3326)	(0.4374)	(0.6031)	(0.0690)	(2.0504)
Year 2013 (year 2013 = 1; year 2011 = 0)	0.1894***	0.0231	−0.0075**	−0.3524**	0.0638	0.0028	−0.0088	−0.8129***
	(0.0656)	(0.0666)	(0.0038)	(0.1430)	(0.0411)	(0.0566)	(0.0065)	(0.1925)
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed-effects	No	No	No	No	Yes	Yes	Yes	Yes
Constant	1848	1848	1848	1848	1848	1848	1848	1848
	0.0972	0.1700	0.0891	0.0551	0.0278	0.0995	0.1100	0.0742
Number of observations					1383	1383	1383	1383
Number of firms	1848	1848	1848	1848	1848	1848	1848	1848
R-squared	0.0972	0.1700	0.0891	0.0551	0.0278	0.0995	0.1100	0.0742

Note: This table reports regressions of several firm performance indicators on age dummies of directors. The sample includes SOEs with male directors aged 55 to 65. Robust standard errors in parentheses (corrected for heteroskedasticity and within-firm correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.13
Difference-in-differences regression of firm performance variables (using the sample of matched private firms)

Explanatory variables	OLS regressions				Firm fixed-effects regressions			
	Log of total assets	Log of revenue per employee	Profit margin	Log of profit	Log of total assets	Log of revenue per employee	Profit margin	Log of profit
Director aged 55	Reference							
Director aged 56	−0.0472	−0.0253	−0.0045	−0.1541	0.0134	−0.0153	0.0110	0.5948

(*continued on next column*)

Table A.13 (*continued*)

Explanatory variables	OLS regressions				Firm fixed-effects regressions			
	Log of total assets	Log of revenue per employee	Profit margin	Log of profit	Log of total assets	Log of revenue per employee	Profit margin	Log of profit
	(0.0783)	(0.0686)	(0.0043)	(0.1589)	(0.1061)	(0.1317)	(0.0135)	(0.4102)
Director aged 57	−0.0574	−0.0234	−0.0017	−0.0170	−0.0408	−0.0098	0.0022	0.0861
	(0.0710)	(0.0636)	(0.0044)	(0.1490)	(0.0580)	(0.0721)	(0.0074)	(0.2243)
Director aged 58	−0.0824	−0.0804	−0.0018	−0.1304	−0.0578	−0.0291	0.0053	0.4762
	(0.0881)	(0.0745)	(0.0050)	(0.1751)	(0.1088)	(0.1352)	(0.0138)	(0.4209)
Director aged 59	−0.1267	−0.0760	−0.0103**	−0.2769	−0.0689	0.0274	0.0064	0.5340
	(0.1224)	(0.1029)	(0.0040)	(0.2349)	(0.1070)	(0.1329)	(0.0136)	(0.4138)
Director aged 60+	−0.1633**	−0.2033***	0.0008	−0.2385	−0.0070	−0.1733	0.0127	0.1841
	(0.0785)	(0.0700)	(0.0040)	(0.1557)	(0.1137)	(0.1412)	(0.0144)	(0.4397)
State-owned enterprise	1.2532***	0.7015***	0.0305***	2.1355***	−0.1106	0.2582	−0.0090	−0.3195
	(0.1062)	(0.0839)	(0.0063)	(0.1885)	(0.2268)	(0.2817)	(0.0288)	(0.8772)
Privatized enterprise	0.6381***	0.6164***	0.0215***	1.6883***	−0.1358	0.4471**	−0.0123	0.9468*
	(0.0680)	(0.0612)	(0.0034)	(0.1343)	(0.1446)	(0.1796)	(0.0183)	(0.5591)
State-owned enterprise × director aged 59	0.1904	−0.1299	0.0170	0.0591	−0.0134	−0.1819	−0.0071	−0.4596
	(0.2786)	(0.2011)	(0.0164)	(0.4771)	(0.1255)	(0.1559)	(0.0159)	(0.4853)
Privatized enterprise × director aged 59	−0.0130	−0.2059	0.0046	0.0067	0.0561	−0.1506	−0.0193	−0.7130*
	(0.1682)	(0.1493)	(0.0063)	(0.3377)	(0.1098)	(0.1363)	(0.0139)	(0.4245)
Director with a bachelor's degree	0.9060***	0.3788***	0.0103***	0.9298***	0.0077	0.0589	0.0117	0.0995
	(0.0836)	(0.0669)	(0.0030)	(0.1335)	(0.0924)	(0.1148)	(0.0117)	(0.3573)
Kinh (Kinh = 1; ethnic minorities = 0)	−0.6630***	−0.4692***	−0.0209***	−0.5254***	0.1287	0.3008	−0.0261	−0.0596
	(0.0922)	(0.0793)	(0.0047)	(0.1759)	(0.2216)	(0.2753)	(0.0281)	(0.8571)
Urban (urban = 1; rural = 0)	0.0095	0.0852	−0.0006	0.3919***	−0.1405	−0.3339	0.0504	0.4084
	(0.0754)	(0.0641)	(0.0034)	(0.1510)	(0.5240)	(0.6509)	(0.0665)	(2.0267)
Year 2013 (year 2013 = 1; year 2011 = 0)	0.2916***	0.0353	−0.0058**	−0.2254***	0.2143***	0.0301	−0.0041	−0.3076**
	(0.0385)	(0.0358)	(0.0023)	(0.0846)	(0.0340)	(0.0422)	(0.0043)	(0.1315)
Interactions between State-owned enterprise and other variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Interactions between Privatized enterprise and other variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed-effects	No	No	No	No	Yes	Yes	Yes	Yes
Constant	9.4213***	4.1917***	0.0595***	3.0454***	10.9676***	5.7570***	−0.0037	5.4508**
	(0.1868)	(0.1618)	(0.0106)	(0.3372)	(0.7091)	(0.8808)	(0.0900)	(2.7423)
Number of observations	5478	5478	5478	5478	5478	5478	5478	5478
Number of firms					4236	4236	4236	4236
R-squared	0.1278	0.2110	0.0680	0.0901	0.0595	0.0263	0.0191	0.0258

Robust standard errors in parentheses (corrected for heteroskedasticity and within-firm correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.14
Regression of performance variables of SOEs in 2013 on explanatory variables in 2011

Explanatory variables	Dependent variable is Log of total assets in 2013	Dependent variable is Log of revenue per employee in 2013	Dependent variable is Profit margin in 2013	Dependent variable is Log of profit in 2013
	(1)	(2)	(3)	(4)
Director aged 54 in 2011	References			
Director aged 55 in 2011	−0.0173	0.1000	0.0006	0.4410
	(0.0667)	(0.1076)	(0.0195)	(0.4702)
Director aged 56 in 2011	0.1036	−0.1392	0.0014	0.1342
	(0.0817)	(0.1894)	(0.0223)	(0.5037)
Director aged 57 in 2011	0.0118	−0.1651	−0.0042	−0.2212
	(0.0688)	(0.1609)	(0.0220)	(0.5945)
Director aged 58 in 2011	0.0114	−0.1149	0.0140	0.3332
	(0.1276)	(0.2740)	(0.0242)	(0.8159)
Director aged 59 in 2011	0.0683	−0.3081	0.0486	−0.2997
	(0.1280)	(0.2775)	(0.0442)	(0.8111)
Director aged 60+ in 2011	0.1774	0.3827	0.0001	0.4917
	(0.1815)	(0.2954)	(0.0480)	(1.1160)
Director with a bachelor's degree in 2011	0.0106	−0.8239***	−0.0269***	−0.0844
	(0.0279)	(0.0842)	(0.0095)	(0.1975)
Kinh (Kinh = 1; ethnic minorities = 0) in 2011	−0.0192	0.4859	−0.0032	0.6988
	(0.1856)	(0.5445)	(0.0304)	(0.9016)
Urban (urban = 1; rural = 0)	0.2929	−0.2736	−0.0092	−0.4427
	(0.2624)	(0.2896)	(0.0337)	(0.9393)
Log of the number of employees in 2011	0.1306	0.0560	−0.0181	0.2205
	(0.1032)	(0.1628)	(0.0195)	(0.5919)
Log of total assets in 2011	0.9695***	0.0665	0.0366**	0.3794**
	(0.0244)	(0.0537)	(0.0143)	(0.1625)
Log of revenue in 2011	0.0366*	0.8428***	−0.0090	0.8655***

(*continued on next column*)

Table A.14 (*continued*)

Explanatory variables	Dependent variable is Log of total assets in 2013	Dependent variable is Log of revenue per employee in 2013	Dependent variable is Profit margin in 2013	Dependent variable is Log of profit in 2013
	(1)	(2)	(3)	(4)
	(0.0198)	(0.0615)	(0.0091)	(0.1668)
Industry dummies in 2011	Yes	Yes	Yes	Yes
Constant	−0.2809	−0.4068	−0.1201	−7.4588***
	(0.3145)	(0.5756)	(0.0900)	(1.8225)
Observations	327	327	327	327
R-squared	0.9552	0.7142	0.1387	0.3806

Note: This table reports regressions of several firm performance indicators of SOEs in 2013 on lagged explanatory variables in 2011.
Robust standard errors in parentheses (corrected for heteroskedasticity and within-commune correlation).
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

Table A.15
The drop-out rate by the firm size

Quintile of firms by the number of employees in 2011	Panel of directors: The drop-out rate of directors aged 55–59 (%)			
	Sample of state-owned enterprises	Sample of privatized enterprises	Sample of private enterprises	All enterprises
	(1)	(2)	(3)	(4)
The lowest quintile	46.0	38.3	31.4	31.9
	(6.3)	(6.3)	(0.9)	(0.9)
The near lowest quintile	40.4	32.9	32.8	33.0
	(6.8)	(4.0)	(1.2)	(1.1)
The middle quintile	35.6	35.0	32.2	32.5
	(6.2)	(3.7)	(1.0)	(0.9)
The near highest quintile	48.3	35.7	30.6	31.5
	(5.4)	(3.9)	(0.9)	(0.9)
The highest quintile	41.9	43.1	30.1	30.8
	(5.7)	(4.0)	(0.8)	(0.7)
Total	43.0	36.9	31.2	31.7
	(2.7)	(1.9)	(0.4)	(0.4)

Note: This table report the drop-out rate of directors aged 55 to 59 in 2011 over the 2011–2013 period by quintiles of the number of employees in 2011. It is equal to the percentage of directors surveyed in both the 2011 and 2013 VECs among all the directors in the 2011 VEC. The drop-out rate of directors is computed for only firms in the panel data.
Robust standard errors in parentheses.
***p < 0.01, **p < 0.05, *p < 0.1.
Source: Estimates from Vietnam Enterprise Censuses 2011 and 2013.

References

Acuna-Alfaro, J., Nguyen, C., Tran, A., Phung, T., 2015. The urban-rural gap in governance and public administration: evidence from Vietnam. The International Public Management Review 16 (1), 165–191.

Alt, J.E., Lassen, D., 2012. Enforcement and public corruption: evidence from the American states. J. Law Econ. Organ. 30 (2), 306–338.

Angrist, J.D., Pischke, J.-S., 2009. Mostly Harmless Econometrics: an Empiricist's Companion. Princeton University Press, New Jersey.

Bai, J., Jayachandran, S., Malesky, E.J., Olken, B.A., 2019. Firm growth and corruption: empirical evidence from Vietnam. Econ. J. 129 (618), 651–677.

Barro, R.J., 1973. The control of politicians: an economic model. Publ. Choice 14 (1), 19–42.

Becker, G.S., 1968. Crime and punishment: an economic approach. J. Polit. Econ. 76, 169–217.

Bender, B., Lott, J.R., 1996. Legislator voting and shirking: a critical review of the literature. Publ. Choice 87 (1–2), 67–100.

Berkowitz, D., Ma, H., Nishioka, S., 2017. Recasting the iron rice bowl: the reform of China's state-owned enterprises. Rev. Econ. Stat. 99 (4), 735–747.

Bernecker, A., 2014. Do politicians shirk when reelection is certain? Evidence from the German parliament. Eur. J. Polit. Econ. 36, 55–70.

Bertrand, M., Duflo, E., Mullainathan, S., 2004. How much should we trust differences-in-differences estimates? Q. J. Econ. 119 (1), 249–275.

Besley, T., Burgess, R., 2002. The political economy of government responsiveness: theory and evidence from India. Q. J. Econ. 117 (4), 1415–1451.

Besley, T., Case, A., 1995. Does electoral accountability affect economic policy choices? Evidence from gubernatorial term limits. Q. J. Econ. 110 (3), 769–798.

Boycko, M., Shleifer, A., Vishny, R.W., 1996. A theory of privatisation. Econ. J. 309–319.

CECODES, VFF-CRT & UNDP, 2018. The Viet Nam Governance and Public Administration Performance Index (PAPI) 2017. Measuring Citizens' Experiences. A Joint Policy Research Paper by the Centre for Community Support and Development Studies (CECODES), Centre for Research and Training of the Viet Nam Fatherland Front (VFF-CRT), and United Nations Development Programme (UNDP). Ha Noi, Viet Nam.

Christiansen, H., Kim, Y., 2014. State-invested enterprises in the global marketplace: implications for a level playing field. No. 14. In: OECD Corporate Governance Working Papers. OECD Publishing. https://doi.org/10.1787/5jz0xvfvl6nw-en.

Duy, C., 2015. Hội Chứng Tuổi 59 Và Hoàng Hôn Nhiệm Kỳ, *Vietnamnet*, Issued on 12/09/2015 available at. http://vietnamnet.vn/vn/tuanvietnam/hoi-chung-tuoi-59-va-hoang-hon-nhiem-ky-277706.html. (Accessed 2 July 2018).

Estrin, S., Hanousek, J., Kocenda, E., Svejnar, J., 2009. The effects of privatization and ownership in transition economies. J. Econ. Lit. 47 (3), 699–728.

Ferraz, C., Finan, F., 2011. Electoral accountability and corruption: evidence from the audits of local governments. Am. Econ. Rev. 101 (4), 1274–1311.

Gia, V., 2018. Tổng Giám Đốc Cảng Hàng Không Bổ Nhiệm Hơn 70 Cán Bộ Trước Lúc Hưu. *Vietnamnet*, Issued on 08/07/2018 available at. http://vietnamnet.vn/vn/thoi-su/tong-giam-doc-cang-hang-khong-bo-nhiem-hon-70-can-bo-truoc-luc-nghi-huu-461676.html. (Accessed 2 July 2018).

Giang, L., Nguyen, C., Tran, A., 2017. Does PAPI monitoring improve local governance? Evidence from a natural experiment in Vietnam. Int. J. Dev. Issues 16 (1), 85–106.

Government of Vietnam, 2004. Regulation on wage scale, payroll and regime of wage allowance in state companies. In: Decree of the Government No. 199/2004/NĐ-CP issued on 03/12/2004, Vietnam.

Government of Vietnam, 2015. Regulations on the management of holders and employees one member company liability with 100% capital by the State. In: Decree of the Government. No. 97/2015/NĐ-CP, issued on 19/10/2015, Vietnam.

Government of Vietnam, 2016. Regulations on wages, remunerations, and rewards for managers of one member company liability with 100% capital by the State. In: Decree of the Government. No. 52/2016/NĐ-CP, issued on 13/16/2016, Vietnam.

Hang, T., Nhi, H., 2015. Không cấm ký bổ nhiệm trước khi hưu nhưng phải kiểm soát. Vietnam issued on 11/27/2015, and accessed on 02/07/2018, available at. http://vietnamnet.vn/vn/thoi-su/khong-cam-ky-bo-nhiem-truoc-khi-huu-nhung-phai-kiem-soat-275854.html.

Harper, J.T., 2002. The performance of privatized firms in the Czech Republic. J. Bank. Finance 26, 621–649.

Heckman, J.J., LaLonde, R.J., Smith, J.A., 1999. The economics and econometrics of active labor market programs. In: Ashenfelter, A., Card, D. (Eds.), Handbook of Labor Economics, vol. 3. Elsevier Science.

Hoang, T., 2016. Thanh tra việc ông Huỳnh Phong Tranh dồn dập bổ nhiệm cán bộ. Tuoi Tre newspaper accessed on 28/10/2016. Available at: https://tuoitre.vn/thanh-tra-viec-ong-huynh-phong-tranh-don-dap-bo-nhiem-can-bo-1208953.htm.
Jain, A.K., 2001. Corruption: a review. J. Econ. Surv. 15 (1), 71–121.
Kowalski, P., Büge, M., Sztajerowska, M., Egeland, M., 2013. State-owned enterprises: trade effects and policy implications. In: OECD Trade Policy Paper, vol. 147. OECD Publishing. https://doi.org/10.1787/5k4869ckqk7l-en.
La Porta, R., López-de-Silanes, F., 1999. The benefits of privatisation: evidence from Mexico. Q. J. Econ. 114, 1193–1241.
Le, H., 2016. Nguyên Giám Đốc Sở Y Tế Thanh Hóa Lạm Quyền Tuyển Hơn 3.700 Lao Động. Vnexpress newspaper, 13/18/2016, accessed on 15/01/2020. Available at: https://vnexpress.net/nguyen-giam-doc-so-y-te-thanh-hoa-lam-quyen-tuyen-hon-3-700-lao-dong-3452221.html.
Le, T., Tan, V., 2016. Cán Bộ "Hoàng Hôn Nhiệm Kỳ" Kể Chuyện Đi Học Tập Kinh Nghiệm. Nam Phi. VOV Newspaper accessed on 12/12/2015. Available at: https://vov.vn/chinh-tri/can-bo-hoang-hon-nhiem-ky-ke-chuyen-di-hoc-tap-kinh-nghiem-nam-phi-458825.vov.
Linh, S., 2019. Điểm Danh Các Doanh Nghiệp Nhà Nước Làm Ăn Thua Lỗ, Mất an Toàn Tài Chính. Investment Newspaper on 11/11/2019, accessed on 20/12/2019. Available at: https://baodautu.vn/diem-danh-cac-doanh-nghiep-nha-nuoc-lam-an-thua-lo-mat-an-toan-tai-chinh-d110719.html.
List, J.A., Sturm, D.M., 2006. How elections matter: theory and evidence from environmental policy. Q. J. Econ. 121 (4), 1249–1281.
Loc, T.D., Lanjouw, G., Lensink, R., 2006. The impact of privatization on firm performance in a transition economy: the case of Vietnam. Econ. Transit. 14 (2), 349–389.
Machado, J.A.F., Santos Silva, J.M.C., 2018. XTQREG: stata module to compute quantile regression with fixed effects. In: Statistical Software Components S458523. Boston College Department of Economics revised 09 Feb 2020.
Machado, J.A.F., Santos Silva, J.M.C., 2019. Quantiles via moments. J. Econom. 213 (1), 145–173.
Malesky, E., 2017. The Viet Nam provincial competitiveness index: measuring economic governance for private sector development, 2016 Final Report. In: Ha Noi, Viet Nam: Viet Nam Chamber of Commerce and Industry and United States Agency for International Development.
Megginson, W.L., Netter, J.M., 2001. From state to market: a survey of empirical studies on privatization. J. Econ. Lit. 39 (2), 321–389.
Ministry of Home Affairs, 2008. Procedures for Appointment, Re-appointment, Dismissal, Commendation and Discipline of the Chairman and Members of the Board of Directors, Members of the Bod, General Director, Director, Deputy General Director of State-Owned Enterprises", Circular No. 01/2008/TT-BNV Dated January 15, 2008 of the Ministry of Home Affairs. Vietnam.
National Assembly of Vietnam, 2003. The Law on State-Owned Enterprises in 2003. National Assembly of Vietnam, Vietnam.
National Assembly of Vietnam, 2008. The Law on Public Employees and Civil Servants. National Assembly of Vietnam, Vietnam.
National Assembly of Vietnam, 2012. The Law on Labor. National Assembly of Vietnam, Vietnam.
Newspaper, Tienphong, 2014. Hết Cửa Ban Chức Trước Ngày Về Hưu. *Tienphong Newspaper* issued on 02/17/2014, and accessed on 02/07/2018, available at. https://www.tienphong.vn/kinh-te/het-cua-ban-chuc-truoc-ngay-ve-huu-797552.tpo.
Ngan, G., 2018. Nhiều Chủ Tịch Ngân Hàng Vẫn Kiêm Nhiệm Sếp Doanh Nghiệp. CafeF Newspaper issued on 01/15/2018, and accessed on 06/12/2018. Available at. http://cafef.vn/nhieu-chu-tich-ngan-hang-van-kiem-nhiem-sep-doanh-nghiep-20180115094704298.chn.
Nguyen, H., 2017. 54% Dân Tin Xin Việc Phải Hối Lộ: Hãy Học Singapore. Bao Dat Viet issued on 04/10/2017, and accessed on 07/23/2018, available at. http://baodatviet.vn/chinh-tri-xa-hoi/tin-tuc-thoi-su/54-dan-tin-xin-viec-phai-hoi-lo-hay-hoc-singapore-3332803/.
Nguyen, V., 2018. Một "Điều Kỳ Lạ" Về Doanh Nghiệp Nhà Nước. *Vneconomy Newspaper* issued on 05/18/2018, accessed on 06/01/2018, available at. http://vneconomy.vn/mot-dieu-ky-la-ve-doanh-nghiep-nha-nuoc-20180528142014237.htm.
Parker, D., Kirkpatrick, C., 2005. Privatisation in developing countries: a review of the evidence and the policy lessons. J. Dev. Stud. 41 (4), 513–541.
Phung, T., Cong, T., 2018. Ký 76 Quyết Định Bổ Nhiệm Cán Bộ Trước Khi Về Hưu. Tuoi Tre newspaper accessed on 08/07/2018. Available at: https://tuoitre.vn/tong-giam-doc-acv-ky-76-quyet-dinh-bo-nhiem-can-bo-truoc-khi-ve-huu-co-bat-thuong-20180708143534686.htm.
Poon, Y., Hung, N.K., Do, T., 2009. The reform of the civil service system as Viet Nam moves into the middle-income country category. In: Series of Policy Discussion Papers. The United Nations Development Programme Viet Nam.
Truong, T., 2016. Hoàng Hôn Nhiệm Kỳ Là Bình Minh Lợi Ích. *Giao duc Newspaper* accessed on 29/08/2016. Available at: https://giaoduc.net.vn/tieu-diem/hoang-hon-nhiem-ky-la-binh-minh-loi-ich-post170405.gd.
World Bank, 2010. Vietnam Development Report 2010: Modern Institutions. World Bank, Hanoi.
Zupan, M.A., 1990. The last period problem in politics: do congressional representatives not subject to a reelection constraint alter their voting behavior? Publ. Choice 65 (2), 167–180.