Essays on the political economy of small and medium-sized enterprises in Vietnam

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Declaration

I declare that the thesis is the original work that I carried out whilst doing my PhD program at the Australian National University. I confirm that I have never submitted any paper in this thesis to obtain a degree from any university or for publication. This thesis is my independent work, except for any work that has indicated.

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Abstract

The thesis includes four key papers, in addition to the introduction and conclusion chapters, on the political economy of SMEs in Vietnam. The first paper examines the relationship between political connections and firm survival of manufacturing SMEs. I use the Communist Party membership of firms' owners as a proxy for political connections. This paper employs the Cox model for firm survival analysis, and the results show that politically connected firms can survive better than their peers when controlling firm characteristics. However, political connections are not associated with firms' productivity and growth. This paper raises a discussion for firms to consider the trade-off between investment in social capital and physical capital. This paper also suggests that the Vietnamese government should create a level playing field for firms in which non-connected firms should have equal chances to survive.

The second paper investigates the impact of political networks on firm innovation. Here, I use the number of contacts with politicians and public servants as a continuous-value proxy for political networks. This paper combines Probit model and instrumental variables to control for possible endogeneity biases, i.e., innovations require more political networks and political networks also have some impacts on innovations at the same time. The results show that political networks positively impact firms' innovation. In particular, firms with more contacts with politicians are more likely to improve their current products, introduce new products or new production processes. The results also show that government assistance plays an intermediate role in this relationship, as firms with more political networks are more innovative when receiving government support. The results imply biases in resource allocation toward politically connected firms.

The last two papers investigate corruptions in Vietnam. The third paper examines the impact of corruption on export. The analysis is undertaken by fitting the Probit and Tobit models to the Vietnamese SME panel data from 2007 to 2015, with an instrumental variable to correct corruption's possible endogeneity. I find a positive correlation between corruption and firms' participation in export markets. Firms engaged in corruption are more likely to export. However, corruption does not have significant impacts on the share of export over total revenue. This paper suggests that a transparent and low transaction cost business environment is important for all SMEs to enhance their competitive capacity and efficiency and participate in international supply chains.

The final paper examines the relationship between corruption and gender in business. This paper fits the random effect Logit and Tobit models to the Vietnamese SMEs' panel data from

2011 to 2015. The results show that female-owned firms are less associated with corruption, compared to their male counterparts. Also, household businesses and firms that do not register with local governments have fewer corruption incidences than non-household and formally registered firms. Moreover, firms that spend more time with government officials are more likely to engage in corruption. The paper suggests that gender equality programs may help improve the business environment in Vietnam.

Overall, my thesis points out that the institutional framework plays a crucial role in determining business behaviours and activities. Businesses respond to institutions in a way that brings the most benefits to them. In a weak institutional and inconsistent legal framework, firms tend to pursue various informal channels such as political connections and networks and corruption to compete and survive. The results of the four papers suggest that Vietnamese SMEs may need to rely on their political relationships and networks, and corruption to smooth their business activities. However, my view does not support firms' reliance on political connections and corruption to survive and grow, even though these channels benefit firms in the short run. In contrast, firms should consider the trade-off between investing in social capital and physical capital and a non-corrupt business strategy based on improving internal competitiveness and efficiency.

CONTENTS

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List of Abbreviations

CEOs	Chief executive officers
CIEM	Central Institute for Economic Management
ERIA	Economic Research Institute for Association of Southeast Asian Nations
GDP	Gross Domestic Production
GNP	Gross National Production
GSO	General Statistics Office of Vietnam
ILSSA	Institute of Labour Science and Social Affairs
IV	Instrumental variable
IFC	International Finance Corporation
MPI	Ministry of Planning and Investment
OECD	Organisation for Economic Cooperation and Development
PCs	Political connections
PCI	Provincial Competitive Index
R&D	Research and Development
SD	Standard deviation
SMEs	Small and medium enterprises
SOEs	State-owned enterprises
TFP	Total Factor Productivity
UNDP	United Nations Development Programme
US	United States
USAID	United States Agency for International Development
VCCI	Vietnam Chamber of Commerce and Industry
VND	Vietnamese Dong

Chapter 1 Introduction

1.1 Background

Politically connected businesses have been prevalent regardless of political systems and levels of economic development. Although political connections (PCs) seem to be common worldwide, they are likely to be more pronounced in emerging markets (Ha and Frömmel, 2020). Firms are more likely to establish political connections where the local economy is characterized by a low market-oriented economy and concentrated government decision making in the allocation of economic resources (Chen et al., 2011). Emerging countries' institutions are characterized by the weak rule of law, widespread corruption, a lack of accountability and transparency, and government intervention (Nee, 2007, Kinghan and Newman, 2015, Fan et al., 2011). Therefore, political connections serve to supplement the weakness of formal institutions (Li et al., 2008, Sun et al., 2010).

On the other hand, corruption is one of the hindrances to economic and social development (Wang and You, 2012). However, the prevalence of corruption may vary across countries, and exhibit significant diversity on account of the social and economic factors at play. For example, corruption is negatively linked with growth for a high degree of financial openness, whereas this association does not hold for countries with less open financial systems (Neeman et al., 2004). Moreover, the quality of institutions influences the impact of corruption on economic growth. Aidt et al. (2008) show that corruption is harmful to the growth of the countries with high-quality political institutions, but does not impact growth in those without high-quality political institutions, and may improve efficiency in countries with exceptionally ineffective institutions (Méon and Weill, 2010). Similarly, corruption benefits economic growth in countries with low levels of economic development yet damage the growth of countries that have already arrived at a high-level economic development (Méndez and Sepúlveda, 2006).

Small and medium enterprises (SMEs) are one of the most important driving factors for economic development in emerging economies. SMEs contribute to job creation, poverty reduction, and innovation. Forty per cent of GDP and seventy per cent of formal jobs in emerging economies are created by formal SMEs. Moreover, the estimated addition of 600 million people to the ever-growing global workforce by 2030 will need to be filled by SMEs. Therefore, many governments around the world have given priority to SMEs in their national economic development strategies (World Bank, 2020a).

Despite the importance of SMEs' contributions to GNP, employment, and prosperity, SMEs in emerging markets still face many constraints. SMEs are heavily affected by corruption due to their limited resources and ability to avoid it. As a result, many SMEs use corruption as a mean to 'get things done' (Rune, 2011). Research on corruption and governance organizations is extensive but research into corruption and SMEs has been less studied. Research on corruption from the perspective of SMEs is important because facing corruption is unavoidable when SMEs operate in the formal sector and require strategies to deal with it (Jaensson, 2014).

Apart from corruption, SMEs also pursue political connections or networks as a substitute for less developed formal institutions in emerging economies (Krammer and Jimenez, 2020). Resource limitations due to their small size force SMEs to create networks (Liao and Welsch, 2003) as their internal resources are insufficient (Hadjikhani et al., 2009). Therefore, they need to make use of resources that they do not yet possess in order to stay competitive and take advantage of new market opportunities (Hitt and Duane, 2002). Consequently, SMEs use their entrepreneurial network relationships to utilize external resources (Chetty and Campbell-Hunt, 2003, Elfring and Hulsink, 2003, Yli-Renko et al., 2002). SMEs interact with political entities to avoid uncertainty in levels of government support for their businesses. While large firms can proactively respond to political uncertainty and access government support, SMEs are more passive in this relationship (Hadjikhani et al., 2009). Given the limited research on this topic (Hadjikhani et al., 2009), such interdependency and passive relationships call for research on how political connections and networks affect SMEs (Welch and Wilkinson, 2004).

This thesis is motivated by these contexts and background and has chosen to study the relationships between political connections, corruption, and SMEs in Vietnam. Given the importance and necessity of this study, my thesis not only contributes to the existing literature but also provides practical implications to SMEs, entrepreneurs, managers, and policymakers. SMEs owners and managers need to gain more understanding of their relationships in the socio-political marketplace. For policymakers, understanding how SMEs react to political connections and corruption are an important tool for designing and reforming government policies.

1.2 Why Vietnam?

Vietnam is a typical example of an emerging market (Meyer and Nguyen, 2005) whose economic development has seen rapid growth over the past 30 years. From its origins as a poor country, Vietnam has developed into a lower-middle-income nation (World Bank, 2020b). Real GDP growth was estimated at 7% in 2019 with a similar growth rate in 2018 and is a nation

that enjoys one of the highest growth rates in the region (World Bank, 2020b). Also, Vietnam's annual real GDP growth rate was 6.2% in the period 2016-2022, which represents a significantly higher rate of expected growth than the ASEAN-5 group and Singapore (PwC, 2018).

Vietnam has also witnessed remarkable growth in the number of private enterprises over the last few decades, growing from around 149,000 businesses in 2007 to over 436,000 in 2015. The average annual growth rate of the number of enterprises in the period 2007-2015 reached 14.4% (VCCI, 2015). As of December 31, 2018, the whole country had 714,755 enterprises in operation, this increased by 9.2% over the same period in 2017 (MPI, 2019). In addition, the number of Vietnamese SMEs has expanded exponentially over the last 10 years (CIEM et al., 2016b).

However, the development of the private sector is attached to the prevalence of corruption since the Doi Moi (Renovation) began in 1986 when the country gradually transferred to a market-oriented economy (Nguyen et al., 2016c). The business sector has been affected by cumbersome legislation that has created both incentives and opportunities for corruption. Rampant corruption has forced firms to make informal payments for their connections "to get things done". Companies encounter bribery, political intervention, and facilitation payments in all sectors. The PCI report in 2017 showed that nearly 60% of enterprises must pay informal fees, amounting at times to 10% of their revenue. Many businesses are required to make unofficial payments for their requirements in areas such as import and export or certification (VCCI and USAID, 2017).

Along with corruption, political connections or political ties have been common for Vietnamese private enterprises since the start of the economic reform in Vietnam (Rand, 2017a). Businesses invest in building relationships with government officials in political systems to compete in the market. Forty per cent of businesses have admitted that they use relationships with officials for their benefit (The Government Inspectorate of Vietnam and World Bank, 2012). In unhealthy management systems at all levels, businesses have to think of means to 'lubricate' their way through 'obstacle doors' (Phuong Thao, 2013).

There are three ways that firms to establish political connections in Vietnam which share similarities to those observed in Chinese political connections in Cheng et al. (2019b), First, political connections can be formed if firms have CEOs or member of the board of directors who previously worked for government agencies. Previous experience in the government sector allows them to acquire information on government administration and operations. They are more likely to access local government recourses due to their experience of relationships at this

level. According to Article 19 of the 2010 Law on Public Employees in Vietnam, civil servants and public employees cannot establish or manage enterprises. Therefore, public servants can only own their own businesses after they have left their positions in government. Second, owners or managers of firms who have served as members of the Vietnamese Communist Party can act as a channel for political connections. When firms meet certain requirements, these owners are eligible to be appointed to the Party. By becoming Party members, firm owners or managers enjoy connections with government officials or other public servants. Third, firms can employ politically connected people such as government officials and use them to expand their political networks.

Indeed, there is a small group of business owners who used to work for state agencies and governments among Vietnamese SMEs. With experience and relationships are drawn from previous positions, they can enjoy many advantages in terms of relationships and their understanding of government key policies. Around 3-5% of SME owners used to be leaders in state agencies and the proportion of business owners who used to work as managers in SOEs is even higher. Around 8% of micro business owners and 11% of business owners of medium-sized enterprises used to hold management positions in SOEs, with this proportion rising to 22% for large enterprises. Approximately 14-15% of micro firm owners and 9% of large firm owners used to be an employee at SOEs (VCCI, 2015).

Political connections and corruption in Vietnam have been widespread for several reasons such as inconsistencies in the legal systems or being overwhelmed by the complexity of policy documents. It is a challenge for many firms to keep up to update with all levels of government policies and regulations. According to the government's website, the National Assembly issues twenty to thirty laws each year and each law is often accompanied by several further decrees and each decree requires several circulars, instructions, and guidelines to implement. Furthermore, complicated administrative procedures for firms represent hurdles for many who are unable to speed up their application for these procedures without utilizing corruption or relationships (Le, 2011)

1.3 Data

The data in this thesis was extracted from Vietnamese SME surveys carried out by the Central Institute for Economic Management (CIEM), the Institute of Labor and Social Science Affairs (ILSSA), and the Department of Economics at the University of Copenhagen. The survey chose firms from 10 cities and provinces in Vietnam. Each round of the survey interviewed around 2,600 enterprises every two years starting from 2005 and ending in 2015. Firms that remained

in business were re-interviewed for each survey round and those that no longer exist firms were replaced by similar ones in the same province to retain the sample size. This data includes formally registered enterprises that follow the Law on Enterprises at the province level. The data also includes the number of individual businesses that do not satisfy the conditions stated in the Law on Enterprises, namely 'household enterprises'. Household businesses can be registered with district agencies or they can be unregistered.

Article 66 of Decree 78/2015/ND-CP on Enterprise Registration provides the conditions for a household business that must register or does not need to register with official agents. It indicates as follows: "Households engaged in agriculture, forestry, aquaculture, salt productions, street vendors, nomadic businesspeople, and service providers earning low revenues are not required to register, except for conditional business lines. The People's Committees of provinces shall specify the low revenues applied within their provinces"; and "Any business household that hires 10 employees or more must apply for enterprise registration as prescribed" (Vietnamese Government, 2015).

The Vietnamese SME data includes formally registered enterprises that follow the Law on Enterprises and household businesses that register with district agencies. Apart from enterprises registered with official agents, the SME survey data also contains unregistered household firms which are classified as informal firms. These firms do not have a Business Registration License or tax code, and they are unregistered with district authorities (CIEM et al., 2016a). Therefore, this data is unique even though the sample of informal firms is not representative of the Vietnamese informal sector.

The thesis focuses on SMEs in the manufacturing sector. Enterprises are classified by size in line with the Vietnamese government-regulated in Decree No.56/2009/ND-CP. This Decree defined small firms as those that employ between 10 and 200 persons, whereas medium sizes are those that employ between 200 and 300 workers in any sectors with the exception of the trade and service sectors. The micro category is defined as those with no more than 10 employees. On March 11th 2018, the government issued Decree No.39/ND-CP which replaces Decree No.56/2009/ND-CP. Accordingly, Decree number 39 classifies SMEs based on the average annual number of employees participating in social insurance and revenue or capital (in which revenue takes precedence). Decree No.39/ND-CP defines SMEs as enterprises with no more than 200 employees. However, as the period of this thesis is limited to the years 2007 to 2015, and therefore follows the definition of SMEs as given in Decree No. 56/2009/ND-CP.

Furthermore, the data employed by this study focuses on non-state enterprises which do not receive any capital from local or central governments but are instead wholly owned by a private

individual or group of individuals (CIEM et al., 2016a). Formal non-state enterprises in the sample include private enterprises, cooperative name companies, private limited companies, and joint-stock companies without any capital from the state. Informal firms are household enterprises defined as privately owned economic establishments that do not register and operate under the Enterprise Law. However, a household business must have a regular business operation with a definite address and at least one full-time employee (GSO, 2015).

1.4 Key research questions, methods, and results

The thesis aims to examine the impacts of political connections or networks and corruption on the survival and development of SMEs in developing countries. For this purpose, the thesis is going to address the four following research questions: (i) How do political connections affect the survival, productivity, and growth of firms in Vietnam? (ii) How do political networks influence firm innovation in Vietnam? (iii) Does gender matter in terms of corruption in Vietnamese business? (iv) How does corruption affect the export performance of Vietnamese SMEs?

The thesis uses various methodologies to address the research questions. To address the first research question, I use survival analysis with the Cox model to estimate political connections' effects on SME survival in Vietnam. This chapter uses panel data from 2007 to 2015 to observe firms' survival during this period. Firms are defined as surviving if they remain in existence from the beginning to the end of the period the study is undertaken. Firms exit if they disappear before the end of the survey period. The second part of this paper uses random effect regression to examine whether politically connected firms perform better than non-connected firms in productivity, sale growth and employment growth.

The second paper addresses the second research question and uses a Probit model to examine whether political networks influence firms' innovation probability. I also use instrumental variables to control for the potential endogeneity of political networks. The results show that firms with more contacts with politicians and public servants are more likely to be innovative. This paper also employs the mediator effect model to test the intermediate role of government assistance in the relationship between political networks and innovation. The regression with a different cohort of firm' level of technology is also applied. The results show that non-high technology firms rely on political networks than high-technology firms for their innovation.

The third chapter examines how corruption influences a firm' export participation and export intensity. This paper uses a Probit model to examine the impact of corruption on the export

participation variable because export participation is a binary variable. Meanwhile, a Tobit model is applied to test the relationship between corruption and export intensity. I use a Tobit model because the dependent variable (export intensity) is measured by the percentage of export revenue over the total revenue of firms and it is ranging from 0 to 100. The paper also applies instrumental variables to control for possible endogeneity of corruption. The results show that corruption is positively associated with export participation but not associated with export intensity.

The final chapter investigates whether gender matters in terms of corruption in Vietnam. This paper uses a random Logit model to apply to Vietnamese SMEs data in 2011, 2013, and 2015. The paper also uses a Tobit model to examine how the gender of a firm owner affects corruption spending. The results show that female-owned firms are less likely to pay bribes than their male counterparts. Also, household businesses and enterprises that do not register with official agents are less likely to engage in corruption with government officials than non-household and formally registered firms. Moreover, firms that spend more time dealing with government officials pay more bribes.

1.5 Thesis outline

This thesis presents 6 chapters. Chapters 2 to 5 present the main thesis and can be divided into two parts. The first two chapters (Chapter 2 and 3) scrutinize the impact of political connections on SMEs' performance in Vietnam. Chapter 2 examines how political connections affect the survival or exit of Vietnamese SMEs and whether politically connected SMEs perform better in productivity and growth than non-connected firms. Chapter 3 investigates the impact of political networks in Vietnam on the probability of introducing innovation in SMEs.

The second part of this thesis includes Chapter 4 and Chapter 5 and concerns corruption in Vietnam. The relationship between corruption and export participation and export intensity is explored in Chapter 4. Chapter 5 addresses the question of whether gender matters in corruption in Vietnam. Finally, Chapter 6 draws these four papers together to discuss contributions and policy implications. It also covers some possible directions for future research.

Chapter 2 Political connections, survival and performance of small and medium-sized enterprises in Vietnam

Abstract

Political connections can either help or hinder businesses in any country. I examine the relationship between political connections and firm survival of manufacturing small and medium-sized enterprises (SMEs) in Vietnam with the SME surveys from 2007 to 2015. Using the Cox model for survival analysis, I find that politically connected firms are less likely to exit than non-connected firms. However, political connections are not associated with growth and productivity. The results raise areas of discussion for firms to consider the trade-off between investment in social and physical capital. This paper suggests that the Vietnamese government should work to create a level playing field for firms in which non-connected firms can enjoy an equal chance to survive.

2.1 Introduction

The impacts of political connections on firms' performance have been discussed in the recent literature (Khwaja and Mian, 2005, Rand, 2017b, Li et al., 2008, Ling et al., 2016, Liu et al., 2018, Leuz and Oberholzer-Gee, 2006, Ang et al., 2010, Amore and Bennedsen, 2013). However, most of these studies focus on credit markets (Khwaja and Mian, 2005), financing system (Cull et al., 2015), firm value (Fisman, 2001, Goldman et al., 2009, Ang et al., 2013) and firm performance (Li et al., 2008). Only a few studies directly or indirectly support the view that political ties help firms survive (Faccio et al., 2006, Miner et al., 1990, Du and Girma, 2010, Akcigit et al., 2018).

In addition, there is limited research on political connections in Vietnam, such as Kinghan and Newman (2015), Rand (2017b), and Markussen and Ngo (2018). Some research also examines firm survival in Vietnam (Hansen et al., 2009, Kokko and Tran, 2014, Nguyen, 2016) in which only Hansen et al. (2009) examine how government assistance and interaction with the state sector influence SME performance. As such, no current studies explore the relationship between political connections and firm survival and call into question the extent to which political connections affect firm survival in Vietnam.

Vietnam is an appropriate case to study the impact of political connections on firm performance and survival for three reasons. First, SMEs play an important role in Vietnam as they account for 98% of the total number of enterprises, contribute to 40% of the total GDP and create more

than 50% of total employment opportunities (VCCI and USAID, 2015). Therefore, the survival and performance of SMEs play an important role in directing the development of the country. However, SMEs only grow in terms of the annual number of newly-established enterprises but do not grow in terms of labour size, and physical capital (VCCI and USAID, 2015). While some SMEs encounter credit and financial difficulties, others face challenges from the inflexibility of the regulatory environment (CIEM et al., 2016a). Therefore, more research on SMEs is necessary to provide both empirical and theoretical evidence for the Vietnamese government when designing policy directions and supports for SMEs.

Second, benefits from political connections increase when firms operate in a country with a high level of corruption, undeveloped property right protection, rigorous government interference, or a less democratic government (Faccio, 2006). Vietnam is a country with a significant prevalence of corruption and less developed property right protection (Transparency International, 2019). Therefore, political connections in Vietnam can bring more benefits to firms than in other countries. Third, political connections in the context of this study can represent social capital or social networks because Vietnam is a relationship-oriented country, where personal contacts play a significant role in business culture (Cultural Atlas, 2017). Therefore, political connections are expected to be more prevalent and have profound impacts on firm development in Vietnam.

This paper contributes to the existing literature in three ways. First, the paper not only adds to the literature on political connections in Vietnam but also provides rich evidence of an emerging economy for the ongoing debate on the impacts of political connections in current international literature. Second, the paper contributes to the understanding of how political connections impact private SMEs as most of the existing research focuses on large firms and SOEs (Faccio et al., 2006, Fisman, 2001, Ang et al., 2013) or refers to both SOEs and private firms in their studies (Wu et al., 2012) or some mentions private firms but not SMEs (Li et al., 2008, Fu et al., 2017, Li et al., 2006). Third, several studies have started from a resource perspective to examine the impact of political connections on firm performance (Leuz and Oberholzer-Gee, 2006, Richter, 2010, Khwaja and Mian, 2005). In contrast to these papers, this study relies on social capital theory when explaining the effect of political connections in Vietnam. Social capital is not limited to the external networks and resources attached to these networks, it transfers, develops, and embeds these external resources into the firms' capital over time (Inkpen and Tsang, 2005). Organizational participation provides social capital by linking the individual to various people both inside and outside their organisation (Teorell, 2003). The relationships between the organization's members represent a firm's internal social capital.

Whereas, the relationships beyond the boundaries of a firm represent their external social capital (Chisholm and Nielsen, 2009). Therefore, using social capital theory can provide a more comprehensive approach to the use of PCs in promoting firms' survival and development.

The remaining parts of the paper are structured as follows. Section 2 provides related literature on the relationships between political connections, social capital, and firm survival. Section 3 presents an overview of the legal system and policies for doing business in Vietnam. Section 4 introduces the survival analysis method and details of the Cox model and the Vietnamese SME survey. The first part of Section 5 presents the results of the Cox model on firm survival. The second part of this Section presents empirical results on the impact of political connections on firm productivity and growth. Section 6 provides a discussion on how political connections influence firm survival and growth and some policy implications. Section 7 summarises the main findings and provides directions for future research.

2.2 Literature review

2.2.1 Social capital, firm survival, and performance

The relationships among people in a social group, for example in a community, society, or other groups based on various forms of relationship can be a form of social capital which is proposed and developed by Portes (1998) and Burt (2009). Recently, group membership as a measure of social capital has also been applied to many empirical studies (Yusuf, 2008, Grootaert et al., 2002, Maluccio et al., 2000). This is because group members can exchange information, ideas and resources which enable them to lessen market and institutional constraints. Moreover, repeated interactions and communications among members can enhance trust which further boosts the exchange of knowledge, ideas, and resources (Kinghan and Newman, 2015).

In addition, McElroy et al. (2006) summarise the social capital theory and point out that social networks are one of five major forms of social capital. This is because social capital refers to relationships among individuals and the mutual trust that arise from those connections (Putnam, 2000). Therefore, in this paper, we consider social networks as the same as social capital. Also, this study takes Communist Party membership as a proxy for political connections, therefore, political connections here can refer to social capital.

Social capital brings numerous advantages for firms such as promoting cooperation, developing trust among entrepreneurs (Uzzi, 1997, Uzzi, 1999), and sharing values and standards of business practices (Fukuyama, 1995). By joining political networks, connected firms exchange favours with the other members because network members cooperate to maintain the

continuation and development of these networks (Peng and Luo, 2000). Closed networks produce trust, willingness, and levels of support that strengthen the collaboration among network members (Hayami, 2009, Obstfeld, 2005).

Social capital is a key driver in providing access to external resources for firms (Hitt and Duane, 2002, Moran, 2005) which enhances the probability of a firm's survival. Social relationships are useful in the exchange and transfer of information among businesses or other organizational agencies (Vanhaverbeke, 2001, Moran, 2005, Uzzi, 1997). Through this, business managers and owners can update their knowledge of market changes, identify potential developments in the sector their firms operate in (Vanhaverbeke, 2001), and acquire new market opportunities (Ellis, 2000).

Social capital positively affects the sustainable growth and survival of firms (Dean et al., 1997, Donckels and Lambrecht, 1997). Some studies note that network-related activities are positively associated with a firm' survival (Jack et al., 2008, Prashantham and Dhanaraj, 2010, Watson, 2007). For instance, network ties are essential to small commercial poultry farms' chances of survival in Ghana (Acheampong et al., 2017). Firms that have network ties demonstrate a higher likelihood of survival than firms without such ties (Brüderl and Preisendörfer, 1998). Networks provide information, knowledge, expertise, and thereby reducing uncertainty which is important for the survival of new businesses (Collinson and Gregson, 2003).

Social capital is an essential factor that determines productivity (Greve et al., 2010). Firms can perform better if their entrepreneurs develop social capital. Firms have owners who actively participate in social networks outperform in terms of finance than their counterparts (Choi and Ha, 2015). Social capital enhances firm growth by sharing risks, formal and informal credit markets, and minimising production and transaction costs (Saxenian, 1994, Uzzi, 1997, Uzzi, 1999, Colombelli et al., 2013). Social capital might foster firm performance through the embedded knowledge gained by the relationships between organizations, customers, providers, and partners. The knowledge transfer via social capitals allows firms to bring together varied skills and knowledge, which then be integrated with multiple streams of technology (Daud and Yusoff, 2010).

2.2.2 Political connections, firm survival, and performance

The measurement of political connections varies across studies and countries. In the US, firms are considered to be politically connected if directors of the company are senators, members of the House of Representatives, administrative members, or Central Intelligence Agency

directors or if they are connected to the political system (Agrawal and Knoeber, 2001, Goldman et al., 2009). In cross-country research, firms are considered to be politically connected if at least one of the company's significant stakeholders, CEOs, presidents, vice-presidents, chairpersons, or secretaries is or was a member of parliament, minister, or if they are closely connected to top politicians (Boubakri et al., 2008, Faccio, 2006, Fan et al., 2007). In France, firms are considered to be politically connected if their CEOs were elite school attendees or civil servants or government officers (Bertrand et al., 2004). In Pakistan, political connections are defined as firms whose directors are participants in elections (Khwaja and Mian, 2005). Research on political connections in Russia defines firms as being politically connected if firms have a senior executive who influences the decision-making process of the local legislative system (Sokolov and Solanko, 2017).

In Asian countries, researchers use various definitions for political connections. Research on Vietnam and China consider firms as being politically connected if their owners or managers are members of their nation's respective Communist Party (Li et al., 2008, Liu et al., 2018, Rand, 2017b). Meanwhile, political connections in Indonesia are measured by the Suharto Dependency Index which indicates firms close to the Suharto regime in Indonesia (Fisman, 2001, Leuz and Oberholzer-Gee, 2006). In Korea, firms are defined as being involved in political relationships if their CEOs graduated from Korea University Business Administration or were previously Hyundai Engineering and Construction executives (Schoenherr, 2019). Political affiliations in Malaysia refer to firms with officers or shareholders connected to important government representatives, including the Prime Minister and Deputy Prime Minister (Johnson and Mitton, 2003).

The literature shows that political connections mostly bring about more chances of survival for firms. For example, Faccio et al. (2006) find that political connections enable firms to receive government support, thereby preventing distressed firms from closure. Moreover, Finnish newspapers connected with political parties survive longer (Miner et al., 1990). Du and Girma (2010) find that politically connected firms have a 62.6% lower probability of exit than their counterparts in Chinese private firms. Zheng et al. (2015) confirm that political ties lowered the exit risk for Chinese television manufacturing between 1993 and 2003. Firms with political connections are more likely to survive, and the likelihood of survival is associated with the level of political influence of the politicians firms employ (Akcigit et al., 2018). Firms that have relationships with several political parties can enjoy lower uncertainty and gain more government contracts which could benefit their survival (Hillman et al., 1999). Therefore, building political ties is crucial for firm survival (Hillman et al., 1999, Ambler et al., 2008).

The positive impact of political connectedness has been widespread in Southeast Asian countries. Politically connected firms in Indonesia have more chance of receiving a full loan when applying for a bank loan, but firms that obtain loans from state-owned banks demonstrate lower labour productivity (Fu et al., 2017). Politically connected firms in Thailand have experienced a surge in financial performance when compared with non-connected firms, obtain favourable tax exemptions, new government contracts, and have expanded their market segment by 50% since the government established market entry barriers to non-connected firms (Bunkanwanicha and Wiwattanakantang, 2008). The value of connected firms diminished when the Asian financial downturn hit Malaysia. However, politically connected firms are allocated more resources and benefits than non-connected firms due to government capital controls programs. As a result, the value of connected firms increased after the financial crisis was over (Johnson and Mitton, 2003).

Political connections can also be found in countries with a low level of corruption, such as Singapore and Denmark. Political ties have insignificant impacts on company value or performance in Singapore but can have positive effects on firms operated in some sectors that are under strict government regulation such as general building contractor, electrical, and electronic equipment industries (Ang et al., 2010). Similar results can be found in Denmark when political connections positively impact the performance of connected firms. The effect is more evident in sectors that provide goods and services for the public sector (Amore and Bennedsen, 2013).

Political connections also bring benefits to firms in developed countries, including the US, Germany, Italy, and France (Akcigit et al., 2018, Bertrand et al., 2004, Niessen and Ruenzi, 2010). Studies in the US indicate that being politically connected will enhance a firm's value (Roberts, 1990, Goldman et al., 2009). Connected firms witness a positive abnormal stock return after a politically connected person joins its board. Firms connected to the Republican Party enjoyed an increase in value, while the Democratic Party connected firms experienced a reduction in value after their rivals won government in 2000. In Germany, politically connected firms tend to be larger, more well-established, and low risk and also outperform non-connected firms in terms of their profitability (Niessen and Ruenzi, 2010). Connected firms in Italy have higher survival rates and also perform better in terms of employment and revenue growth (Akcigit et al., 2018).

Political connectedness can bring various benefits to firms. Politically linked firms in Pakistan have better loan access, lower financial expenses, and lower tax rates (Saeed et al., 2019). In

China, Su and Fung (2013) show that the adverse effect on firm value in transactions related to a party can be lower if firms are politically connected. Politically connected firms are likely to have considerable cash holdings, better long-term finances, lower financing expenses, more extensive sales, and lower sales expenses. Moreover, firms politically connected with the government can minimize regulatory mistakes, lessen taxation, and share more markets (Chaney et al., 2011, Khwaja and Mian, 2005, Sapienza, 2004). Also, firms connected to political organizations receive more government subsidies.

Political connections do not always benefit firms but can bring about adverse effects. Bertrand et al. (2004) find that politically connected firms have a lower rate of return on assets than those without connections. In Russia, when the 2008 global financial crisis was over, politically connected firms were more likely to go bankrupt than non-connected firms (Sokolov and Solanko, 2017). Moreover, politically connected firms are more likely to pursue objectives or strategies that do not bring added value. In France, for instance, firms tend to focus on employment opportunities during election time. Also, politically connected firms have lower profits due to more expensive labour costs (Bertrand et al., 2004).

Furthermore, connecting to the political system or politicians might be risky for firms (Leuz and Oberholzer-Gee, 2006). Companies located in the birthplace of a politician experienced a value deterioration if the politician suddenly passed away (Faccio, 2007). Connected firms in Indonesia experienced a value decline when news of the illness of President Suharto reached the stock market (Fisman, 2001). Additionally, politically connected firms face problems when setting up relationships with a new government if the previous government have lost power. As a result, those firms suffer underperformance under new governments (Leuz and Oberholzer-Gee, 2006).

2.3 Vietnam institutional development and SMEs

Vietnamese enterprises have experienced a drastic growth since the Doi Moi (Renovation) economic reforms in 1986. Since 1999, the government started developing and supporting private businesses. The Company Law of 2000 has created a more favourable environment for entrepreneurs to run their businesses formally. Since then, newly established firms have increased annually and a large number of private firms have contributed significantly to the development of the economy (Meyer et al., 2006). Vietnam has approximately 600,000 SMEs, accounting for about 97.5% of the total number of operating enterprises. The proportion of micro and small enterprises accounts for most total SMEs while the number of medium

enterprises accounts for only 1.7%. The SME sector creates 64% of jobs and contributes 45% of GDP, and 14.6% of SMEs are exporting (OECD and ERIA, 2018).

In recent years, the government has attempted to promote the Vietnam businesses environment and determined private enterprise as a primary economic driver. Since 2014, the government has focused on improving Vietnam's business environment and competitiveness through the issue of Resolution 19/NQ-CP. This Resolution is renewed annually to implement major solutions for keeping up to date with business environment changes and create more favourable conditions for business communities. Furthermore, Resolution 35/NQ-CP in 2016 concerned the development of enterprises by 2020 has contributed to building the business community's trust and also demonstrated the government's commitment to the development of the business community.

Despite government support, Vietnamese businesses are significantly vulnerable and demonstrate limited competitiveness (Markussen and Ngo, 2018). Consequently, Vietnam has witnessed a surprising number of enterprise exits in recent years. More than 93% of these were small businesses (with capital of less than 10 billion VND) and 70% of these businesses were in the low-tech service sector such as wholesale retail, car and motorbike repair, machine rental, equipment, utensils, and other support services (GSO, 2014). One of the reasons for this is that Vietnamese SMEs lack capacity in areas of finance and management along with a lack of modern technologies required for growth on account of their small and micro firm size. SMEs face difficulties in borrowing from commercial banks (CIEM et al., 2016a), therefore SMEs depend on their own capital and unsustainable and risky informal forms of capital to finance their investment plans.

On the other hand, the Vietnamese government has encouraged firm owners to join the Communist Party. Developing the Party ties in SMEs aims to encourage enterprises to follow the Party's guidelines and laws, and to protect the legitimate interests of employees and business owners. This encouragement originated in 1996 when the government issued many documents on strengthening the role of the Party at enterprise levels, for example, Directive No.07-CT/TW in 1996 and Conclusion 80 of the Secretariat of the Central Committee on "Strengthening the role of Party in private enterprises". Following this in 2013, guideline number 17-HD/BTCTW implemented guidelines for the owners of private firms to enter the Party. Consequently, the number of Party members who were private entrepreneurs in 2017 was 3.57 times higher than those in 2006. This figure accounts for 2.72% of the total number of Party members (Vietnamese Government, 2018).

2.4 Data and methodology

2.4.1 Data

This paper uses data from the surveys of Small and Medium Enterprises in Vietnam conducted by the Central Institute for Economic Management (CIEM), the Institute of Labor Science and Social Affairs (ILSSA), and the Department of Economics at the University of Copenhagen. The surveys were conducted in 2007, 2009, 2011, 2013, and 2015 and covered around 2,600 private manufacturing firms in 10 cities and provinces.

The surveys comprise three modules. The first is an enterprise questionnaire whose respondents are either the owners or managers. This questionnaire deals with firm history, sales, investment, social networks, as well as the demographic details of the firm owner such as educational level, gender, age, ethnicity, and previous working status. The second is an employee questionnaire, and the third is an economic accounts questionnaire. This paper focuses on the enterprise questionnaire that provides information on the firm's history, sale structures, investment, assets, and background characteristics of firms' owners or managers. This study also uses the economic accounts questionnaire that covers information on revenue, costs, assets, and liabilities.

I sort the data in the following ways. As respondents of the interview are either owners or managers, I only keep firms if the respondents are owners for this study. I also drop firms with more than 300 employees as they become larger, and some state-owned firms because I only focus on private SMEs. For constructing the survival data, from 2007 to 2015, there are four time-intervals coded from 1 to 4, and time t in this analysis is an interval-discrete period. The data used in this paper is 2-year interval time. Firms can leave the market at any point of time within the 2-year interval, but we do not know the exact time of exit. After sorting, this paper obtains unbalanced panel data from 2007 to 2015.

Each firm may have more than one observation. The number of observations for each firm depends on how many years they survived during the survey period. If firms survive until the end of the period, they will have five observations, if firms only survive till 2007, they have only one observation. After 2015 we do not know how long firms have continued to survive. Thus, all those firms that still appear in 2015 will be considered censored data.

2.4.2 Methodology

Survival analysis

The purpose of this study is to examine the impact of political connections on firm survival. For this purpose, the survival analysis is an appropriate methodology to apply in this study. 'Survival' refers to firms that continue to appear for at least two consecutive periods from 2007 to 2015. Meanwhile, 'failure' or exit firms refer to firms that only appear for one period in the whole period of the study.

Survival analysis presents some distinct features. A dependent variable in survival analysis measures how long firms stay in the sample. The dependent variable follows a continuous probability distribution. Censor variables and event variables are two important concepts in survival analysis. An event variable equals 1 if the event happened or equals 0 if the event has not yet occurred. An example of an event in survival analysis is death or failure. In contrast, a sensor variable equals 1 if the event has not happened and 0 if the event has happened.

A hazard rate is an essential concept in survival analysis. This hazard rate represents the instantaneous rate at which an event happens at time t. The hazard rate is represented by the formula as follow.

$$h(t) = \frac{f(t)}{S(t)} \tag{1}$$

in which *S(t)* is a survival function, and *f(t)* is the continuous probability distribution of survival data. The hazard rate is called baseline when all covariates are zero. Meanwhile, a "hazard function" measures the probability of an event that can occur in an interval of time beyond time t. The survival function is the probability that the duration of a subject (a variable) will be at least t:

$$S(t)=1-F(t)=Prob(T>=t) \tag{2}$$

F(t) is the failure function representing the probability that the duration time will be less than t.

There are two survival functions, including a proportional hazard model and an accelerated failure time model. In the proportional hazard regression model, the effect of covariates is obtained on the hazard function. If the baseline hazard is considered non-parametric, the Cox proportional hazard model can be applied. The proportional hazard model includes the clog-log and log-normal model. In the accelerated failure time model, the effect of covariates is obtained on the logarithm of the assessed survival time. This model includes generalised gamma, log-logistic, log-normal, Weibull and exponential (Zare et al., 2015).

Cox model

I apply the Cox model in this study because the Cox proportional hazard model can be used for both continuous and discrete-time model and it represents some advantages. The baseline hazard function, $h_0(t)$ and the distribution probability of the survival times do not have to be specified. Thus, it can help avoid potential problems from selecting the wrong shape (Jenkins, 2005). It is also easy to include time-dependent covariates to the Cox model (Jenkins, 2005).

The Cox proportional hazard model was announced in 1972 (Cox, 1972) and then, has become commonly used in firm survival analysis (Jenkins, 2005, Manjón-Antolín and Arauzo-Carod, 2008). It has the following form:

$$h_i(t)=h_0(t)\ exp(X_{it}\beta) \quad (3)$$

In which, $h_i(t)$ is the hazard rate of firm *i* at time *t*. It represents an instantaneous rate, at which firm *i* exit at time *t*, with the condition that the firm *i* existed up to time *t*. $h_0(t)$ is the baseline hazard when all independent variables are zero. It means that the baseline hazard does not vary with any variables. The Cox model assumes that $h_0(t)$ is the non-parametric baseline hazard. X_{it} is a matrix of covariates that affect the hazard rate of the firm. Covariates can include both time-invariant and time-variant factors.

The data used in the Cox model is 'right censoring'. This means that after the end of the study period, firm failure, or how long firm survival cannot be observed or known. This is also a discrete dataset because the surveys in our study take place every two years. Therefore, we cannot observe firm survival or exit in continuous time, such as every second or every minute.

Interpretation

The Cox model will obtain an equation for the hazard rate as a function of several explanatory variables. The results can be interpreted by coefficients or hazard ratios. A positive coefficient means that the increase in independent variable increases is associated with the possibility of an occurred event. A negative coefficient means a lower hazard rate which is less likely for an event to occur.

The interpretation of the hazard ratio is as follows. A hazard ratio greater than 1 means that if the independent variable increases 1 unit, the hazard rate will increase or the event is more likely to happen. In contrast, a hazard rate of less than 1 means that the event is less likely to happen.

In the context of this study, I use the coefficient interpretation. The event in this study is a firm failure. Therefore, if the independent variables are negative, it means that a firm has a lower exit rate or in other words, a firm has a higher survival probability.

Variables

The dependent variable is a hazard rate. This variable is the probability that a firm is in operation at year t with the condition that the firm exists until year t. The unit of time analysis in this study is the number of survival years in the period from 2007 to 2015.

The explanation variable is political connections. Following (Rand, 2017b) I choose the membership of the Vietnamese Communist Party as a proxy for political connections. Firms are politically connected if their owners are members of the Party and 0 otherwise. The control variables include firm size, firm age, the educational level of owners, location, and the formal or informal legal status of firms.

Most studies on firm survival consider firm age and firm size when examining firms' probability of exit (Behrman and Deolalikar, 1989, Cefis and Marsili, 2006, Dunne et al., 1989, Evans and Leighton, 1990). In this study, firm size is measured by the number of full-time employees. Firm age is measured by the number of years since they were founded.

Location can affect a firm's likelihood of survival depending on rural or urban settings due to different competitiveness levels. Urban firms are firms located in Hanoi, Haiphong, and Ho Chi Minh City, whereas rural firms are those located in other provinces.

Firms are divided into two types, household businesses and non-household businesses. A business household is a business owned by an individual or a group of individuals and employ less than ten employees and be responsible with all of its assets for the business. If household businesses have more than 10 employees, they have to register with local authorities (Vietnamese Government, 2015). The other types of business in the survey, including private (sole proprietorship), partnership, collective/cooperative, limited liability company, a joint-stock company without state capital, and joint venture with foreign capital (CIEM et al., 2016a). They are classified as a non-household business in this study. All variables and their definitions are represented in Table 2.1 below.

Table 2.1 Summary of variables

Variables	Min	Max	Mean	SD	Definition
Political connections	0	1	0.09	0.29	Equal 1 if firm owners are members of the Communist Party and 0 otherwise
Firm size	0	5.71	1.81	1.16	Measured by the total number of employees (in the natural logarithm form)
Firm age	2	76	15.59	10.39	Measured by years since establishment up to the year of survey
Owner age	19	87	47.57	9.92	Age of owners up to year survey
General education	0	1	0.55	0.49	Equal 1 if firm owner finished secondary or high school, and 0 otherwise
Professional Education	0	1	0.18	0.27	Equal 1 if firm owner finished one college or university, 0 otherwise
Location	0	1	0.37	0.48	Equal 1 if firms located in 3 cities (Ha Noi, Hai Phong, Ho Chi Minh City) and 0 if located in other provinces (Phu Tho, Ha Tay, Nghe An, Quang Nam, Khanh Hoa, Lam Dong, Long An)
Household	0	1	0.79	0.41	Equal 1 if firms are household businesses and 0 otherwise

Source: Author's calculation from the data.

Table 2.2 also presents the summary statistic differences between politically connected firms and non-connected firms. It shows that owners of politically connected firms are more likely to finish college, university or upper secondary school than their counterparts. Politically connected firms are less likely to located in Ha Noi, Ho Chi Minh City or Hai Phong. They are also less likely to be household enterprises.

Table 2.2 Summary statistics by political connections

	Political connections (%)	Non-political connections (%)
Finish college or university (Yes=1)	0.949	0.884
Finish upper secondary (Yes=1)	0.786	0.578
Household firm (Yes=1)	0.700	0.795
City (Yes=1)	0.318	0.372
Number of observations	468	4320

Source: Author's calculation from the data

2.5 Results

2.5.1 Political connections and firm survival

This section reports the impacts of independent variables on the hazard rate. A negative coefficient means that the variable decreases the probability of firm failure. In other words, a negative sign of coefficients increases the probability of firm survival. In contrast, a positive coefficient means that this variable reduces the likelihood of firm survival.

Table 2.3 shows the empirical results. In model 1, the political connection coefficient =-0.86, which is significant at 1% level. This number suggests that if firm owners are members of the Communist Party, firms will have a hazard of exit by $100*(e^{-0.86} - 1) = 57.8\%$ lower than the firms without political connections.

Table 2.3 Political connections and firm survival

	Hazard rate							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political connections	-0.86*** (0.158)	-0.71*** (0.158)	-0.97*** (0.159)	-0.69*** (0.159)	-0.71*** (0.159)	-0.57*** (0.161)	-0.55*** (0.161)	-0.48*** (0.162)
Firm age		-0.060*** (0.005)	-0.06*** (0.005)	-0.058*** (0.005)	-0.056*** (0.005)	-0.043*** (0.005)	-0.043*** (0.005)	-0.042*** (0.005)
Firm size			-0.029 (0.020)	-0.047*** (0.022)	-0.067*** (0.024)	-0.047* (0.025)	-0.034 (0.025)	-0.025 (0.025)
Location				0.146*** (0.076)	0.120 (0.077)	0.130* (0.077)	0.133* (0.077)	0.182** (0.078)
Household					-0.189** (0.088)	-0.178** (0.089)	-0.179** (0.089)	-0.309*** (0.094)
Owner age						-0.022*** (0.004)	-0.023*** (0.004)	-0.024*** (0.004)
Professional education							-1.257** (0.205)	-1.173*** (0.205)
General education								-0.382*** (0.079)
Observations	4,788	4,787	4,785	4,785	4,785	4,785	4,785	4,785
R2	0.008	0.050	0.051	0.051	0.052	0.058	0.064	0.068

Standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

When controlling for more firm characteristics such as firm age and firm size, the effect of political connections slightly declines rather than the impact of a member of the Party itself on firm survival. The effect gradually fades when controlling for owner human capital such as age, educational levels of owners, to around $100*(e^{-0.48} - 1)=38.5\%$ but the results are still negatively significant at 1% level. These results confirm that politically connected firms are more likely to survive in the market than their counterparts.

Firm age and survival also indicate a positive relationship. It means that older firms are more likely to continue to operate in the market longer than younger ones since a firm's age reflects a firm' experience, a long process of learning and the ability to endure in the market (Caves, 1998, Dunne and Hughes, 1994, Dunne et al., 1989, Geroski, 1995, Mata and Portugal, 1994, Hopenhayn, 1992, Jovanovic, 1982). Therefore, the survival chances of firms positively increase with their age (Geroski, 1995). This result is in line with the finding that mature firms tend to have higher survival rates than younger firms (Caves, 1998, Dunne and Hughes, 1994, Dunne et al., 1989, Geroski, 1995, Mata and Portugal, 1994).

The location of a firm indicates a positive coefficient in most estimators. It means that firms in cities are more likely to exit than firms in rural areas. Firms located in urban areas have a higher probability of exit because of higher competitiveness than in rural areas (Brandt et al., 2016). However, when I add the household enterprise variable into model 5, the location is no longer significant. When the model control for the owner's characteristics such as age and education, the location variable is again significant in all estimators (model 6, 7, and 8).

When firms are located in cities, the effect of political connections on firm survival has become lower which shows in Model 3 and Model 4. Firms located in cities will reduce the impact of political relationship from 62.1% to 49.9% lower exit probability than non-connected firms. This means that political connections have more impact on firm in rural areas in Vietnam than their counterparts in cities.

When I add the age of owners in the model, the coefficients of owner age are about -0.024. It means that older owned firms can about 2.4% lower exit rate than firms operated by younger owners. The coefficient for the hazard rate when I include household firm into the model indicates a negative sign. This means that household firm is less likely to exit than non-household firm even though fewer household firms are politically connected in the dataset.

The education level of entrepreneurs significantly impacts firm survival in this model. The stronger effect on firm survival is found in professional education. Entrepreneurs who finished

professional education can run their firms with a 42.3% to 38.1% lower hazard rate than the non-professional education owned firms which correspond to the coefficients of -0.55 and -0.48 in Model 7 and Model 8. General education also positively influences firm survival but with less influence than professional competency. Firm owners who finished secondary school will be less likely to leave their firms out of the market. This finding is consistent with the argument that exit probability is lower for the highly educated owners of firms (Kangasharju and Pekkala, 2002).

Highly educated owners are likely to keep their firms existed than less educated owners. Due to the selection process, Vietnamese Communist Party members are expected to have a higher education level than non-member of the Party. Therefore, they are more likely to be associated with a higher chance of survival for their firms. This result is in line with other studies on the entrepreneur's human capital and the longevity of firms (Bates, 1990).

The interaction terms between political connections and general education, and professional education are also included to test whether the impacts of political connections on firm survival are modified by educational background. The regression results are shown in Table 2.4 below with the interaction terms. The results show that the coefficients on political connections are no longer significant, although the signs of the effect are still the same as without interaction terms. Also, the coefficients of interaction terms are not significant in the model. I conclude that two interaction terms are not essential in the model. In this case, the effect of political connections can explain the correlation between political connections and firm survival.

Table 2.4 Regression results including interaction terms

	Hazard rate		
	(1)	(2)	(3)
Political connections	-0.5669	-0.6244	-0.6036
	(0.0584)	(0.0672)	(0.0984)
Firm age	-0.012***	-0.012***	-0.012***
	(0.004)	(0.004)	(0.004)
Firm size	-0.009	-0.009	-0.009
	(0.025)	(0.025)	(0.025)
Location	0.236***	0.234***	0.235***
	(0.081)	(0.081)	(0.081)
Household	-0.065	-0.066	-0.064
	(0.097)	(0.097)	(0.097)
Owner age	-0.014***	-0.014***	-0.014***
	(0.004)	(0.004)	(0.004)
Professional education	-0.863***	-0.865***	-0.864***
	(0.207)	(0.207)	(0.207)
General education	-0.141*	-0.134*	-0.132*
	(0.079)	(0.080)	(0.080)
PCs *Professional education		-0.186	-0.192
		(0.371)	(0.371)
PCs*General education			-0.270
			(0.374)
Observations	4,111	4,111	4,111
R2	0.031	0.031	0.032
Max. Possible R2	0.952	0.952	0.952
Log Likelihood	-6,155.034	-6,154.912	-6,154.663

Standard errors are in parentheses
**p<0.1; **p<0.05; ***p<0.01*

2.5.2 Political connections and firm productivity and growth

The second part of this chapter examines productivity and growth in politically connected firms. I use random effect regression for panel data to explore the productivity, sale growth and employment growth of politically connected firms.

The random-effect model is as follows:

$$Y_{it} = \alpha + \beta * PC_{it} + \gamma * X_{it} + v_i + \varepsilon_{it}$$

where Y_{it} is the firm-level outcome of interest (which is the firm productivity, employment growth and sale growth) of firm *i* at time *t*. The main explanatory variable, PC_{it}, is political connections of firm *i* at time *t*. The coefficient of primary interest is β, which captures the relationship between political connections and firm performance. X_{it} is a vector of firm

characteristics which includes firm size, firm age, capital-labour ratio, firm owner age, household business, v_i is the random effect, ε_{it} is an error term.

The productivity is measured by the natural logarithm of total revenue divided by the total full-time labour of firms. The revenue growth is measured by subtracting the past year revenue from the current year revenue and then divide the result by the last year revenue and multiply by 100 to turn it into a percentage. Similar measurements are applied for employment growth and revenue growth in which employees are measured by the number of total employees (including full time and part-time).

The random-effect model has some strengths and weaknesses compared to the fixed-effect model. The random-effect estimator can include the within and between-firm variation. Meanwhile, the fixed-effect model only uses the within-firm variation. Therefore, the random effect model is more efficient as its standard errors are smaller and it allows to include time-invariant variables. The random-effect model can constrain the variance of estimates of β. Therefore, on average, these estimates are closer to the actual value in the sample (Clark and Linzer, 2015). However, the most serious weakness of the random-effect model is the bias in estimates of β. To avoid this bias, the random-effect model requires the individual-specific effects are uncorrelated with the independent variables (Clark and Linzer, 2015). If this assumption holds, the random-effect model is more reliable than the fixed effect model. If the t-variant variables and t-invariant random effects is correlated, we can use the Mundlak formulation (Mundlak, 1978) to solve this problem which allows us to estimate t-invariant variables. This solution is suggested by Bell and Jones (2015).

The purpose of this study is to compare the differences in productivity and growth between connected firms and non-connected firms. I apply the random effect model due to the time-invariance of the PC variable. The political connections in one firm remain almost unchanged during the period studied. Therefore, the use of the random-effect model is more appropriate than the fixed-effect model in this paper.

The results in Table 2.5 show that connected firms have $100*(e^{-0.089} - 1)$=8.5% probability lower in productivity than non-connected firms. The results are significant at 1% level. When the model controls for the sector and province dummy variables, productivity in politically connected firms significantly reduced to $100*(e^{-0.053} - 1)$ =5.2% lower than productivity in non-connected firms. These result when including province dummy is significant at 5% level but turns to significant at 10% level when including both province and sector dummy variables. The results suggest that politically connected firms demonstrate lower productivity than non-

connected firms. These effects might be slightly lower depending on sectors and provinces that firms located in but still significant.

Table 2.5 Productivity in politically connected firms

	Productivity			
	(1)	(2)	(3)	(4)
Political connections	-0.089***	-0.079***	-0.061**	-0.053*
	(0.031)	(0.027)	(0.028)	(0.028)
Firm size	-0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Firm age	-0.004***	-0.006***	-0.006***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
Household	-0.648***	-0.426***	-0.422***	-0.452***
	(0.019)	(0.018)	(0.018)	(0.019)
Capital labour ratio		0.340***	0.334***	0.323***
		(0.006)	(0.006)	(0.006)
Province included	No	No	Yes	Yes
Sector included	No	No	No	Yes
_cons	5.506***	3.612***	3.611***	3.754***
	(0.019)	(0.037)	(0.045)	(0.047)
Obs.	4,787	4,785	4,785	4,785
R-squared	0.100	0.283	0.287	0.307

Standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

Similarly, I examine the impact of political connections on firm revenue growth and employment growth. The results are represented in Table 2.6 and Table 2.7 below.

The results in Table 2.6 show that there is no difference between politically connected firms and non-connected firms regarding sale growth. However, when I control for sector and location of firms, political connections are negatively associated with growth in sales. It suggests that the impact of political connections on sale growth depends on which sectors that firms operated in and provinces that firms located in. These results are understandable in Vietnam because political connections may depend on each province's economic development (Dang and La, 2020) and sectors.

Table 2.6 Sale growth in politically connected firms

	Sale growth			
	(1)	(2)	(3)	(4)
Political connections	-0.114	-0.114	-0.141*	-0.140*
	(0.074)	(0.074)	(0.075)	(0.076)
Firm size	0.001*	0.001*	0.001	0.001*
	(0.000)	(0.000)	(0.000)	(0.000)
Firm age	0.001	0.001	-0.000	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)
Household	0.048	0.057	0.034	0.032
	(0.049)	(0.051)	(0.052)	(0.054)
Capital labour ratio (log)		0.012	-0.004	-0.004
		(0.017)	(0.018)	(0.018)
Province included	No	No	Yes	Yes
Sector included	No	No	No	Yes
_cons	-0.396***	-0.461***	-0.380***	-0.459***
	(0.049)	(0.105)	(0.129)	(0.137)
Obs.	5228	5219	5219	5215
R-squared	0.001	0.001	0.011	0.017

Standard errors are in parenthesis
*** *p<0.01, ** p<0.05, * p<0.1*

Table 2.7 represents the results of the impacts of political connections on employment growth. These results show that political connections are not associated with employment growth. The results are robust when I control for both the province and sector dummy.

Table 2.7 Employment growth in politically connected firms

	Employment growth			
	(1)	(2)	(3)	(4)
Political connections	0.059	0.060	0.019	0.010
	(0.060)	(0.060)	(0.061)	(0.061)
Firm size	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Firm age	-0.003*	-0.003*	-0.005**	-0.005***
	(0.002)	(0.002)	(0.002)	(0.002)
Household	0.342***	0.309***	0.271***	0.250***
	(0.039)	(0.040)	(0.041)	(0.042)
Capital labour ratio (log)		-0.055***	-0.043***	-0.041***
		(0.014)	(0.015)	(0.015)
Province included	No	No	Yes	Yes
Sector included	No	No	No	Yes
_cons	-0.895***	-0.591***	-0.632***	-0.622***
	(0.038)	(0.086)	(0.105)	(0.114)
Obs.	3495	3491	3491	3489
R-squared	0.022	0.027	0.041	0.049

Standard errors are in parenthesis
*** *p<0.01, ** p<0.05, * p<0.1*

2.6 Discussion

The results show a positive association between political connections and SME survival but not productivity and firm growth, which are in line with some results from both developing and developed countries. For instance, Du and Girma (2010) find that political connections significantly enhance firms' survival in China, but unconnected firms have better productivity growth. However, employment growth is faster for politically affiliated firms than non-connected firms. Moreover, politically connected firms in Indonesia are likely to receive larger loan amounts from banks than other firms but have lower labour productivity on average (Fu et al., 2017). Similarly, politically connected firms in Italy have lower exit rates, higher employment and revenue growth but lower productivity than non-connected firms (Akcigit et al., 2018).

Political connections can safeguard firm survivability for several reasons. First, Vietnam is a network-oriented economy, where doing business is enormously affected by social capital

(Meyer and Nguyen, 2005). Therefore, political connections in Vietnam are one form of social capital that can bring benefit to firms. In particular, entrepreneurs in Vietnam prefer to work with partners who are recommended by friends or business relationships rather than being approached directly (Expat Arrivals, 2000). Network participation in Vietnam is statistically significantly related to all firm performance (Van Staveren and Knorringa, 2007) and positively associated with transaction costs reduction. Moreover, politically connected enterprises have more contacts with customers and state social networks. Thus, they might have more main customers who work in the state sector, which can help firms enjoy better prospects of survival (Hansen et al., 2009).

Second, financial constraint is one of the main reasons for a firm's exit (Musso and Schiavo, 2008). Connected companies have more advantages in accessing credit and formal finance. Rand (2017b) shows that politically connected Vietnamese firms are less likely to be credit-constrained and face lower capital costs in credit access. Therefore, SMEs can survive through hard times if they have an advantage in the lending market. Indeed, Malesky and Taussig (2008) suggest that firms with managers who used to be employees in government offices, the armed forces, or state-owned sectors will be more likely to obtain larger loans. Also, firms with close ties to government parties or financiers are more likely to have transactions with bankers regarding bank loan requests and access to bank loans in Vietnam (Pham and Talavera, 2018). Networking with government officials influence SMEs ability to borrow from banks (Le and Nguyen, 2009). The chance of firm survival can be increased because receiving loans can help firms overcome periods of recession (Rand, 2017a).

Third, politically connected firms in Vietnam can receive updated information through regular meetings with party members in their own or other companies and with local authorities. Therefore, political connections can be a source of updated information on legal documents that relate to government policies and business activities. With such complexity and change in policies along with the inconsistency of legal systems in Vietnam, this resource is critical for firms to adjust their business activities to be able to adapt to new policy changes. This is an advantage for connected firms because their competitors might not be able to access this information or other changes in government regulations (Hillman et al., 1999). In addition, updated information from their political connections will help firms mitigate market and policy uncertainties. Firms can foresee new technological trends or new market opportunities in the sectors that firms operated in (Hillman et al., 1999).

However, political connections that positively impact firm survival but negatively impact productivity can raise issues about inappropriate investment in social capital and other market

strategies of firms. Firms with political ties can have lower productivity since political connections can influence firm owner investment decisions (Chen and Wu, 2011). Firm owners might be interested in political goals rather than focusing on a firm's growth and development (Shleifer and Vishny, 2002) and spend time contacting politicians or government officials, not on the objectives of the firm. As a result, political influence can steer firm owners' energy and concentration away from business activities that boost their firm productivity and growth (Baumol, 1990). Therefore, such firms face the problem of balancing commercial objectives and political goals.

When politicians favour certain firms, this can lead to a distortion of incentives and a misallocation of investment (Shleifer and Vishny, 1994). For example, CEOs of state-owned firms within the network of the new Korean President, have been allocated more procurement contracts to private firms that also operate within the President's network. However, private firms perform worse when implementing contracts, resulting in resource misallocation to politically connected firms (Schoenherr, 2019). Connected firms in Egypt are more likely to enjoy benefits from trade protection, energy subsidies, land access, and regulatory enforcement. Nevertheless, politically connected firms hurt aggregate growth by a slowdown of employment growth and distort employment distribution toward less productive and smaller firms (Diwan et al., 2015). Similarly, Faccio (2006) find that politically connected firms are more likely to be protected than their peers when facing financial issues. However, among such bailed-out firms, politically connected firms underperformed non-connected ones in financial terms at the beginning of and after the bailout.

Furthermore, political connections can distort competitive markets. Thomsen (2011) observes that connected firms compete unevenly with non-connected firms when accessing capital and land in Vietnam. Such discrimination profoundly harms private enterprises without these connections. A businessperson might be eager to lobby for a special government subsidy or relaxed regulation that benefit his own company. The local government will provide more incentives to connected businesses than those that perform well. Also, the government can use political connections as a tool for rent-seeking activities (Ang et al., 2010, Boubakri et al., 2008, Chaney et al., 2011, Fan et al., 2007, Shleifer and Vishny, 1994). Rent-seeking behaviour that results from connected firms could lead to substantial social costs in other parts of the economy.

Overall, the positive impacts of political connections on firm survival but the negative impact on firm productivity and growth in Vietnam raise concerns for the economy in three ways. First, political connections can distort the competitive market and erode firm efficiency. Second, firms are more likely to seek political connections to obtain benefits rather than focusing on

enhancing their competitive capacity and productivity, whereas non-connected firms are not motivated to grow or innovate. Third, firms can try different ways to obtain political benefits such as sacrificing their assets for political connections or replacing professional managers or owners with politicians which can result in inefficiency.

The paper suggests that the Vietnamese government should work to create a level playing field for private firms and minimise the government's influence on the business climate. In the context of Vietnam, the government's role in supporting business development is undeniable because most Vietnamese enterprises are SMEs and still require government support to survive and thrive. Therefore, along with the reduction of government intervention, the government should support business activities rather than control or intervene too much in business development. Besides, enterprises must change their way of doing business. The existing relationship-based competitive strategies should be replaced by competition-based strategies related to productivity, innovation, technology, and human capital investment. If these were to occur, private enterprises can represent the main driving force for the nation's development.

2.7 Conclusion

This paper has explored the relationship between political connections and Vietnamese SMEs survival and performance. The results showed that political connections enable Vietnamese private SMEs to survive better than non-politically connected firms. However, connected firms have lower productivity and there is no difference between the two sorts of firms in terms of growth. Thus, the results are indicative of resource misallocation caused by political connections. Also, firms should consider trade-offs when investing in social capital.

The paper also provides some room for future research. As firm performance can be measured by a variety of indicators, future research can examine how political connections in Vietnam affect total factor productivity (TFP), export revenue, and social contributions. From that, a comprehensive examination of the influence of political connections on the Vietnamese economy can be provided. Second, further research can apply a different measurement of political connection in Vietnam to compare the results of this research and enrich the literature. Third, future research can employ this data and combine it with other data sources to provide more robust research findings.

Chapter 3 Political networks and firm innovation in Vietnam

Abstract

Innovation plays an essential role in determining sustainable competition for firms. However, innovation can be influenced by political networks. This paper combines Probit model and instrumental variables to control for possible endogeneity biases. The results show that political networks positively impact firms' innovation. In particular, firms with more contacts with politicians are more likely to improve their current products, introduce new products or new production processes. The results also show that government assistance plays an intermediate role in this relationship as politically connected firms are more innovative when receiving government support. The results imply biases in resource allocation toward politically connected firms.

3.1 Introduction

Innovation is an essential factor affecting businesses' competitiveness (Porter, 1990) as innovation enables firms to improve products, add value, increase sales, and enhance survival (Coombs and Bierly III, 2006). However, innovation is a complex phenomenon determined by the firm' attributes and its institutional frameworks (Srholec, 2011). Innovation also requires a lot of resources to be implemented (Barasa et al., 2017).

Alongside the importance of firms' internal resources, external resources also play a critical role in innovation at the firm level (Barasa et al., 2017, Srholec, 2011). Based on the resource dependency theory (Pfeffer and Salancik, 1978), a firm's dependence on political resources or political actors (Dickson, 2007, Hillman, 2005) can be a source of uncertainty, but also bring about greater control and influence (Pfeffer and Salancik, 1978). This is because this reliance on political resources can assist firms in gaining access and control over resources. As an essential part of political resources, companies with political networks are more likely to obtain more favourable innovation policies (Hou et al., 2017). Therefore, in developing and transitional economies, enjoying political connections or networks can be a potential strategy for firms to foster innovation (Song et al., 2015).

Recently, the relationship between political connections and innovation has been studied (Su et al., 2019, Tao et al., 2017, Cheng et al., 2019b, Krammer and Jimenez, 2020, Hou et al., 2017). However, most studies focus on China (Cheng et al., 2019b, Su et al., 2019, Tsai et al., 2019,

Zhang et al., 2015), mix evidence from China and India together (Zhang et al., 2019), or look at a specific group of developing countries (Krammer, 2019, Krammer and Jimenez, 2020). Despite the importance of political networks and corruption in these economies, we are still limited in our understanding of how political connections or political networks promote or hinder innovation in other emerging countries (Desai and Olofsgard, 2011). Outside of this regional research gap, Vietnam represents an ideal case to study these issues for the following reasons. First, political networks may play a more critical role in Vietnam than in other countries as the government wields a lot of power in the distribution of resources and the direction of policy. Moreover, networks and connections play an essential role in Vietnamese businesses (To-The and Tran-Nam, 2015), thereby intensifying contact with politicians or government officials will substantially affect firms' behaviours and strategies.

By addressing the question of how political networks affect innovation in Vietnam at the firm level, this study contributes to the literature in three ways. First, this paper extends the understanding of the link between political networks and innovation in an emerging economy by scrutinizing how firms can take advantage of external resources and then transform them into innovation. More specifically, the paper shows that the relationship between political networks and innovation are intermediated by the role of government assistance.

Second, several studies on innovation mainly employ research and development (R&D) expenditure or patent application as a proxy for innovation (Hou et al., 2017). However, innovation and R&D are two terms with different meanings. R&D expenditure can be considered as innovation inputs, whereas sales of newly developed products or services are innovation outputs (Back et al., 2014). Together with Mol (2005) and Oh (2005), Back et al. (2014) believe that innovation inputs and outputs reflect different aspects of innovation. Here, R&D is viewed as a measure of innovation inputs (Mol, 2005) and the development of new products or services is considered as a measure of innovation outputs (Ayyagari et al., 2011). This study fills a gap by defining three types of innovation: the introduction of new products, the implementation of new production processes, and the improvement of existing products. These types of innovation are in line with the definition of innovation from OECD (OECD, 2005).

Third, the measurement of political connections or political ties in research on political networks and innovation is still far from perfect. For example, Zhang et al. (2015) use the numbers of days that firms spent in inspections and meetings with officials. Similarly, Krammer and Jimenez (2020) use the total management time spent dealing with the requirements of

government regulations as a proxy for political connections in their study. I argue that these measurements are not perfect proxies for political ties or political connections as the time firms spend in dealing with inspections or government requirements represent compulsory activities that firms are required to follow. This type of time allocation is therefore not truly spent on building political networks. Therefore, these proxies do not reflect how firms contact the government to build their network ties. My study will provide a better proxy for political networks that is measured by the number of politicians and government officials that a firm is in contact with and whether these contacts are useful for them.

Political networks in this paper are defined as the number of contacts firms have had with politicians or government officials over the last 3 months. Given the possible endogeneity of the political network variable in this study, I choose instrumental variables (IVs) rather than a fixed-effect model to address this problem. This is because a fixed-effect model cannot deal with the endogeneity bias caused by unobservable time-variant factors. Moreover, the issue of measurement error in a fixed-effect model can lead to an "attenuation bias" (Dang and La, 2020). Therefore, IVs can be used to minimize endogeneity bias as they can alleviate two main shortcomings of the fixed-effect model. In particular, I follow Krammer (2019) and Krammer and Jimenez (2020) by taking the average political connections in the same industries and same provinces as an IV to fix the endogeneity of the political network variable.

The remainder of the paper is organized as follows. Part 2 presents the literature on how political networks affect firm innovation. The next part summarises the status of innovation in Vietnamese SMEs and government policies in support of innovation. Part 4 describes Vietnamese SME data and methodology, followed by Part 5, which presents the empirical results. Part 5 also undertakes some robustness checks, examines the mediating role of government assistance in the relationship between political ties and innovation, and addresses the potential endogeneity of the explanatory variable. All the results of the impacts of political networks on innovation are discussed in Part 6. Finally, Part 7 concludes the paper and provides some future research directions.

3.2 Literature review

On the one hand, firms with strong political connections and networks might be associated with a higher propensity to innovation. Along with internal knowledge, external knowledge accumulation is essential to ensure a successful product innovation (Li and Calantone, 1998, Cohen and Levinthal, 1990). According to the "information acquisition" hypothesis, which is

proposed by Ovtchinnikov et al. (2014), the relation with politicians can help firms get more information than non-connected firms (Tsai et al., 2019, Kim and Todo, 2019). Politicians are involved in forming the legislation and policies, thus political ties can enable firms to update policy information (Su et al., 2019). Firms can use their connections to quickly recognise important technological development trends because legislators might notify firms about the process of innovation.

As innovation is a risky and highly uncertain activity (Krammer and Jimenez, 2020), firms that wish to innovate benefit from lowered institutional uncertainties (Holmström, 1989, Aghion and Tirole, 1994). Firms with political connections are associated with less political uncertainty as they might be in a position to anticipate policy changes (Ovtchinnikov et al., 2014) or estimate future cash flow arising from innovation. Firms with low political uncertainty can also have a lower cost of capital (Boutchkova et al., 2012) and have a better stock return (Kim et al., 2012). Therefore, lower political uncertainty stimulates innovation for politically connected firms (Ovtchinnikov et al., 2014).

Moreover, resources that are afforded by political connections can facilitate innovation activities. In other words, politically connected firms might have an abundance of financial resources for innovative activities (Cheng et al., 2019b). Political connections help firms receive more government subsidies (Tsai et al., 2019) and government contracts (Tahoun, 2014, Liu et al., 2013), reduce financing costs (Boubakri et al., 2012, Liu et al., 2013), and lower financing constraints (Rand, 2017b, Song et al., 2015). Politically connected firms enjoy preferential taxation and government subsidies in China (Cheng et al., 2019b), energy subsidies, trade protection through nontechnical barriers to access bank loans in Egypt (Diwan et al., 2015), and a significant increase in procurement contracts in the US (Goldman et al., 2013).

Political networks can also accelerate administrative processes, especially in countries with low institutional development levels (Dikova et al., 2016). Firms that established a connection with government officials can obtain favourable decisions (Peng and Luo, 2000, Hillman et al., 2004, Sun et al., 2012) or the rules and laws in firms' favour (Houston et al., 2011). Introducing a new product often requires a series of approvals such as licenses or permits, safety standards, tax policies, or environmental assessments (Krammer, 2019). Lengthy approval processes can be an impediment to innovation. Therefore, less burden on administrative procedures can facilitate innovation projects or the introduction of new products or new process innovation.

On the other hand, political connections can hinder innovation in two ways. First, connected firms might bear some costly political commitments, such as funding political campaigns or

creating employment opportunities that exceed their costs (Bertrand et al., 2018). Overspending on cultivating political connections could dwindle companies' R&D budgets. For example, connected firms in Egypt are less likely to introduce a new product or improve their products and introduce a new production method as they mostly focus on pursuing government privileges. The policy advantages that connected firms receive divert economic resources away from innovation activities (Francis et al., 2018).

Second, government interference in connected firms might lead to a potential distortion in investment decisions, including innovation investment. Dependence on favourable treatment from the government can reduce managers' incentives to improve innovation efficiency (Chen and Wu, 2011). In China, for instance, politically connected firms have allocated much of their resource base to cultivate these relationships, thereby leaving exceed firms' investments limited resources available to devote to innovation (Hou et al., 2017). Moreover, managers may lose their independence in making a decision and accept rent-seeking activities to gain government resources (Sheng et al., 2011). As a result, firms offer money or other forms of compensation to governments, which incur high costs to the firm and erode ethical norms. Therefore, reliance on political systems destroys the spirit of innovation in firms and hinders their development strategies.

The impacts of political connections or networks on innovations do not always go in one direction but can demonstrate various trajectories and a nonlinear relationship. Wu (2011) points out that political links exhibit an inverted U-shaped relationship with product innovation. First, political ties have a positive impact on product innovation, but this positive effect would diminish when political ties' costs outweigh their benefits. In contrast, Gao et al. (2017) confirm political ties have a U-shaped effect on product innovation. The cost of establishing and upholding political ties increases when firms gradually strengthen these ties, which may compete with product innovation since firms have to limit their executive attention and innovation resources (Park and Luo, 2001). However, once political ties become robust, the cost for maintaining those ties declines (Shi et al., 2014). Based on these strong ties, firms may obtain grant favours from government officials (Marquis and Raynard, 2015), thereby enhancing their ability to conduct product innovation.

Also, political connections might have different impacts depending on the various types of innovations. Krammer and Jimenez (2020) posit that political connections increase the probability of introducing any new products or services. However, political connections have no significant impact on whether firms have an improved product. This is because product innovation is more externally oriented and needs more organisational level knowledge creation

activities than process innovation. Similarly, politically connected have more chance to obtain government subsidies, but government subsidies are associated with the introduction of a major improvement to current products, whereas government subsidies do not influence the introduction of new products into the market (Cheng et al., 2019a).

3.3 SMEs and innovation in Vietnam

Vietnam has achieved substantial economic growth since opening-up in 1986 (World Bank, 2020b). However, the country has been unable to maintain this remarkable growth due to the weakness of its ability to innovate. Vietnam's economy has experienced sluggish growth since 2011. Vietnam's annual economic growth rate stood at 6.8% between 2001 and 2010 which was among the highest growth rate worldwide but then declined to 5.8% from 2011 to 2015 (Vo et al., 2017). Since then, the Vietnamese government has acknowledged the vital role of innovation, (Tran, 2019) and has put enterprises at the centre of its national innovation system (Vo et al., 2017).

Accordingly, the government has issued many policies to promote innovation amongst businesses. These policies are implemented through tax subsidies, specific support programs and funding such as the Science and Technology Fund, low-interest credit, and credit guarantees for technological innovation. The National Technology Innovation Program, which extends to 2020, was approved in 2011 as an effective solution to encourage innovation. Furthermore, Article 17 of the Law on Corporate Income Tax (amended in 2013) allows enterprises to deduct up to 10% of their annual taxable income to set up their own Science and Technology Development Fund. However, Vietnam's capacity for innovation is currently weak and the innovation system of the country is in an early and fragmented state (OECD and World Bank, 2014).

On the other hand, Vietnamese businesses have expanded dramatically (Malesky and Taussig, 2009). The Vietnamese private sector currently consists of more than 700,000 businesses (MPI, 2020). The private sector contributes 40% of the gross domestic product (GDP) and is expected to grow to about 70% in the next ten years. However, more than 98% of Vietnamese enterprises are SMEs, with the majority showing low levels of knowledge regarding innovation and possess weak internal capabilities, which hinders them from carrying out innovation (CIEM 2012; Phan 2014). SMEs also face challenges in improving investment capacity due to limited access to resources such as land, capital, and information on policy and law and therefore have not enjoyed the benefits of business support policies carried out by the government (VCCI and

USAID, 2015). Most enterprises are in low-tech industries with only 17.3% of businesses operating in high-tech industries (Nguyen, 2020). Moreover, most businesses are also using outdated technology compared to global standards (Huong Giang, 2016).

Despite the growth of Vietnamese SMEs and support from the government, the investment rate in R&D to serve Vietnamese enterprises' innovation has been insignificant compared to other countries in the region. Vietnamese enterprises spend 1.6% of annual revenue on R&D, whereas this figure is 14.5% in Laos, 3.6% in the Philippines, 2.6% in Malaysia, and 1,9% in Cambodia (Le, 2017). Moreover, innovation programs are relatively less effective when compared to other developing countries and even though the level of government support for innovation in Vietnam is higher than that of Thailand and Malaysia, spending on R&D by Vietnamese enterprises remains the lowest among the regions (Nguyen, 2020).

3.4 Data and methodology

3.4.1 Data

The data used in this research is taken from the Small and Medium Enterprises surveys of Vietnam. The survey was conducted by the Central Institute for Economic Management (CIEM), the Institute of Labor Science and Social Affairs (ILSSA), and the Department of Economics at the University of Copenhagen. The survey was conducted in 2007, 2009, 2011, 2013, and 2015 and covered around 2,600 private manufacturing firms in 10 cities and provinces in Vietnam. The survey interviewed either firms' managers or owners. Firms that remained in operation during the survey period were re-interviewed in each survey round. Those that no longer existed in the subsequent rounds were replaced with similar firms in the same provinces. The survey collected information on the general characteristics of the firm including, firm history, sales structure, investment, employment, and demographic information on the firm owner or manager. The questionnaire also includes information on economic constraints and potential that identifies whether firms have innovated or not since the last survey. The questionnaire also has one section on social networks, which gives information on how many people firms contact within each type of networks such as business people, bank officials, politicians, and civil servants and whether a firm is a member of a business association or not.

The survey allows tracking and interviewing firms with more than 300 employees if they were previously interviewed (Rand, 2017b) as some firms can grow over the survey period. The number of firms having more than 300 employees is insignificant. Since this study focuses on

SMEs, I remove firms with more than 300 workers. After sorting the data, I obtain unbalanced panel data from 2007 to 2015.

3.4.2 Variables

Dependent variables

OECD (2005) suggests four types of innovation, including product/service innovation, process innovation, marketing innovation, and organisational innovation. Based on the Oslo manual guidelines (OECD, 2005) and following Nguyen et al. (2016a) and Nguyen et al. (2008), we consider three types of firm's innovation activities, including the probability of introducing new products, adopting new production processes, or modifying an existing product within the last two years. As a result, three types of firm innovation activity are studied in this paper, namely product innovation, process innovation, and product improvement. These three dependent variables are coded as binary variables that equal 1 if firms introduce innovation and 0 otherwise.

Explanation variable

Following Nguyen and Le (2019), the political networks in this study are measured by the number of contacts to politicians and public servants in the last 3 months, and these contacts are useful for firms.

Control variables

The data allows for the following control variables. Firm age is determined by the number of years since firms were born. Younger firms are expected to be more innovative than older ones (Lederman, 2010).

Firm size is measured by the number of full-time employees. It is important to control firm size since connected firms are significantly larger. Firm size is generally positively associated with innovation activity (Krammer and Jimenez, 2020) as larger firms might have more resources to undertake innovation (Cohen and Klepper, 1996).

Similar to Tsai et al. (2019), I also control for capital intensity as firms need a large amount of capital and assets to innovate. Export markets can also promote firms' 'learning by doing' and innovation (Golovko and Valentini, 2011).

A firm owner's characteristics, such as education and professional background, should affect R&D incentive (Lin et al., 2011). Well educated executives seem to possess a better ability to grasp new ideas, resulting in a high probability of innovations (Barker III and Mueller, 2002).

Moreover, training workers is also an important indicator of innovation as it represents human capital variables (Nguyen et al., 2016a)

Innovation can depend on different types of business. In our sample, most firms are household business. Therefore, it is important to add the dummy variable for household business in the model.

Table 3.1 summarises the variables and their definitions, and the classification of level technology of firms is presented in Table 3.A1 in the Appendix.

Table 3.1 Summary of variables

Variables	Min	Max	Mean	SD	Definition
Political networks	0	120	0 .81	0.39	Measured by the number of contacts that firms have with at least 1 politician or civil servants every 3 months and these contacts are useful for their operations
Firm size	1	300	13.84	27.31	Total number of employees
Product innovation	0	1	0.15	0.36	Equal 1 if firms introduced new products in the last 2 years, 0 otherwise
Process innovation	0	1	0.11	0.31	Equal 1 if firms introduce new technology or process in the last 2 years, 0 otherwise
Product improvement	0	1	0.23	0.42	Equal 1 if firms make a major improvement on existing products in the last 2 years, 0 otherwise.
Firm age	2	77	14.04	10.17	Measured by years from when a firm was born up to the year of survey
Owner age	21	94	48.1	9.95	Age of owners in full years
Capital intensity (log)	-6.54	6.12	0.18	1.19	Measured by total capital of firms over the total number of employees
Professional Education	0	1	0.16	0.36	Equal 1 if firm owner finished college or university, 0 otherwise.
Training worker	0	1	0.05	0.23	1 if firm normally trains its workers; 0 otherwise
Household enterprises	0	1	0.65	0.48	Equal 1 if firms are classified as household enterprises and 0 otherwise.
Export	0	1	0 .06	0.24	Equals 1 if firm exported and 0 otherwise
Low technology industry	0	1	0.66	0.47	Equals 1 if firm operating in the low technology sector, 0 otherwise
Medium-low industry	0	1	0.29	0.45	Equals 1 if firm operating in Medium low technology sector, 0 otherwise
Medium-high industry	0	1	0.05	0.22	Equals 1 if firm operating in Medium high technology sector, 0 otherwise

Source: Author's calculation from the data.

The summary of variables shows that more than 80% of firms in the sample contacted politicians or public servants and that these contacts were useful for their business. The maximum number of contacts a firm reached within the last 3 months is 120 times. This represents a significant contact frequency for a firm. The political network variable has some

outliers. There are only 3 observations have a value of 100 and 120. However, when I drop these outliers, it does not affect the estimated results. Therefore, the outlier in this study is not problematic.

The mean of product innovation is 0.15, which indicates that 15% of the number of firms in the sample introduced a new product in the last 2 years, whereas 11% of the number of firms introduced a new process or new technology in the previous 2 years. The number of firms that modified or improved their existing products is much higher, at 23% of the sample. Only 5% of the firms belong to the medium high technology industry. This reflects the fact that most Vietnamese SMEs are in low and medium-low industries.

3.4.3 Model

As the dependent variables are binary ones, a Probit model specification is used in this study to estimate the impact of corruption on firm innovation. The initial empirical model is given by:

$$Probit\ (Innovation_{it}=1) = \Phi(\beta_0 + \beta_1 * Political\ networks_{it} + \gamma * Xit + u_{it})$$

where Φ is the cumulative distribution of the standard normal distribution, and u_{it} is an error term. The primary interest is β_1, which captures the effect of political networks on dependent variables. Dependent variables are innovation activities of the firm *i* at time *t*, which include (i) the probability of introducing new products, (ii) the probability of new production process or new technology introduction, and (iii) the probability of improving an existing product. X_{it} is a vector of firm characteristics, including firm owner education, capital intensity, firm age, and firm size.

3.5 Results

Table 3.2 reports the Probit models regarding the probability of introducing a new production process or new technology. Model 1, Model 2, and Model 3 show the Probit regression results with control variables regarding firm characteristics. Model 4 reports the results when we add firm owner characteristics, including owner age, and educational level. Model 5 adds training existing workers as an additional control variable. The results of all models indicate that the coefficients of political networks are similar in terms of value and positive and significant at 1% level. It means that the number of contacts with politicians and civil servants is positively associated with the likelihood of introducing a firm's new production process or technology over the last two years.

Table 3.2 Political networks and process innovation

	Process innovation				
	(1)	(2)	(3)	(4)	(5)
Political networks	0.013***	0.012***	0.012***	0.011**	0.011**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
Firm size	0.006***	0.005***	0.005***	0.005***	0.005***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Firm age	-0.009***	-0.009***	-0.009***	-0.007***	-0.006***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Household	-0.383***	-0.371***	-0.372***	-0.408***	-0.373***
	(0.035)	(0.036)	(0.036)	(0.039)	(0.040)
Export		0.180***	0.190***	0.182***	0.166***
		(0.057)	(0.057)	(0.062)	(0.062)
Capital intensity (log)			0.024*	0.028**	0.030**
			(0.013)	(0.014)	(0.014)
Owner age				-0.005***	-0.005***
				(0.002)	(0.002)
Educational level				0.086*	0.080*
				(0.045)	(0.045)
Training					0.231***
					(0.064)
_cons	-1.028***	-1.040***	-1.042***	-0.793***	-0.816***
	(0.034)	(0.035)	(0.035)	(0.077)	(0.078)
Obs.	12788	12740	12711	11858	10884

Standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

Table 3.3 reports the results of the Probit model regarding the probability of introducing new products. We add the same control variables as in Table 3.2 into these Probit models in Table 3.3. Similarly, the results in Table 3.3 indicate positive coefficients of political networks. These political connection coefficients from Model 1 to Model 5 in Table 3.3 are almost identical in magnitude and significant at 1% level. It means that more connections with politicians and civil servants bring a greater probability of introducing new products within the last two years than less-connected firms.

Table 3.3 Political networks and product innovation

	Product innovation				
	(1)	(2)	(3)	(4)	(5)
Political networks	0.017***	0.017***	0.017***	0.016***	0.017***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Firm size	0.002***	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Firm age	-0.000	-0.000	-0.000	0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Household	-0.158***	-0.142***	-0.145***	-0.150***	-0.131***
	(0.032)	(0.032)	(0.033)	(0.036)	(0.036)
Export		0.178***	0.179***	0.145**	0.146**
		(0.056)	(0.056)	(0.060)	(0.061)
Capital intensity (log)			-0.016	-0.014	-0.012
			(0.012)	(0.012)	(0.013)
Owner age				-0.001	-0.001
				(0.001)	(0.001)
Educational level				0.213***	0.201***
				(0.042)	(0.042)
Training					-0.159**
					(0.067)
_cons	-0.994***	-1.010***	-1.006***	-0.939***	-0.931***
	(0.032)	(0.033)	(0.033)	(0.069)	(0.071)
Obs.	12788	12740	12711	11858	10884

Standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

Next, we shift our analysis to the impact of innovation on product improvement. The results in Table 3.4 observe how contacts with politicians influence their existing product improvement or product specification changes. The coefficients of the political networks in the five models in Table 3.4 are positive but insignificant. These results suggest that political links are not significantly associated with firms' product improvements.

Table 3.4 Political networks and product improvements

	Product improvement				
	(1)	(2)	(3)	(4)	(5)
Political networks	0.004	0.004	0.004	0.004	0.003
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Firm size	0.004***	0.004***	0.004***	0.005***	0.004***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Firm age	-0.011***	-0.011***	-0.011***	-0.009***	-0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Household	-0.208***	-0.197***	-0.197***	-0.285***	-0.238***
	(0.029)	(0.030)	(0.030)	(0.033)	(0.033)
Export		0.171***	0.178***	0.177***	0.161***
		(0.052)	(0.052)	(0.057)	(0.058)
Capital intensity (log)			0.022**	0.025**	0.026**
			(0.011)	(0.011)	(0.012)
Owner age				-0.006***	-0.006***
				(0.001)	(0.001)
Educational level				-0.258***	-0.265***
				(0.041)	(0.042)
Training					0.462***
					(0.058)
_cons	-0.535***	-0.545***	-0.546***	-0.180***	-0.218***
	(0.030)	(0.030)	(0.030)	(0.064)	(0.066)
Obs.	12788	12740	12711	11858	10884

Standard errors are in parenthesis
*** *p<0.01*, ** *p<0.05*, * *p<0.1*

3.5.1 Endogeneity concerns

There will be a possible endogenous relationship between political networks and innovation. First, there is a potential reverse causality between political networks and innovation. Firms may gain political networks as part of their innovation process. Innovation expands firms' relationships by being involved in approval processes, permits, and registrations, thereby increasing their probability of connecting with politicians and public servants. Second, some unobserved factors may be related to both political networks and innovation. Third, the measure of political relations relies on firms' self-report, leading to a probability of a significant measurement error.

Following prior studies on innovation (Krammer, 2019, Krammer and Jimenez, 2020), I use a firm's industry and location averages as an instrumental variable to fix endogeneity. This study uses the average of political networks of firms in the same sectors and the same provinces as an instrumental variable. First, I test the correlation between the proposed instrumental variable

and the three dependent variables. The results in Table 3.A2 show that the instrumental variable (average of political networks at the same province and same sector) correlates with process innovation, product innovation, and product improvement variables and they are significant at 5% level.

These IV Probit estimations are reported in Table 3.A3 and Table 3.A4 on the impact of political networks on the process and product innovation. These results in the two Tables confirm the previous results. Interestingly, when we control for endogeneity, the impacts of political networks on product improvement become positive and significant at 10% level, presented in Table 3.A5 in the Appendix.

I perform tests of endogeneity to examine whether political networks are endogenous or not. In Table 3.A6 in the Appendix, the Wald test of endogeneity shows the significant statistics in political networks with respect to three dependent variables with p-values equal 0.0010, 0.00143, and 0.0039 respectively. These results reject the null hypothesis that the explanatory variable (political networks) is exogenous. Thus, the presence of the instrumental variable is needed to address endogeneity for obtaining unbiased estimates.

3.5.2 Robustness checks

The political system and connections in Vietnam are mainly subnational, and most business-government interactions occur at a provincial level (Bai et al., 2019). Indeed, some researchers have focused on the local level rather than the central government when studying firms' institutional environment (Malesky and Taussig, 2008, Meyer and Nguyen, 2005, Tran et al., 2009). Political networks may depend on each province's economic development, which could influence political networks on innovation outcomes, thereby bias our estimates. Therefore, we include the province dummy variable in the baseline model to control for provincial effects. The results are shown in Table 3.A7, Table 3.A8, and Table 3.A9 in the Appendix for the impacts of political networks on process innovation, product innovation and product improvement, respectively. The findings in three Tables show that the political network coefficients are almost identical to the main models in all estimations and statistically significant. The results confirm the supporting role of political networks in firms' innovation.

3.5.3 The potential mediating effect of government assistance

Following Su et al. (2019), I apply the mediator effect model introduced by Baron and Kenny (1986) to examine government assistance's mediating role in the relationship between political networks and innovation. The first step is to run the model that included only political networks

to analyse the influence of political networks on innovations. The second step is to examine the influence of political networks on government assistance. Then, we test the influence of the government assistance itself on three types of innovation in the third step. In the final step, we test the effect of both government assistance and political networks on innovations.

Table 3.5 shows that political networks positively impact process innovation, and this impact is significant at 5% level (Model 1), and political networks are also positively associated with government assistance and significant at 1% level (Model 2). Model 3 indicates that government assistance positively affects process innovation. Model 4 shows that both political networks and government assistance significantly predict firm process innovation. Thus, government assistance plays a partial mediation role in the relationship between political networks and process innovation. It means political ties enable firms to obtain government subsidies which boost the probability of them introducing new processes or technology.

Table 3.5 The intermediate role of government assistance on process innovation

	Process innovation	Government assistance	Process innovation	Process innovation
	(1)	(2)	(3)	(4)
Political networks	0.011**	0.045***		0.008*
	(0.005)	(0.005)		(0.005)
Firm size	0.005***	0.004***	0.005***	0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
Firm age	-0.006***	-0.002	-0.005***	-0.006***
	(0.002)	(0.002)	(0.002)	(0.002)
Household	-0.373***	-0.080**	-0.371***	-0.367***
	(0.040)	(0.036)	(0.040)	(0.040)
Export	0.166***	0.091	0.157**	0.154**
	(0.062)	(0.060)	(0.062)	(0.062)
Capital intensity (log)	0.030**	-0.034***	0.030**	0.030**
	(0.014)	(0.012)	(0.014)	(0.014)
Owner age	-0.005***	-0.001	-0.005***	-0.005***
	(0.002)	(0.001)	(0.002)	(0.002)
Educational level	0.080*	-0.052	0.088*	0.087*
	(0.045)	(0.043)	(0.045)	(0.045)
Training	0.231***	0.168***	0.223***	0.218***
	(0.064)	(0.062)	(0.064)	(0.064)
Government assistance			0.252***	0.244***
			(0.039)	(0.040)
_cons	-0.816***	-0.914***	-0.852***	-0.860***
	(0.078)	(0.070)	(0.079)	(0.079)
Obs.	10884	10857	10858	10857

Standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

Similarly, Table 3.6 below presents the results of the intermediate role of government assistance on the relationship between political networks and product innovation. The results from four models in Table 3.6 suggest that political networks enable firms to obtain government subsidies which consequently increase their chance of introducing new products.

Table 3.6 The intermediate role of government assistance on product innovation

	Product innovation	Government assistance	Product innovation	Product innovation
	(1)	(2)	(3)	4
Political networks	0.017***	0.045***		0.014***
	(0.004)	(0.005)		(0.004)
Firm size	0.002***	0.004***	0.002***	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)
Firm age	0.001	-0.002	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)
Household	-0.131***	-0.080**	-0.133***	-0.125***
	(0.036)	(0.036)	(0.036)	(0.036)
Export	0.146**	0.091	0.144**	0.140**
	(0.061)	(0.060)	(0.061)	(0.061)
Capital intensity (log)	-0.012	-0.034***	-0.010	-0.010
	(0.013)	(0.012)	(0.013)	(0.013)
Owner age	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Educational level	0.201***	-0.052	0.207***	0.204***
	(0.042)	(0.043)	(0.042)	(0.042)
Training	-0.159**	0.168***	-0.168**	-0.177***
	(0.067)	(0.062)	(0.068)	(0.068)
Government assistance			0.261***	0.249***
			(0.036)	(0.036)
_cons	-0.931***	-0.914***	-0.960***	-0.979***
	(0.071)	(0.070)	(0.071)	(0.071)
Obs.	10884	10857	10858	10857

Standard errors are in parenthesis
*** *p<0.01, ** p<0.05, * p<0.1*

The government intermediate role in the relationship between political connection and product improvement is presented in Table 3.7. Model 3 in this table shows that government assistance itself does not significantly impact the likelihood of product modification. The coefficients of political networks and government assistance are also insignificant in Model 4 in Table 3.7. Therefore, government assistance does not play a mediator role in the correlation between political ties and product improvement. This result confirms that political connectedness has no impact on the probability of existing product modification. The overall results suggest that government assistant plays a mediator role in the relationship between political networks and product and process innovation.

Table 3.7 The intermediate role of government assistance on product improvement

	Product improvement	Government assistance	Product improvement	Product improvement
	(1)	(2)	(3)	(4)
Political networks	0.003	0.045***		0.003
	(0.004)	(0.005)		(0.004)
Firm size	0.004***	0.004***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Firm age	-0.008***	-0.002	-0.008***	-0.008***
	(0.002)	(0.002)	(0.002)	(0.002)
Household	-0.238***	-0.080**	-0.241***	-0.239***
	(0.033)	(0.036)	(0.033)	(0.034)
Export	0.161***	0.091	0.157***	0.156***
	(0.058)	(0.060)	(0.058)	(0.058)
Capital intensity (log)	0.026**	-0.034***	0.025**	0.025**
	(0.012)	(0.012)	(0.012)	(0.012)
Owner age	-0.006***	-0.001	-0.006***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.001)
Educational level	-0.265***	-0.052	-0.263***	-0.263***
	(0.042)	(0.043)	(0.042)	(0.042)
Training	0.462***	0.168***	0.463***	0.462***
	(0.058)	(0.062)	(0.058)	(0.058)
Government assistance			0.012	0.010
			(0.035)	(0.035)
_cons	-0.218***	-0.914***	-0.214***	-0.216***
	(0.066)	(0.070)	(0.066)	(0.066)
Obs.	10884	10857	10858	10857

Standard errors are in parenthesis
*** *p<0.01*, ** *p<0.05*, * *p<0.1*

3.5.4 Comparative analysis for different cohorts of technology level of firms

Moreover, innovation is conditional on the level of technology of firms. If firms belong to a high technology sector, they might conduct more innovation than their counterparts with low levels of technology. Therefore, we also carry out another test that applies to a subsample of firms in each technology classification cohort. The results are presented in Table 3.8 below.

Table 3.8 Impact of political networks on innovation with a different cohort of firms

	Medium-High Technology Firms			Medium-Low Technology Firms			Low Technology Firms		
	Process innovation	Product innovation	Product improvement	Process innovation	Product innovation	Product improvement	Process innovation	Product innovation	Product improvement
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Political networks	0.003	-0.026	-0.001	0.014	0.029***	0.008	0.014**	0.023***	0.003
	(0.009)	(0.026)	(0.009)	(0.010)	(0.009)	(0.009)	(0.006)	(0.006)	(0.006)
Firm size	0.009***	0.003	0.007***	0.005***	0.001	0.002*	0.005***	0.003***	0.004***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Firm age	-0.016**	0.001	0.002	-0.012***	0.002	-0.011***	-0.003	0.001	-0.008***
	(0.008)	(0.006)	(0.006)	(0.004)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Household	-0.650***	-0.069	-0.358***	-0.479***	-0.188***	-0.185***	-0.322***	-0.078	-0.255***
	(0.178)	(0.154)	(0.138)	(0.071)	(0.061)	(0.057)	(0.052)	(0.049)	(0.044)
Export	0.632***	0.437**	0.183	0.311**	0.114	0.227*	0.060	0.137*	0.159**
	(0.189)	(0.190)	(0.187)	(0.142)	(0.141)	(0.134)	(0.077)	(0.074)	(0.069)
Capital intensity (log)	0.090	0.140**	-0.011	0.040	-0.046**	-0.002	0.021	-0.005	0.042***
	(0.059)	(0.055)	(0.049)	(0.027)	(0.023)	(0.021)	(0.018)	(0.016)	(0.015)
Owner age	0.002	0.001	-0.002	-0.005*	-0.003	-0.003	-0.006***	-0.001	-0.008***
	(0.007)	(0.006)	(0.006)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Educational level	-0.171	0.388***	-0.512***	-0.030	0.067	-0.212***	0.162***	0.257***	-0.264***
	(0.147)	(0.141)	(0.137)	(0.083)	(0.074)	(0.072)	(0.059)	(0.056)	(0.055)
Training	0.574***	-0.078	0.700***	0.082	-0.058	0.278***	0.244***	-0.293***	0.531***
	(0.213)	(0.236)	(0.209)	(0.114)	(0.108)	(0.096)	(0.085)	(0.096)	(0.078)
Constant	-0.989***	-1.190***	-0.478*	-0.722***	-0.735***	-0.296**	-0.848***	-1.062***	-0.158*
	(0.306)	(0.293)	(0.268)	(0.144)	(0.124)	(0.116)	(0.099)	(0.092)	(0.085)
Obs.	605	605	605	3266	3266	3266	6938	6938	6938

Standard errors are in parenthesis
*** *p<0.01*, ** *p<0.05*, * *p<0.1*

The results show that with firms belonging to the medium high technology sector, the effects of political networks on innovation become insignificant. With medium low technology firms, political networks only positively impact the probability of introducing a new product. In the low technology sector sub-sample, Model 7 and Model 8 show that the impacts of political network coefficients on process innovation and product innovation are positive and significant at 5% and 1%, respectively. The result in Model 9 presents the insignificant impact of political networks on firms' probability of improving their existing products. These results are mostly like the results in the baseline regression.

Overall, this section's results indicate that industries with a low level of technology rely more on political networks while high technology firms do not. This is because industries with a low level of technology might not have adequate resources to undertake innovative activities. They then have to rely on political networks more than high technology firms do (Su et al., 2019). High-tech firms might be more likely to access private financial resources and less incentive to nurture political networks (Bottazzi and Da Rin, 2002).

3.6 Discussion

The empirical results show that firms with more frequent connections with government officials are more likely to be innovative. As innovation is risky and costly, assistance and guidance from the government are critical for firms. Government assistance is crucial for Vietnamese SMEs because the lack of capital and access to finance appears to be the most significant obstacle for Vietnamese business (World Bank, 2015). Meanwhile, politically connected firms can access government subsidies, government contracts, and related entities (Dang et al., 2018, Hung et al., 2015), thereby boosting innovation.

Government assistance in Vietnam includes financial assistance such as tax exemptions or reductions and loans. If firms receive one of these forms of assistance, it can indirectly or directly boost a firm's innovation. Indeed, the Vietnamese government has offered some credit provisioning mechanisms such as the Small and Medium Enterprise Development Fund, Commercial Banks, Credit Guarantee Funds, and the Vietnam Development Bank. However, it is often difficult for firms to access affordable funding due to tight mortgage conditions, complicated procedures, and imperfect capital markets. As a result, not many enterprises can approach and be

approved for government assistance. Therefore, they might rely on relationships with politicians or government officials to receive government subsidies or other types of assistance.

In addition, non-financial support programs from the government can develop human capital to improve expertise, which is important for introducing innovation because it provides internal incentives for firms (Nguyen, 2019b). In Vietnam, non-financial support or technical assistance includes human resource training, which provides SMEs and potential entrepreneurs training about start-ups and business management. This can be in the form of other programs that provide training for implementing quality assurance.

Vietnamese SMEs are facing difficulties mobilising capital investment in innovation (Vuong and Hai, 2019). When businesses want to innovate, they need loans from banks. However, each project applying for an innovation loan takes a lot of time for research, appraisal, and approval. Enterprises also lack both the human resources and the necessary technical advice and are thereby unable to develop feasible plans for innovation. Meanwhile, medium and long-term capital markets have been less developed and have shown little effect in supporting businesses. Some current regulations on capital lending are inadequate or require too high interest rates, so it is not feasible for SMEs to apply. Activities involving innovation are not the only important factor in a developing country, financial funding also plays an important role. For example, German firms that previously received public subsidies or grants are more likely to implement innovation activities than those without financial support (Peters, 2009).

Political ties enable firms to access financial resources and intangible resources from the government such as new knowledge and information (Hall et al., 2005, Drucker, 1994). Political ties can supply information and understanding of government policies and regulation direction (Shu 2011). External knowledge interactions can foster innovation (Powell and Grodal, 2005, Ren et al., 2015) as such interactions allow firms to access new ideas (Lasagni, 2012). The ability to utilize external knowledge is critical for innovative capabilities (Cohen and Levinthal, 1990) and firms' decisions on innovation cooperation (Cassiman and Veugelers, 2002). Political ties bring intellectual benefits for firms and can enable them to predict new technological directions and improve the success rates for a product’s innovation which is important in competitive markets with relatively short product lifespans (Sheng et al., 2011).

Moreover, the results suggest that political ties are important for non-high-tech firms but less valuable for high-tech firms regarding innovation activities. This paper’s findings are similar to the

findings of Su et al. (2019), which indicate that low-tech businesses rely more on political networks than others. Low-tech industries may also be neglected in innovation policy (Hirsch-Kreinsen, 2008). This explanation may also prove true for Vietnam. Vietnam established 16 national key laboratories in 2000 that focus on biotechnology, information technology, material technology, mechanics-automation, petro-chemistry, and energy. Three national hi-tech parks were also established in three regions of the country (Vo et al., 2017) and several software parks have been built in major cities and hi-tech agricultural zones. Furthermore, the Law on Science and Technology in 2013 also prioritizes incentives for enterprises in hi-tech fields. Consequently, non-high technology firms might focus more on investing in political relationships to obtain favourable access or treatment for innovative activities. Also, Vietnam's manufacturing sector is mainly low value-add and uses low-level technology. For example, firms in the textiles and food sectors account for a large number of enterprises in Vietnam (Ovtchinnikov et al., 2014). Therefore, we suggest that the government should issue policies targeting low-tech industries, as they require more resources and policies to undertake innovation.

Firms in emerging markets hesitate to make decisions in innovation investment because of institutional imperfection (Back et al., 2014). In such uncertain environments, firms are more likely to rely on managerial ties, including political ties. These ties may be more critical in imperfect competition characterised by weak institutional framework and distorted information (Peng and Luo, 2000). This explanation can be applied to Vietnam as Vietnamese institutions are less developed, a situation that does not facilitate efforts to innovate in firms (Chand et al., 2001). In these developing countries, the government's role in fostering innovation is important due to the high risks and costs of carrying out innovation. Therefore, governments can provide policies and support (Guellec and Van Pottelsberghe De La Potterie, 2003), offer favourable treatment in taxation, investment, and financial access (Appelt et al., 2015), which remove a firm's resource constraints for innovation (Ganter and Hecker, 2013).

The Vietnamese government has exhibited some weakness in supporting and boosting innovation policy. Implementing science and technology guidelines and policies at the provincial levels still lacks initiative, sufficient commitment, and coordination (Luong and Nguyen, 2019). Moreover, government policies are not attractive as approval procedures remain cumbersome and time-consuming. Thus, it is challenging for SMEs to access capital and other sources of government support. The procedures involved in enjoying the government's preferential policies are still

complicated, so it has not created any great attraction for enterprises to invest in innovation. Meanwhile, innovation investments do not always result in better performance. Therefore, firms are not interested in innovation, especially when they are still profitable.

Firms interested in innovation in emerging markets might employ different non-market strategies to overcome a highly uncertain situation (Back et al., 2014), including political connections or political networks (Krammer and Jimenez, 2020). Although my findings indicate that political networks bring benefits for innovation, they do not entirely support the idea that firms should rely on their relationships to carry out innovation as political connections and networks are not necessarily beneficial for the firm in the long term. Undoubtedly, political connection building incurs plenty of hidden and prolonged costs, such as significant time and resource commitments that can damage a firm's development in the long term. They increase uncertainty and transaction costs and make rent-seeking behaviours more appealing. All of these combinations impede firms' incentive to engage in innovation.

As innovation is an uncertain and long-term process (Jalonen, 2012), the government plays a role in supporting the legal and institutional framework that firms can invest in and help to stimulate more interest in innovation. For example, governments can reduce business environment uncertainty through a steady legislature framework (Loayza and Otker-Robe, 2013). Firms operating in more stable business environments can respond quickly to policy changes and prepare and mobilise resources for innovation (Nguyen, 2019a). On the other hand, the government can minimize its role in leading resource allocation, improve market-oriented innovation mechanisms, and standardize government subsidies for more transparent allocation processes (Hou et al., 2017). If government wields great power in terms of resource allocation and firms face challenges in enhancing and maintaining products' quality advantages, they will pursue and strengthen political connections rather than upholding internal capacity (Chen et al., 2011).

Firms engage with different partners to acquire resources (Cassiman and Veugelers, 2002) to be able to continue to exist in a knowledge-intensive economy, and political networks represent only one sort of resource. According to social network theory, political ties only act as a "bridge" to approach resources by providing information and opportunities to connected firms. Apart from political connections, firms can work with other companies, universities, or public research bodies (Fritsch and Lukas, 2001, Lai, 2011). Therefore, firms should shift their focus from political ties

to other external sources of information that directly bring about new ideas or cooperation on innovation, such as research institutes and universities.

The other implications of this should be mentioned. First, the government should simplify administrative processes in public service delivery, which may reduce firms' demand for political connections. If the government can bring consistent administrative procedures, fewer regulations and more efficient and transparent bureaucratic procedures, firms might not need to rely on their relationships to get things done. Second, the government should review existing policies in encouraging innovation for firms with specific conditions and make these policies easy and feasible for SMEs to approach and be approved. Third, firms should build their internal resources to serve as the main driver of innovation and only consider external relationships as an information channel. Firms should take advantage of political connections but not rely on or invest too much in this relationship to receive favourable treatment from the government. Instead, they should strengthen managerial competencies and focus on research and development activities that are valuable to their long-term development.

Overall, the results point out inefficiencies in the allocation of innovation policies. Intensely connected firms are more likely to receive government support for innovation, which leaves fewer and un-connected firms lagging behind in terms of government policies, leading to the uneven allocation of government resources and distorted motivation for innovation. If firms with fewer political networks could access government assistance on the same level as well-connected firms, they might have more resources available to undertake innovative activities. Moreover, politicians involved in firms' decisions can distort firms' incentives and misallocate the government's resources (Shleifer and Vishny, 1994, Sojli and Tham, 2017). For example, firms that receive innovation subsidies are more likely to introduce new products but do not necessarily experience higher productivity, profits, or market segments (Cheng et al., 2019a). Subsequently, political connections do not benefit businesses and overall economic development in the long-term.

3.7 Conclusion

The paper has examined how political networks impact firms' innovation in Vietnam. After controlling for the endogeneity problem, the results show that political links positively impact all types of innovation, including process innovation, product innovation, and product improvement. The paper also found that government assistance plays an intermediating role in the relationship

between political networks and innovation. Firms that can access government assistance are more likely to introduce innovation. Moreover, political ties demonstrate more impact on innovation for firms in low technology sectors than those in high technology ones.

The study, however, has revealed some limitations. First, this study focuses on SMEs using data from the Vietnam SMEs Survey to examine firms' innovative activities. Hence, it fails to give a complete picture of Vietnamese firms' innovative activities because SMEs' innovation efforts are low and tend to be informal (Phan, 2014). Therefore, it leaves room for other studies to expand the research with a more significant sample that is more representative of Vietnamese firms. Second, we are unable to construct continuous variables for innovation, leading to the risk of a measurement bias problem. Therefore, future research can be undertaken if they possess better measurements of innovation.

Appendix

Table 3.A1 Industry classification

Low technology	Food and beverages, Tobacco, Textiles, Apparel, Leather, Wood, Paper, Publishing and printing, Furniture, jewellery, music equipment, Recycling
Medium Low Technology	Rubber, Non-metallic mineral products, Basic metals, Fabricated metal products,
Medium-High Technology	Chemical products etc, Motor vehicles etc, Other transport equipment, Electronic machinery, computers, radio

Source: OECD (2011)

Table 3.A2 Correlation between Instrumental variable and dependent variables

	Process innovation	Product innovation	Product improvement
Instrumental variable	0.0620**	0.0525**	0.0333**

*** p<0.05*

Table 3.A3 The impact of political networks on process innovation - An IV approach

	Process innovation				
	(1)	(2)	(3)	(4)	(5)
Political networks	0.098***	0.101***	0.097***	0.105***	0.090***
	(0.028)	(0.028)	(0.028)	(0.027)	(0.030)
Firm size	0.005***	0.004***	0.004***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Firm age	-0.009***	-0.009***	-0.009***	-0.007***	-0.006***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Household	-0.316***	-0.303***	-0.306***	-0.336***	-0.321***
	(0.043)	(0.043)	(0.043)	(0.046)	(0.045)
Export		0.150***	0.160***	0.145**	0.139**
		(0.057)	(0.058)	(0.062)	(0.062)
Capital intensity (log)			0.023*	0.028**	0.030**
			(0.013)	(0.013)	(0.014)
Owner age				-0.006***	-0.006***
				(0.002)	(0.002)
Educational level				0.067	0.064
				(0.044)	(0.045)
Training					0.175***
					(0.067)
Constant	-1.148***	-1.161***	-1.161***	-0.902***	-0.908***
	(0.044)	(0.043)	(0.043)	(0.078)	(0.081)
Wald test Chi-Square	8.61	9.51	8.89	10.96	6.78
Obs.	12788	12740	12711	11858	10884

The average of political networks in the same province and the same sector is using as an instrument for a firm's political networks.
Standard errors are in parenthesis
*** *p<0.01, ** p<0.05, * p<0.1*

Table 3.A4 The impact of political networks on product innovation - An IV approach

	Product innovation				
	(1)	(2)	(3)	(4)	(5)
Political networks	0.084***	0.078***	0.082***	0.093***	0.071***
	(0.026)	(0.026)	(0.025)	(0.025)	(0.027)
Firm size	0.002***	0.001**	0.001**	0.001**	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Firm age	-0.001	-0.001	-0.000	-0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Household	-0.112***	-0.102***	-0.102***	-0.101**	-0.100**
	(0.037)	(0.037)	(0.037)	(0.039)	(0.040)
Export		0.158***	0.157***	0.117*	0.128**
		(0.056)	(0.057)	(0.061)	(0.061)
Capital intensity (log)			-0.017	-0.014	-0.012
			(0.012)	(0.012)	(0.012)
Owner age				-0.002	-0.002
				(0.001)	(0.001)
Educational level				0.195***	0.189***
				(0.042)	(0.042)
Training					-0.191***
					(0.069)
Constant	-1.094***	-1.103***	-1.103***	-1.029***	-0.998***
	(0.044)	(0.045)	(0.044)	(0.071)	(0.076)
Wald test Chi-Square	6.53	5.47	6.30	8.94	3.87
Obs.	12788	12740	12711	11858	10884

The average of political networks in the same province and the same sector is using as an instrument for a firm's political networks.
Standard errors are in parenthesis
*** *p<0.01, ** p<0.05, * p<0.1*

Table 3.A5 The impact of political networks on product improvement - An IV approach

	Product improvement				
	(1)	(2)	(3)	(4)	(5)
Political networks	0.052**	0.053**	0.049**	0.059**	0.049*
	(0.025)	(0.025)	(0.025)	(0.025)	(0.026)
Firm size	0.004***	0.003***	0.004***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Firm age	-0.011***	-0.011***	-0.011***	-0.010***	-0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Household	-0.176***	-0.165***	-0.167***	-0.248***	-0.211***
	(0.034)	(0.034)	(0.034)	(0.037)	(0.037)
Export		0.156***	0.163***	0.157***	0.146**
		(0.053)	(0.053)	(0.058)	(0.058)
Capital intensity (log)			0.021*	0.025**	0.026**
			(0.011)	(0.011)	(0.012)
Owner age				-0.007***	-0.007***
				(0.001)	(0.001)
Educational level				-0.264***	-0.270***
				(0.041)	(0.041)
Training					0.429***
					(0.061)
Constant	-0.614***	-0.625***	-0.621***	-0.261***	-0.282***
	(0.049)	(0.048)	(0.048)	(0.072)	(0.074)
Wald test Chi-Square	3.57	3.88	3.33	5.10	3.15
Obs.	12788	12740	12711	11858	10884

The average of political networks in the same province and the same sector is using as an instrument for a firm's political networks.
Standard errors are in parenthesis
*** *p<0.01, ** p<0.05, * p<0.1*

Table 3.A6. Wald test of exogeneity of political networks

	Chi2(1)	P-value
Process innovation	10.91	Prob > chi2 = 0.0010
Product innovation	6.01	Prob > chi2 = 0.00143
Product improvement	8.34	Prob > chi2 = 0.0039

Table 3.A7 Political networks and process innovation with the province dummy variable

	Process innovation				
	(1)	(2)	(3)	(4)	(5)
Political networks	0.011***	0.011**	0.010**	0.010**	0.010**
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
Firm size	0.006***	0.005***	0.005***	0.006***	0.005***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Firm age	-0.009***	-0.009***	-0.009***	-0.008***	-0.007***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Household	-0.366***	-0.355***	-0.358***	-0.387***	-0.360***
	(0.037)	(0.037)	(0.037)	(0.040)	(0.041)
Export		0.170***	0.179***	0.175***	0.158**
		(0.058)	(0.058)	(0.062)	(0.063)
Capital intensity (log)			0.017	0.019	0.023
			(0.014)	(0.014)	(0.015)
Owner age				-0.005***	-0.005***
				(0.002)	(0.002)
Educational level				0.073	0.070
				(0.045)	(0.045)
Training					0.239***
					(0.064)
Province dummy	Yes	Yes	Yes	Yes	Yes
_cons	-0.941***	-0.950***	-0.953***	-0.667***	-0.685***
	(0.050)	(0.050)	(0.051)	(0.086)	(0.088)
Obs.	12788	12740	12711	11858	10884

Standard errors are in parenthesis
*** *p<0.01, ** p<0.05, * p<0.1*

Table 3.A8 Political networks and product innovation with the province dummy variable

	Product innovation				
	(1)	(2)	(3)	(4)	(5)
Political networks	0.016***	0.016***	0.016***	0.015***	0.016***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Firm size	0.002***	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Firm age	-0.000	-0.001	-0.000	0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Household	-0.170***	-0.152***	-0.153***	-0.153***	-0.146***
	(0.034)	(0.034)	(0.034)	(0.037)	(0.037)
Export		0.187***	0.187***	0.152**	0.151**
		(0.057)	(0.057)	(0.061)	(0.061)
Capital intensity (log)			-0.016	-0.015	-0.010
			(0.012)	(0.013)	(0.013)
Owner age				-0.002	-0.002
				(0.001)	(0.001)
Educational level				0.214***	0.206***
				(0.042)	(0.042)
Training					-0.166**
					(0.068)
Province dummy	Yes	Yes	Yes	Yes	Yes
_cons	-1.028***	-1.048***	-1.043***	-0.968***	-0.964***
	(0.048)	(0.049)	(0.049)	(0.079)	(0.081)
Obs.	12788	12740	12711	11858	10884

Standard errors are in parenthesis
*** *p<0.01*, ** *p<0.05*, * *p<0.1*

Table 3.A9 Political networks and product improvement with the province dummy variable

	Product improvement				
	(1)	(2)	(3)	(4)	(5)
Political networks	0.005	0.004	0.004	0.004	0.004
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Firm size	0.004***	0.004***	0.004***	0.005***	0.004***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Firm age	-0.011***	-0.011***	-0.011***	-0.009***	-0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Household	-0.183***	-0.170***	-0.174***	-0.254***	-0.210***
	(0.031)	(0.031)	(0.031)	(0.034)	(0.034)
Export		0.187***	0.194***	0.200***	0.184***
		(0.052)	(0.053)	(0.058)	(0.058)
Capital intensity (log)			0.020*	0.023**	0.024**
			(0.011)	(0.012)	(0.012)
Owner age				-0.007***	-0.007***
				(0.001)	(0.001)
Educational level				-0.277***	-0.282***
				(0.041)	(0.042)
Training					0.455***
					(0.058)
Province dummy	Yes	Yes	Yes	Yes	Yes
_cons	-0.512***	-0.521***	-0.524***	-0.102	-0.126*
	(0.043)	(0.044)	(0.044)	(0.073)	(0.075)
Obs.	12788	12740	12711	11858	10884

Standard errors are in parenthesis
*** *p<0.01, ** p<0.05, * p<0.1*

Chapter 4 Corruption and export of small and medium-sized enterprises in Vietnam

Abstract

Corruption can promote or hinder firms' export performance. This paper applies Probit and Tobit models to Vietnamese SME panel data from 2007 to 2015 using an instrumental variable to correct the potential issue of endogeneity. I find a positive correlation between corruption and firms' participation in export markets. However, corruption does not have significant impacts on the share of export over total revenue. This paper suggests that a transparent and low transaction cost business environment is important for all SMEs to enhance their competitive capacity and efficiency and to participate in international supply chains.

4.1 Introduction

Corruption in developing countries is a topic drawing attention from scholars and policymakers (Fisman and Svensson, 2007, Bai et al., 2019, Rand and Tarp, 2012, Wellalage et al., 2019, Vial and Hanoteau, 2010, Vu et al., 2018, Svensson, 2003). Most research focuses on the determinant of corruption, financial constraints, or how corruption affects firm growth in general. In the context of international economic integration, the influence of corruption on firms' export performance has been studied recently (Krammer et al., 2018, Lee et al., 2015, Lee and Weng, 2013, Olney, 2016, Aulakh et al., 2000, Qi et al., 2020). To date, the two streams in the body of literature have developed in a parallel on this topic. The first stream focuses on how corruption can be a reason behind firms escaping from domestic markets (Witt and Lewin, 2007). The second discusses how corruption can result in no international market demand (Ito and Pucik, 1993, Hundley and Jacobson, 1998).

However, existing research on corruption and export has shown a number of limitations. First, studies on export and corruption mostly use a cross-country dataset, which cannot control time-variant variables that may affect firms' export strategy. Thus, a more comprehensive assessment of the links between export and corruption requires an analysis of panel data to capture this dynamic relationship. Second, the measure of corruption mostly relies on subjective measurement, the country's corruption index (Gil-Pareja et al., 2019), and information based on perception which leads to more tentative findings (Kimuyu, 2007). Third, studies on corruption tend to focus on industry or national levels (Hellman et al., 2003, Jong-Sung and Khagram, 2005). This analysis level ignores individual firms as firms may increase their output

and productivity by engaging in bribery (Peng and Luo, 2000, Vial and Hanoteau, 2010). Therefore, firms' reactions to corruption have essential impacts on each country's long-term economic development (Galang, 2012).

Previous studies have presented some limitations of corruption measurement. For example, Lee et al. (2015) use the "control of corruption" index to measure governmental corruption and construct the hypothesis that home countries' corruption positively impacts a firm's export ratio in transition economies. This measurement ranges from the lowest level of government corruption at 0 to the highest at 5. Similarly, Olney (2016) uses firms' views on ranking the degree of corruption as an obstacle to firms' current operations. Though this variable is a measurement at a firm level, it is still a perception variable. Therefore, it cannot measure firms' reactions to corruption based on how much they spend on informal fees. Only a few studies such as those conducted by Qi et al. (2020), Krammer et al. (2018) and Lee and Weng (2013) use the percentage of informal payment over the total sale to measure corruption in their studies. However, the data used in their studies is from the World Bank Enterprise survey dataset, and they are unable to construct panel data for those studies. Therefore, the current literature still requires more data on emerging economies (Qi et al., 2020) and longitudinal studies to "capture the variations in export barriers due to time..." (Leonidou, 2004).

At present, research on institutions or corruption in relation to exports in Vietnam is scant. For example, Nguyen et al. (2016a) use an institution-based view to reveal the impact of various domestic institutional attributes on a firm's export performance, but their research does not include corruption. Narayan and Bui (2019) use the corruption perceptions index (CPI) developed by Transparency International to show that corruption has discouraged Vietnamese bilateral export streams. However, both studies have not directly mentioned the association between corruption and exports at the firm level in Vietnam. Therefore, this study provides an insight into a direct relationship between how corruption affects a firm's export performance in Vietnam.

This study uses panel data from the Vietnamese SME survey to examine the relationship between corruption and export in Vietnam. Unlike other countries, Vietnam is still in the initial stage of being integrated into international markets. Vietnamese institutional development is still underway, and the market mechanism has not yet operated efficiently. Under this status, firms rely on their relationship network and trust to substitute for under-developed market structures (Nguyen, 2005, McMillan and Woodruff, 1999). Corruption is, therefore, a common practice for doing business in Vietnam (Nguyen et al., 2016c).

Corruption can be presented in various forms. Bahoo et al. (2020) define corruption as "an illegal activity including bribery, fraud, financial crime, and abuse, conducted through misuse of authority or power by public (government) or private (firms) officeholders for private gain and benefit, financial or otherwise". In the business context, corruption can be presented in the form of bribery which refers to "the offering, promising, or giving something in order to influence a public official in the execution of his/her official duties" (OECD, 2000). Therefore, this study focuses on corruption at the firm level which is bribery or informal payment of a firm.

The rest of the paper is structured as follows. Section 2 presents the existing literature on how firms react to corruption in home countries. Section 3 provides some background on SMEs and doing business in Vietnam. Section 4 describes the data and methodology used in this study, followed by the main results presented in Section 5. Section 6 discusses the empirical results of the relationship between corruption and export and provides some policy implications. The final section concludes the whole chapter and provides directions for future research.

4.2 Literature review

On the one hand, corruption can encourage firms to export for two reasons. First, firms might choose to export regardless of spending on corruption as exports will bring benefits for firms. For example, exporting allows successful firms to expand market access, diversify revenue streams, and gain overseas markets experience (Li, 2007). Firms are willing to pay informal fees to lower export fees and obtain export licenses (Rose-Ackerman, 1997). Corrupt customs officials can cut the delays that firms might face when clearing their goods at a country's borders. Corruption helps firms alleviate their regulatory burdens (Krammer et al., 2018). The research on Thailand shows that bribery positively affects a firm's export performance (Charoensukmongkol, 2016). Similarly, bribery has been associated with firms' export performance in India. Firms need to seek several clearances and licenses from government bodies, and corrupt firms can obtain permits more quickly than their non-corrupt counterparts (Brandt et al., 2016)

Second, corruption can push firms to export due to fiercer competition in domestic markets. Firms that are less corrupt or non-corrupt might have narrowed market segments and more market competition which can divert these firms to foreign markets (Hermalin, 1992) and investing abroad (Shi et al., 2017, Witt and Lewin, 2007, Tallman, 1988). Domestic firms have to deal with governmental officials when they face inquiries about land acquisition, permits, product regulations, or employment (Djankov et al., 2002), all of which often result in corrupt

behaviour (Martin et al., 2007). The cost of coping with corruption might encourage firms to seek other corruption-free markets (Lee et al., 2015). In this case, exports are one of the strategies to reduce high transaction costs due to corrupt officials (Bernard and Jensen, 2004) and avoid these additional operating costs in home countries (Ang and Cummings, 1997).

On the other hand, corruption can hamper a firm's exports for two reasons. First, local firms are generally asked for specific licenses and permits from governments for their international connections. Firms face difficulties in obtaining licences and business permits if they are unwilling to pay a bribe. Therefore, corruption at customs borders or corruption for getting licenses and permits for export can make firms less interested in exporting their products. For instance, bureaucratic requirements and the complexity of trade regulations are barriers for firms in Brazil to export their products (Rocha et al., 2008). Corruption also reduces the likelihood of exporting for Kenyan manufacturing firms (Kimuyu, 2007) and prevents some firms from entering export markets in Eastern European and Central Asian countries (Ahsan, 2017). Clarke (2005) concludes that firms in manufacturing sectors are less likely to export in countries where restrictive trade, customs regulation, and poor customs administration are prevalent.

Corruption can limit the likelihood of firms exporting as it brings additional risk and uncertainty, such as delays in international transactions. Customs officials may adjust export-import restrictions and regulations to reap bribes (Shleifer and Vishny, 1993). Nordås et al. (2006) show that more delays at borders have a significant adverse effect on trade. This result is confirmed by Djankov et al. (2010) and Martincus et al. (2015) who show significant international procedure delays are associated with lower levels of trade.

Second, a competitive position in domestic markets created through corruption might reduce the incentive to explore foreign markets (Hundley and Jacobson, 1998, Lee and Weng, 2013, Carney et al., 2016) as firms can gain advantages in domestic markets when paying bribes. Lee and Weng (2013) find that corruption in home countries decreases firm exports as when firms receive preferential treatment in domestic markets, their interest in the foreign market will be lower. Cieślik and Goczek (2015) confirm the negative relationship between corruption and export performance in post-communist countries. Also, local corruption reduces exports in Latin American and the Caribbean region (Charoensukmongkol and Sexton, 2011).

Recently, Qi et al. (2020) have summarised both views and proposed a U-shaped relationship between corruption and exports. Low expenditure on corruption may diminish firms' export strategies, but excessive spending on corruption will drive firms to avoid home countries institutional limitations by exporting. When the costs of corruption exceed its benefits, firms

will contract their domestic market segment and passively pursue international markets (Wang and Min, 2014). Indeed, some firms have begun to internationalise to escape their domestic markets (Witt and Lewin, 2007) as an export strategy can circumvent institutional imperfections in emerging economies and reduce high transaction costs paid to corrupt officials (Bernard and Jensen, 2004)

Furthermore, the effect of corruption on exports depends on the purpose or type of corruption. Sequeira and Djankov (2014) show that South African firms choose the ports they export from depending on the level of corruption between ports. If customs officials and firms collude to share the benefits from illegal transactions, corruption increases trade volume through a corrupt port because the two parties have benefited from the transaction. If corruption occurs when a customs official extracts a bribe from firms, such corruption will divert exports to competing ports with fewer corrupt activities.

Moreover, corruption brings more costs to new ventures than to established firms (Lee et al., 2015). New businesses are more likely to export when their home countries have high corruption levels because corruption refers to the costs of doing business. Lee et al. (2015) find that new firms' export strategies depend on the costs of doing business in their home countries in Central and Eastern Europe. Newly established firms can use exports to avoid the high costs of doing business in their home country and firms also seek to increase their revenue and profit to offset the unofficial payment that they paid. To avoid such costs and minimise contact with a corrupt government, some companies shift their interests to foreign markets (Witt and Lewin, 2007). They may prefer foreign markets to domestic ones because domestic governments extract profits or revenues that they have created.

4.3 Corruption and exports in Vietnam

Vietnam's administrative environment has been problematic and has created excessive barriers for businesses (Duane Morris, 2018). Administrative hurdles are one of the restraints on the performance of Vietnamese SMEs. Enterprises face procedural delays or time-consuming requests for supplementary documentation if they do not pay a "lubrication fee". It has been found that public officials still harass up to 58% of domestic enterprises, and 54% of enterprises must pay unofficial fees (Mekong Business Initiative, 2016).

Vietnamese firms are also affected by corruption in terms of exporting. Up to 15% of the total enterprises surveyed said that they would be discriminated against if they did not pay unofficial fees when engaging in import and export procedures (VCCI et al., 2019). Moreover, in a survey

result of more than 2,000 enterprises conducted by the Ministry of Industry and Trade in 2019, the rate of Vietnamese export enterprises facing non-tariff measures are relatively high with 89% of 'obstacles' to exporting coming from procedural transactions. For small and micro enterprises, most obstacles are delays related to regulation and authorization which account for 86% of obstacles. Up to 40% of regulatory obstacles in export procedures are related to informal fees (Anh, 2019).

SMEs are affected by such obstacles and unofficial fees even though they are a critical source of employment opportunities, poverty reduction, innovation, and economic development (Duane Morris, 2018). Vietnamese SMEs attract more than 50% of the total labour force and contribute around 40% of the country's GDP (VCCI and USAID, 2015). However, in comparison to neighbouring countries with the same level of development such as Thailand and Indonesia, Vietnamese enterprises' competitiveness is much weaker. Although accounting for nearly 98% of total enterprises, SMEs only contribute around 20% of the country's total export turnover. As of 2017, the percentage of Vietnamese SMEs participating in international trade is low compared to other countries in the region, accounting for only 21% of the total number of SMEs. The number of firms that participated in the global value chain is 46% in Malaysia and 30% in Thailand (Das, 2017). Therefore, Vietnamese SMEs have not been competitive in international markets and still need support from the state to compete with their counterparts from other countries.

4.4 Data and methodology

4.4.1 Data

This research extracts panel data from SMEs survey in Vietnam. The survey was jointly undertaken by the Central Institute for Economic Management (CIEM), the Department of Economics at the University of Copenhagen and the Institute of Labour Science and Social Affairs (ILSSA). The survey was biennially conducted in 2007, 2009, 2011, 2013 and 2015. It tracks around 2,600 private manufacturing firms in each round in 10 provinces and cities in Vietnam. The survey includes more than 130 questions about firm characteristics and history, the household characteristics of firm owners or firm managers, the structure of sales and export, investment, social networks, fees, tax, informal payments, and firms' networks. From the questionnaire, we can identify export and non-export firms and measure export revenue over the total revenue.

I also use the Provincial Competitiveness Index (PCI) for this paper's analysis. The PCI report is conducted by collaboration between the US Agency for International Development (USAID) and the Vietnam Chamber of Commerce and Industry (VCCI). PCI is annually constructed to measure the business environment in 63 provinces and cities in Vietnam. It also evaluates all provinces' economic governance and administrative reform performance in Vietnam. PCI measures competitiveness in terms of ten performance indicators which is presented in Table 4.1 below.

Table 4.1 PCI Matrix

1	Entry costs for business start-up, access to land
2	Security of business premises
3	A transparent business environment and equitable business information
4	Minimal informal charges
5	Limited time requirements for bureaucratic procedures and inspections
6	Minimal crowding out of private activity from policy biases toward the state, foreign, or connected firms
7	Proactive and creative provincial leadership in solving problems for enterprises
8	Developed and high-quality business support services
9	Sound labour training policies
10	Fair and effective legal procedures for dispute resolution

Source: VCCI and USAID (2015)

Minimal informal charges are one of the matrix indicators to score PCI. In addition, indicator number 3 and indicator number 5 in Table 4.1 also refer to a transparent business environment and less bureaucratic procedures for firms at a local level.

I use PCI instead of the province dummy variable as this study concerns corruption and export, which relate to the competitiveness of the local business environment. PCI is an excellent indicator to reflect the business environment in 10 studied provinces. From the PCI matrix above, PCI can measure the business environment transparency, equitable business information

and time requirements for bureaucratic procedures and inspections. I use the PCI index for ten provinces and cities of this study.

The data is sorted in the following ways. First, I delete firms with more than 300 employees as according to Vietnamese Law, only firms less than 300 can be considered as small and medium enterprises. Second, I retain the number of firms that have taken part at least two rounds of the survey and end up with unbalanced panel data from 2007 to 2015.

4.4.2 Variables

This study has two dependent variables. The first is export participation or export likelihood, and the second export intensity. These variables are identified through the SME questionnaire survey.

Export participation is defined by answering the question "Does your enterprise export (directly or indirectly)?" The export participation variable equals 1 if firms export and 0 otherwise. Export intensity is defined by the export share in the total revenue or percentage of export revenue over total revenue (Estrin et al., 2008). In line with prior studies (Shinkle and Kriauciunas, 2010, Filatotchev et al., 2001), the percentage of a firm's export over total sales varies from 0 to 1 and higher values mean greater export intensities (Qi et al., 2020).

The primary explanatory variable is corruption spending. Follow Rand and Tarp (2012) we use bribe incidence or informal payment incidence as a proxy for corruption in this study. As the questionnaire allows us to identify how much firms spend on informal payments, we can construct a continuous variable for corruption. In my study, corruption spending is determined by the total informal payment at year-end.

I add several control variables for analysis. I measure firm size by the number of firm employees. Firm size can affect the ability to export as larger firms might have more resources to go abroad. Firm age is also an essential variable in the export model. Older firms would be more likely to export as they have experience or can accumulate higher sales over time (Svensson, 2003).

Firm productivity might affect the export decision. According to the self-selection hypothesis, only more efficient firms can participate in the foreign market (Delgado et al., 2002). In this study, firm productivity is measured by total sales per full-time employees.

The capital-labour ratio is also included in the model. Capital-labour captures the characteristics of an industry comparative advantage. This is an important factor for developing countries where labour is relatively cheap compared with capital (Amornkitvikai et al., 2012). A low

capital-labour ratio indicates firms supplying products using more labour, these products can compete with foreign firms due to the lower price of labour. Therefore, firms with low capital-labour ratios might be more likely to export (Jongwanich and Kohpaiboon, 2008).

Vietnamese provinces are relatively autonomous and most business activities and transactions are affected by local government policies and environment (Nguyen et al., 2019). Therefore, my study controls for location or provinces. I use the PCI index instead of provincial dummy variables as it might be more meaningful to capture the business climate development in each province rather than local dummy variables. Provinces with higher PCI scores are in better rankings than provinces with lower ones.

Table 4.2 below shows the variable summary and definitions.

Table 4.2 Summary of variables

Variables	Min	Max	Mean	SD	Definition
Export participation	0	1	0.06	0.24	Equals 1 if firm exported and 0 otherwise
Export intensity (%)	0	100	45.16	40.18	The percentage of export over the total annual sale
Corruption spending (log)	0	13.82	7.97	1.40	Total informal payment spent in year-end.
Firm size (log)	0	7.44	1.82	1.17	Measured by the total number of employees
Productivity (log)	0.15	11.80	5.00	1.00	Equal net profit of firms divided by total employees of firms
Firm age (in years)	2	77	14.73	10.38	Measured by years from the established years to the year of survey
Owner age (in years)	17	94	45.89	10.68	Age of owners in full years
Capital labour ratio (log)	-1.10	10.13	5.18	1.29	Capital-labour ratio, measured by total capital of firms over the total number of employees
Professional education	0	1	0.36	0.48	Equal 1 if firm owner finished one of the forms of college or university degree, 0 otherwise.
Household	0	1	0.65	0.45	Equal 1 if firms are household enterprises and 0 otherwise
PCI	49.76	67.12	58.52	3.74	Provincial Competitiveness Index for each province in the survey

Source: Author's calculation from the data.

Table 4.2 shows that firms in the sample are relatively young, with a mean age of 15 years in operation. Only 6% of the total number of firms in the sample are exporters. Amongst export firms, export revenue accounts for about 45% of the total revenue on average.

In our sample, the size of firms is relatively small, in which more than 73% of firms having from 1 to 10 employees, and 21.2% of firms having from 11 to 50 employees, only nearly 6% having more than 50 employees. Enterprises are classified by size with three groups of enterprises, including micro, small, and medium-sized firms. This definition was subject to the Decree No 56/2009/ND-CP of the Vietnamese government. Firms are micro if they employ no more than 10 workers. Small enterprises employ between 10 and 200 persons whereas employees of medium firms are between 200 and 300 persons.

The sectors are used in this study as export might depend on the characteristic of sectors. Sectors are identified based on the Vietnamese Standard Industry Classification (VSIC) which should be added to the model. Some industries with a higher tendency for export for SMEs as export of different products are subject to various regulations, assistance, or restrictions. The sector of a firm is identified by the most critical good or service that firms produced. I use the two-digit International Standard Industrial Classification (ISIC) 2007 to classify sectors. After transforming the 4-digit ISIC in the survey into two digit-VSIC, the data sample ends up with 19 industries. The details of the industry are presented in Table 4.3 below.

Table 4.3 Sectors in the surveys

Number	Sector	Number of firms	Percentage (%)
1	Food and beverages	3,819	29.88
2	Tobacco	12	0.09
3	Textiles	536	4.19
4	Apparel	613	4.79
5	Leather	265	2.07
6	Wood	1,413	11.03
7	Paper	347	2.71
8	Publishing and printing	349	2.73
9	Refined petroleum etc.	34	0.27
10	Chemical products etc.	233	1.82
11	Rubber	698	5.45
12	Non-metallic mineral products	611	4.77
13	Basic metals	153	1.19
14	Fabricated metal products	2180	17.02
15	Electronic machinery, computers, radio, television, etc.	351	2.74
16	Motor vehicles etc.	95	0.74
17	Other transport equipment	38	0.3
18	Furniture, jewellery, music equipment, watches, toys, and medical equipment	964	7.53
19	Recycling etc.	15	0.12

Source: Author’s calculation from the data.

According to the table, food and beverages companies dominate the sample, accounting for 29.82%, followed by fabricated metal products with 17.02% and the wood sector with 11%. Each remaining industry covers less than 10% of the sample.

4.4.3 Model

As the dependent variable is binary, I use a Probit model to explain how corruption affects firm export probability. The export probability is a dummy variable that equals 1 if firm export in this year and 0 otherwise.

The Probit model is as follows:

$Probit\ (Export_{it}=1) = \Phi(\beta_0 + \beta_1 * Corruption\ spending_{it} + \beta_2 * Xit + u_{it})$

where Φ is the cumulative distribution of the standard normal distribution, and u_{it} is an error term. $Export_{it}$ is a binary variable which represents the export likelihood of firm *i* at time *t*. The variable equals 1 if firms export and 0 otherwise. Vector X_{it} is a vector of firms' characteristics.

I use the Tobit model to examine how corruption affects the export share of the firm in the total sale. As export intensity ranges from 0 per cent to 100 per cent for the dependent variable, Tobit is an appropriate method to estimate this type of dependent variable.

The Tobit model is as follows:

$$Export\ intensity_{it} = \alpha_t + \beta_1 * Corruption\ spending_{it} + \beta_2 * X_{it} + u_{it}$$

In which

$$Export\ intensity_{it} = \alpha_t + \beta_1 * Corruption\ spending_{it} + \beta_2 * X_{it} + u_{it}$$

If $0 < \beta_0 + \beta_1 * Corruption_{it} + \beta_2 * X_{it} + u_{it} < 100$

or $Export\ intensity_{it} = 0$ if $\beta_0 + \beta_1 * Corruption\ spending_{it} + \beta_2 * X_i t + u_{it} \leq 0$

or $Export\ intensity_{it} = 100$ if $\beta_0 + \beta_1 * Corruption\ spending_{it} + \beta_2 * X_i t + u_{it} \geq 100$

The vector X_{it} is a vector of firms' characteristics. The coefficient β_1 is the study's primary interest which shows the impact of corruption on export intensity, and it can be negative or positive.

4.5 Results

The results of Probit model on export participation or export likelihood are presented in Table 4.4 below. The coefficient of corruption is 0.18 and significant at the 1% level. The results are almost identical when I add more variables such as government assistance, labour productivity

in Model 2 and Model 3 in Table 4.4. This means that corruption spending is positively associated with the probability of exporting.

Table 4.4 Probit model on the impacts of corruption on export participation

	Export participation					
	(1)	(2)	(3)	(4)	(5)	(6)
Corruption	0.176***	0.162***	0.138***	0.116***	0.137***	0.116***
	(0.022)	(0.022)	(0.024)	(0.025)	(0.024)	(0.025)
Firm age	0.004	0.004	0.004	0.003	0.004	0.003
	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
Household	-0.793***	-0.756***	-0.758***	-0.945***	-0.762***	-0.941***
	(0.084)	(0.085)	(0.090)	(0.100)	(0.091)	(0.101)
Firm size	0.007***	0.007***	0.008***	0.009***	0.008***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Capital labour ratio	-0.014	-0.064**	-0.055*	-0.055	-0.056*	-0.054
	(0.025)	(0.029)	(0.031)	(0.034)	(0.032)	(0.034)
Labour productivity		0.119***	0.135***	0.167***	0.129***	0.164***
		(0.033)	(0.036)	(0.040)	(0.037)	(0.040)
Owner age			-0.002	-0.002	-0.002	-0.002
			(0.003)	(0.003)	(0.003)	(0.003)
Owner education			0.050	0.112	0.050	0.117
			(0.069)	(0.075)	(0.070)	(0.077)
PCI					0.017*	0.010
					(0.009)	(0.018)
Sector dummies included	No	No	No	Yes	No	Yes
_cons	-2.727***	-3.011***	-2.874***	-2.729***	-3.900***	-3.434***
	(0.223)	(0.238)	(0.294)	(0.338)	(0.670)	(1.154)
Obs.	4745	4719	4182	4155	4182	4155

The signs of other independent variables are as expected. Firm age does not have any significant impact on exports. A higher labour productivity firms are more likely to export than the lower ones. Similarly, larger firms are more likely to export.

Likewise, the capital ratio sign found in my results are also as expected and as found in the literature, which means higher capital-intensive firms will be less likely to export. This is because they are not competitive with host country firms in terms of cheap labour.

The coefficient of a household variable is negative and significant at 1% level for all estimators in Table 4.4. It means household firms are less likely to export. This result can be explained that household are typically informal firms. They are small scale and own limited resources. Thus, it is less likely for them to export their products.

The results are robust when we add more variables to the models. Each province in Vietnam has a different ranking for business climate, and most of the business transactions happen at the local level. Therefore, it is essential to control for province-level when examining the association between corruption and export. I add PCI to the model to control the business environment in each province. We can see that the results remain unchanged which are presented in Model 5, and Model 6 in Table 4.4. These results mean that corruption has a significantly positive impact on export at 1% level in all provinces in this study.

I also test the relationship between corruption spending and the export intensity of a firm. The observations in this model drop to around 300 because we only test how corruption impacts export intensity in export firms. The results in Table 4.5 show that corruption does not bring any significant effect on a firm's export intensity. Among control variables, only firm age, firm productivity, and firm owners or manager's educational level significantly affect firms' export intensity.

Table 4.5 Corruption and export intensity

	Export intensity					
	(1)	(2)	(3)	(4)	(5)	(6)
Corruption	0.892	0.816	-0.142	0.152	0.170	0.112
	(1.594)	(1.621)	(1.843)	(1.810)	(1.762)	(1.751)
Firm age	0.939***	0.905***	0.828**	0.902**	0.898**	0.954***
Household						
	(0.324)	(0.325)	(0.375)	(0.367)	(0.357)	(0.351)
Firm size	0.067	0.067	0.035	0.007	0.048	0.017
	(0.044)	(0.044)	(0.049)	(0.050)	(0.047)	(0.047)
Capital labour ratio	-0.561	-2.502	-3.485	-2.584	-4.317	-4.155*
	(2.069)	(2.435)	(2.727)	(2.593)	(2.643)	(2.509)
Labour productivity		4.271	4.689	6.676**	4.965*	7.304**
		(2.716)	(3.009)	(3.086)	(2.924)	(2.980)
Owner age			0.327	0.143	0.317	0.078
			(0.254)	(0.250)	(0.246)	(0.238)
Owner education			16.023***	17.452***	8.667	9.742*
			(5.558)	(5.590)	(5.613)	(5.633)
PCI					1.614**	0.342
					(0.762)	(1.272)
Sector dummies included	No	No	No	Yes	No	Yes
_cons	22.924	8.264	2.260	-23.497	5.820	67.047
	(17.782)	(19.450)	(25.028)	(27.964)	(59.757)	(87.888)
Obs.	309	307	248	248	248	248

The expected signs found in other results are also worth noting as they also reflect the recent literature on corruption. First, firms with higher productivity are associated with export probability and export intensity. This result aligns with results from previous studies (Aw and Hwang, 1995, Bernard and Jensen, 2004). This paper's results support the view that more productive firms will be more likely to export. This view is still valid for developed countries as found in a study where German firms had to be productive before exporting (Bernard and Jensen, 2004). In other words, highly productive firms are most likely to be exporters (Jongwanich and Kohpaiboon, 2008). Second, the capital-labour ratio harms the export probability of Vietnamese firms. This is also in line with the research of Jongwanich and Kohpaiboon (2008). This result implies that an industry with a low capital-labour ratio tends to export due to labour-intensive products. This is true for a country like Vietnam with cheap labour costs. Smaller and new firms are less likely to export than their old and big counterparts as small firms have weaker bargaining power with customs officials and possess limited resources. Older firms have higher export intensity because they may be able to familiarize themselves with new environments (Kelly and Amburgey, 1991) or have high degrees of legitimacy due to strong ties with government officials (Shinkle and Kriauciunas, 2010).

4.5.1 Endogeneity

In the two models, the endogeneity issue may be a concern as corruption is not exogenous. The independent variable seems to be endogenous for three reasons. First, there is a possible causal relationship between corruption and export. Firms that export may involve in other corruption because they have more chances to be exposed to government officials (Bassetti et al., 2015, Qi et al., 2020). Second, when examining the relationship between corruption and firm growth, Fisman and Svensson (2007) point out that the endogeneity of corruption arises as firms may concentrate on rent-seeking or productivity as a means of growth. Both strategies may lead to growth and it is unclear if either firm type will grow more rapidly. Similar arguments can be applied to the relationship between corruption and export. Firms can choose corruption to have the advantages of being exporters, or firms can improve their productivity to be more likely to export. It is not clear which pathway can push firms to export quicker. Therefore, there is a potential bivariate relationship between corruption and export. As a result, corruption is more likely to be endogenous. For this reason, the instrumental variable approach is an appropriate strategy. Third, corruption is self-reported by firms' owners or managers, which probably results in a measurement error even though the Vietnamese SME survey was conducted by research institutes and a foreign donor.

To address possible endogeneity, following Fisman and Svensson (2007), I use the average corruption amount by other firms operated within the same industry and province (excluding the focal firm itself) as an instrumental variable. The average corruption level of firms within the same country, sector and year can affect a firm's decision to pay a bribe but does not affect the firm' export decision. Accordingly, I apply the average corruption spending within the same province and industry as an instrumental variable. The reason for this is that other firms' expenditure on corruption in the same region and same industry can affect firms paying an informal fee due to a corrupt business environment. However, other firms' average corruption spending might not directly relate to firms' decision to become an exporter.

The results with IV models for export participation are represented in Table 4.A1 in the Appendix. The corruption variable is still positive and significant at the 1% level. These results confirm that firms that pay more bribes are more likely to export.

Similarly, I apply an instrumental variable to the export intensity model. The results are similar to what is found without an instrumental variable approach. Corruption still does not impact export intensity, which is presented in Table 4.A2 in the Appendix.

4.5.2 Robustness checks

I employ a different corruption measure to check the robustness of the results. I use another proxy for corruption which is corruption probability as a binary variable (firms that pay informal payment equal 1, and 0 otherwise). The regression with the new proxy of corruption is applied to both Probit and Tobit models. The results are presented in Table 4.A3 and 4.A4 in the appendix. The results show that corruption is still positively associated with export participation, significant at 1% whereas corruption probability is still not associated with export intensity.

4.6 Discussion

This paper's findings show that expenditure on corruption is positively associated with firm export probability. This result is in line with findings from Le et al. (2021). Their study uses firm-level data from 109 developing countries and finds that a firm that pays more in bribes is more likely to export. Their findings support the view of "greasing the wheels-of-trade" which means that firms pay bribes to facilitate government procedures related to licences, taxes, regulation, or other services.

As discussed in the literature review section, there are two reasons to explain this positive relationship. First, firms pay informal fees for accessing government information, resources, and support and then firms can have advantages to be exporters. Second, firms that pay bribes want to escape from corrupt government officials in home countries by selling their products to different markets with lower levels of corruption or are free of corruption. However, the view that Vietnamese SMEs seek to escape from such weak institutions might not apply in this situation. This is because Vietnamese SMEs are struggling to increase their ability to accumulate capital for investment, technology innovation, and product expansion due to their size and lack of experience in management abilities (Tran, 2016). These weaknesses significantly affect SMEs competitiveness in the context of extensive international integration.

The fitting reason for this is that firms that paid informal fees can access information or resources which support their production and facilitate their exports. Vietnamese corrupt firms can deal with government officials at ports and are more likely to export their products abroad or go through the border quicker than their non-corrupt counterparts. Firms want to use corruption to minimise government regulation burden and receive a public subsidy (Nguyen and Le, 2019). Most Vietnamese firms consider corruption as a greased wheel, and they engage in corruption to follow the "rules of the game" (Nguyen et al., 2016a). Therefore, Vietnamese SMEs seek to utilise informal payments to overcome their weakness in export activities.

On the other hand, the results do not indicate any significant impact of corruption spending on export intensity. This can be explained by the fact that a weak institutional environment in the home country might push firms to seek different geographic markets. However, this motivation for an export decision does not guarantee the success of firms abroad. The export performance or export intensity depends on firms' capabilities and how firms mobilise their resources (Singh, 2009). Indeed, export performance depends on technological competitiveness (Grossman and Helpman, 1991), R&D spending (Singh, 2009) or skilled workforce and technology access (Krammer et al., 2018). Moreover, firms should understand that corruption is only a tool that enables firms to approach and find new foreign markets. Paying bribes is only one step for firms when they want to export their products. If firms want to increase their export volume or export intensity, it depends a lot on their internal resources, their capability, and productivity.

The results also show that export is more costly for firms which can lead to three consequences. First, corruption can reduce the motivation for firms to export as due to corruption exporting is more costly for firms. Thus, firms might choose to stay in domestic markets rather than exporting. This may be one of the reasons why the number of Vietnamese SME exporters is still insignificant.

Second, firms still pay bribes but are not interested in export because firms can pay bribes for gaining advantages in their home countries. A competitive position in domestic markets created through corruption might reduce the incentive to explore foreign markets (Carney et al., 2016, Hundley and Jacobson, 1998, Lee and Weng, 2013). Lee and Weng (2013) find that bribery decreases exports when firms get preferential treatment in home countries; therefore, their interests in foreign markets will be lower.

Third, the results in Table 4.4 show that large firms are more likely to export. This might be because only large firms can bear the cost of export due to corruption and the benefits of export can offset the cost of corruption. Moreover, firm size also represents bargaining power, therefore large firms with strong bargaining power can obtain more benefits from paying bribes. As a result, they have more chances to export (To et al., 2021).

The results also reveal that corruption can affect which markets firms choose to sell their products in. These results also align with other findings. In particular, Olney (2016) show that corruption reduces the chances of a firm only selling in domestic markets. In other words, corruption is associated with the probability of exporting. As corruption brings additional costs associated with domestic markets, some more productive firms might enter foreign markets, as these markets can be more profitable than domestic ones. Therefore, when firms pay more bribes, they are more likely to export if they are productive. Similarly, Thanh et al. (2021) find that corruption lessens firms' motivation to sell in domestic markets while boosting firms' incentives to enter foreign markets. Moreover, when exporting, firms can choose indirect exports rather than direct exports to minimise their costs. Firms prefer to export indirectly through an intermediary as they want to lessen their exposure to government officials (Olney, 2016).

The positive association between corruption and export shows that in developing countries, firms can use corruption to facilitate their business activities. However, when institutions are more developed and well-established, firms that only depend on corruption may lose their advantage as they do not possess core competencies, which are critical sources of sustainable competitiveness (Roth and Kostova, 2003, Newman, 2000). Instead, firms should build competitiveness based on innovation and productivity. At the same time, it is important to remove government officials' corrupt activities as corruption can create unfair treatment of local firms. These issues might cause a severe problem in countries such a Vietnam where SMEs are a driving force toward economic development like. Therefore, the Vietnamese government should review and reform policies and institutions to create a fair business

environment so that all SMEs can have an equal chance to export their products. Removing corruption will bring more incentives for firms to seek international markets.

Overall, this paper's findings reveal that firms located in a country where market-supporting institutions are not well developed may use corruption as a mechanism to help them obtain critical resources. Since the government is a dominant resource provider in these countries (Charoensukmongkol, 2016), SMEs that lack internal resources rely heavily on government support to overcome their weaknesses. While the government's allocation of resources in those countries seems ineffective, firms may need to use corruption to increase their chances of gaining access to resources. This situation is more reasonable in a country like Vietnam, where corruption is prevalent and used to establish networks with government officials. Although many firm owners refuse to engage in bribery, fierce competitiveness and their firm's disadvantages may force them to bribe public officials to ensure their survival and access to critical resources (Rune, 2011).

4.7 Conclusion

The results show that corruption has a positive impact on export probability but has no effect on firms' export intensity. After controlling for endogeneity, corruption still has a significantly positive influence on firms' likelihood of exporting. The results imply that export is more costly for Vietnamese SMEs. Firms can pay bribes to expedite export procedures or to increase their chance of receiving valuable information or accessing resources that benefit their exports. Although corrupt firms are more likely to participate in foreign markets, corruption does not show any impact on their export intensities. The findings suggest that corruption hinders export opportunities of SMEs in Vietnam.

The study, however, has revealed some shortcomings. Corruption is a sensitive subject to disclose. Thus, firms may underreport the amount they spend on bribery. Accordingly, the results most likely underestimate the effect of corruption and face measurement errors (Fisman and Svensson, 2007). Therefore, a more appropriate identification for bribery would be useful for future research.

Second, it is possible that not all corruption activities affect export performance. For example, corruption related to obtaining licenses and permits or registration to operate in domestic markets might not affect the foreign market. This study is unable to ascertain which bribes firms pay for these purposes. Therefore, the study leaves room for future research to identify which type of corruption is related to export motivation.

Third, this paper uses data from manufacturing SMEs, so its findings may not represent the whole economy and large enterprises that have different resources and distinct business behaviours. Therefore, future research can be extended to larger firms to draw further conclusions regarding the relationship between corruption and export in developing countries. Finally, further research on the impact of corruption on the costs of exporting compared to the costs of staying in domestic markets is needed to supplement the findings of this paper.

Appendix

Table 4.A1 Instrumental variable model and export participation

	Export participation					
	(1)	(2)	(3)	(4)	(5)	(6)
Corruption	0.521***	0.521***	0.540***	0.505***	0.565***	0.508***
	(0.131)	(0.136)	(0.127)	(0.114)	(0.132)	(0.124)
Firm age	0.008**	0.008***	0.008**	0.006*	0.008**	0.006*
	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)
Household	-0.402*	-0.387*	-0.352*	-0.487***	-0.323	-0.489**
	(0.220)	(0.210)	(0.206)	(0.185)	(0.224)	(0.200)
Firm size	0.002	0.002	0.002	0.003	0.001	0.003
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)
Capital labour ratio	-0.041	-0.056*	-0.055*	-0.038	-0.055*	-0.038
	(0.034)	(0.030)	(0.031)	(0.034)	(0.030)	(0.034)
		(0.071)	(0.073)	(0.076)	(0.074)	(0.078)
Labour productivity		0.015	0.005	0.052	-0.002	0.051
		(0.061)	(0.059)	(0.061)	(0.060)	(0.063)
Owner age			-0.000	-0.002	0.000	-0.002
			(0.003)	(0.003)	(0.003)	(0.003)
Owner education			0.013	0.053	-0.001	0.042
					(0.044)	(0.048)
PCI					-0.003	0.003
					(0.010)	(0.011)
Sector dummies included	No	No	No	Yes	No	Yes
_cons	-5.612***	-5.503***	-5.679***	-3.630*	-5.531***	-4.789
	(0.618)	(0.508)	(0.456)	(1.856)	(0.574)	(3.107)
/athrho2_1	-0.618***	-0.630***	-0.739***	-0.170	-0.758***	-0.231
	(0.202)	(0.206)	(0.204)	(0.383)	(0.229)	(0.466)
/lnsigma2	0.199***	0.184***	0.195***	0.172***	0.194***	0.170***
	(0.010)	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)
Obs.	4603	4578	4056	4051	4056	4051

Table 4.A2 Instrumental variable model and export intensity

	Export intensity					
	(1)	(2)	(3)	(4)	(5)	(6)
Corruption	10.184	14.056	20.594	-7.901	21.302	5.719
	(12.956)	(20.505)	(21.467)	(28.197)	(18.329)	(27.143)
Firm age	0.045	0.023	-0.055	0.050	-0.037	-0.003
	(0.070)	(0.099)	(0.109)	(0.126)	(0.096)	(0.121)
Household	-2.066	-3.835	-4.953	-1.487	-5.219	-3.686
	(2.939)	(2.779)	(3.532)	(2.980)	(3.471)	(2.722)
Firm size	0.635*	0.635*	0.726	0.803**	0.723*	0.808**
	(0.034)	(0.034)	(0.039)	(0.047)	(0.036)	(0.036)
Capital labour ratio	-0.551	-2.522	-3.485	-2.584	-4.387	-4.145*
		(0.383)	(0.446)	(0.378)	(0.434)	(0.348)
Labour productivity		0.672	1.971	7.029*	2.249	7.029*
		(4.815)	(4.387)	(3.860)	(4.258)	(3.927)
Owner age			0.267	0.054	0.249	-0.005
			(0.299)	(0.257)	(0.300)	(0.237)
Owner education			6.676	17.778**	-0.703	7.520
			(7.743)	(7.779)	(7.619)	(6.755)
PCI					1.528	-0.535
					(0.933)	(2.047)
cons	-42.843	-80.971	-153.134	51.098	-133.181	84.247
	(106.310)	(157.208)	(174.238)	(232.830)	(173.602)	(338.816)
Obs.	301	299	240	240	240	240

Table 4.A3 Corruption probability and export participation

	Export participation			
	(1)	(2)	(3)	(4)
Corruption	0.145***	0.108**	0.120**	0.128***
	(0.045)	(0.045)	(0.048)	(0.048)
Firm age	0.001	0.003	0.002	0.002
	(0.002)	(0.002)	(0.003)	(0.003)
Household	-0.976***	-0.904***	-0.847***	-0.840***
	(0.056)	(0.057)	(0.061)	(0.061)
Firm size	0.009***	0.008***	0.009***	0.009***
	(0.000)	(0.000)	(0.001)	(0.001)
Capital labour ratio (log)	0.060***	-0.019	-0.014	-0.018
	(0.018)	(0.021)	(0.022)	(0.022)
Labour productivity (log)		0.200***	0.195***	0.185***
		(0.024)	(0.026)	(0.026)
Owner age			-0.001	-0.001
			(0.002)	(0.002)
Educational level			0.142**	0.138**
			(0.055)	(0.055)
PCI				0.024***
				(0.007)
Sector included	Yes	Yes	Yes	Yes
_cons	-1.795***	-2.474***	-2.498***	-3.857***
	(0.122)	(0.149)	(0.188)	(0.434)
Obs.	12661	12633	11782	11782

Standard errors are in parenthesis
*** *p<0.01, ** p<0.05, * p<0.1*

Table 4.A4 Corruption probability and export intensity

	Export intensity			
	(1)	(2)	(3)	(4)
Corruption	-5.121	-7.200	-6.585	-5.257
	(4.734)	(4.738)	(5.215)	(5.251)
Firm age	1.210***	1.119***	1.310***	1.289***
	(0.299)	(0.297)	(0.345)	(0.343)
Household	-8.267	-4.711	1.767	2.708
	(13.433)	(13.370)	(14.080)	(14.025)
Firm size	-0.031*	-0.028*	-0.070***	-0.069***
	(0.017)	(0.017)	(0.022)	(0.022)
Capital labour ratio (log)	2.707	-0.603	-0.645	-0.018
	(1.883)	(2.083)	(2.339)	(2.360)
Labour productivity (log)		8.927***	8.813***	7.686***
		(2.498)	(2.743)	(2.809)
Owner age			-0.043	-0.005
			(0.229)	(0.229)
Educational level			26.212***	26.757***
			(5.154)	(5.145)
PCI				1.253*
				(0.749)
Sector included	Yes	Yes	Yes	Yes
_cons	17.092	-18.819	-28.367	-101.745**
	(12.619)	(16.144)	(20.848)	(48.713)
Obs.	467	465	388	388

Standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

Chapter 5 Does gender matter for corruption in business? Evidence from Vietnamese SMEs

Abstract

Corruption has been shown to diminish the business climate and gender equality in developing countries. This chapter examines the relationship between corruption and gender in business by using Vietnamese SMEs panel data from 2011 to 2015. I find that female-owned firms are negatively associated with the likelihood of corruption compared to their male counterparts. Also, household businesses and unregistered firms pay fewer bribes compared to non-household and formally registered firms. Moreover, firms that spend more time dealing with government officials are more likely to engage in corruption. The paper suggests that gender equality programs may help improve the business environment in Vietnam.

5.1 Introduction

Recent literature has sparked a debate on whether women are less corrupt than men (Dollar et al., 2001, Swamy et al., 2001, Agerberg, 2014, Michailova and Melnykovska, 2009). There is evidence that corruption is less serious where women take up larger shares of parliamentary places and senior positions in the government systems and occupy a larger share of the workforce (Dollar et al., 2001, Swamy et al., 2001, Paweenawat, 2018). However, some researchers argue that institutional structures determine corruption levels and lead to an increase in women's participation in politics (Esarey et al., 2013, Sung, 2003). Despite the ongoing debate, international organizations, scholars, and policymakers have suggested that mainstreaming gender in certain areas is one way to reduce corruption and boost the success of anti-corruption reforms (Bauhr et al., 2019).

Alongside corruption and gender in political life, research on the links between corruption and gender in business is also worth mentioning. First, women in a public system play the role of bribe-takers, while their roles in business are bribe payers. Therefore, the underlying mechanism that affects their corrupt behaviours in business and politics cannot be identical. More research on corruption and business is needed to investigate the roles of women in fighting corruption in business life. Second, systematically different behaviours between females and males will affect their perceptions about corruption or dishonest activities. In return, entrepreneurs' perceptions of corruption affect their decision-making and managerial roles, thereby influencing employees' attitudes and behaviours, and firm development

strategies. Third, research with expected results of a clean and fair business climate for women will encourage more women to own businesses. This is one way to raise women's well being, narrow the entrepreneurship gender gap, and enhance gender equality.

However, the research on gender and corruption in business is still limited and shows contradictory results. Breen et al. (2017) and Trentini and Koparanova (2013) suggest that female owners are less associated with corruption incidence. Jha and Sarangi (2018) show that women affect corruption if they are present in politics, not in the economic area. In other words, women may be able to diminish corruption but only if they are in positions as policymakers whereas women do not have any influence on corruption if they are in positions of power in the business sector.

Moreover, there is a sizeable literature on the impact of corruption on business performance in Vietnam (Vu et al., 2018, Nguyen and Van Dijk, 2012, Dang, 2016, Tran et al., 2016). However, so far, no study has specifically examined the relationship between gender and corruption in Vietnam. As such, there is a considerable gap in the literature on the relationship between gender and corruption in business both in theory and in empirical evidence. Thus, it is still desirable to examine whether corruption varies across gender in business in general and seek evidence in Vietnam in particular.

By addressing this question, this paper first contributes to wider empirical evidence on corruption and gender in business in developing countries. Second, by relying on Vietnamese SME data, this study contributes to the literature on corruption in that it uses panel data in a single country whereas there are only a few studies that have used panel data to estimate the gender-corruption relationship (Cheung and Hernández-Julián, 2006). Third, most previous studies use a corruption perceptions index (Samimi and Hosseinmardi, 2011, Dollar et al., 2001, Sung, 2003) or a control of corruption indicator (Sung, 2012, Hao et al., 2018, Jha and Sarangi, 2018) when examining the relationship between corruption and gender. Therefore, this paper complements the measurement of corruption by constructing a binary variable for corruption probability and a continuous variable for corruption intensity at the firm level.

The results suggest that women-owned firms are less likely to engage in corruption with government officials than male-owned firms. Where women own formal firms and non-formal firms, then the formally registered firms will engage in corrupt activity more than unregistered ones. It is recommended that female entrepreneurs might be more trustworthy partners for a foreign or local business wishing to conduct business in Vietnam. In addition, household businesses are less likely to be asked for bribes due to fewer contacts with government officials. This can be one reason why firms prefer to stay informal, as they fear being engaging in

corruption with public officials and want to avoid transaction costs. Also, spending time with government officials in daily business management will increase the chance of being exposed to corruption.

The rest of the paper is presented as follows. Part 2 provides a literature review on the relationship between corruption and gender in general and corruption and gender in business. Part 3 describes the Vietnamese background on corruption and SME development. Data, variables, and econometrics models are presented in Part 4. Part 5 presents empirical results on how gender matters corruption probability and corruption intensity. Part 6 discusses why females are less likely to corrupt than males when running businesses. Part 7 concludes the research and provides some policy recommendations for entrepreneurs and the Vietnamese government.

5.2 Literature review

5.2.1 Corruption and gender

Research from the early 2000s suggests that the increasing presence of women in public life is associated with low levels of corruption (Swamy et al., 2001, Dollar et al., 2001). Women can be associated with a reduction in corruption in different ways. First, women are less likely to accept bribes. As a result, the incidence of corruption in legislative systems is lower where women hold more seats. Second, females holding parliamentary seats may influence corruption laws or promote corruption eradication in the public agenda. In other words, they can influence corruption by encouraging the media and other members of civil society to focus on corruption elimination (Swamy et al., 2001). Jha and Sarangi (2018) argue there may be a lower misappropriation of funds under policies that were proposed by female parliamentarians.

However, other research finds that the relationship between gender and corruption depends on various political and social backgrounds. Sung (2003) suggests that the association between gender and corruption may be accidental and not causal. This relationship depends on higher political liberalization, which is unstable and mainly caused by liberal democracy. Esarey et al. (2013) find that women are less tolerant of corruption and less likely to engage in corruption in democratic countries but have no effect on corruption in autocratic countries. Therefore, the correlation between female presence in government and corruption is diminished once controlling for the influence of democratic institutions (Sung, 2003).

Another view claims that women are not naturally associated with a low level of corruption. Corruption can be reduced, not because of the higher representation of women, but because

of a specific political system that can fight against corruption (Sung, 2012). Once women become more integrated into political networks, the effects of gender on corruption fade (Sung, 2012). As women are newcomers or occupy fewer positions in the political or business sphere, they are not familiar with benefit exchange rules. Once they can enter a system, they try to assert their position by acting honestly and trustworthily. Women could behave the same as men if they are able to access the positions as men. If there is a fall in corruption after increasing the number of women in positions of power, it may be due to the presence of outsiders (Goetz and Change, 2007). Therefore, if women occupy more senior management positions, there is no evidence of a relationship between women and less corruption (Chene and Fagan, 2014).

On the other hand, results on gender and corruption are mixed (Sung, 2012). While a higher female ratio in parliamentary systems and the labour force can lower corruption, more women in secondary education are positively associated with corruption. Meanwhile, the number of women, in general, has insignificant impacts on corruption. Thus, the relationship between corruption and gender might vary conditional on different female groups (Hao et al., 2018). Following Sung (2012), Esarey et al. (2013) find evidence that a gender gap in corruption attitudes and behaviours is noticeable in democracies but that it is less prevalent or does not exist in autocratic systems. Similarly, Cheung and Hernández-Julián (2006) find that states with higher rates of female participation also have lower levels of corruption in cross-section data of the US states, but they find no correlation between gender and corruption when using panel data and fixed effects.

The mixed relationship between corruption and gender is also expressed in experiments as actual behaviour may be different from survey responses (Chaudhuri, 2012). Alatas et al. (2009) show that the gender and corruption relationship significantly depends on the culture and social context. For instance, Australian women accepted fewer bribes than Australian men. Meanwhile, no difference in gender towards corruption was observed in India, Singapore, and Indonesia. Thus, the difference in men and women's attitudes toward corruption does not seem to be robust and depends on cultural context. Another experiment also indicates no apparent differences between women and men regarding bribe acceptance (Rivas, 2013).

The difference in corruption may depend on the risk acceptance of females and males. Some research finds that gender makes no difference in corruption if there is no monitoring under the principal-agent framework. Schulze and Frank (2003) find that women are less willing to accept bribes than men if bribery can be detected and punished, but there is no gender gap in bribe acceptance where there is no knowledge of the risks in advance. Moreover, Armantier

and Boly (2011) find that men and women were equal in accepting a bribe without monitoring. On the other hand, when being monitored or facing the risk of being caught, women show a significantly lower probability of accepting bribes (Sung, 2003). Similarly, in another experiment, men and women have the same likelihood of accepting a bribe when they are not put under controls whereas women are less likely to accept bribes with controls in place (Schulze and Frank, 2003). This may be because women believe they are punished more harshly than men as society expects their behaviour differently from men which have been shown in American politics (Armantier and Boly, 2008).

In developed countries, there is also considerable evidence that countries with a high number of women in government show lower levels of corruption. Women more often choose to withdraw from corrupt activities in Mexico when considering the costs and benefits of corruption (Wängnerud, 2010). In Europe, countries with a high number of women elected tend to be less corrupt than countries with a low number of women elected. This pattern is the same across regions in Europe (Wängnerud, 2015). Women's participation in local assemblies is consistent with a lower level of corruption in 20 European Union countries (Bauhr et al., 2019).

Female participation in the labour market and government is usually associated with less involvement in corruption than males in developing countries, including Argentina, Chile, China, Indonesia, Malaysia, and the Philippines (Samimi and Hosseinmardi, 2011). Such links are also observed in transition countries such as Central and Eastern European countries (Michailova and Melnykovska, 2009). Moreover, female mayors in Brazil are less likely to engage in corruption than their men counterparts (Brollo and Troiano, 2016). Even though women are less likely to corrupt, they are less likely to be re-elected than men. In India, villagers are less likely to pay bribes for obtaining service when village leaders are women. In Ghana, limits in opportunities and networking make women less corrupt than men. Hence, cultural rather than natural characteristics of women and men influences the difference between them towards corruption (Alolo, 2007).

5.2.2 Gender and corruption in business

In contrast to corruption and gender in politics, the relationship between gender and corruption in business life is seldom mentioned in the literature. It might be due to the different roles of women towards corruption in public life and business. Women participation in political life plays the role in accepting bribes whereas they are bribe payers in business. Therefore, the way they express their attitude or action towards corruption is not the same as the way they do in public life.

Swamy et al. (2001) are some of the first scholars to examine the correlation between gender and corruption in the economic sector. Using an enterprise survey in Georgia, they show that male-owned firms are more likely to be engaged in bribery than their female counterparts when those firms are in contact with governments. The probable reason is that women are less likely to belong to bribe-sharing "old boy" networks. Hence, women might be less likely to be asked for bribes. Another reason is that women tend to have less individual or group experience in the labour force, thus they need time to gain knowledge on how to engage in corruption (Swamy et al., 2001). Similarly, Trentini and Koparanova (2013) also find that female-owned firms have a significantly lower propensity to bribe than their male counterparts. The authors infer that because women mostly run micro and small firms, they have limited networks and fewer opportunities to meet public officials. Thus, it is easier for female owners to escape a corrupt official's attention.

In addition, female and male workers or employers reveal different actions when facing corruption. In an experiment undertaken by Rivas (2013), both the frequency of bribes and the amounts offered are higher if participants are male and they take a role as bribe offerers. This was later confirmed by empirical results from Breen et al. (2017) who show that female owners are associated with a lower percentage of bribery spending over total annual sales. In contrast, female managers consider corruption less an obstacle for their companies, and female-owned businesses are less prone to bribery. Jagger and Shively (2015) also find that women in Uganda are less likely to pay bribes than men in charcoal markets. Males offer larger bribe amount when they are in the private context than they are in public, whereas females pay smaller bribes in both situations (Lan and Hong, 2017).

On the other hand, some empirical evidence shows no difference between males and females regarding bribe paying. For example, female owners and females in top management positions of firms are equally associated with bribery with their male counterparts in Latin American countries (Wellalage et al., 2020). Jha and Sarangi (2018) reach a similar conclusion when they affirm that female participation in economic activities does not affect corruption in a sample of 17 European countries.

5.3 Vietnamese SMEs and corruption

Corruption is among the top constraints to achieving rapid, sustainable growth with equality in Vietnam. According to the Law on Anti-Corruption, "corruption means an office holder's abuse of his or her official capacity for personal gain" (Vietnam National Assembly, 2018). The 2018 Law on Anti-Corruption is the first law to mention corruption in the private sector as the

previous laws mostly focused on the public sector. Accordingly, corruption includes "embezzlement, taking bribes, bribing or brokering bribery for taking advantage of one's influence over the operation of the enterprise or organization, or for personal gain" in which gifts are illegal by law, but exceptions are made for gifts with a value of less than VND 500,000.

Despite improvements in curbing and detecting corruption over the past few years, corruption is still widespread throughout the country. Businesses related to land administration, the construction sector, and public administration are most likely to engage in corruption. It is found that up to 58% of domestic enterprises are still harassed by public officials and 54% of enterprises pay unofficial fees (Mekong Business Initiative, 2016). As such, Vietnam ranked 117 out of 180 countries in 2018 in terms of the Corruption Perceptions Index (CPI) (Transparency International, 2019). Vietnam is more corrupt than other countries in the region, including Indonesia, Thailand, Malaysia, and the Philippines (Das, 2019).

Moreover, inspection remains a burden for many Vietnamese private businesses. VCCI and USAID (2015) found that up to 74% of businesses have been subject to inspection in all fields in 2015. The larger the Vietnamese enterprises are, the higher the burden of inspection is. On average SMEs normally receive one or two inspections during the year. Meanwhile, large-scale enterprises have about three inspections annually. Many enterprises claim that inspection content was duplicated (VCCI and USAID, 2015). In addition, the time used for tax inspections increases with the scale of business. For micro-businesses, the average time each tax inspection takes is about 3 hours for a micro firm and 7 hours for small and medium-sized enterprises. Meanwhile, large-scale businesses have to spend about 40 hours for each tax inspection (VCCI and USAID, 2015).

Regarding female entrepreneurship, Vietnam has fewer differences between men and women's legal status compared to many other economies that have similar development status (IFC, 2017). In 2018, women ran more than 30% of businesses in Vietnam which places the nation in first place in Asia, and sixth out of 53 surveyed economies in terms of the number of women-owned businesses (Mastercard, 2018). However, 99% of women-owned businesses in Vietnam are micro and small-medium enterprises (IFC, 2017). The Vietnamese government has set a target of having one million enterprises by 2020, of which 35% will be headed by women (National Assembly of the Socialist Republic of Vietnam, 2010).

5.4 Data and methodology

5.4.1 Data

The panel dataset is compiled from the SME surveys that are conducted by the Central Institute for Economic Management (CIEM), the Institute of Labour Science and Social Affairs (ILSSA) and the Department of Economics at the University of Copenhagen. The surveys were conducted in 2011, 2013, and 2015 and covered around 2,600 private manufacturing firms in 10 cities and provinces. The surveys enumerated firm history, sales, investment, social networks, informal payments, and trade indicators. The surveys also gave information on firm owner characteristics including age, gender, educational level, occupation history, and family member information.

I sort the data in the following ways. First, I only keep firms that have legal status as private ownership since my research only focuses on the private sector. Second, as this study concerns people in decision-making positions, I eliminate firms with respondents who are managers and only keep firms that have owners who are respondents to the surveys. I also drop firms with more than 300 employees as this study focuses on SMEs.

5.4.2 Variables

Research on corruption in Vietnam employs various ways to measure corruption. The most common measurement is corruption probability and corruption intensity. Corruption is identified as a dummy variable if firms pay informal fees, whilst bribe intensity is measured as the ratio of informal payment over total firm revenue (Bai et al., 2019, Rand and Tarp, 2012, Demenet et al., 2017, Nguyen et al., 2016a, Vu et al., 2018, Tran et al., 2016). Some papers use the Corruption Perceptions Index (CPI) from Transparency International (Tran et al., 2016) or data from the Provincial Competitiveness Index (PCI) published every year by the Vietnam Chamber of Commerce and Industry (VCCI) combined with data from the General Statistics Office (GSO) survey (Dang, 2016, Nguyen et al., 2016b, Truong, 2020, Bai et al., 2019) for corruption research.

This study uses corruption probability and corruption intensity as dependent variables. The questionnaire allows us to identify the likelihood of spending on corruption when firms answer the question of paying informal fees or not in the last 2 years. Meanwhile, I measure corruption intensity by the percentage of corruption spending over an annual revenue over the last 2 years.

The control variables are constructed based on the previous literature and specific characteristics of Vietnamese SMEs. Location is an essential determinant for bribery.

Corruption spending in larger cities may be higher than in small provinces because more significant and varied economic transactions in big cities can be associated with firms' contact with government officials (Svensson, 2003).

Firm size is measured by the number of employees. Firm size can affect the ability to pay bribes and determine bargaining power or connections (Swamy et al., 2001). Larger firms might have higher corruption probabilities or spend more money on corruption due to large economic transactions. Firm age is also an essential variable in the corruption model. Old firms are more likely to offer bribes since they can accumulate higher sales over time or pay more to invest in machinery (Svensson, 2003).

In addition to this, profit per employee represents the ability to pay bribes. Formally registered firms are also essential for determining corruption (Svensson, 2003) as they are influenced by the frequency of connections with public sectors. Similarly, the legal status of a firm affects their ability to pay bribes. Household firms tend to be more informal than other firm types and have different legal requirements (Rand and Tarp, 2012). Therefore, household establishments will affect corruption probability and intensity.

The ability to refuse to pay is represented by the capital-labour ratio. The capital-labour ratio is a proxy for a firm's refusal power since technology will strengthen the firm's bargaining position (Rand and Tarp, 2012). Export and import activities also influence the likelihood of being corrupted. Svensson (2003) finds that firms pay bribes if firms export, import, or require public infrastructure services.

The propensity for being asked for a bribe also depends on individual characteristics, including age and education. Hirschi and Gottfredson (2000) indicate that age is negatively correlated with rule breaking. Well-educated entrepreneurs are expected to capture bribery opportunities because they enjoy superior cognitive skills (Marvel and Lumpkin, 2007). Also, highly educated people are more likely to be asked for bribes because of their higher-earning ability (Mocan, 2004).

Table 5.1 below shows the variable summary and definitions.

Table 5.1 Summary of variables

Variables	Min	Max	Mean	SD	Definition
Corruption probability	0	1	0.37	0.48	Equal 1 if firm pay informal fees, 0 otherwise
Corruption intensity (%)	0	12.31	0.11	0.37	The percentage of corruption spending over annual revenue
Female	0	1	0.10	0.30	Equal 1 if owners are females and 0 if owners are male
Firm size	1.50	11.71	6.63	1.63	Measured by a log of the total number of employees
Profit per employee (in million VND)	-9.09	2.20	-3.38	0.84	Equal net profit of firms divided by total employees of firms
Firm age	0	74	15.04	10.17	Measured by years from the established years up to the year of survey
Owner age	21	94	48.1	9.95	Age of owners in full years
Capital labour ratio	0.048	9.91	5.37	1.25	Capital labour ratio, measured by total capital of firms over the total number of employees
General education	0	1	0.64	0.48	Equal 1 if firm owner finished high school, and 0 otherwise
Professional education	0	1	0.16	0.36	Equal 1 if firm owner finished one of the forms of college or university degree, 0 otherwise.
Location	0	1	0.38	0.48	Equal 1 if firms located in three cities (Ha Noi, Hai Phong, Ho Chi Minh City) and 0 if located in other provinces (Phu Tho, Ha Tay, Nghe An, Quang Nam, Khanh Hoa, Lam Dong, Long An)
Household	0	1	0.74	0.44	Equal 1 if firms are household enterprises and 0 otherwise
Formally registered firm	0	1	0.72	0.45	Equal 1 if firms are formally registered and 0 otherwise
Management time (%)	0	30	1.82	2.21	The percentage of management's working time with government officials each month.
Inspection	0	1	0.13	0.33	Equals 1 if firms are inspected by government officials, 0 otherwise
Export	0	1	0.04	0.20	Equals 1 if firm exported and 0 otherwise
Import	0	1	0.15	0.12	Equals 1 if firm imported and 0 otherwise

Source: Author's calculation from the data.

This table shows that about 37% of firms in the sample paid bribes over the period studied period. However, spending on corruption is relatively small. On average, firms only pay 0.11%

of their revenue on corruption. The maximum payment for corruption is about 12.31 %. This might be because 74% of the firms surveyed are household business. Thus, they do not spend much on corruption. Also, this only reflects manufacturing firms, meaning that corruption may not take up a significant portion of their total revenue. Therefore, this will affect the average corruption spending over the sample. Although firms in this sample did not spend much on corruption, this does not mean that Vietnamese firms pay less for corruption. More generally, another sample shows that 7.1% of firms report that corruption accounted for more than 10% of their turnover (VCCI and USAID, 2018).

On average, more than 60% of firm owners finished high school, but only 16% have college or university degrees. More than 70% of firms are formally registered. This number reflects in Vietnam, informal firms are still popular and occupy significantly among operating firms. On average, firms spend 1.8% of management time working with government officials, and 13% of firms have been inspected one time per year during the period. Only a small proportion of firms engage in export activity and about 15% of firms import their inputs.

Table 5.2 shows the summary statistics and comparison between firms run by men and those run by women. Female-owned firms have more indicators that under-performance than those of their male counterparts. However, females own more firms located in cities than males and also run more household firms than males. This reflects the fact that women in cities have more opportunities to set up their own businesses. Also, women are more likely to set up their firms in the form of household businesses than in terms of other forms of legal ownership since household businesses are involved in less complicated registration procedures. Moreover, firms owned by women have fewer inspections by government officials than those of their peers. Female-owned firms are slightly smaller in terms of profit, firm size and capital-labour ratio than male-owned firms.

Table 5.2 Summary statistics by gender

	Female-owned firm (%)	**Male-owned firms (%)**
Corruption (Yes=1)	0.33	0.38
Percentage of corruption over annual sale (%)	0.10	0.11
Firm size (log of the number of employees)	1.41	1.56
Capital-labour ratio (KL)	5.27	5.41
Profit per employee	-3.38	-3.37
Inspection (Yes=1)	0.14	0.13
Management time (%)	1.80	1.83
Formal (Yes=1)	0.72	0.72
Firm age (in years)	15.08	15.03
Location (city=1)	0.411	0.36
Household firm (Yes=1)	0.75	0.74
Owner age (in years)	47.69	48.33
Finish secondary school (Yes=1)	0.59	0.66
Finish college or university (Yes=1)	0.15	0.16
Number of observations	1,551	3,905

Source: Author's calculation from the data.

5.4.3 Model

Corruption probability

In this paper, I treat unofficial payments or bribes as corruption probability. The corruption probability is estimated by a logit model. Corruption is a dummy variable, which equals 1 if a firm pays informal fees and 0 otherwise. The logit model can be expressed as follows:

$$Log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 * female_{it} + \beta_2 * X_{it} + u_{it}$$

We also use the random effect Logit model, and it is written as:

$$Log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 * female_{it} + \beta_2 * X_{it} + v_i + \varepsilon_{it}$$

In both models, p is the probability that firms pay bribes, $female_{it}$ represents the owner's gender of firm *i* at time *t* which equals 1 if owners are females and 0 otherwise. X_{it} is a vector of control variables of firm *i* at time *t*, including firm characteristics and owner characteristics. It is assumed that u_{it} follows a normal distribution with mean 0 and variance σ^2. In the random

logit model, v_i is the random effect, ε_{it} is an error term. Both models also include year dummies (y_t) to account for potential time effects.

Corruption intensity

Corruption intensity is measured by the percentage of unofficial payments over firm revenue. I use a Tobit model to estimate the links between the gender of firm owners on corruption intensity. Recent corruption studies have used a Tobit model for their empirical strategy (Diaby and Sylwester, 2015, Breen et al., 2017, Jagger and Shively, 2015). This method, rather than OLS, is employed because corruption intensity is numerical and continuous but censored between 0 and 100.

The Tobit model has the following forms:

$$Corruption\ intensity_{it} = \beta_0 + \beta_1 * female_{it} + \beta_2 * X_{it} + u_{it}$$

in which

$$Corruption\ intensity_{it} = \beta_0 + \beta_1 * female_{it} + \beta_2 * X_{it} + u_{it}$$

if $0 < \beta_0 + \beta_1 * female_{it} + \beta_2 * X_{it} + u_{it} < 100$,

or $Corruption\ intensity_{it} = 0$ if $\beta_0 + \beta_1 * female_{it} + \beta_2 * X_i t + u_{it} \leq 0$

or $Corruption\ intensity_{it} = 100$ if $\beta_0 + \beta_1 * female_{it} + \beta_2 * X_i t + u_{it} \geq 100$

in which $corruption\ intensity_{it}$ is the percentage of informal payment over total revenue of firm *i* at time *t*, $female_{it}$ represents the owner's gender of firm *i* at time *t* which equals 1 if owners are females and 0 otherwise, X_{it} is a vector of control variables, including firm characteristics and owner characteristics.

5.5 Results

Table 5.3 presents the results of the logit model. The coefficient of female-owned firms is negatively significant from 0. This means that women-owned firms are less likely to engage in corruption than their male peers. The logit model indicates that female-owned firms are 45.3% less likely to pay bribes than their male peers.[1] When we control for more firm characteristics in the full regression, the probability of paying bribes of women-owned firms is diminished,

[1] exp(-0.187)/(1+(exp(-0.187)=45.3%

but still significant at 1% level and women-headed firms are 44.8% less likely to be corrupted than their men counterparts.

Table 5.3 Logit regression on corruption probability

	Corruption probability			
	(1)	(2)	(3)	(4)
Female	-0.187***	-0.181**	-0.184***	-0.209***
	(0.070)	(0.070)	(0.071)	(0.071)
Profit per employer	0.079**	0.071*	0.071*	0.064
	(0.039)	(0.040)	(0.040)	(0.040)
Capital labour ratio	0.122***	0.128***	0.129***	0.103***
	(0.028)	(0.028)	(0.028)	(0.029)
Firm size	0.557***	0.567***	0.579***	0.512***
	(0.041)	(0.042)	(0.043)	(0.044)
Household	-0.548***	-0.501***	-0.571***	-0.466***
	(0.083)	(0.084)	(0.091)	(0.093)
Location	0.506***	0.468***	0.490***	0.449***
	(0.067)	(0.068)	(0.069)	(0.070)
Firm age		-0.011***	-0.010***	-0.009**
		(0.003)	(0.004)	(0.004)
Export		-0.147	-0.145	-0.140
		(0.161)	(0.161)	(0.162)
Import		0.148	0.219	0.198
		(0.279)	(0.280)	(0.280)
Owner age			-0.004	-0.004
			(0.003)	(0.003)
General education			0.055	0.038
			(0.073)	(0.073)
Professional education			-0.281***	-0.286***
			(0.098)	(0.098)
Formally registered firm				0.371***
				(0.089)
Inspection				0.296***
				(0.103)
Management time				0.056***
				(0.015)
year2013	0.323***	0.326***	0.320***	0.348***
	(0.076)	(0.076)	(0.076)	(0.077)
year2015	-0.001	0.033	0.022	-0.132
	(0.077)	(0.078)	(0.079)	(0.089)
Constant	-1.691***	-1.636***	-1.445***	-1.638***
	(0.264)	(0.266)	(0.298)	(0.302)
Observations	5,350	5,330	5,330	5,310
Log Likelihood	-3,088.813	-3,070.269	-3,065.470	-3,030.709
Akaike Inf. Crit.	6,195.626	6,164.538	6,160.940	6,097.418

Standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

The results are in line with most research on gender and corruption in business. In Vietnam, more male entrepreneurs than their female peers bribe authorities to simplify registration procedures and avoid taxation (Hampel-Milagrosa et al., 2010). Trentini and Koparanova (2013) suggest that women owners have a lower propensity to bribe than their men counterparts. They explain that because women mostly run firms that are of micro and small sizes, they, therefore, have limited networks and fewer occasions to meet public officials.

The coefficient for the capital-labour ratio is positive and significant at 1%. This means that more capital-intensive firms have a higher corruption probability. This is because firms invested in capital and machinery in the production process have various transactions with government officials. In addition, capital-intensive firms can be more profitable and are more likely to engage in corruption to evade tax. If firms gain more profit, they are more willing to pay informal fees to "get things done".

Firm size is also an indicator of the ability to pay for a firm. The estimate of the firm size coefficient is positive and significant. It shows that larger firms are more likely to pay bribes. Meanwhile, small companies are less likely to be requested to pay bribes because of their constrained revenues or small size. Smaller firms also have limited activities as well as higher risk aversion. In contrast, larger firms might have more contacts with public officials and also demonstrate more ability to pay than small firms (Svensson, 2003).

The owner's age does not seem to factor in corruption probability. Meanwhile, professional education is negatively associated with corruption. Firm owners who have finished college or university will be less likely to engage in corruption than their counterparts who did not obtain this level of education. This result contradicts Svensson (1999) argument where he argues that people with higher levels of education will be more likely to engage in corrupt activities as they foresee the benefit of paying bribes. The results can be explained in that more professionally educated firm owners in Vietnam might know the cost and risk of corrupt activities. They also might be more inclined to obey the law than less educated owners.

In terms of other control variables, locations of firms indicate that firms in cities are more likely to engage in corrupt actives than firms in rural areas. The probable reason is that urban SMEs have more transactions than rural ones. Also, government officials may have more power to influence firms in large cities. Meanwhile, corruption might not be as prevalent in small provinces as in large cities. Furthermore, at the local level, as firm get to know government officials and public servants better, they might be less likely to engage in bribery.

Household firms are also less likely to engage in corrupt activities than non-household businesses. This is presumably because these firms are small and most are not formally registered. Hence, they do not have many dealings with government officials and also do not have enough resources to engage in corruption. Household firms are also invisible to public officials, as they do not have many transactions with state employees.

However, management's time working with government regulations and officials is positively associated with corruption. Spending time working with government officials does not only include inspection time by a government organization. This includes the time that firms spend on paperwork, for example, business registration, dealing with tax officials, or applying for grants.

Table 5.4 shows the results of the random effect model. Female-owned firms are still less likely to be corrupt than their male counterparts. When controlling for potential year effects, females are 44.6% less likely to pay bribes than males, but at 1% significant level. The other variables have the same effects on corruption as in the previous model. Inspection time becomes positive significant when controlling for the year effect in the random logit model. When firms are inspected, the likelihood of paying bribes will be 57.1% more than firms without being inspected by government officials.

Table 5.4 Random effect logit model on corruption probability

	Corruption probability			
	(1)	(2)	(3)	(4)
Female	-0.199**	-0.196**	-0.197**	-0.215***
	(0.079)	(0.079)	(0.079)	(0.080)
Profit per employee	0.088**	0.085**	0.079*	0.060
	(0.043)	(0.043)	(0.043)	(0.044)
Capital labour ratio	0.129***	0.127***	0.134***	0.115***
	(0.031)	(0.031)	(0.031)	(0.032)
Firm size	0.550***	0.557***	0.570***	0.552***
	(0.047)	(0.049)	(0.049)	(0.050)
Household	-0.566***	-0.565***	-0.576***	-0.521***
	(0.096)	(0.096)	(0.104)	(0.106)
Formally registered firm	0.315***	0.312***	0.332***	0.376***
	(0.089)	(0.089)	(0.090)	(0.096)
Location	0.497***	0.487***	0.472***	0.496***
	(0.078)	(0.078)	(0.080)	(0.081)
Export		-0.142	-0.117	-0.144
		(0.179)	(0.179)	(0.181)
Import		0.218	0.281	0.184
		(0.304)	(0.305)	(0.305)
Firm age			-0.013***	-0.011***
			(0.004)	(0.004)
General education			0.049	0.037
			(0.080)	(0.082)
Professional education			-0.307***	-0.311***
			(0.108)	(0.109)
Owner age			-0.004	-0.004
			(0.004)	(0.004)
Inspection				0.288***
				(0.111)
Management time				0.065***
				(0.016)
year2013				0.378***
				(0.082)
year2015				-0.123
				(0.095)
_cons	-1.849***	-1.853***	-1.547***	-1.812***
	(0.286)	(0.287)	(0.327)	(0.339)
/lnsig2u	-0.859***	-0.874***	-0.872***	-0.820***
	(0.276)	(0.280)	(0.279)	(0.272)
Obs.	5350	5332	5330	5310

Standard errors are in parenthesis
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5.5 shows the results regarding corruption intensity that is measured by the informal spending over annual revenue. If firms are owed by females, they spend less than 0.05% on

corruption than firms with male owners. Even though this is not much different in terms of amount, but this is a significant effect at 5% level. In the Tobit model, most of the variables have the same effects on corruption intensity as those effects on corruption probability in logit models, except for profit per employee. Particularly, profit per employee is positively associated with the probability of corruption but negatively associated with corruption intensity. It means that factors that influence the probability of corruption do not necessarily affect corruption spending with the same trajectory (Rand and Tarp, 2012). When firms have more profit per employee, they could have more bargaining power and can reduce their informal payment amount.

Table 5.5 Corruption intensity – Tobit model

	Corruption intensity			
	(1)	(2)	(3)	(4)
Female	-0.053**	-0.058**	-0.060**	-0.068***
	(0.027)	(0.025)	(0.025)	(0.026)
Profit per employee	-0.028**	-0.031**	-0.033**	-0.040***
	(0.014)	(0.014)	(0.014)	(0.014)
Capital labour ratio	0.057***	0.057***	0.061***	0.048***
	(0.011)	(0.010)	(0.010)	(0.011)
Firm size	0.097***	0.092***	0.097***	0.070***
	(0.015)	(0.015)	(0.015)	(0.016)
Household	-0.197***	-0.183***	-0.203***	-0.158***
	(0.032)	(0.030)	(0.033)	(0.033)
Location	0.227***	0.217***	0.221***	0.212***
	(0.026)	(0.025)	(0.025)	(0.025)
Export		0.029	0.030	0.032
		(0.054)	(0.054)	(0.054)
Import		-0.029	-0.008	-0.015
		(0.084)	(0.084)	(0.084)
General education			0.012	0.003
			(0.027)	(0.027)
Professional education			-0.090***	-0.090***
			(0.034)	(0.034)
Owner age			-0.003***	-0.003***
			(0.001)	(0.001)
Formal				0.157***
				(0.033)
Inspection				0.088**
				(0.037)
Management time				0.022***
				(0.005)
year2013				0.103***
				(0.028)
year2015				-0.055*
				(0.031)
_cons	-0.855***	-0.843***	-0.686***	-0.808***
	(0.098)	(0.094)	(0.107)	(0.110)
Obs.	5351	5333	5333	5313

Standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

Apart from this, all coefficients have the same effects on corruption intensity as their effects on the probability of corruption. For example, the capital-labour ratio has a positive impact on

corruption amounts. It indicates that a firm with higher capital intensity pays more informal fees than labour intense firms.

The coefficients of working time with government, inspections, and formal firms remain positive for corruption spending. Spending time dealing with management authorities is associated with total corruption spending. Firms that are formally registered are more objective of corruption than firms that are informally registered.

The formalities of firms still positively affect corruption spending. In Vietnam, firms are formal if they have business registration certificates or tax code. Under Vietnamese law, all household businesses with more than ten employees must register to obtain business certificates and tax codes. Registration for household businesses with revenue less than a certain amount is not compulsory, but the law encourages firms to register officially. However, firm size, income, professional premises, information access, and protection from corruption influence their registration decision (Cling et al., 2012).

This study's findings are consistent with the results of Rand and Tarp (2012). They argue that informal status helps firms hide their visibility from state workers. When firms are formal, they have spent much more time working with government officials. Thus, some businesses stay informal to avoid harassment and the need to pay bribes to state officials.

Firm size measured by the number of employees indicates that firms with a more significant number of employees will be willing to pay large bribes than firms with fewer workers. It means that a larger firm will pay more bribes as they have more transaction with government officials when expanding their business.

Younger firms might have weak bargaining power when working with government officials. With their young age, they are more vulnerable to engage in corrupt activities than old and well-established firms. Svensson (2003) report that the ability to pay bribes is associated with the size of the bribe and firm age among Ugandan firms. Corruption requires paying large bribes or takes time to invest in developing relationships with public officials (Svensson, 2003).

Next, interaction terms are included in logit and Tobit in the model to address a possible interaction effect based on gender. I generate interaction term between gender and formal firms, gender and management time, and gender and inspection probability. I run the regression with interaction terms for both models, and the results are presented in Table 5.6 below.

Table 5.6 Regression results with interaction terms

	Logit model		Tobit model	
	Corruption probability	Corruption probability	Corruption intensity	Corruption intensity
	(1)	(2)	(3)	(4)
Female	-0.199***	-0.591***	-0.065**	-0.278***
	(0.071)	(0.173)	(0.025)	(0.061)
Profit per employee	0.079**	0.076*	-0.035**	-0.037***
	(0.039)	(0.039)	(0.014)	(0.014)
Capital labour ratio	0.113***	0.111***	0.052***	0.051***
	(0.028)	(0.028)	(0.010)	(0.010)
Firm size	0.498***	0.492***	0.068***	0.064***
	(0.044)	(0.044)	(0.015)	(0.015)
Household firm	-0.419***	-0.428***	-0.128***	-0.134***
	(0.086)	(0.086)	(0.031)	(0.031)
Location	0.422***	0.419***	0.191***	0.188***
	(0.069)	(0.069)	(0.025)	(0.025)
Formally registered firm	0.292***	0.173*	0.128***	0.065*
	(0.085)	(0.094)	(0.031)	(0.035)
Inspection	0.098	0.124	0.022	0.026
	(0.092)	(0.110)	(0.033)	(0.039)
Management time	0.058***	0.061***	0.022***	0.024***
	(0.015)	(0.017)	(0.005)	(0.006)
Export	-0.136	-0.133	0.038	0.040
	(0.161)	(0.161)	(0.054)	(0.054)
Import	0.162	0.172	-0.035	-0.031
	(0.279)	(0.279)	(0.084)	(0.084)
Firm age	-0.012***	-0.012***	-0.005***	-0.005***
	(0.003)	(0.003)	(0.001)	(0.001)
Female*Formal firm		0.548***		0.282***
		(0.193)		(0.069)
Female*Inspection		-0.092		-0.014
		(0.201)		(0.072)
Female*Management time		-0.019		-0.006
		(0.032)		(0.011)
cons	-1.660***	-1.569***	-0.883***	-0.830***
	(0.260)	(0.262)	(0.096)	(0.096)
sigma:_cons			0.662***	0.661***
			(0.012)	(0.011)
Obs.	5310	5310	5311	5311

Standard errors are in parenthesis
**** p<0.01, ** p<0.05, * p<0.1*

The results are still significant and all coefficients have the same sign effects on corruption probability and corruption intensity when including interaction terms in both models. The interaction term between female owners and formal firms indicates that formally registered

firms are more likely to be corrupted than non-formal firms if they are both owned by females. The results suggest that the legal status of firms is essential in determining the probability of corruption and corruption spending. Moreover, formal firms headed by women are less likely to pay bribes than their male counterparts but there is not much difference in gender in terms of corruption intensity when firms are the formal business. In contrast, informal firms headed by women are less likely to pay bribes and pay fewer bribes than those headed by men.

5.6 Discussion

The findings show that women are less likely to pay bribes than men when women are owners of businesses. Paying bribes is considered a routine part of doing business in Vietnam but a different attitude towards corruption between men and women still exists. Corruption in Vietnam lies in poor customs and habits. Giving gifts and money to business partners or government officials is considered customary, or even "a must". The result of the VCCI survey in 2018 reveals that more than half of enterprises agree to give gifts and money to public servants when firms work with them (DEPOCEN and VCCI, 2018).

Why are women often less corrupt than men in doing business? Women possess certain characteristics that are not suitable for corruption and dishonest activities. In general, they seem to be more honest, highly ethical, and more likely to obey the rules than men (Buchan et al., 2008, Beu et al., 2003, Andreoni and Vesterlund, 2001). As a result, women own businesses that are likely to obey the rules of not paying bribes. In contrast, males are more likely to engage in criminal activity or be more tolerant of illegal behaviours (Mocan and Rees, 2005, Swamy et al., 2001).

Moreover, men and women demonstrate different attitudes toward corruption. It is believed that women possess lower tolerance for corruption than men (Swamy et al., 2001). However, context matters in identifying gender's tolerance towards corruption. Esarey et al. (2013) find that women tolerate corruption the same as men do in autocratic countries with rampant corruption. However, where corruption tends to be highly criticised in democratic countries, women condemn corruption more than men. For example, Australian women are less tolerant towards corruption than men (Alatas et al., 2009). In European countries, women consider corruption is worse than men do. They also show higher intolerance attitudes for corruption than their male counterparts (Agerberg, 2014).

In Vietnam, female-owned SMEs obey rules better than their male counterparts. In particular, female SME owners are more likely to comply with social insurance law than their male peers (Rand and Tarp, 2011). Therefore, we can argue that female employers can obey anti-corruption programs better than their male counterparts. Thus, enhancing knowledge of how to fight corruption for entrepreneurs and their companies may have better effects on female SME owners than their male counterparts.

A lower risk attitude can be a reason for less bribing behaviour for females. Women are less likely to be risk-takers than men in financial decisions (Barber and Odean, 2001, Charness and Gneezy, 2012). Engaging in bribery is a risky investment, especially for micro and small business due to their limited resources. Furthermore, corruption is associated with the probability of being detected and punished which increase with the size of bribes (Rose-Ackerman, 1997). The expected results of corruption are uncertain and rely on the cooperation of public officials. If the likelihood of detection and punishment is high, bribes might be worthless.

The likelihood of punishment is one of the reasons for women being less likely to accept corruption than men (Esarey et al., 2013). In Vietnam, giving bribes is also a crime and will be examined for penal liability as presented in the 1999 Penal Code. Therefore, when business owners are bribe giving, they also consider the possibility of being caught and punished. The 1999 Penal Code stated that bribery is a crime but applies only to individuals, not companies. The New Penal Code that came into effect in January 2018 specifies that companies can face criminal sanctions if they bribe government officials. The New Penal Code also covers corruption within the private sector meaning that private entities can be criminally liable for bribery that involves other private entities. In Vietnam, the level of corruption detected has increased in recent years which would indicate government efforts in detecting and therefore combating corruption have also increased. The enforcement of the law has effects on stopping or lessening intended corrupt activities from both businesses and government officials.

The other possible reason is that corrupt public officials target women less than men (Mocan, 2008). This is because men are more likely to offer bribes and their value tends to be higher than women's (Rivas, 2013). Also, female workers are less represented in the labour market. Hence, they are less likely to contact government officials, thereby less being exposed to corrupt practices (Mocan, 2008).

Moreover, the differences in corruption between men and women may be due to the gap in access to corruption networks, or the knowledge of engaging in corrupt practices (Swamy et

al., 2001, Goetz and Change, 2007). Women are excluded from male patronage networks, for example, clientelism practice (Tripp, 2001). Women have little contact with business partners, colleagues and people within networks than men do (Rutashobya et al., 2009). Males have more connections and opportunities to collude with politicians at the local level than females. For instance, Georgian women are less likely to engage in "old boy" networks and have less collective experience in the workforce (Swamy et al, 2001). Women's networks are less powerful than men's due to the strong influence of Soviet rules which brought more power to men than women (Aidis et al., 2007). In Vietnam, business networking is more challenging for women due to the burden of family responsibilities and limited engagement in traditional male business activities such as social drinking (Mekong Business Initiative, 2016).

Even though there are several possible reasons to describe how women are less likely to be asked to engage in corruption than men, the links between corruption and gender might not be direct. Putting more women into business and politics does not automatically reduce corruption. The underlying mechanism is that breaking gender inequality will be associated with lower corruption. This is because gender inequality undermines women's participation in decision-making processes in many areas. Thus, increasing the share of women in male-dominated networks, including business and public institutions will bring more balance and gender equality environment. The more women enter business sectors, the more chances there are for integration into decision-making positions that will improve the quality of the business environment resulting in the interruption of corrupt activity.

Women can affect corruption in business through several potential channels. One is through the influence of the owner own employees' expectations and behaviours. Employees in companies where their employers are less likely to offer a bribe and be involved in corruption may lead to the understanding that corruption is less accepted within the firm. This will affect their employees' behaviours towards dishonest activities, including corruption.

The second channel is that females who own firms can direct their business strategies into less corrupt business activities. Most Vietnamese businesses consider corruption "a must" and they voluntarily give money to "get things done". Moreover, firms tend to follow other firms in terms of giving bribes. For example, in one survey carried out in 2005 and 2012, nearly 30% of participating firms replied that they gave bribes as "other businesses do the same" (The Government Inspectorate of Vietnam and World Bank, 2012). Hence, if Vietnamese firms' owners refuse to pay bribes and pursue clean business strategies, they will contribute to reduced corruption overall.

Apart from the gender aspect, other findings are worthy of discussion. The results suggest that firms with employees will be more likely to be corrupt than smaller firms. This finding contradicts the findings of Trentini and Koparanova (2017) when they find that medium and large firms can have a substantial influence on legislators and that they might be less likely to pay extra fees or informal fees to obtain a government contract. When firms are larger, they are able to join networks with public officials and their local authority. According to corruption bargaining theory, larger firms do pay smaller bribes. However, my findings are consistent with the findings of Rand and Tarp (2012). This means that smaller firms will be more invisible to corrupt government officials. The size of firms is important when considering gender difference in corruption as women tend to run small firms. Female-headed firms then are less exposed to government officials which is probably is due to their smaller sizes (Trentini and Koparanova, 2017).

The findings also indicate that formally registered firms are more likely to pay bribes. A firm in contact with public servants faces a higher probability of being asked for bribes. Similarly, Rand and Tarp (2012) discover that informal status helps firms hide from public officials. In Vietnam, most small and informal firms are not willing to transfer to larger and formal ones due to complicated and time-consuming procedures and documentation requirements. This finding might be another explanation of why informal firms do not want to transform into formal ones if they are not required to do so. The Vietnamese government encourages all household businesses to register officially to receive a business certificate or tax code, but if firms expand their businesses, they are at risk of being targeted by corrupt public officials.

In the context of Vietnam, government administrative procedures are burdensome and time-consuming meaning that firms seek to use bribes as "facilitation money" or "greasing money" to expedite these procedures. Therefore, the Vietnamese government needs to reduce the complexity of an over-regulated business environment for businesses to operate in a healthy climate instead of paying bribes. Firms can also make an important contribution to the fight against corruption by issuing and regulating their codes of conduct.

Older firms are less likely to bribe than younger ones. Firms that have been in the market for a long time may have long-standing connections with government officials, whereas younger firms may need to pay initial larger bribes to create these connections (Sylwester, 2019). Firms overcome the "liability of newness" through such networks and firms can access economic resources and information. Thus the level of corruption is not as high as when they are less experienced (De Jong et al., 2012). On the other hand, inexperienced and smaller firms are more likely to be asked for informal payments (Trentini and Koparanova, 2017). This finding is also

in line with the results of Demenet et al. (2017) as their research finds that less established firms pay more bribes in Vietnam.

In addition, the results indicate the positive sign of inspection and management time variables. This means that if firms spend more time working with government officials, they are more likely to pay bribes (Okafor, 2017). Firms inspected by government workers are more likely to pay bribes than firms that do no. In addition, firms that spend more time working with government officials also pay more bribes. These results suggest that reducing time spent in contact with public workers will be associated with less corruption. Hence, the government should create a less burden business environment, where firms have fewer inspections and spend less management time dealing with government regulations.

Corruption in Vietnam occurs sub-nationally since most business-government interactions occur at the provincial level, including business registration, environmental, safety, and labour inspection (Bai et al., 2019). There are more business transactions and contacts with public officials in big cities due to a larger number of firms and transactions. Moreover, bribing behaviours in firms within local areas affect the corruption probability of others. A firm makes unofficial payments when they believe other firms do the same, as they do not want to be left behind. Therefore, firms will pay fewer bribes in a less corruptible environment in small provinces. Firms located in the three largest cities of Ha Noi, Hai Phong, and Ho Chi Minh City are more likely to engage in corrupt activities than those in other provinces because Hanoi and Ho Chi Minh City are among the least corrupt control localities (UNDP, 2018). Moreover, the relationship between individuals and government officials may be more personal in provincial areas than in larger cities (Mocan, 2004). In small provinces, people get to know each other well and the public servants might not ask for a gift or informal payments.

Turning back to corruption and gender in Vietnam, this paper confirms the importance of enhancement of women participation in economic activities. This means gender equality programs in doing business can bring a cleaner business environment. However, this does not simply mean that putting women in business will lead to less corruption. The key point is that an increasing proportion of women in business will break the dominance of male networks in business and increase trust among businesspeople. Both female and male entrepreneurs need to increase the awareness of their rights regarding these issues to enhance their bargaining power. As a result, firms might be less likely to be asked for bribes.

5.7 Conclusion

This paper has been motivated by the question of whether gender matters in corruption in businesses in Vietnam. This paper's results show that it does. Female-owned businesses are less likely to pay bribes than their peers in Vietnam. Also, the intensity of interaction with government officials leads to an increase in corruption probability and corruption spending. Furthermore, household and informal firms are less likely to be corrupted by state workers than non-household business. My research suggests that the government should develop programs and activities to strengthen women's role in business. Also, it is necessary to simplify administrative procedures for reducing costs for businesses and weakening the ability of public officials to ask for bribes. On the other hand, fighting corruption must stem from the self-demand of businesses, in which business owners play a key role in developing the integrity of their firms and by pursuing a non-corrupt business strategy. To do this, firms need to stop offering bribes and strengthen the understanding of their legal rights when working with government officials.

The research has encountered some limitations and leaves room for future studies. First, we are unable to observe whether firms are passive or active in bribery. Therefore, we cannot identify whether firms are the victims of, or the culprits responsible for corruption. If voluntary bribes were less reported than extortive bribes, the results might experience a bias downwards (Demenet et al., 2017). Second, the study has been unable to observe whether corruption happens between businesses or within companies. Third, the study suggests that increasing the share of women in business could disrupt corruption via the achievement of gender equality. However, more research is needed to investigate the underlying connections between gender and corruption in business.

Chapter 6 Conclusion

SMEs are the main driving force of economic growth and innovation (Sevrani and Bahiti, 2013) and play an important role in developing countries (World Bank, 2020a). However, due to resources constraints, especially in emerging countries, SMEs tend to pursue non-market strategies to survive and remain competitive (Krammer and Jimenez, 2020). Firms have to rely on connections and corruption to overcome imperfect institutions and low-level business supporting environment in these countries (Krammer and Jimenez, 2020).

Against this background presented in the first chapter, the thesis depicts a wide-ranging picture of how these non-market strategies affect developing economy SMEs development and performance within a sample of Vietnamese firms. The first part of this thesis draws our attention to political connections and networks. Chapter 2 depicts how political connections can increase the chances for a firm to survive. However, connectedness is not necessarily associated with productivity and growth. Therefore, political connections can benefit firms with initial resources for survival. Nevertheless, benefits from political connections cannot be the main driver of long-term and sustained improvements in productivity and growth. They need to be complemented by innovation which is put in the political network context in Chapter 3.

The second part of this thesis extends the development of SMEs in an international context when placing SMEs development under the impact of corruption on their export probability in Chapter 4. Furthermore, the thesis seeks to illustrate how the sustainable growth and wellbeing of mainstreaming gender into the business can bring an improved business environment. Finally, this concluding chapter summarises the key findings of each chapter, the contributions of the thesis, and provides directions for future research.

6.1 Key findings

The thesis' empirical findings provide significant evidence of the effects of political connections or networks and corruption on SMEs survival and development in developing economies. Through conducting two papers on political connections and networks on firm survival, growth and innovation and two papers on the influences of corruption on export performance and put it in the relationship with gender, the thesis presents the key findings as follows.

The first paper found that politically connected firms are more likely to survive than non-connected firms. This is because, with this type of connection, firms have more chances to

survive than their peers. These advantages can include better access to information, financial resources, and government subsidies that can enable firms to survive. However, the paper points out that connected firms demonstrate lower productivity and do not always enjoy better growth.

The second paper confirms the positive effects of political networks on the probability of introducing innovation. The results indicate that the intensity of political networks can foster the probability of innovation. Firms with more political networks are more likely to introduce improvements to their existing products, new products, and new production processes than less connected firms. This is because firms with stronger political networks are more likely to obtain government assistance, thereby boosting their probability of introducing innovation.

The third paper examines the effect of corruption on export participation and the export intensity of firms. This paper finds that corruption positively impacts the likelihood of exporting but has an insignificant impact on export intensity. SMEs pay bribes to facilitate access to foreign markets, deal with government custom regulations, or receive information on international markets. However, increasing export intensity requires many more resources and capabilities than such received from paying bribes.

The fourth paper explores whether gender matters for businesses in Vietnam. The paper finds that firms owned by females pay fewer bribes than their male counterparts. The reason for this might be that women are more likely to obey the rules and to be more risk-averse than men and as a result, do not wish to be involved in risky transactions like corruption. Moreover, more women run household businesses or informal businesses than men and such firms are less likely to be exposed to corrupt public servants. The results confirm that gender equality in business is associated with a low level of corruption in business, thereby improving the business environment.

Collectively, political connections and networks can bring benefits to firms such as a higher survival and innovation probability. However, political connections lessen firms' productivity and have no impact on or even diminish firm growth. Vietnam SMEs that pay more bribes are more likely to be exporters than firms that do not pay bribes and use corruption as a means to reach foreign markets. However, firms need to rely on their core competencies and efficiency to enhance export intensity rather than simply enjoy the benefits brought about by corruption. Moreover, gender matters for a bribe as female-headed firms are less likely to pay bribes than their male counterparts.

6.2 Contributions and policy implications

6.2.1 Contributions

This thesis has contributed to the literature in different ways. First, it extends the framework on the relationship between political connections, survival and development of SMEs to developing economies. While large firms operating in developed as well as developing countries have been studied in detail, such relationships as they affect SMEs is almost untouched (Hadjikhani et al., 2009). Having resource constraints and operating in a low institutional quality business environment can encourage SMEs in developing economies to enrich political connections and take advantage of the benefits generated from these connections to survive. However, achieving better performance requires more than political connections.

Furthermore, the thesis contributes to the value of political connections and political networks in Vietnam which is as yet still less researched. To the best knowledge of the author, the thesis is the first study that provides empirical evidence on how political connections and networks impact firm survival and innovation in Vietnam. Therefore, it opens up a new research area for further studies to explore the impact of political connections in Vietnam and may spark debate on the effects of political connections and networks or social capital in general on the business environment in Vietnam.

Second, the thesis provides distinct measurements and concepts for political connections and political networks. The thesis points out that political connections should refer to connections with the government system. Therefore, political connection means that firms have one employee who is directly connected to the management system, who has previous or who is currently employed by government agencies or is a member of the Communist Party. Political networks can be measured if firms have direct or indirect contact with government officials or anyone related to the government and political authorities. Therefore, the thesis proposes the measurement of political connections by using the Communist Party membership of a firm' owner as a proxy, whereas political networks are measured by how many contacts of a firm are politicians or government officials.

Third, the thesis provides a better measurement of corruption at the firm level, as most studies measure corruption based on perception surveys and cross-country data. Therefore, the thesis is able to examine how much the payment of bribes affect a firm's export decision making. Consequently, the thesis contributes to the literature by adding clear empirical evidence on the

association between corruption and export in emerging economies where corruption is rampant and even an accepted rule (Nguyen et al., 2016c).

Fourth, the study sheds light on the crucial role of gender in investigating the relationship between corruption and performance. It contributes evidence of how gender affects corruption in doing business when women provide bribes. The existing literature on gender and corruption mostly focuses on government systems with the role of women as bribe takers, not bribe payers (Dollar et al., 2001, Swamy et al., 2001). Therefore, this thesis fills a gap in the literature on gender and corruption in the business environment.

6.2.2 Policy implications

The thesis is beneficial to researchers and policymakers who are interested in understanding the effects of informal institutions on SMEs in emerging countries. The thesis sheds light on how SMEs respond to their relationships with political connections and corruption. Therefore, this thesis will be an important reference for the government when designing and reforming policies for supporting SMEs development.

First, the government should be aware that political connections and networks impact every aspect of business life, including survival, growth, export, and innovation. In other words, SMEs tend to rely on corruption and political connections or networks in doing business. From this perspective, the government needs to consider the influence of political connections and corruption to design appropriate policies that limit the proliferation of corruption and political connections and networks.

Second, the government should bear in mind that if firms can obtain access to government resources equally and face lower levels of administrative burden without relying on connections or corruption, all firms can compete equally. This fair competition would motivate firms to survive on their core competitive base, thereby boosting the country's economic development. Therefore, the government should work to create an even playing field for firms and encourage innovation by providing a transparent and less bureaucratic business climate.

Third, the need for political connections and corruption can lead firms who refuse to engage in such practices to withdraw from the market, even though they may prove to be more efficient or productive than firms with these connections. As a result, only firms with connections or firms engaged in corruption can survive but they can damage the business environment or can be a burden for the economy. Therefore, the government needs to understand that minimizing the pervasiveness of political connections and corruption is crucial for the business environment and economic development.

Fourth, corruption not only increases the cost of firms in domestic markets but also restricts firms from reaching the global value chain. Corruption hinders firms' export participation as only firms that pay bribes can export. This might be one of the reasons for the low number of Vietnamese firms that participated in the international market. Therefore, the government should pay attention to minimizing the impact of corruption or informal payments on firms which might promote more firms to engage in the export market.

The thesis also provides several practical implications for firm owners or managers. First, the thesis proposes that there should be some discussion in terms of SMEs' investment strategies. SMEs should consider the trade-off or consequence of investing in social capital. When they decide to invest in social capital, resources for other investment will be reduced as investing in social capital requires a lot of effort to nurture and develop. Investing too much in social capital can erode both time and money that could be spent on other investment such as physical and human capital. Therefore, given the limited resources of SMEs, how they allocate their investment resources is important for their long-term development.

Second, the payment of bribes can increase a firm's chances of export. However, firms should be mindful that corruption is costly and only provides an initial step for them to approach and find new markets. If firms want to increase their export intensity, they need to boost their productivity and efficiency.

Third, women entrepreneurs should be confident to set up their businesses as their firms are less likely to pay bribes than those owned by men. Also, firms should build up their integrity and business culture so that they refuse to pay bribes. Enhancing their understanding of rights and strengths can help to build and protect their reputation, levels of trust, improve their spirit of innovation, employee productivity, and open ways to do business in international markets. Businesses must understand the relevant policies and laws to be able to protect themselves from corruption.

6.3 Suggestions for potential research

First, this thesis has benefited from Vietnamese firm-level data. The SME surveys were designed to collect detailed firm-level information and conducted in 10 major provinces and cities in Vietnam, it does not reflect the whole picture of total enterprises in the country. However, the results of this thesis are meaningful. These results can be considered to be an important consultation channel that helps recommend appropriate policies that prevent corruption and the expansion of political connections, thereby contributing to promoting a clean

business environment in Vietnam. However, it would be fruitful if more research can be undertaken with a larger sample of Vietnamese SMEs that fully represents the whole country.

Second, political connections and networks in Vietnam might not be limited to the two measurements employed in the thesis. First, political connections and networks can be extended to any family members who have close relationships with politicians or government officials. Second, firms can be politically connected if their owner or managers previously worked for government agencies. Third, firms that employ a government official can be considered as being politically connected. Therefore, more research can be extended to enrich the existing literature if having available information on these types of political connections and networks.

Third, as noted in the thesis, this is unique data that contains a lot of informal firms in Vietnam. Therefore, further study can take advantage of this data to undertake research on informal firms and propose policies on the informal business sector. For example, researchers can compare the differences between corruption levels in firms before and after they become formally registered.

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