Factors affecting the social insurance compliance of enterprises in Vietnam

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A B S T R A C T

This article aims to determine the factors affecting the social insurance compliance of enterprises in Vietnam. Based on the economic and behavioral approach, hypotheses on the determinants of insurance compliance are proposed. A sample of 240 enterprises with data on paying insurance premiums for employees in Vietnam from 2016 to 2018 is collected to carry out this research. According to the Probit regression model results, the enterprises' decision to comply with social insurance is significantly positively impacted by the number of employees, the proportion of female employees, the age of the managers, inspectors, and unions. On the contrary, the gender of managers, and non-state enterprises have a negative and statistically significant influence on compliance with social insurance regulations. Besides, the results in Tobit regression models reveal the proportion of female employees, seniority of participation, inspections, unions, and auditors have a positive impact on the level of social insurance compliance of Vietnamese enterprises, while foreign and non-state enterprises have a negative effect on the contribution rate of these enterprises. Most of the previous studies focused on the decision to participate in social insurance without considering the actual payment ratio compared to the regulations, and empirical studies on this topic are still limited in Vietnam. This study can be an empirical basis for managers to minimize the debt of social insurance of enterprises, and increase the responsibility of employers for government regulations related to the protection of workers' rights.

1. Introduction

Social insurance (SI) is one of the main pillars of the social security system in every country, including Vietnam (Nguyen et al., 2021). Because SI is a policy to selectively implement social justice, it is a tool to redistribute income among participants of SI. This is a general fund whose purpose is to pay employees and their families in case they have a decrease in or loss of income due to working capacity decrease, sickness, maternity, labor accident, occupational disease, unemployment, or out of working-age based on the contributions of employees to the general fund. SI contributes to stabilizing the life of workers and their families when there are risks. When the benefits are guaranteed, employees will feel secure to work, stimulating them to be productive and improve personal and social productivity. Thereby, SI contributes to attracting labor, forming, and developing the labor market, attaching the interests between employees, employers, and social benefits. Moreover, Huynh (2021) proved that social insurance contributions can enhance Vietnamese enterprise performance in three dimensions: return on equity (ROE), labor productivity, and total factor productivity (TFP). While SI plays an extremely important role, the fact that enterprises are slow to pay SI leads to delayed payment debts, and arrears of SI occur in many places.

Currently, An Giang province, a part of the Mekong Delta, has 1,005 enterprises participating in SI. At the end of 2018, according to the data of the SI

agency in An Giang province, there were 104,243 people participating in SI with total revenue of 3,103,892 million VND. In which, the business sector has 50,393 people participated in SI with a revenue of 854,062 million VND, mainly agricultural and aquatic production enterprises, service businesses, and small traders. However, the total amount of SI debt is 59,499 million VND, accounting for 1.93% of the revenue target of the entire SI system in the area. In addition, Castel and To (2012) pointed out that Vietnamese businesses tend to evade and under-report wages to reduce the number of social insurance premiums payable. Some of the main reasons are small-scale enterprises, difficulties in initial business operations, misappropriation of premiums for other purposes, and that the debt penalty mechanism is not enough deterrent, etc... These limitations have affected the ability of enterprises to comply with SI and social security. This significantly affects the SI fund as well as the existence and development of the SI system. Therefore, it is necessary to study the determinants of the SI payment behavior of enterprises. Numerous previous studies have provided remarkable results on employers' attitudes toward SI (Nyland et al., 2011; Nielsen and Smyth, 2008; Rickne, 2013). However, there is a lack of quantitative research based on data in Vietnam, which clarifies the empirical basis to develop necessary policies to improve the delayed payment and arrears of SI. Hence, this study aims to investigate the factors affecting compliance and the compliance level with SI of Vietnamese enterprises.

2. Literature review

According to the Law on Social Insurance of Vietnam Nation in 2014, participants in compulsory SI are employees and employers, who have signed labor contracts of one month or more, or an indefinite term contract. In particular, employees participating in SI will be guaranteed to be compensated or substituted for a part of their income that is reduced or lost when they have a temporary or permanent decrease in working capacity, such as sickness, maternity, labor accident, occupational disease, unemployment, or retirement. The responsibility to pay SI belongs to the enterprise, by monthly deducting from the employee's salary, wages, and a part of the enterprise's expenses. In terms of regulations, SI is partly borne by the employee and partly by the employer in Vietnam, while in developed countries this contribution is mainly borne by the employer (Tachibanaki and Yokoyama, 2008). The SI premium is calculated at the rate of 25% of the employees' salary and wages, of which 8% comes from employees' salaries and wages, and 17.5% comes from expenses of enterprises. Acts of evasion of payment or delay of payment of SI are the employer's violations of regulations such as evasion of payment, delay in payment, or appropriation of prescribed payment for 30 days or more. For the late

payment of SI behavior, in fact, the enterprise has deducted the payment of SI from the salary and wages of the employee, but the enterprise uses this money for other purposes, such as spending on production and business activities, instead of paying SI premiums to the SI agency. From the perspective of the SI agency, the debt of SI (including principal and interest) is the underpayment, delayed payment, and non-payment of the enterprises and organizations employing workers for the fees of the SI regimes prescribed by law.

Employers' attitudes towards SI compliance can be influenced by many factors and ultimately lead to their behavior. Factors affecting compliance or non-compliance vary from country to country and from person to person (Kirchler and Maciejovsky, 2001). Through the study of relevant literature, there are two main approaches to understanding the issue of SI compliance: (1) economic approach and (2) behavioral approach. First, the economic approach is based on utility theory and deterrence theory. Utility theory considers that employers, who maximize benefits, may violate fiscal laws, and evade SI obligations when they feel that the cost of avoiding SI contributions is very low and difficult to detect, inspect, or audit. Employers will also delay or evade SI contributions when they realize the cost to comply with SI is high (Allingham and Sandmo, 1972). Deterrence theory is concerned with the effects of sanctions and risks, where an increased punishment and certainty of imposition reduce undesirable behavior (Pate and Hamilton, 1992). According to academics' theoretical analysis, punishment has determined employers' compliance behavior, and an increased penalty rate and higher probability of detection will lead to lower non-compliance. This model becomes a prominent approach in studying compliance SI behavior and has been used by many previous studies. Within the framework of the model, the size of the workforce, the proportion of female employees, the presence of unions in the enterprise, and the inspection and audit probability will determine the penalty and the cost of compliance. These factors build a theoretical foundation to explain the compliance behavior of employers. In contrast to the economic approach, the behavioral approach assumes that individuals are not simply independent, and unselfish, and only know how to maximize utility, but they interact according to different attitudes, beliefs, norms, and roles (Elffers et al., 1992). Behavior perspectives incorporate social and psychological factors, such as age, gender, ethnicity, education, culture, time, institutional influences, equity, ethics, and spirit of SI can affect the employer's compliance with SI. This model is important because it predicts whether variables such as age, gender of the employer, seniority of operation, and type of ownership of the enterprise indirectly affect the behavior of compliance with SI through their effects on the chance of non-compliance and employer attitudes. This study uses a combination of the above two

approaches to finding out the decisive factors of the compliance behavior of enterprises with SI.

The importance of ensuring social security as well as minimizing the delay in payment and evasion of SI contributions by enterprises has been promoted by many empirical studies on the problem of SI arrears in many countries. Nyland et al. (2006) studied the determinants of the extent to which employers will comply with corporate social security obligations from the data of 2,234 Chinese companies. The study used Probit and Tobit models to identify factors affecting compliance with SI. The research results show that a number of factors are significantly correlated with the compliance with SI of enterprises such as size, risk ratio, the proportion of female employees, and type of business ownership. Enterprises with larger labor sizes are more likely to contribute to SI according to regulations than small labor size enterprises, which can also be understood that enterprises with large labor scale may be possible to comply with payment of SI premiums than small-sized enterprises in terms of compulsory SI obligations (Mares, 2003; Nielsen and Smyth, 2008). Firms with a higher risk of having to explain to their employees about their willingness to contribute SI premiums are more likely to contribute to social security (Smyth et al., 2009). In addition, the study also found that enterprises with a high percentage of female employees face more costs of maternity benefits and are more likely to comply with SI. The type of ownership of enterprises also affects the level of compliance with SI of employers. Foreign enterprises contribute more to social security than state-owned enterprises and non-state enterprises, with the lowest default rate of social security contributions as prescribed (Nielsen and Smyth, 2008; Rickne, 2013). On the contrary, the studies of Han et al. (2014) and Gao and Rickne (2014) indicated that state-owned enterprises tend to comply with SI more than non-state enterprises and foreign enterprises. On the impact of the monitoring and enforcement mechanism on SI obligations, the research of Maitra et al. (2007) provided empirical evidence from Shanghai, based on survey data of 2,234 companies in 2001 and 5,212 companies in 2002. The authors used Probit and Tobit models to explain why companies in Shanghai comply or why they do not comply with SI obligations in a regulatory environment where the expected penalty for non-compliance is low. When the authors compared the behavior of the first-time audited companies with re-audited companies, they found that the number of compliance times has increased, and the level of underpayment has reduced significantly in the group of re-audited companies. Audit factors can change compliance behavior from negative to positive and positively affect compliance with SI. Moreover, Mao et al. (2013) did research on compliance and social security tax by using the Probit regression model. The results showed that large enterprises with a longer period of participation in SI have stricter compliance than small enterprises with shorter

participation in the social security system. Besides, Han et al. (2014) used the logistic regression method to define the relationship between the number of years participating in the insurance system and the level of SI contribution. Lack of capital and limited experience in cost control of newly established businesses lowers the ability to pay SI premiums. In addition, Rickne (2013) in the study of labor market conditions and SI in China found the impact of trade unions on employers' attitudes towards SI. Trade union activities also play a crucial role in protecting employees' entitlement to SI when enterprises do not comply or fully comply with SI policies. Furthermore, factors related to feminism and education level significantly impact social insurance coverage (Mandigma, 2016).

In Vietnam, the main causes of SI debt are: (1) Both employers and employees have insufficient awareness of the rights and obligations of paying SI; (2) The state management of the SI debt problem has many shortcomings, and the regulation on sanctions is still low and not strong enough (Nguyen et al., 2021). The inspection and handling violations of not paying, and late payment of SI still have many limitations, leading to businesses deliberately ignoring not paying SI. Nguyen et al. (2021) researched the role of unions in promoting gender equality and protecting women's labor rights in Vietnam. The survey results showed that enterprises with more female employees comply with the policy of SI contributions more than those with fewer female employees. The author suggested that it is necessary to raise the proportion of women in the leadership and management team, the quality of reproductive health care services for female employees in the enterprise and to increase the union's role in supervising the implementation of policies and laws on social security in enterprises. The survey results also showed that the proportion of female employees, the gender of managers, and union presence in enterprises are the decisive factors of the SI compliance of enterprises.

Through the comprehensive review of prior studies related to the research topic, most of the previous studies used Probit regression to investigate determinant factors affecting enterprises' decision to comply with SI and Tobit regression to figure out factors that impact the SI compliance rate. However, the number of studies in developing countries by specific data is limited. Therefore, it is important to address that the significant difference in this study compared to prior studies is the combined use of Probit and Tobit regression methods to analyze determinant factors of SI compliance of enterprises located in an Giang province. Several factors influencing SI compliance found in previous studies are the number of employees participating in SI, proportion of female employees in the enterprise, gender and age of managers, seniority of participation, type of business ownership, inspection, and audit, etc. This study provides empirical evidence to help the Social

Security Administration have appropriate solutions to reduce the SI debt of enterprises in the area.

3. Research methods

3.1. Sample selection

This article uses primary data of 240 enterprises operating by using the convenience sampling technique. Specifically, panel data for the three years (2016–2018) are collected in 2019. These enterprises are directly interviewed based on the designed questionnaire. The study also collects secondary data from the SI debt of enterprises reports, changes in SI registration reports, documents, statistical yearbooks, scientific journals, and articles on the websites of the relevant departments.

3.2. Estimation method

According to the review of relevant documents and the practice in the study area, the Probit model is employed in the first stage of analysis to estimate the factors affecting the decision of the employer to pay SI premiums for employees. Then, the factors impacting the level of SI contributions compared to regulations are explained in the Tobit model, in the second stage. The author proposes the factors in the regression model, including the size of labor, proportion of female employees, gender and age of managers, seniority of participation, inspection, union, audit, and type of business ownership.

3.2.1. Estimating factors affecting the decision to comply with SI

To determine the factors affecting the decision to comply with the SI of enterprises, we use the Probit model as follows:

$$CSI_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 FEM_{it} + \beta_3 AGE_{it} + \beta_4 SEX_{it} + \beta_5 YEAR_{it} + \beta_6 INS_{it} + \beta_7 UNI_{it} + \beta_8 AUD_{it} + \beta_9 FOR_{it} + \beta_{10} NON_{it} + u_{it} \tag{1}$$

CSI_{it}=0 if enterprises do not comply with payment of SI premiums.
CSI_{it}=1 if enterprises complied with paying SI premiums (whether full payment or underpayment compared to the prescribed amount).

where i represents enterprise, t represents time; CSI_{it} is SI compliance decision of enterprise i at time t; β are the estimated coefficients of the regression model; $SIZE_{it}$, FEM_{it}, AGE_{it}, SEX_{it}, $YEAR_{it}$ are labor size, percentage of female employees, the age of managers, the gender of managers, number years of participating in SI of enterprise i at time t, respectively; INS_{it}, UNI_{it}, AUD_{it} represents inspection, union, audit status of enterprise i at time t, respectively; FOR_{it} and NON_{it} represent the type of ownership that is a foreign enterprise or a state enterprise; and u_{it} is error of other combined

components of both individual characteristics by object and over time.

3.2.2. Estimating factors affecting the compliance rate of SI

In the second stage, this study measures the compliance rate of SI through the ratio of the amount paid by the enterprise over the total amount as prescribed by the SI agency. Since rates of SI compliance take values from 0 to 1, the Tobit regression model is considered to be the most appropriate model in which the dependent variable is censored above or below a certain threshold. To estimate the factors affecting the rate of enterprises' compliance with paying SI premiums, the Tobit regression model is proposed as follows:

$$RSI_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 FEM_{it} + \beta_3 AGE_{it} + \beta_4 SEX_{it} + \beta_5 YEAR_{it} + \beta_6 INS_{it} + \beta_7 UNI_{it} + \beta_8 AUD_{it} + \beta_9 FOR_{it} + \beta_{10} NON_{it} + u_{it} \tag{2}$$

RSI_{it}=RSI* if RSI* > 0: For observations that paid SI premiums.
RSI_{it}=0 if RSI* ≤ 0: For observations that unpaid SI premiums.

where i represents enterprise, t represents time; RSI_{it} is compliance SI rate of enterprise i at time t; β are the estimated coefficients of the regression model; $SIZE_{it}$, FEM_{it}, AGE_{it}, SEX_{it}, $YEAR_{it}$ are labor size, percentage of female employees, the age of managers, the gender of managers, number years of participating in SI of enterprise i at time t, respectively; INS_{it}, UNI_{it}, AUD_{it} represents inspection, union, audit status of enterprise i at time t, respectively; FOR_{it} and NON_{it} represent the type of ownership that is a foreign enterprise or a state enterprise; and u_{it} is error of other combined components of both individual characteristics by object and over time. Table 1 summarizes the characteristics of the variables in the research model and the expected signs about the impact of the independent and control variables on the dependent variable.

4. Results and discussion

4.1. Empirical results

Table 2 illustrates descriptive statistics of the variables used in the Probit model and the Tobit model. In addition, the characteristics of enterprises that paid SI and unpaid SI are compared by each variable in Table 3.

Based on the results of the correlation matrix in Table 4 it can be seen that all the pairs of correlation coefficients among the variables in the model are less than 0.8 (Farrar and Glauber, 1967), except for the correlation between the economic distance and the institutional distance which has a correlation coefficient of 0.85. Hence, it can be concluded that there is no serious multicollinearity phenomenon.

Table 1: Description of variables in Probit and Tobit models

Variable	Measurement	References	Expected signs	
			Probit	Tobit
Labor size (SIZE)	Number of employees participating in SI in the enterprise (person)	(1); (2); (3); (4)	(+)	(+)
Percentage of female employees (FEM)	Percentage of female employees in the enterprise (%)	(2); (7)	(+)	(+)
The age of managers (AGE)	The age of managers, calculated by the year of birth to the time of the study (years)	(8)	(+)	(+)
Years of participation (YEAR)	Number of years participating in SI of enterprises (years)	(4); (6)	(+)	(+)
Union (UNI)	Dummy variable, 1 = have union, 0 = have no union	(5)	(+)	(+)
Audit (AUD)	Dummy variable, 1 = audited, 0 = not audited	(3); (9)	(+)	(+)
Type of ownership	The base dummy variable is a state-owned enterprise, determined from the enterprise's business license	(2); (3); (4); (5); (6); (10)		
- Foreign enterprise (FOR)	Dummy variable, 1 = foreign enterprise, 0 = other type		(+)	(+)
- Non-State enterprise (NON)	Dummy variable, 1 = non-state enterprise, 0 = other type		(-)	(-)
Compliance with social insurance (CSI)	Dummy variable, 1 = comply with paying SI premiums (whether full payment or underpayment compared to the prescribed amount), 0 = do not comply with paying SI premiums			
Rate of social insurance payment (RSI)	The rate of social insurance payment, with a value from 0 to 1			

Notes: (1) Mares (2003); (2) Nyland et al. (2006); (3) Nielsen and Smyth (2008); (4) Mao et al. (2013); (5) Rickne (2013); (6) Han et al. (2014); (7) Smyth et al. (2009); (8) Allen et al. (1999); (9) Maitra et al. (2007); (10) Gao and Rickne (2014)

Table 2: Descriptive statistics

Panel A: Quantitative Variables				
Variable	Mean	Maximum	Minimum	Standard deviation
SIZE (number of employees)	159.71	5,898	3	521.89
FEM (%)	42.13	100	0	0.25
YEAR (year)	11.18	24	1	7.13
AGE (year)	45.29	64	25	7.79
Variable	Value		Number of observations	Proportion (%)
SEX	1= Male		222	30.83
	0= Female		498	69.17
INS	1=Have been inspected		157	21.81
	0=No inspection		563	78.19
UNI	1= With the union		603	83.75
	0= Without the union		117	16.25
AUD	1= With an audit		119	16.53
	0= Without an audit		601	83.47
FOR	FOR=1: foreign enterprise		66	9.17
NON	NON=1: non-state enterprise		468	65.00
	FOR=0, NON=0: state-owned enterprises		186	25.83
CSI	1=Payment is available		602	83.61
	0=No payment		118	16.39
RSI	100% = Fully paid		427	70.93
	<100%=Insufficient payment		175	29.07

As mentioned, the Probit model evaluates the factors affecting the decision to pay SI premiums of enterprises and the Tobit model evaluates the factors affecting the payment rate according to the regulations on SI. The results of the Probit model and Tobit model are presented in Table 5.

The results from Table 5 show that the Likelihood Ratio (LR) test has a p-value of 0.0000, which is less than the significance level α (0.01) in both models. Based on the LR test results, independent variables simultaneously have a significant effect on the enterprises' SI compliance at the significance level of 1%.

4.2. Discussions

4.2.1. Factors affecting the decision to comply with SI

The coefficient of determination R^2 = 38.07% and the forecast level of the model reached 88.19%, demonstrating the accuracy of the Probit model in estimating the factors affecting the decision to pay SI premiums of enterprises at a high level. Separately, size of labor (SIZE), the proportion of female employees (FEM), age of managers (AGE), inspection (INS), union (UNI), and audit (AUD) have positive and statistically significant effects on enterprise decision to contribute to SI. The negative impact of two independent variables including the gender of manager (SEX) and non-state enterprise (NON) on the decision to pay SI premiums are also found in estimated results. The specific effects of variables on the decision to pay SI premiums can be explained as follows.

As expected, the labor size variable is statistically significant at the 10% level and has a positive impact on the compliance with SI of enterprises (β_1=0.0042). When the scale factor increases by 1 unit (employee), the influence on the payment decision will increase by 0.03%. The enterprises with a larger number of employees tend to comply with the deduction to pay SI contributions.

Table 3: Differences in variables between compliance and non-compliance enterprises

Variable	Frequency		Proportion (%)	
	Pay	Not pay	Pay	Not pay
Number of employees				
From 1 - 10	137	83	22.76	70.34
From 11 - 100	302	33	50.17	27.97
From 101 - 200	64	0	10.63	0.00
Over 200	99	2	16.44	1.69
Number of female employees				
Less than 50%	303	90	50.33	76.27
From 50% or more	299	28	49.67	23.73
Sex				
Male	404	94	67.11	79.66
Female	198	24	32.89	20.34
Number of years participation				
Less than 5	119	34	19.77	28.81
From 5 - 10	195	48	32.39	40.68
From 11 to 15	99	28	16.45	23.73
From 16 - 20	58	5	9.63	4.24
Over 20	131	3	21.76	2.54
Inspection				
Yes	149	8	24.75	6.78
Are not	453	110	75.25	93.22
Union				
Yes	553	50	91.86	42.37
Are not	49	68	8.14	57.63
Audit				
Yes	117	2	19.44	1.69
Are not	485	116	80.56	98.31
Type of ownership				
Government	182	4	30.23	3.39
Non-state-owned	356	112	59.14	94.92
Foreign	64	2	10.63	1.69

Table 4: Pearson's correlation matrix

CSI/ RSI	SIZE	FEM	AGE	SEX	YEAR	INS	UNI	AUD	FOR	NON
SIZE	1.0000									
FEM	0.1466	1.0000								
AGE	0.0749	-0.1189	1.0000							
SEX	0.1356	-0.4522	0.2764	1.0000						
YEAR	0.0747	-0.2005	0.3359	0.2472	1.0000					
INS	0.1384	0.0691	0.0135	0.0394	0.0320	1.0000				
UNI	0.1298	0.0522	0.1195	0.0238	0.2107	0.0867	1.0000			
AUD	0.2571	0.0591	0.1058	0.0947	0.2207	0.0548	0.1859	1.0000		
FOR	0.1655	0.2815	-0.0935	-0.1318	-0.2146	0.0887	0.1399	0.0401	1.0000	
NON	-0.1774	-0.0619	-0.1554	-0.0359	-0,5000	-0.0427	-0.2996	-0.2144	-0.4329	1.0000

Table 5: Estimated results of the Probit regression model and the Tobit regression model

Variable	Probit model		Tobit model	
	Coefficient	dF/dx	Coefficient	dy/dx
SIZE	0.0042 *	0.0003	0.0000	0.0000
	(0.0025)		(0.0000)	
FEM	1.6619 ***	0.1049	0.3078 ***	0.2953
	(0.4619)		(0.0596)	
AGE	0.0249 **	0.0016	0.0016	0.0015
	-0.0126		(0.0018)	
SEX	-0.5797 **	-0.0306	-0.052	-0.0501
	(0.2647)		(0.0332)	
YEAR	0.0239	0.0013	0.0048 *	0.0046
	(0,0212)		(0.0026)	
INS	1.0866 ***	0.0408	0.1264 ***	0.1224
	(0.2854)		(0.0249)	
UNI	1.4848 ***	0.1962	0.4261 ***	0.3749
	(0.2442)		(0.0372)	
AUD	0.7833 *	0.0325	0.0976 ***	0.0945
	(0.4529)		(0.0289)	
FOR	-0.3548	-0.0278	-0.1488 **	-0.1393
	(0.5966)		(0.0608)	
NON	-0.7671 *	-0.0424	-0.1540 ***	-0.1485
	(0.3873)		(0.0412)	
Constant	-1.2433		0.2332	
Number of observations		720		720
Chi-square test value		244.51		
Prob> χ^2		0.0000		0.0000
R^2		0.3807		
The log value of the function is approximate		-195.2252		-120.4079
Percentage of correct prediction of the model		88.19%		

Notes: The values in parentheses () are adjusted standard errors; *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively

This result is consistent with Nielsen and Smyth (2008) and Mao et al. (2013). The majority of employees will act according to the crowd psychology and be willing to fight together if

business owners do not comply with SI, adversely affecting the interests of workers. Therefore, the larger the number of employees, the greater the impact on the compliance with paying SI contributions of enterprises.

The estimated coefficient of 1.6619 in the Probit model of the female proportion variable is statistically significant at the 1% level, similar to the original expectation. Accordingly, when the percentage of females increases by 1%, the probability of paying money increases by 10.49%. Female employees are the beneficiaries of maternity benefits, which is a significant expense for businesses. Instead of paying SI premiums for female employees, the enterprises have to pay maternity allowances by themselves. Worrying about financial risks prompts the employer to decide to pay SI premiums to the agency. In addition, due to the women's psychological, they want to be more ensured of their benefits within their entitlement. These empirical findings are in accordance with previous studies conducted by Nyland et al. (2006) and Smyth et al. (2009).

From the estimated results in Table 5, we can see that the age of managers has a positive correlation with the decision to pay SI premiums of the enterprise with the estimated coefficient β_3=0.0249 at the significance level of 0.05. In fact, older managers often have many principles in their work, they tend to comply with SI payments to be safe and avoid interest and penalties for late payment, avoiding additional costs for employees. In contrast, young managers need to spend more, even if they deliberately accept to bear interest due to late payment, and use the SI premiums for other business needs or investments. Other purposes can generate more profit for the business. Therefore, young managers have reasons to promote avoidance or delay in performing SI obligations. Allen et al. (1999) also found similar results.

According to the results of the Probit regression model, the manager's gender variable has a negative impact on the compliance with SI of enterprises in our sample with a negative estimation coefficient (β_4=-0.5797), at the level of 5% statistical significance. Accordingly, enterprises with a male manager have a reduced probability of paying money by 3.06% compared to enterprises with female managers. This result shows that there is a difference in SI compliance behavior between male and female managers. While most men are mostly adventurous and open-minded, women tend to prefer safety, follow rules, and are less accepting of life changes. Therefore, female managers tend to choose the safer option of complying with the prescribed contributions to the SI fund than male managers.

Enterprises that have been inspected will more actively comply with SI regulations. This is proved by the positive estimation coefficient of 1.0866 at the high statistical significance level of 1% in the regression model in Table 5. The probability that enterprises will pay is estimated to increase by 4.08% when there is an inspection by state agencies. Currently, the implementation of legal policies on SI inspection of enterprises is not regular and comprehensive, leading to difficulty in timely detecting errors to mobilize employers to participate in SI for employees or apply sanctions as a deterrent. On the other hand, sanctions to handle violations related to SI have been specified, but the application is still loose and not enough of a deterrent.

Based on the regression results in Table 5, the union variable has a strong positive impact on the enterprises' decision to pay SI premiums with the estimated coefficient β_7=1.4848 at the significance level of 1 percent. According to the deterrence theory, it is argued that enterprises will limit behaviors that cause damage to employees if these behaviors are easy to detect. Trade unions exist for the main purpose of protecting the benefit of those who are working at the organization. An effective trade union will monitor the implementation of the enterprise's basic obligations to its employees. If employees are not guaranteed their benefits to participate in SI, the union will detect and put pressure on enterprises. This result is consistent with the study of Rickne (2013).

It can be seen from the results in Table 5 that the audit factor has a positive correlation with the decision to contribute to the SI with the estimated coefficient β_8=0.7833 at the significance level of 10%. This factor affects 3.25% of the decision to pay SI premiums of enterprises in the study area. This result is consistent with the study of Maitra et al. (2007) and Nielsen and Smyth (2008) in China. Auditing companies require enterprises to report all income, expenses, and related documents, including the status of payment of salaries and other benefits to employees as prescribed, so errors in deductions for expenses can be found and corrected accurately. This puts pressure on enterprises to be more cautious in completing payment of payable SI contributions. On the contrary, an enterprise that has never been audited may falsify the reports compared to the actual situation of the enterprise and evade payment of the payable SI amount.

According to the results of the Probit regression model, the non-state enterprise factor has a negative impact on the compliance of enterprises with SI. This is clearly shown through the research results that the estimated coefficient is negative (β_{10}=-0.7671) and the statistical significance is listed at 10%. Non-state enterprises will have a 4.24% lower probability of paying money than state-owned enterprises. This result is in line with the original assumption and prior of Nyland et al. (2006), Rickne (2013), Mao et al. (2013), and Han et al. (2014). Most non-state enterprises in Vietnam are small or micro-enterprises, and the observance of the law in general and the Law on SI, in particular, depends heavily on the subjective will of the business owner. The main reason is that the employer's awareness of responsibilities and rights in participating in SI for employees is still limited. Some non-state enterprises deliberately non-comply SI or only pay

for some employees in the management framework of the unit to reduce production and business costs.

However, in this estimation model, there are two variables, namely the seniority variable and the foreign enterprise variable, which are not statistically significant. This study's result is in contrast to the previous studies such as Nyland et al. (2006), Nielsen and Smyth (2008), Rickne (2013), Mao et al. (2013), and Han et al. (2014). Currently, in the study area, many foreign enterprises are newly established and participate in SI in a short time with the number of these types of enterprises is also small and new, so they lack skills to access information about SI compliance. Support tools for SI compliance are also limited. Therefore, seniority of participation and foreign enterprises do not affect the ability to comply with the SI of enterprises in Vietnam.

4.2.2. Factors affecting the compliance rate of SI

The Tobit model results in Table 5 show that the proportion of enterprises paying SI premiums is affected by the percentage of female employees (FEM), seniority of participation (YEAR), inspection (INS), union (UNI), audit (AUD), foreign enterprise (FOR), non-state enterprise (NON). The relationship between the variables and the level of compliance with SI is explained as follows.

The variable proportion of female employees not only has a positive impact on the decision to pay SI of enterprises but also has a positive correlation with the compliance rate at the 1% statistical significance level. As a result, when the proportion of women in the workforce increases by 1%, the enterprise will pay SI premiums more fully, specifically, the payment rate increases by 29.53%. This result is similar to the results of Nyland et al. (2006) and Smyth et al. (2009).

The seniority variable is statistically significant at the level of 10% and is in line with the initial expectation of this study. This can be interpreted that businesses with many years of experience participating in the insurance system will have a higher rate of paying SI premiums to the management agency than newly established enterprises that also comply with regulations. This result is consistent with prior studies by Mao et al. (2013) and Han et al. (2014).

According to the estimation results in Table 5, the inspection variable has a significant positive effect (statistical significance at 1% level) on the amount of payment for SI obligations compared to regulations. Whereby, assuming other factors remain unchanged, enterprises that are inspected will increase the SI contribution by 12.24% compared to enterprises that have paid SI contributions but are not inspected.

From Table 5, it can be seen that the union variable has a positive impact on the dependent variable of compliance with SI regulations at the statistical significance level of 1 percent. It also means that unionized enterprises tend to pay full SI premiums more than non-union enterprises. The difference is valued to be about 37.49% in case the

remaining factors are similar. This result is consistent with the initial expectation and research of Rickne (2013).

The Tobit regression model in Table 5 shows a highly statistically significant positive relationship (the level of 1%) between the audit variable and the full payment of SI premiums of enterprises. Its meaning is also similar to the studies of Maitra et al. (2007) and Nielsen and Smyth (2008). Auditing companies promote enterprises to pay SI premiums and help them calculate the exact amount paid following regulations.

The results of the estimation of the ownership type factor show that both the non-state enterprise variable and the foreign enterprise variable have a negative impact on the payment rate, at the statistical significance level of 1% and 5% respectively. This result shows that in a group of SI complied enterprises, non-state enterprises and foreign enterprises have lower payment rates than state-owned enterprises. Previous studies conducted by Nyland et al. (2006), Nielsen and Smyth (2008), Mao et al. (2013) and Han et al. (2014) found similar conclusions for the impact of non-state enterprise type, but they indicated a significant positive effect of foreign firm type. Foreign enterprises in Vietnam are still covered by the Law on Social Insurance, so they still have to comply with the same obligations as domestic enterprises. However, the enforcement of penalties has been still limited due to the management agencies creating comfortable conditions for foreigners to do business. At the same time, differences in the accounting system can also lead to erroneous calculations of the cost of participating in SI.

Besides, the estimated coefficients of the labor size, the age, and the gender of managers are not statistically significant in the Tobit regression model. This result contrasts with the results of Nyland et al. (2011), Nielsen and Smyth (2008), Rickne (2013), Mao et al. (2013), Han et al. (2014), and Allen et al. (1999). It means that the size of the number of employees participating in SI in the enterprise does not affect the payment rate or the amount of payment compared to the amount paid according to regulations. The age and the gender of managers of enterprises also showed no influence on the level of compliance with SI of enterprises in Vietnam.

5. Conclusion

Based on the primary data of 240 enterprises operating in An Giang province in 2019, the study employs the Probit regression model to determine the affecting factors in the decision to pay SI contributions and the Tobit regression model to determine the affecting factors in the payment rate of Vietnamese enterprises. The study contributes empirical results in the field of research on the behavior of late payment and evasion of SI contributions of enterprises.

The research results find a positive impact of the proportion of female employees, inspection, trade

union, and audit on the enterprises' decision to pay SI and the level of contribution. Although the factors of labor size and manager's age have a positive effect, and the gender of the manager has a negative influence on the decision to pay SI with high statistical significance, the relationship between them and the rate of SI compliance has not been clearly demonstrated. In addition, the seniority factor does not have a strong impact on the ability that the enterprise will pay insurance premiums to the agency. However, if they have decided to comply, the enterprises with more years of participation in the SI system tend to pay full premiums than those with less seniority. At the same time, the estimated results show that the probability of non-state enterprises complying with SI and the payment rates are lower than these of other types of enterprises. Foreign enterprises tend to be less compliant with regulations on SI because this group has a high probability of incomplete payment.

In order to well manage the compliance of enterprises with SI, the management agencies should take advantage of existing resources such as strengthening supervision of trade unions, inspection, audit, etc. In addition, SI agencies also have to reinforce monitoring and follow-up on the business activities of enterprises with young male managers, enterprises with a small number of employees, and enterprises with a high percentage of employees. women, especially non-state enterprises to increase the ability to collect enough and timely SI premiums toward minimizing the SI debt of enterprises.

Compliance with ethical standards

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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