

Factors Influencing Electronic Tax Compliance of Small and Medium-Sized Enterprises in Northern of Vietnam

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Abstract

The electronic tax service system - eTax in Vietnam is implemented as an administrative reform initiative of the tax industry to improve efficiency of the tax authorities. This research therefore sets out to examine the variables that impact firms' compliance levels in the context of adopting electronic tax with a model that tests linear relationship between identified factors and tax compliance. Research data serving the study were collected from July to October 2023 from respondents working for small and medium-sized enterprises (SMEs) in Northern Vietnam with 200 valid questionnaires. Research findings reveal a positive relationship between The level of electronic tax application (AE), Tax policy - tax inspection & examination (TPTI) and The level of tax compliance (TC). Moreover, the level of adoption of electronic tax is positively influenced by Perceived ease of use (PEOU), Perceived usefulness (PU) and Information technology skills (IT). Based on the research results, the study proposes appropriate recommendations to enhance the management mechanism and improve the tax compliance level of the SMEs in Northern Vietnam.

Keywords: *Electronic Tax, Tax Compliance, SMEs, Vietnam.*

Introduction

Tax is a compulsory state budget payment for organizations, households, businesses and individuals (National Assembly, 2019). In Vietnam, businesses will be subject to different taxes depending on the field they are operating in. However, most businesses need to pay five basic taxes including corporate income tax, personal income tax, license tax, value added tax and foreign contractor tax.

Ensuring a stable tax revenue source is one of the most important tasks for each country's government. When taxpayers comply and pay the sufficient amount of tax under their obligations, the government can ensure secure budget to provide public goods and allocate resources appropriately (Night & Bananuka, 2018).

With the goal of building an e-Government towards Digital Government and a digital economy, strengthening the management, and simplifying administrative procedures, from 25/11/2019, taxpayers stopped using the electronic tax Preparation (nhantokhai.gdt.gov.vn) and Electronic Tax Payment (nophue.gdt.gov.vn) systems to switch to using the eTax Service (thuedientu.gdt.gov.vn) system.

According to the Ministry of Finance, Vietnam currently has a number of small-scale enterprises, mainly small and micro enterprises. This is a group of businesses that need policies to support and encourage development as well as nurture long-term revenue sources for the state budget. Currently, the situation of businesses trying to falsely declare costs and revenues to avoid taxes and tax evasion, leading to revenue losses for the state budget is increasing. This is one of the painful problems causing loss of state budget revenue that tax authorities need to solve. Theoretically, the research topic on factors affecting the level of tax compliance has been exploited by many foreign researchers from many aspects using different methods.

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However, currently there are still very few related studies in the country, especially when placed in the context of applying electronic tax.

This study will identify and evaluate factors affecting the level of tax compliance in the context of applying electronic tax with a model that tests linear relationship between identified factors and tax compliance. Research data serving the study were collected from July to October 2023 from respondents working for small and medium-sized enterprises (SMEs) in Northern Vietnam with 200 valid questionnaires. Based on the research results, the study proposes appropriate recommendations to enhance the management mechanism and improve the tax compliance level of the SMEs in Northern Vietnam.

Literature Review and Hypothesis Development

Literature review regarding electronic tax and factors influencing the application of electronic tax

The electronic tax system

Research have been carried out in the world over the electronic tax system. The electronic tax system is recognized as a service of the e-government system and is a modern information exchange channel that can facilitate people to make tax payments through the service (Barati, et al., 2015; Anuar & Othman, 2010; Economides, 2008). The electronic tax system is arguably the most effective tool in reducing and eliminating tax evasion (De Mello, et al., 2009). Moreover, Hu, et al., (2009) highlighted that with the efficient and qualified electronic tax system, taxpayers can access tax information, complete tax returns, and fulfill their tax obligations quickly and efficiently, in an environment entirely using advanced identification technologies.

However, Vietnam and many countries in the world also encountered difficulties when initially applying the electronic tax system. Research on this issue, there have been a lot of scientific works written and organized as well as giving the most convincing hypotheses and evidence. Although there have also been many models of technology adoption used at the individual level, the technology acceptance model (TAM) is still widely used (Rai, et al., 2002; Venkatesh, et al., 2007). The TAM model is rooted in social psychology and presented two beliefs as the main factors for predicting the intention to use the system: Perceived usefulness (PU) and Perceived ease of use (PEOU) (Davis, et al., 1989).

Factors affecting the tax compliance of taxpayers in the context of electronic tax

Attitude towards electronic tax system shows the level of satisfaction or dissatisfaction of taxpayers with electronic tax. The result of a positive opinion is regarded as tax compliance, and vice versa, the result of a negative view as tax non-compliance (Manalu, et al., 2021).

Firstly, attitude towards electronic tax also profoundly influences the adoption of an electronic tax system regarding three aspects: perceived ease of use, behavioral intensity, and user satisfaction (Khaddafi, et al., 2018). In other words, the easier electronic tax is to use, the more motivated taxpayers are to be willing to adopt. Research by Wang, et al., (2003) shows evidence that confidence in one's computer ability affects intention to adopt electronic tax filing system by positively influencing perceived ease of use and perceived usefulness.

Secondly, research shows that there exists a relationship between attitude towards electronic tax and tax compliance as of Simuyu & Jagongo (2019); Ondara, et al., (2016); Maisiba & Atambo (2016); Al-Debei, et al., (2015). Chan, et al., (2000) found evidence that the lower satisfaction level of taxpayers with electronic tax, the lower their tax compliance.

Based on the recent studies reviewed above, the following hypotheses are developed:

Hypothesis 1a (H1a): Perceived ease of use has a positive impact on the adoption of the electronic tax.

Hypothesis 1b (H1b): Perceived usefulness has a positive impact on the adoption of the electronic tax.

Hypothesis 1c (H1c): Information technology skills has a positive impact on the adoption of electronic tax.

Literature review regarding tax compliance and factors influencing tax compliance

** Tax compliance*

Owing to being closely related to national financial management, tax compliance has always been a topic that received a lot of attention from experts in various fields. According to the Organization for Economic Co-operation and Development (OECD), tax compliance is the degree to which taxpayer complies (or fails to comply) with his or her country's tax regulations, for example by declaring income, filing returns, and paying taxes on time.

In the world, there have been many studies on the factors affecting the level of tax compliance of enterprises. The researchers use a variety of approaches, most of which focus on a particular country. Research by author Hazman (2009) shows that behavioral models affecting tax compliance are divided into two groups, including external and internal factors. The thoughts and perceptions of the taxpayer shape the behaviors and perception are internal factors, while the tax system, tax management methods, tax knowledge, legal agreements and trust in politics are considered external factors. In Vietnam, there are several studies on the factors affecting the tax compliance of SMEs. Pham, et al., (2016) believed that tax compliance behavior is most strongly influenced by factors including the structure of the tax system, characteristics of enterprises, quality of public administration and social norms.

** Effect of electronic tax adoption on tax compliance*

In reality, many reseaches around the world have proposed and proven the hypothesis that the electronic tax system can affect the level of tax compliance. Maisiba & Atamo (2016) argue that an electronic tax system can improve tax compliance because it promotes and allows users to quickly access the tax system without having to go directly to local tax authorities. Another study by Motwani, et al., (2015) shows that the electronic tax system which is easy to use, safe, provides easy payment modes along with a series of utilities and is suitable for users motivates users to pay taxes faster and be more tax compliant. People's negative attitudes about the tax system are similarly a factor in reducing tax compliance levels. Research by Chan, et al., (2000) in Hong Kong found that taxpayers' dissatisfaction with the electronic tax system will lead to reduced tax compliance levels. In Vietnam, Ha, et al., (2022) after conducting research on 435 businesses, confirmed their attitudes towards the electronic tax system and that the application of the electronic tax system has significant direct impacts to tax compliance. Furthermore, the adoption of an electronic tax system partly mediates the association between attitudes toward an electronic tax system and tax compliance according to the results from the study by Night & Bananuka (2020). Based on the studies mentioned and analyzed above, the authors propose the following hypothesis:

Hypothesis 2 (H2): The application of the electronic tax system positively affects the level of tax compliance.

Effect of factors in respect of facilitating conditions on tax compliance

Tax rate is one of the important factors in the tax base, determining the amount of tax payable. There are many studies around the world that have found evidence demonstrating the impact of tax rates on tax compliance. Most empirical studies demonstrate that high tax rates lead to an increase in tax evasion (Parka & Hyunb, 2003; Alm et al., 1992). The possibility of a tax audit is a determining factor in tax compliance. In a study by Allingham & Sandmo (1972), it was shown that there is a positive relationship between the penalty factor and the likelihood of being tax audited and the increase in taxpayers' actual income declaration. A higher probability of tax audit will have a positive impact on tax compliance (Shanmugam, 2003). Tax policy complexity and compliance costs are positively related to each other (Evans, 2003; Marcuss, et al., 2013). Tax implementation costs may increase if the implementation of electronic

declaration policies is not appropriate. Tax administration reform can have many benefits according to Walsh (2012), including a reduction in compliance cost.

In Vietnam, there are many studies that have studied the factors that affect the level of tax compliance of SMEs. Research by Ha & Loc (2021) evaluates the influence of factors on tax compliance behavior of enterprises in Dong Nai province through a least squares structural model. Research results show that, in descending order of influence, the factors that can be listed include organization of inspection and examination activities; skills of tax officials; organize professional activities of tax authorities; tax rate; faith in the integrity of tax authorities; types of enforcement and penalties and simplicity of declaration procedures.

From the analyzed studies, the authors developed the following hypotheses:

Hypothesis 3 (H3x). A coherent tax policy and efficient tax inspection have a positive impact on the adoption of the electronic tax.

Hypothesis 4 (H4). Tax compliance costs has a negative impact the adoption of the electronic tax.

Research model and methodology

Proposed research model

The research team proposed a model that is mainly inherited from the Technology Acceptance Theory Model (TAM) and the slippery slope model of tax compliance (The slippery slope). Based on proven theories, research, and the research objective which is to identify factors affecting tax compliance behavior of businesses in the context of applying electronic tax, the model includes independent variables including: (2) The adoption of electronic tax (AE), (3) Tax policies and tax inspection, (4) Compliance cost (CC); and the dependent variable is Tax compliance (TC). The group of factors within businesses includes: (1a) Perceived ease of use (PEOU), (1b) Perceived usefulness (PU) and (1c) Information technology skills (IT) are directly related to (2) The adoption of electronic tax. The proposed research model is outlined in Figure 1 below.

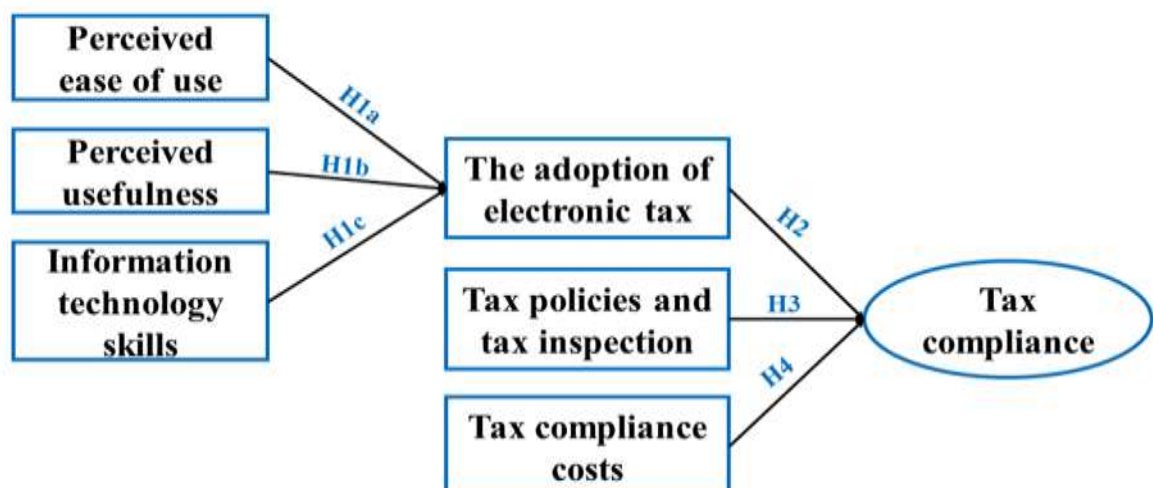


Figure 1. Research model framework

Source: Authors

Table 1. Variables measurement

Variables	Description	Code	Measurement	References
Perceived ease of use (PEOU)	Ease of use of the electronic tax system to fulfill tax obligations	PEOU1	The electronic tax system is easy, clear, and understandable	Mustapha & Obid, (2015); Le, et al., (2021); Ershaid, (2021)
		PEOU2	There are no difficulties using electronic tax to prepare and submit the tax return electronically	
		PEOU3	It would be easy for employees in our company to become skillful using the online tax service.	
		PEOU4	Instructions for using electronic tax system will be easy to follow.	
		PEOU5	The electronic tax system does not require a lot of mental effort to use.	
		PEOU6	A sense of ease of use of electronic taxation promotes adoption of electronic tax.	
Perceived usefulness (PU)	Necessity of the electronic tax system in the user's decision to use the system	PU1	Preparation of returns using electronic tax system is fast and efficient.	Le, et al., (2021); Night & Bananuka (2020); Gwaro, et al., (2016)
		PU2	The use of the electronic tax system helped payment and refund procedures more convenient.	
		PU3	The electronic tax system's use helped save management time, efforts, and reduce costs of tax returns.	
		PU4	The electronic tax system does not allow changes on the tax document once filed.	
		PU5	The electronic tax system will increase employees' productivity and improve their performance.	
Information technology skills (IT)	Ability to work flexibly on electronic tax-related software	IT1	Proficiency of internet usage will promote the adoption of electronic tax system	Wang, et al., (2003); Ondara, et al, (2016)
		IT2	Ability to use self-help menus on etax platform will help business to perform necessary procedures more easily, indirectly increasing tax compliance	
		IT3	Proficient in basic computer troubleshooting skills will stimulate the adoption of electronic tax system.	
		IT4	Understanding of electronic tax site navigation process will indirectly promote the adoption of electronic tax system	
Adoption of	The extent to which the	AE1	Our company uses electronic tax systems to file returns.	Night & Bananuka.

Variables	Description	Code	Measurement	References
electronic tax system (AE)	electronic tax system is used to fulfill tax obligations	AE2	Our company uses the electronic tax to ensure compliance with tax laws.	(2020); Ershaid. (2021)
		AE3	Our company use electronic tax to pay taxes and fees.	
		AE4	For tax compliance purposes, our company prefers using the electronic tax system over using a standard manual procedure.	
		AE5	Our company uses the electronic tax system to avoid tax penalties	
Tax policy & Tax inspection (TPTI)	Tax rates, the possibility of being audited – inspected by tax authorities tax penalties, complexity in tax policy	TPTI1	Simple and stable tax policies will promote more tax compliance.	Nguyen, (2021); Le, et al., (2021)
		TPTI2	The fairer and more transparent tax policy will promote the tax compliance of businesses.	
		TPTI3	All new regulations and tax policies have been timely updated and fully disseminated, helping businesses in tax compliance.	
		TPTI4	The higher the probability of tax examination, the higher tax compliance of the business	
		TPTI5	The higher the fine for non-compliance, the better tax compliance.	
		TPTI6	Tax officers have the ability to quickly and accurately solve jobs, supporting and encouraging business to comply with tax filing better.	
		TPTI7	Enterprises are published in the mass media about non-compliance with tax regulations will promote tax compliance.	
Tax compliance costs (CC)	The costs that taxpayers must pay when complying with tax procedures	CC1	Electronic tax system has led to reduced cost in tax filing and submitting returns.	Mativo, et al., (2015); Wimayo (2019); Evans & Tran-Nam, (2014)
		CC2	Electronic tax system has led to reduced opportunity cost (time to go to the tax office, time for queuing).	
		CC3	Electronic tax system helps save human resources (the cost of tax consulting, tax accounting...).	
		CC4	Electronic tax system has led to reduce the psychological costs (estimates of anxiety and stress resulting from complying with tax laws).	
		CC5	Tax collection through the electronic tax system without registration fee helps to promote adoption of electronic tax.	
Tax compliance	The extent to which	TC1	Our company always tries to submit tax returns on time.	Le, et al., (2021);

Variables	Description	Code	Measurement	References
(TC)	taxpayers comply (or do not comply) with tax regulations	TC2	Our company always tries to pay taxes on time.	Marti (2010); Night & Bananuka, (2020)
		TC3	Our company declares all income to the tax authorities for tax assessment.	
		TC4	Our company pays the taxes assessed by the tax authorities.	
		TC5	The information on the tax returns are accurate and fully reflects the business situation.	
		TC6	Our company is interested in and knowledgeable about the provisions of tax laws, especially those related to the rights and obligations of taxpayers.	
		TC7	Our company pays taxes first before any other fees.	
		TC8	Our company always submits returns on the electronic tax system and at the same time submit (hard copies) to the tax authorities.	
		TC9	Our company has been exempted from paying withholding tax	
		TC10	When our financial statements are not audited on the due date of filing returns, we still proceed with the submission. Once the due date is granted, we file within the granted period.	

The research model of factors affecting the level of tax compliance at SMEs in Northern of Vietnam in the context of applying electronic tax is expressed through the following two equations:

$$AE = \beta_1 * PEOU + \beta_2 * PU + \beta_3 * IT + \alpha \quad (1)$$

$$TC = \beta_1 * AE + \beta_2 * TPTI + \beta_3 * CC + \alpha \quad (2)$$

Data collection

The research team uses the questionnaire to collect primary data granted by its suitability for the purpose of collecting data from a large group of adults at an average cost and within a short period of time (Sekaran, 2003). The questions require both open and closed answers for the purpose of gaining more insights from respondent. The questionnaire's content was designed in accordance with the proposed research hypotheses and the variables used in this study. A 5-point Likert scale was also used so that the most accurate and realistic information could be extracted from respondents about what they had experienced. Five ratings included: "1-Totally disagree", "2-Disagree", "3-Neutral", "4- Agree" and "5-Totally agree".

The overall research target is all SMEs in the Northern provinces of Vietnam. For this overall study, the team used the Yamane Taro formula (1967) to calculate the appropriate sample size. The research team chose the reliability of 95%, $e = 7\%$ and $p = 0.5$ to maximize $p(1-p)$, ensuring the sample size calculation.

$$n = \frac{1.96^2 \times 0.5 \times (1 - 0.5)}{0.07^2} = 196$$

The questionnaire will be sent to the management or corporate tax accounting department with the following main methods: (1) sending the questionnaire to the enterprise via email; (2) sending to the General Department of Taxation and tax agencies to collect information about businesses in the Northern provinces of Vietnam; (3) Collecting a list of enterprises that still owe tax expenses, fines and late payment interest as of June 30th 2023 for reconciliation and checks.

The study was conducted from July 2023 to October 2023. The sample was collected by a convenient method in the form of a survey questionnaire (See Appendix 1). After a period of research and data collection, the number of valid surveys returned was 200/210. The reasons leading to invalid survey results are because the surveyed subjects choose 2 answers for the observed variable or only choose 1 answer, have never used or filled etax. The number of valid surveys were included in quantitative analysis by the authors.

Data analysis method

Descriptive statistical method will be selected by the team to consider and analyze the relationship between the application of the electronic tax system and the tax compliance level of SMEs in the northern provinces of Vietnam based on the perception and attitude with the taxpayer's electronic tax system as well as applicable costs and government policies. The Cronbach's alpha test method is used to test the validity and stability. Besides, exploratory factor analysis (EFA) was also applied by the team to check the reasonableness and accuracy of the variables, and to evaluate the relationship between the independent variables and the dependent variables. The team will also apply Pearson correlation analysis to test the hypothesis. This is done by using SPSS to check if there is a linear relationship between the independent and dependent variables.

In the final step, this study will apply the regression analysis method to explain the correlation between the independent variables and the dependent variable. In which the former includes The application of electronic tax, Tax policy - Tax inspection and Compliance cost, the later is The level of tax compliance. Moreover, the variables such as Perceived ease of use, Perceived usefulness, Information technology skills directly influence The adoption of electronic tax. The data analysis is mainly processed through the software SPSS 20.

Result and Discussion

Descriptive statistics

Research data was collected through the form of surveying with respondents from SMEs in Northern Vietnam provinces, with 200 valid responses giving the following statistical results:

Table 2. Analysis of enterprise characteristics.

Characteristics		Frequency	Ratio
Types of business	Single-member limited liability companies	46	23.0
	Multi-member limited liability companies	45	22.5
	Joint-stock companies	29	14.5
	Partnerships	10	5.0
	Sole proprietorships	51	25.5
	Others	19	9.5

Regarding types of business, the vast majority of companies from Northern Vietnam is in the forms of Sole proprietorships (25.5%), Single-member limited liability companies (23.0%) and Multi-member limited liability companies (22.5%), in respective of proportion sizes. Joint-stock companies take up a mediocre ratio of 14.5% while only 5% are Partnerships and 9.5% are Others. The results fairly represent the reality of enterprises.

The research uses median statistics for quantitative variables through their mean values and deviation, the results are summarised in Table 3.

Table 3. Descriptive statistics of quantitative variables

Component	Mean value	Standard Deviation
Perceived ease of use (PEOU)	3.40	.704
Perceive usefulness (PU)	3.56	.808
Information techonology skills (IT)	3.88	.663
Applying Electronic tax (AE)	3.85	.770
Tax policy & tax inspection (TPTI)	3.59	.809
Compliance cost (CC)	3.52	.756
Tax compliance (TC)	4.02	.743

The mean for variables varies from 3.52 to the highest of 4.02, describing the trend of agreement with all of the variables, except for “Perceived ease of use” (PEOU) which has the mean value of approximately 3.40, therefore respondents have neutral opinions regarding the statement that the electronic tax system is easy to carry out. Particularly, the mean value of the dependent variable “Tax compliance” (TC) is 4.0165 with the standard deviation of 0.74320. It means that on average, the surveyed SMEs have high level of complying with tax. However, as the variable measured presents the average minimum value of 1.7 when using the Likert scale 5 points, it represents that there are several SMEs that have not fulfilled all tax obligations. Moreover, it can be deduced that the respondents mostly agree with applying electronic tax with the mean value of 3.85. Regarding the independent variables, the mean value of “Information technology skills” recorded the highest value (3.86), stating that respondents agree that Information technology skills impacts the level of tax application and indirectly increases tax compliance. The standard deviation of the variables is < 1 overall, the data fluctuates weakly, and responses are indifferent.

Measuring the reliability and compatibility of data

** Cronbach's Alpha Reliability Analysis*

The scale and reliability of the scales of measurement using Cronbach's Alpha and EFA. Table 4 provides the reliability analysis results of Cronbach's Alpha for the following dimensions:

Table 4. Cronbach's Alpha coefficient results of the research's dimensions

Scale	Explanation	N of items	Cronbach's Alpha	Corrected Item-Total correlation	Cronbach's Alpha if item deleted
PEOU	Perceived ease of use	6	.854	.572	None
PU	Perceive usefulness	5	.854	.566	None
IT	Information technology skills	4	.837	.635	None
AE	Applying Electronic tax	5	.867	.596	None

TPTI	Tax policy & tax inspection	7	.857	.575	None
CC	Compliance cost (1 st test)	5	.809	.450	.813 (in accordance with CC2)
CC	Compliance cost (2 nd test; after removing CC2)	4	.813	.505	None
TC	Tax compliance	10	0.926	.614	None

Cronbach's Alpha result (Table 6) shows that all 7 components of the research model (except for "Compliance cost") have Cronbach's Alpha larger than 0.7 and their corrected itemtotal correlation larger than 0.5, therefore meeting requirements for scale reliability under the recommendation threshold value of Francis & White (2002) as well as Nunnally (1978).

Carrying out Cronbach's Alpha analysis on the second attempt for "Compliance cost" (after removing CC2), results show that the value equals $0.813 > 0.7$ and corrected item-total correlation is $0.505 > 0.5$, meeting reliability requirements. Thus, according to evaluation, CC2 is excluded from the model.

** EFA (Exploratory Factor Analysis) and Rotated Matrix*

EFA is performed three times with the coefficient extraction method Component Analysis and Varimax rotation. The first time is conducted with variables in 1st model including Perceived Ease of Use (PEOU); Perceived Usefulness (PU) and Information technology skills (IT). The second time includes four independent variables in 2nd model including: The application of electronic tax (AE) and 2 other independent variables respectively: Tax policy & Tax inspection (TPTI) and Compliance costs (CC). The third time focuses on the dependent variable Tax compliance level (TC).

EFA analysis for variables in 1st model

Table 5. KMO and Bartlett's Test (1)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.917
Bartlett's Test of Sphericity	Approx. Chi-Square	1409.122
	Df	105
	Sig.	.000

Source: SPSS data output

In the first time performing EFA for the variables of the first model for the three variables: Perceived Ease of Use (PEOU), Perceived Usefulness (PU) and IT Expertise (IT), the KMO index of 0.917 satisfies the condition $0.5 < 0.917 < 1$ according to Garson (2003). The Sig level recorded at $0.00 < 0.05$, shows that the data is suitable for further analysis and there is also a certain correlation between the variables.

Table 6. Total Variance Extracted (1)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.640	44.266	44.266	6.640	44.266	44.266	3.610	24.065	24.065
2	1.691	11.275	55.541	1.691	11.275	55.541	2.971	19.810	43.875

3	1.130	7.537	63.078	1.130	7.537	63.078	2.880	19.203	63.078
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Source: SPSS data output

Table 7. Rotated Component Matrix (1)

	Component		
	1	2	3
PEOU 1	.706		
PEOU 2	.728		
PEOU 3	.760		
PEOU 4	.644		
PEOU 5	.690		
PEOU 6	.695		
PU 1		.811	
PU 2		.632	
PU 3		.546	
PU 4		.763	
PU 5		.788	
IT 1			.822
IT 2			.801
IT 3			.735
IT 4			.761

Source: SPSS data output

Based on the analysis “Total variance extracted” table, the number of extracted factors is 3, equivalent to the number of independent variables in model 1 with the total variance extracted reaching 63,078%, greater than 50% and Eigenvalue value is equal to $1.130 > 1$. In addition, when using the Varimax method rotated matrix, all variables have factor loadings greater than 0.5. At the same time, there is no phenomenon of three factors of different nature converging but retains distinct with three groups corresponding to the number of observed variables.

EFA analysis for independent variable in 2nd model

Conducting EFA with independent variables, the KMO index reached 0.906, satisfying the condition $0.5 < 0.911 < 1$ according to Garson (2003). The Sig level recorded at $0.00 < 0.05$, proves that the data is suitable for proper analysis and there is also a certain correlation between the variables.

Table 8. KMO and Bartlett's Test (2)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.911
Bartlett's Test of Sphericity	Approx. Chi-Square	1733.441
	Df	136
	Sig.	.000

Source: SPSS data output

Table 9. Total Variance Extracted (2)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.447	43.808	43.808	7.447	43.808	43.808	4.157	24.455	24.455
2	1.850	10.884	54.692	1.850	10.884	54.692	3.513	20.666	45.121
3	1.121	6.477	65.169	1.121	6.477	65.169	2.728	16.048	65.169

Source: SPSS data output

Continuing the Varimax rotation, the results in Table 9 show that, at Eigenvalues value greater than 1 (equal to 1.121), the number of extracted factors is 3, equivalent to the initial theoretical model built. The total variance extracted reaching 65.169% > 50% is satisfactory (then it can be said that these 3 factors explain 65.169% of the variation in the data).

Table 10. Rotated Component Matrix (2)

	Component		
	1	2	3
TPTI 1	.756		
TPTI 2	.732		
TPTI 3	.577		
TPTI 4	.649		
TPTI 5	.507		
TPTI 6	.743		
TPTI 7	.630		
AE 1		.747	
AE 2		.774	
AE 3		.788	
AE 3		.687	
AE 4		.724	
CC 1			.776
CC 3			.870
CC 4			.835
CC 5			.520

Source: SPSS data output

According to Table 10 for the independent variables, the factor loading coefficients are all greater than 0.5, from 0.507 to 0.870, indicating that the observed variable has good statistical significance (Hair, et al., 2010). Therefore, EFA is appropriate for the methods and data are correlated in the population and could be used for subsequent analysis. Thus, the evaluated model ensures convergent and discriminant validity when analyzing exploratory factors with 15 independent observed variables.

EFA analysis for dependent variable

Conducting EFA analysis on 10 variables measuring the level of "Tax compliance (TC)" using the Principal Components extraction method and Varimax rotation, the results are in table 11.

Table 11. KMO and Bartlett's Test for Tax Compliance

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.927
Bartlett's Test of Sphericity	Approx. Chi-Square	1248.415
	Df	45
	Sig.	.000

Source: SPSS data output

Table 12. Total Variance Explained for Tax Compliance

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.238	62.385	62.385	6.238	62.385	62.385
2	.630	12.590	78.020			
3	.462	9.248	87.268			
4	.334	6.690	93.957			
5	.302	6.043	100.000			

Source: SPSS data output

Table 13. Unrotated Matrix for Tax Compliance

	Component
	1
TC 1	.798
TC 2	.802
TC 3	.822
TC 4	.790
TC 5	.828
TC 6	.775
TC 7	.812
TC 8	.769
TC 9	.681
TC 10	.698

Source: SPSS data output

Performing EFA for the dependent variable Tax compliance (TC), the coefficient KMO = 0.927 and Bartlett's Test with Sig = 0.000 is appropriate for the data. The variables are correlated with each other in the population. The factor loading coefficients of the tax compliance scale variables are all greater than 0.5, the Eigenvalues are 6.238 and the extracted variance is 62.385%. This factor explains 62.385% of the data variation of the 10 observed variables participating in EFA. Only a single factor was extracted from the included observed variables, which is a good indicator, meaning that the scale ensures unidirectionality, the observed variables of the dependent variable converge quite well.

Through EFA analysis of 15 scales of measurement for 3 variables on taxpayers' awareness to measure the level of electronic tax application (AE), 15 scales of measurement belong to 3 factors: AE, TPTI and CC, 10 scales of measurement of the tax compliance variable in the research model, these measurement variables

all meet the scale value requirements, so they are retained and included in the next multivariate regression analysis.

Pearson's correlation analysis

To answer the research question and test the research hypotheses, it is necessary to estimate the association between variables. Pearson correlation analysis was used to test the linear relationship between the independent variable and the dependent variables.

Table 14. Pearson Correlation analysis model 1

Constructs		AEtb	PEOUtb	PUtb	ITtb
AEtb	Pearson Correlation	1	.638**	.605**	.643**
	Sig. (2-tailed)		.000	.000	.000
	N	200	200	200	200
PEOUtb	Pearson Correlation	.638**	1	.405**	.518**
	Sig. (2-tailed)	.000		.000	.000
	N	200	200	200	200
PUtb	Pearson Correlation	.605**	.405**	1	.415**
	Sig. (2-tailed)	.000	.000		.000
	N	200	200	200	200
ITtb	Pearson Correlation	.643**	.518**	.415**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	200	200	200	200

“***” Correlation is significant at 0.01 level (2 tailed)

Source: SPSS data output

Based on the results in the correlation matrix, we can see a high degree of correlation between AE and the formative variables. Among them, IT has the highest correlation with AE (beta = 0.643, $p < 0.01$) compared to PEO and PU. Overall, PEOU (beta = 0.638, $p < 0.01$) and PU (beta = 0.605, $p < 0.01$) also had a high correlation with AE. Thus, all three variables are statistically significant at the level ($\alpha < 0.01$), which confirms the correctness of the assumptions related to the influence of variables on the level of electronic tax adoption.

Table 15. Pearson Correlation analysis of independent variables and dependent variable

		TCtb	AEtb	TPTItb	CCtb
TCtb	Pearson Correlation	1	.776**	.654**	.537**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	200	200	200	200
AEtb	Pearson Correlation	.776**	1	.389**	.402**
	Sig. (2-tailed)	.000		.000	.000
	N	200	200	200	200
TPTItb	Pearson Correlation	.654**	.389**	1	.418**
	Sig. (2-tailed)	.000	.000		.000
	N	200	200	200	200
CCtb	Pearson Correlation	.537**	.402**	.418**	1
	Sig. (2-tailed)	.000	.000	.000	

N	200	200	200	200
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“***” Correlation is significant at 0.01 level (2 tailed)

Source: SPSS data output

According to Cogen (1998), all factors are highly correlated with the dependent variable TC. Among them, AE has the most correlation (beta=0.776, $p=0.000 < 0.01$) with the dependent variable Tax compliance level (TC). All three independent variables are statistically significant at the level ($\alpha < 0.01$), so there is a linear relationship between these independent variables and the dependent variable. In addition, the independent variables are correlated ($\text{sig} < 0.05$) but the absolute value of the correlation coefficient is less than 0.5, the largest is 0.418, so the possibility of collinearity between them is relatively low. This is a good premise for regression analysis in the next step.

Multiple regression analysis

Regression analysis of the model (1)

Equation to evaluate factors affecting The adoption of electronic tax (AE) with these variables: Perceived ease of use (PEOU), Perceived usefulness (PU), IT Expertise (IT).

The results of regression analysis of model (1) are shown in Table 18.

Table 16. Regression analysis of model (1)

Model summary					
Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin - Watson
1	0.756 ^a	0.630	0.624	0.38464	1.827

Predictors: (Constant), ITtb, PEOUtb, PUtb
Dependent variable: AEt

ANOVA ^a						
Model		Sum of squares	Df	Mean square	F	Sig.
1	Regression	70.743	2	25.372	74.228	0.000 ^b
	Residual	47.335	197	.342		
	Total	118.078	199			

a. Predictors: (Constant), ITtb, PEOUtb, PUtb
b. Dependent variable: AEt

Coefficients								
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.553	.219		4.716	.000		
	PEOUtb	.715	.062	.725	7.779	.000	.512	1.245
	PUtb	.678	.054	.696	6.766	.006	.634	1.576
	ITtb	.624	.056	.673	6.547	.015	.678	1.342

a. Dependent variable: AEt

Source: SPSS data output

From the model coefficients (Table 18), we obtain the regression equation:

$$AE = 0.725 PEOU + 0.696 PU + 0.673 IT + 0.553$$

The results of multivariate regression analysis show that the general correlation coefficient is $R = 0.756$ and the adjusted level $R^2 = 0.624$ shows that the 3 observed variables explain 62.4% of the variation of AE. Such a model is considered appropriate and highly effective in explaining variance values.

The coefficient test results show that all elements of the equation are statistically significant ($Sig. < 0.1$). In particular, PEOU has a greater impact on AE ($Beta = .725$, $Sig. = 0.000$); followed by PU ($Beta = .678$, $Sig. = 0.006$) and IT ($Beta = .624$, $Sig. = 0.015$) have the lowest influence on AE in the regression equation.

Positive beta weights show the positive influence of factors on the level of electronic tax application and the influence increases when the index of PEOU, PU, and IT increases.

Therefore, hypotheses H1a, H1b, and H1c are all accepted.

Regression analysis of the model (2)

Table 17. Regression analysis of model (2)

Model summary								
Model	R	R square	Adjusted R square	Std. Error of the estimate	Durbin – Watson			
1	0.857 ^a	0.781	0.758	0.45881	2.006			
a. Predictors: (Constant), AEt _b , CCt _b , TPTIt _b								
b. Dependent variable: TCt _b								
ANOVA ^a								
Model		Sum of squares	Df	Mean square	F	Sig.		
1	Regression	71.435	4	17.859	84.839	0.000 ^b		
	Residual	41.048	195	.211				
	Total	112.483	199					
a. Predictors: (Constant), AEt _b , CCt _b , TPTIt _b								
b. Dependent variable: TCt _b								
Coefficients								
Model		Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.527	.216		2.439	.016		
	AEt _b	.815	.061	.832	9.431	.000	.476	1.103
	TPTIt _b	.663	.069	.652	6.797	.000	.501	1.594
	CCt _b	-0.44	.052	-0.44	-.848	.397	.692	2.444
a. Dependent variable: TCt _b								

Source: SPSS data output

ANOVA test results with Sig. <0.05 shows that the model linearity is consistent with method (2).

The results of multivariate regression analysis show that the general correlation coefficient is $R = 0.857$ and the adjusted level $R^2 = 0.758$ shows that the 3 independent variables explain 75.8% of the variation of the dependent variable TC. Among them, AE has the greatest impact on TC (Beta=0.832, Sig. = 0.000); followed by TPTI (Beta=0.652, Sig. = 0.000) which has a lower influence on the dependent variable in the regression equation.

Positive beta weights show the positive influence of factors on the level of tax compliance when the index of AE and TPTI, the influence increases when the index of factors increases. From here, hypotheses H2 and H3 are both accepted.

On the other hand, CC has a t-test sig value of $0.397 > 0.1$, so this variable is not meaningful in the regression model, or in other words, this variable has no impact on the dependent variable TC. Such result is not consistent with our expectations based on our hypothesis, so hypothesis H4 is rejected.

Discussion

The study was based on quantitative methods to demonstrate the impact relationship of The level of electronic tax application (AE), Tax inspection & tax policy (TPTI) and Information technology skills (IT) on The level of tax compliance (TC) of Vietnamese enterprises. Among them, The level of electronic tax application (AE) has the greatest influence on businesses' tax compliance (TC). For every unit change in the level of electronic tax adoption, tax compliance recorded an increase of 0.832 units. This raises concerns about improving the level of electronic tax application for SMEs in the Northern region. In addition, the tax inspection policy also recorded a relatively large impact on tax compliance with an adjustment value of 0.652 per unit change. This confirms the influence of tax policies and tax inspection on the level of electronic tax application by businesses. As policies and inspections are strengthened, the level of application will increase, meaning the ability to improve tax compliance. Thus, the level of tax compliance of SMEs in the Northern region of Vietnam can be improved and enhanced according to the level of electronic tax application of each unit as well as under the close supervision of tax policy and tax inspection.

Besides, in-depth analysis of the relationship between impacts from users themselves and the tax system, the study shows a positive relationship between perceived ease of use, perceived usefulness and the level of electronic tax application. In particular, for every unit change in perceived ease of use, the level of electronic tax adoption will increase by 0.725 units. This level of impact is recorded to be higher than increasing awareness of the usefulness of electronic tax or increasing the Information technology skills level of each enterprise, when the above two variables change from 0.696 and 0.696 respectively. 0.673 units of electronic tax application level. Thereby, the study concludes the influence of perceived ease of use on the level of electronic tax application by businesses. When businesses and taxpayers' awareness of the ease of use is enhanced, the level of application will increase accordingly, meaning the ability to improve tax compliance.

Moreover, most employees working for 3-10 years will only participate in tax training 1-2 times, mainly for in the finance department. Meanwhile, 88% or more of people who have participated in tax training 2 times or more feel that the tax system is easy to implement, clear and easy to understand. This indicates that the process of preparing declarations using the electronic tax system is quick and effective. When businesses improve the amount of tax training, users of the electronic tax system will maximize the advantages of the system and productivity for businesses, or in other words, indicating that the tax system is relatively good and enable to use. At the same time, educational programs and tax awareness campaigns will help taxpayers clearly understand their responsibilities and encourage compliance. Thus, strengthening education about electronic tax so that people and businesses can clearly understand the tax payment process and how to register, declare and pay taxes on the electronic tax system is necessary. Therefore, the level of tax compliance of businesses as well as individual taxpayers will increase, ensuring the rights of both taxpayers, businesses and the government.

Implications and recommendations

Through the above conclusions, the research team proposes a number of recommendations below with the aim of not only improving the tax compliance level of SMEs in Northern Vietnam but also perfecting the tax policies and electronic systems.

Firstly, increase tax education and awareness: Tax authorities can organize training sessions to use the internal tax system within businesses or extend it to businesses, especially for SMEs. At the same time, with the development of information technology, tax authorities can see it as an effective solution to increase propaganda effectiveness. In addition to available propaganda methods such as sending announcements about tax policies/obligations to relevant subjects through platforms such as Zalo, SMS or Gmail...; Visually impressive creative propaganda articles with training content on how to use the tax system can be shared via the most modern social networking platforms, where users can access them every day, every day, hour. In addition, training content on tax law and tax obligations of citizens and businesses can be included in training at schools, training facilities... to orient and form foundation for understanding and building future tax compliance behavior. Internally, businesses cooperate with tax authorities to enhance tax training sessions, improve employees' understanding of their rights and obligations, and ensure employees can access and use tax-related platforms, platform as well as the electronic tax system to increase the working efficiency of relevant department staff.

Secondly, simplify regulations and transparency in provisions related to electronic tax: Tax authorities need to regularly upgrade tax administrative procedures and ensure publicity, clarity, and transparency performed in registration, declaration, payment, and tax refund activities. Besides complicated laws and wordy legislation, tax authorities could summarize and briefly express the laws and procedures appropriate for each type of business instead of one set of laws for all types of businesses. Complex regulations might confuse taxpayers and decrease tax compliance. Moreover, tax policy also needed to be reviewed annually and handled when detecting inadequacies or problems. During the period of improving tax policies, tax authorities need to promote the receipt, processing, and timely response to complaints and recommendations from taxpayers.

Thirdly, improve the quality of the tax system and tax management competence: Improving the tax management system and enhancing the ability to provide effective tax management services is an important part of improving tax compliance. The advanced tax management system will help minimize errors and make it easier for taxpayers and businesses to register, declare and pay taxes. The tax system needs to be regularly monitored, upgraded and improved according to recommendations from users. At the same time, it is necessary to understand the needs and usage habits of taxpayers to maximize the ease of use of the tax system, electronic tax system. The system interface and navigation bars need to be adjusted and designed to be user-friendly. In addition, management capacity is also reflected in staff working at tax agencies. It is necessary to ensure professional competence, understanding and vision for the team of tax inspectors and examiners at tax agencies, ensuring the professional working attitude of officials when receiving people as well as as with businesses.

Fourthly, strengthen inspection, supervision and adjustment of forms and levels of penalties for tax violations: Periodic inspection and auditing of taxpayers can help detect violations and efforts to circumvent electronic tax laws. This will create virtuous circles of warning for the entity and ensure the fairness and efficiency of the tax compliance process. Therefore, it is necessary to maintain inspection activities integrated with information technology systems to ensure that the steps are carried out smoothly and effectively for not only tax officials but also for taxpayers. In addition, tax authorities need to adjust the groups of sanctions to be equivalent to the violations, ensuring that violators are able to accept the penalties, avoiding loss of revenue for the state budget. Not only in terms of fines, it is necessary to consider additional incentives for violators to comply with short-term penalties with a cooperative attitude or voluntarily comply with actual penalties instead of evading them.

Conclusions

The study focused on studying the relationship between three independent variables: Level of electronic tax application (AE); Tax policies & Tax inspection (TPTI); Tax compliance costs (CC) and the dependent variable is The level of tax compliance of the enterprise (TC), in which the formative variables include: Perceived ease of use (PEOU); Perceived usefulness (PU) and Information technology skills (IT) have a positive relationship with the variable Level of electronic tax application (AE). However, the issues affecting the level of electronic tax application are still limited and issues related to information security when uploading information to the website of the electronic system have not been considered. the information processing speed of the system, the trust in the government of businesses as well as employees in general. The above research still has some shortcomings, only focusing on SMEs in Northern Vietnam, so expanding the scope of the research can provide a more comprehensive picture of the actual situation. needs and problems when applying electronic tax of businesses as well as having separate and more specific measures to improve tax compliance in Vietnam and around the world. At the same time, future research articles can learn more information about individual taxpayers: their experiences, expectations and problems when using the electronic tax system as well as the factors affecting their level of tax compliance. In addition, the research focuses on understanding the effects of tax policy in Vietnam on SMEs in Northern Vietnam, but tax policies in different countries are different, so appropriate adjustments are needed when research on this issue to suit the research object.

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