The impact of attitude towards an e-tax system on tax compliance of Vietnamese enterprises: Adoption of an e-tax system as a mediator

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Abstract

PURPOSE: Tax compliance is a topic of concern for many scholars all over the world. Most of them point out factors affecting tax compliance, and one significant factor is the adoption of tax compliance. However, there have not been many studies analyzing the relationship between attitude towards an e-tax system, adoption of an e-tax system, and tax compliance. This paper aims to investigate the mediating impact of adoption of an e-tax system in the association between attitude towards an e-tax system and tax compliance based on empirical evidence from Vietnamese enterprises. **METHODOLOGY**: On the basis of the Theory of Reasoned Action (TRA), the research model is proposed. Accordingly, hypotheses are developed and this study applies a quantitative analysis with a research sample of 435 Vietnamese enterprises. The questionnaire includes close-ended questions sent to managers or tax accounting officers at enterprises by three methods: directly interviewing, via e-mail, and via the General Department of Taxation. The collected data are then processed and analyzed by SPSS v.22 and AMOS. The study applies Cronbach's Alpha as a tool for assessing the reliability or internal consistency of scales. Following is the exploratory factor analysis (EFA). Finally, regression analysis is used to evaluate the impact of the independent variables on the dependent variable and to estimate the research model. **FINDINGS**: There are significant direct effects of the two independent variables, attitude towards an e-tax system and adoption of an e-tax

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system, with the dependent variable tax compliance. Furthermore, the adoption of an e-tax system partially mediates the association between attitude towards an e-tax system and tax compliance. This mediating effect positively consolidates the impact of attitude towards an e-tax system and tax compliance. **IMPLICATIONS**: This paper mainly focuses on the tax compliance of Vietnamese enterprises that could be further studied with foreign enterprises that have been operating in Vietnam. Besides, the research is conducted in the context of Vietnam, thus, it is a reference for studies in other developing countries having a similar economy or tax administration. **ORIGINALITY/VALUE**: This study contributes to enhancing research associated with tax compliance, especially investigating the mediating impact of adoption of an e-tax system in the association between attitude towards an e-tax system and tax compliance of enterprises in the context of Vietnam. The findings of the study suggest some policy implications for improving tax compliance in Vietnam including (1) continuously improving the information technology infrastructure for both tax authorities and enterprises; (2) widely disseminating tax law and providing support services to enterprises; (3) upgrading the e-tax system to ensure the effective coordination between tax authorities, tax officials, enterprises, and other authorities in applying e-tax; (4) consolidating the supervision and assessment of the adoption of e-tax; (5) promoting information and education on the perception of complying with the tax law for taxpayers in particular and the entire population in general; (6) developing a tax administration strategy based on tax compliance.

Keywords: e-tax system adoption, attitude towards an e-tax system, e-tax, enterprises, tax compliance, Theory of Reasoned Action, TRA.

INTRODUCTION

Tax is one of the main sources of the state budget revenue and is also an important tool for the government to regulate the macro economy, promote investment, curb inflation, protect domestic production, and redistribute wealth and income in the society. According to the state regulations, tax is a payment that is a compulsory obligation for subjects including organizations, households, business households, and individuals in order to ensure the state budget revenue.

The tax system in Vietnam, as well as in other countries in the world, is considered an important element in the governance of the economic and financial legal system. In the process of renovating and building a socialist-oriented market economy, the role of the tax legal system has become more and more clear, having crucial impacts on the process of economic restructuring, improving the business environment, improving national competitiveness, supporting business development, and ensuring financial resources for the effective operation of the state and society.

In regard to taxation, most countries all over the world have followed the trend of improving the two-way relationship between tax authorities and taxpayers from a "head-to-head" relationship to a "companion" relationship. To specify, the traditional tax collection mechanism that was implemented by the tax authorities to calculate and notify the taxpayers to pay their taxes has been replaced by a self-calculation, self-filing, and self-paying tax collection mechanism, in which taxpayers are responsible for their tax declaration and payment. By integrating with that trend, the tax administration in Vietnam has implemented a bunch of measures to promote administrative procedure reform with a taxpayer-centered orientation. In recent years, the General Department of Taxation has increasingly applied information technology in tax administration reform through implementing electronic filing, electronic invoicing, and electronic refunding. Up to now, the electronic tax system has been adopted in 63/63 provinces and cities and 100% of tax departments. The number of enterprises using the electronic tax system has reached 99.93%. Moreover, all the tax departments have implemented electronic tax payment services by associating with more than 50 commercial banks (VCCI, 2019). By the end of 2018, there were 685,578 enterprises registered to use the electronic tax payment service, which reached a rate of more than 98%. The number of enterprises completing service registration with a bank is 672,609, accounting for more than 96% of the total number of operating businesses. The amount paid to the state budget reached over 557.697 billion dongs, equivalently 2,940,678 transactions of electronic tax payment (VCCI, 2019). In parallel, the General Department of Taxation has also implemented electronic tax refund applications in 63 provinces and cities; constructed and implemented a pilot electronic invoice system, and provided online public services. In 2019, the General Department of Taxation continued to review and amend supplement institutions and policies to simplify administrative procedures (VCCI, 2019).

The electronic tax services have brought significant benefits to enterprises and are a modern administrative tool for tax authorities. According to the report "Assessment of tax administrative procedure reform – the level of enterprises' satisfaction in 2019" (VCCI, 2019) on electronic tax services, 97% of enterprises indicate that the level of implementation of electronic tax procedure, electronic tax registration and electronic tax payment are "easy" and "relatively easy." Most taxpayers agree that electronic tax payment saves their time and tax payment procedures are easy to follow. In addition, there are still some difficulties related to the adoption of e-tax including data transmission congestion at the reporting period (47%), the cost of using digital signatures (15%), and regulations from commercial banks (7%) (VCCI, 2019).

However, the problem is whether the tax system, based on the application of technology, is as effective as expected or is creating loopholes for tax avoidances, tax evasion, and tax non-compliance, resulting in the loss of state budget revenue. The period 2016-2019 witnessed a significant increase in newly established enterprises, specifically, there were 110,100 new enterprises in 2016, 126,859 new enterprises in 2017, 131,275 new enterprises in 2018, and 138,139 new enterprises in 2019 (General Statistics Office, 2020). Whilst this is a positive signal for the economy, it is also a challenge for tax authorities to effectively manage tax collection with not only enterprises in particular but also taxpayers in general, in which taxpayers' compliance is always considered the most important factor for tax authorities.

According to VCCI (2019), the rate of enterprises sanctioned for administrative violations after-tax inspection and examination across the country is 70%. This proves that the level of enterprises' compliance is not really high, and it is necessary to overcome this situation. Meanwhile, reports of the General Department of Tax in the period 2016-2020 have shown that, in terms of attitude towards an e-tax system, a number of taxpayers have not complied with tax law and tax regulation, even trying to evade and avoid tax. This consequence is that the tax debt was still at a high level in comparison to the total state budget and the majority belongs to irrecoverable tax debts and fines. In terms of adoption of an e-tax system, it has been reported that the coordination, connection, and exchange of information among ministries, especially tax authorities among different regions in Vietnam was limited due to the unsynchronized infrastructure (General Department of Tax, 2016-2020). This practical evidence implies that the attitude towards an e-tax system of taxpayers and the adoption of an e-tax system might influence taxpayers' level of compliance. From the theoretical perspective, Night and Bananuka (2018) conducted research to examine the mediating effect of adoption of electronic tax system in the relationship between attitude towards electronic tax system and tax compliance using evidence from small business enterprises (SBEs) in Uganda – a developing African economy. The above-mentioned reasons inspired the authors to investigate the topic related to the relationship among attitude towards an e-tax system, adoption of an e-tax system, and tax compliance in the context of Vietnam based on empirical evidence from Vietnamese enterprises. This paper raises three research questions (RQ):

RQ1) How does attitude towards an e-tax system impact tax compliance of Vietnamese enterprises?

RQ2) How does adoption of an e-tax system impact tax compliance of Vietnamese enterprises?

RQ3) Does adoption of an e-tax system mediate the relationship between attitude towards an e-tax system and tax compliance of Vietnamese enterprises?

To answer these questions, this research adopts the Theory of Reasoned Action (TRA) as the basis to develop the conceptual framework and hypotheses. It is followed by a quantitative analysis with a research sample of 435 Vietnamese enterprises. The collected data are then processed and analyzed by SPSS v.22 and AMOS. The study applies Cronbach's Alpha as a tool for evaluating the reliability or internal consistency of scales. Following is the exploratory factor analysis (EFA) to explore the underlying structure of a set of observed variables and consider convergence and differentiation of group variables, thereby, removing meaningless observation variables to improve research results. Finally, regression analysis is used to evaluate the impact of the independent variables on the dependent variable and to estimate the research model. On the basis of research results, the study proposes recommendations on the adoption of electronic tax to improve tax compliance of enterprises.

The rest of the paper is organized as follows. The next section is a literature review where previous studies are summarized and discussed to arrive at the hypotheses. The following section is a methodology where the research design is clarified in detail and the results are shown. After the discussion of the results are the conclusion and implications.

LITERATURE REVIEW

Tax compliance

Tax compliance is defined as "the willingness of the taxpayers to act in accordance with both the 'spirit' and the 'letter' of the tax law and administration without the application of enforcement activity" (James & Alley, 2002). According to Marti (2010), tax compliance is fulfilling all the tax obligations as stated by the law willingly and fully. Singh (2003) also defines tax compliance as an act of lodging the income tax return form, stating all the taxable income truthfully, and paying all the tax obligations. There are a lot of international and national scholars who have conducted research about tax compliance. One of the pioneers in studying tax evasion and tax compliance are Allingham and Sandmo (1972), and Srinivasan (1973). The theory of tax evasion, applied and developed by these scholars, is seen as the very first study about tax evasion using the quantitative method. Allingham

and Sandmo (1972) argue that taxpayers are always trying to find a way to maximize the benefit of their taxable income and this is influenced by the cost of compliance and benefit of tax evasion. According to the Allingham and Sandmo's (1972) theory, the compliance decision depends on four main factors: the taxpayer's real income, tax rate, audit probability, and punishment. A series of empirical studies have followed the theory, these studies all support and reinforce the conclusion that the punishment and the possibility of being audited will result in reducing tax non-compliance (Pate & Hamilton, 1992; Jackson & Jaouen, 1989; Dubin, 2007; Alm et al., 1992b; Baldry, 1986; Webley, 1991).

Tax compliance has been classified by many scholars with different approaches. According to Brown and Mazur (2003), tax compliance is divided into declaration compliance (proportion of taxpayers filing tax returns), payment compliance (paying taxes on time as prescribed), and reporting compliance (reporting honestly about income, expenses, or tax liability/responsibility). According to the OECD, there are two types of tax compliance: administrative compliance (compliance with the provisions of tax laws) and technical compliance (correct and sufficient tax declaration and payment in accordance with regulations), while Kirchler et al. (2008) indicate that tax compliance includes voluntary compliance and mandatory compliance.

Tax compliance has been approached from different perspectives. The main concern of most governments is that individuals and organizations fulfill tax obligations as well as execute tax regulations regardless of tax incentives. Even so, tax compliance could be the result of different motivations. It is possible to divide the factors affecting tax compliance into two groups: a group of *economic factors* and a group of *social factors*. From an economic point of view, theories consider taxpayers as rational people who have concerns about the costs and benefits of tax compliance as well as possible outcomes (Hasseldine, 1993).

Economic factors include tax rates, the possibility of a tax examination, penalties, and tax compliance costs. Tax rates are one of the most important bases, or the "soul" of a tax, as they directly determine the amount of tax payment. According to Schneider and Klinglmair (2004), Jackson et al. (1988), Mason and Calvin (1984), there is a relationship between tax evasion and marginal tax rates, in particular, tax rates have a positive effect on money holdings and tax evasion increases with the tax rate. In other words, the higher the tax rate, the more likely a taxpayer is to evade taxes (Schneider & Klinglmair, 2004; Jackson et al., 1988 Mason & Calvin, 1984). Similarly, the possibility of tax examination as a factor that strongly impacts taxpayers' tax compliance has been demonstrated in many studies such as Alm et al. (1992b), Andreoni et al. (1998), Dubin et al. (1990), Jackson and Milliron

(1986a). Some other studies also reinforce that audits have a positive effect on reducing tax fraud (Jackson & Jaouen, 1989). In terms of penalties, Swistak (2016), Grasmick and Scott (1982), Friedland (1982) prove that tax penalties are one of the tools that can be used to effectively prevent tax evasion. According to Swistak (2016), the higher the fine level, the more it contributes to limiting tax evasion as taxpayers tend to balance the benefits of tax evasion and the corresponding penalty for that act. Both high and low penalties have a corresponding effect on the level of tax compliance. The last economic factor is compliance costs which directly impact taxpayers' compliance.

In contrast, *the social factors* include ethical standards, tax ethics, reputation and perceived fairness. Research by Torgler (2003a); Torgler and Murphy (2004), Torgler and Schneider (2009); Torgler (2005b) prove that tax ethics is "the existence of an intrinsic motivation to pay taxes" or considered as "a normative behavior guiding taxpayers in fulfilling their tax obligations." In other words, tax ethics influence ethical principles or individual values for the payment of taxes (Torgler & Murphy, 2004). Besides, Andreoni et al. (1998) and Kim (2003) found that the reputation of enterprises in particular, and taxpayers in general, is achieved and enhanced through implementing corporate social responsibility, complying with the law, and paying taxes based on regulations. Therefore, taxpayers have fears of social stigma or damaged reputations if they were reported as tax fraudsters. This could result in a higher level of taxpayers' compliance (Kim, 2003). According to Jackson and Milliron (1988), perceived fairness significantly influences tax compliance (but the impact dimension is still controversial and has not come to a consistent result among different studies).

In terms of *psychology and behavior approach*, a number of scholars (Elffers et al., 1987; Murphy, 2004; Tan, 1998; Torgler & Murphy, 2004) argue that the human factor is the decisive factor impacting the decision of tax compliance. Torgler is one of the remarkable authors studying tax compliance factors from the perspective of psychological and behavioral theory (Torgler, 2002; Cummings et al., 2009; Torgler, 2003a; Alm & Torgler, 2011; Torgler, 2005b; Torgler et al., 2008; Alm & Torgler, 2006; Frey & Torgler, 2007; Torgler, 2005a). These studies indicate that ethical standards have a positive effect on tax compliance behavior and tax compliance behavior of different cultures is not similar.

Electronic tax system in relation to attitude towards electronic tax system and adoption of electronic tax system

According to Che-Azmi and Kamarulzaman (2014), the e-tax system is based on the application of information and communication technology that most

governments all over the world have been using to improve the provision of public services and public administrative procedures. The e-tax system is considered as the process of assessing, collecting, and managing the taxation process through an electronic system (Oloaye & Atilola, 2018). In similarity, Wasao (2014) defines the e-tax system as an online platform that allows taxpayers to access tax services and fulfill their tax obligations through the internet. Lee (2016) also indicates that the e-tax system contains powerful tools, which not only enable the integration of tax information provided by taxpayers, but also reduce tax compliance costs with efficient, transparent, and trustworthy services that ultimately enhance tax ethics and trust in tax administration. Nasir (2015) argues that the e-tax system, in particular for tax filing and paying, would benefit both taxpayers and tax authorities if it was well implemented and used by most taxpayers. Besides, other authors admit the positive impact of the e-tax system on tax compliance (Allahverdi et al., 2017; Barati & Bakhshayesh, 2015). Maisiba and Atambo (2016) also support the conclusion that the e-tax system improves tax compliance by facilitating faster access to tax services without the need for tax authorities. These authors focus on the e-tax system which was established by Kenya Revenue Authority to increase financial collection, administration, avail services to the taxpayers all the time from anywhere, reduce costs of compliance and improve tax compliance. The e-tax system enables for taxpayers an internet-based PIN registration, returns filing, and payment registration to allow for tax payments and status inquiries with real-time monitoring of accounts. Thus, in comparison to the old manual system, the electronic system is good and convenient by far. It reduces queues, workload, physical filing of large files, and cumbersome registration processes by both Kenya Revenue Authority officials and the government (Maisiba & Atambo, 2016).

There is a relationship existing between attitude towards an e-tax system and tax compliance that is proved by a number of researchers such as Simuyu and Jagongo (2019); Ondara et al. (2016); Maisiba and Atambo (2016); Al-Debei et al. (2015). Chan et al. (2000) find that the lower the level of taxpayers' attitude towards an e-tax system, the lower the level they comply with tax laws. In confirmation, Al-Debei et al. (2015) also propose that taxpayers are willing to trust and adopt the e-tax system when they perceive or evaluate it to be secure. In contrast, taxpayers who evaluate the e-tax system as not easy to use do not adopt it, which affects tax compliance (Maisiba & Atambo, 2016). In addition, Ondara et al. (2016) emphasize a strong relationship between attitude towards an e-tax system and tax compliance. This is later proved by Simuyu and Jagongo (2019) study that when e-tax filing is easy, simple, and secure to file, it could improve taxpayers' compliance.

Furthermore, the attitude towards an e-tax system also significantly influences the adoption of an e-tax system based on three aspects: perceived ease of use, the intensity of behavior, and the users' satisfaction (Khaddafi et al., 2018). In other words, the easier the e-tax system is to use, the more motivated and more willing taxpayers are to apply it. This also partly results in the effective interactions between the e-tax system and taxpayers. It is remarkable that taxpayers with computer skills will find an e-tax system easier to adopt than those without (Zaidi et al., 2017). Indeed, these skills are found to influence the individual's perception that a system is easy to use. The higher the computer skills an individual possesses, the more the individual will perceive that the technology is easy to use (Igbaria & Livari, 1995; Venkatesh & Davis, 2000; Wang et al, 2003). The study by Wang et al. (2003) also proves that computer self-efficacy affects the intention to adopt an electronic tax filing system by positively affecting perceived ease of use and perceived usefulness. The research by Zaidi et al. (2017) confirms a positive and significant relationship between computer skills and the perceived ease of use of an e-tax system. That is, individuals with higher computer skills will perceive that using an e-tax system is easy.

The attitude towards the electronic tax system impacts the tax compliance behavior of the taxpayers. Thus, this study examines this relationship in the context of Vietnam to confirm whether there are any differences. Thereby, the first hypothesis is as follows:

H1: There is a positive relationship between attitude towards an e-tax system and tax compliance.

The adoption of e-tax has become essential in developed countries and developing countries towards the trend of reforming tax administration through using information systems (Ondara et al., 2016). According to Lee (2016), the adoption of e-tax significantly contributes to both tax compliance and the transparency of business transactions and tax services. From the policy perspective, if the e-tax system is well-planned and well-executed, it could lead to a higher level of tax compliance. From the tax compliance process approach, Becker and Lacktorin-revier (2008) and Muturi and Kiarie (2015) argue that the implementation of e-filing and e-billing has significantly positive effects on the compliance of individual taxpayers. Similarly, Muturi & Kiarie (2015) emphasize that there is a positive relationship between e-registration and tax compliance of VAT. Besides, a study of the e-tax system in India by Motwani et al. (2015) indicates that although the adoption of e-tax in this country is not compulsory, e-filing of tax returns and e-payment

still increases tax compliance of taxpayers. Findings by Muturi and Kiarie (2015) from Kenya also support the previous ones that there is a strong positive correlation between the adoption of the e-tax system through online tax registration and online tax return filing. In summary, the adoption of electronic tax system influence taxpayers' compliance. Therefore, this paper proposed the second hypothesis to investigate how the adoption of an e-tax system impacts tax compliance of Vietnamese enterprises as follows:

H2: There is a positive relationship between adoption of an e-tax system and tax compliance.

The relationship between attitude towards an e-tax system and adoption of the e-tax has also been proved by a number of studies including Barati et al. (2014); Asianzu and Maiga (2012); Ramlah (2010); Jahangir and Begum (2008). Findings by Barati et al. (2014) show that the level of adapting to the e-tax system depends on the attitudes of the taxpayer. These attitudes are demonstrated by perceived risk in relation to breaking privacy and disclosure of information. Similarly, Asianzu and Maiga (2012) argue that taxpayers in Uganda are not ready to use the e-tax system if they have negative attitudes towards it. In another study, the perception towards online tax filing in terms of ease and simplicity to file has a very close relationship with tax compliance (Kiring et al., 2017). With the same opinion, Ramlah (2010) discovered that the more the taxpayers believe in the e-tax system, the more committed they will become towards using the system. Jahangir and Begum (2008) also suggest that the belief in the usefulness of the e-tax system will attract more users towards the e-tax. Interestingly, Night and Bananuka (2018), in their research about the tax compliance of small business enterprises (SBEs) of an African developing economy, not only prove the relationship between attitude towards an e-tax system and adoption of the e-tax but also reveal that adoption of the e-tax is a partial mediator in the association between attitude towards the e-tax system and tax compliance. Based on the description above, the following hypothesis is summarized as follows:

H3: Adoption of an e-tax system mediates the relationship between attitude towards an e-tax system and tax compliance.

This study utilizes the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980) as the theoretical basis to propose a conceptual framework to investigate the relationship between attitude towards an e-tax system, adoption of an e-tax system, and tax compliance,

since the TRA aims to predict and understand the causes of behavior (Ajzen & Fishbein, 1980). In TRA, behavioral intention is determined by attitudes and subjective norms (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980). Attitudes are sets of beliefs about a certain object or an act that may translate into the intention to carry out the act (Schwartz, 1992). Subjective norms are related to the normative belief that a person complies with the expectations of other people. Intention in an attitude-behavior relationship is influenced by the level of effort required to exercise the behavior (Bagozzi et al., 1990). In the light of the foregoing review of the literature integrating with the insights of TRA, the research model is designed including attitude towards an e-tax system, adoption of an e-tax system, and tax compliance (Figure 1).
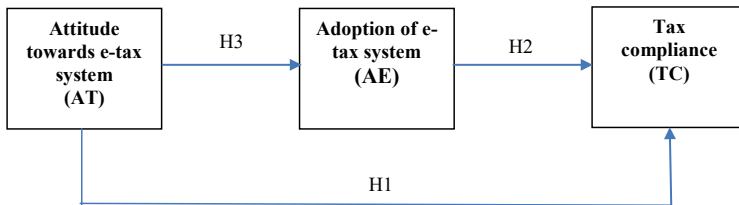
Figure 1. Research model

METHODOLOGY

Sample and data collection

The research applies the convenient sampling method. The questionnaires are designed to gain information of Vietnamese enterprises about the attitude to an e-tax system, adoption of an e-tax system, and tax compliance. Besides, the information about enterprises' characteristics such as size, the field of operation, location, etc. are also collected. The questionnaires, then, are mostly sent to managers or accountants of Vietnamese enterprises to collect data via e-mail due to the convenience for both interviewers and interviewees throughout Vietnam, especially with enterprises in the Middle and the South. In parallel, the questionnaires are also sent in person to enterprises with closer distances, most of them in Hanoi. As a result, there are 435 questionnaires completed from both cities and provinces in Vietnam but mostly from the North. The detailed sample is as follows:

Table 1. Field of operation and type of enterprise

Field of operation	Frequency	Percent (%)	Type of enterprise	Frequency	Percent (%)
Construction, transportation, warehouse	142	32.6	Limited Liability Company	176	40.5
Hotel, tourist	43	9.9	Joint stock company	154	35.4
Food production and processing	32	7.4	Private enterprise	47	10.8
Information, communication, telecommunications	21	4.8	State-owned enterprises	38	8.7
Science and technology	16	3.7	Foreign enterprises	2	0.5
Finance, banking, insurance	48	11.0	Joint venture enterprises	1	0.2
Pharmaceutical, medical, chemical cosmetics	23	5.3	Cooperatives, cooperative groups	5	1.1
Textiles, leather, and shoes	28	6.4	Others	12	2.8
Production and processing of agricultural, forestry, and aquatic products	20	4.6			
Mining, processing and manufacturing industries	17	3.9			
Educations	21	4.8			
Real estate	23	5.3			
Others	1	0.2			

In terms of field of operation, the results indicate that enterprises belonging to the group of construction, transportation, warehouse fields are the majority with 32.6%, followed by enterprises in the group of finance, banking, insurance fields with 11%, and enterprises in the group of hotel, tourist fields with 9.9%. The minority is enterprises in some fields such as science and technology and the group of mining, processing, and manufacturing industries. Regarding the type of enterprise, most enterprises are Limited Liability Company and Joint-stock company, which account for approximately 75.9% while Joint venture enterprises only occupy 0.2%.

In terms of data collection, questionnaires for enterprises are sent to managers or tax accounting officers at enterprises by three methods: (1) directly investigating and interviewing with enterprises in Hanoi; (2) sending questionnaires via e-mail, letter to enterprises; (3) directly sending to the General Department of Taxation and tax departments to collect the feedback from enterprises outside Hanoi.

Scale and questionnaire development

The subject of the study is Vietnamese enterprises. The questionnaire includes the following four parts: (1) introduction of the research topic and purpose; (2) questions about industries, types, and sizes of enterprises, tax administrative procedures that have been/are applying electronic tax; (3) Questions about the impact of electronic tax on tax compliance of enterprises. The questionnaire is designed based on five rating levels created by Likert and referenced by many later researchers. Specifically, the five ratings include "strongly agree", "agree", "normal", "disagree", and "strongly disagree". These rating levels are used for respondents to conveniently give feedback. The study uses Adoption of e-tax system scales by Night and Bananuka (2018). Adoption of an e-tax system is measured by eight observed variables on a scale of 1 to 5points ranging from strongly disagree to strongly agree. The research uses Night and Bananuka's (2018) eight indicators to measure Attitude towards an e-tax system on a scale of 1 to 5 points ranging from strongly disagree to strongly agree. The research uses Tax compliance scales by Marti (2010). Tax compliance is measured by eleven observed variables on a scale of 1 to 5 points ranging from strongly disagree to strongly agree.

To collect data for research, questionnaires are developed on the basis of indicators measuring concepts in the research model. Before designing the pilot questionnaire with a small sample, the study interviewed experts to test the concepts of variables and the connotation of indicators. Indicators are translated into Vietnamese through forward-reverse translation. Then, the questionnaire was tested with a small sample of respondents to ensure there was no misunderstanding about the content of the question and to adjust the final form of the questionnaire. Finally, the indicators used for the formal study are shown in Table 2.

Data analysis

The secondary and primary data, will be checked and cleaned before being processed by SPSS software for research purposes. The study applies Cronbach's Alpha as a tool for assessing the reliability or internal consistency of scales. Following is the exploratory factor analysis (EFA) to explore the underlying structure of a set of observed variables and consider convergence and differentiation of group variables, thereby, removing meaningless observation variables to improve research results. Finally, regression analysis is used to evaluate the impact of the independent variables on the dependent variable and to estimate the research model.

Table 2. Variable and scale

Variable	Scale	Source
Adoption of an e-tax system (AE)		
AE _1	Our company uses the e-tax to ensure compliance with tax laws	
AE _2	Our company uses the e-tax system to avoid tax penalties	
AE _3	Our company is currently using the e-tax system to fulfill tax obligations	
AE _4	Our company registers for the tax identification number through the e-tax system	Night and Bananuka (2018)
AE _5	Our company uses e-tax systems to file returns	
AE _6	We use e-tax to pay taxes and fees	
AE _7	Our company is equipped with computer skills to solve problems when using e-tax	
AE _8	Our company has a computer system connected to the internet for the purpose of handling tax issues	
Attitude towards an e-tax system (AT)		
AT _1	The e-tax system helps us to handle tax problems more easily	
AT _2	The e-tax system helps us to improve our services delivery	
AT _3	We find the e-tax system safe, secure and convenient to use	
AT _4	We find that the e-tax system is very convenient and time saving	Night and Bananuka (2018)
AT _5	We find e-tax returns are difficult to file	
AT _6	We have positive feelings for the e-tax system	
AT _7	We find that it better to use the e-tax system than the manual tax system	
AT _8	The e-tax system is extremely essential and it supports the operation of our business	
Tax compliance (TC)		
TC _1	Our company state all taxes when declaring returns	
TC _2	Our company declares all income to the tax authorities for tax assessment	
TC _3	Our company pays taxes first before any other fees	
TC _4	Our company always pays taxes on time	
TC _5	We always file returns on time	
TC _6	Upon filing returns, we register payment and proceed to pay	
TC _7	After filing returns, we proceed to pay tax on the due date	Marti (2010)
TC _8	Our company always submits returns on the e-tax system and at the same time submit (hard copies) to the tax authorities	
TC _9	Our company pays the taxes assessed by the tax authorities	
TC _10	When our accounts are not audited on the due date of filing returns, we apply for extension of due date. Once the due date is granted, we file within the granted period	
TC _11	Our company has been exempted from paying withholding tax	

RESULTS AND DISCUSSION

Reliability analysis of Cronbach's Alpha

The results of analyzing the reliability of Cronbach's Alpha of the scales for the first time after eliminating the observed variables AT5, TC8 and TC11 the Cronbach's Alpha coefficient of the respective scales will increase. Table 3 is Cronbach's Alpha reliability analysis results of the final scales. The total variable correlation coefficients of the observed variables in the scale are greater than 0.4 , and there is no case of removing any observed variables that can make Cronbach's Alpha of this scale increase.

Table 3. Results of Cronbach's Alpha of the final scales

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Attitude towards an e-tax system (AT): Cronbach's Alpha = 0.941				
AT1	23.671	20.687	.832	.930
AT2	23.814	20.756	.769	.935
AT3	23.706	20.683	.811	.932
AT4	23.589	20.690	.835	.929
AT6	23.694	21.259	.779	.934
AT7	23.566	20.753	.776	.935
AT8	23.575	20.443	.840	.929
Adoption of an e-tax system (AE): Cronbach's Alpha = 0.950				
AE1	24.193	24.479	.846	.941
AE2	24.133	24.429	.873	.938
AE3	24.179	24.585	.866	.939
AE4	24.326	24.995	.799	.945
AE5	24.391	25.621	.757	.948
AE6	24.237	25.029	.811	.944
AE7	24.182	24.794	.855	.940
Tax compliance (TC): Cronbach's Alpha = 0.934				
TC1	31.239	32.717	.727	.928
TC2	31.234	32.304	.811	.923
TC3	31.269	32.635	.749	.927
TC4	31.191	32.777	.778	.925
TC5	31.163	32.188	.809	.923
TC6	31.285	32.877	.723	.928

Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Tax compliance (TC): Cronbach's Alpha = 0.934			
TC7	31.230	32.270	.805	.923
TC9	31.276	32.196	.726	.928
TC10	31.345	32.623	.667	.932

Exploratory Factor Analysis (EFA)

The initial research model includes three factors and 26 observed variables. After testing the scales with Cronbach's Alpha, the observed variables AT5, TC8 and TC11 were removed and 23 observed variables were included in the exploratory factor analysis (EFA) with oblique rotation using KMO (Kaiser-Meyer-Olkin) and Bartlett test method (Bartlett's Test) to measure sample compatibility (Table 4).

When analyzing the exploratory factor analysis (EFA) for the impact factors group, the results showed that the coefficient of KMO test, Bartlett test, average variance extracted were satisfactory with KMO = 0.964, so factor analysis is completely appropriate; Sig. (Bartlett's Test) = 0.000 <0.05, proving that the observed variables are correlated in the whole.

Table 4. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.964
Bartlett's Test of Sphericity	Approx. Chi-Square	9702.466
	df	300
	Sig.	.000

Table 5 presents the results of the pattern matrix of the factor loadings by applying an extraction method of Principal axis factoring and a rotation method of Promax. The pattern matrix shows that the observed variables converge on three main components (three factors): the first factor, which consists of 11 observed variables (from TC1 to TC11) represents the scale of Tax compliance; The second factor which contains seven observed variables (AT1, AT3 to AT8) represents the scale of Attitudes towards electronic tax; The third factor which includes seven observed variables (from AE1 to AE7) represents the scale of Electronic Tax System. Moreover, the factor loadings of the observed variables are all higher than 0.5 that ensure the actual significance level (Hair et al., 2010). The convergence of observed variables on factors is also consistent with the theory. It implies that the observed variables in conceptual scales are strongly correlated with each other.

Table 5. Pattern matrix[a]

Variables	Factor		
	1	**2**	**3**
TC9	.834		
TC7	.790		
TC5	.779		
TC6	.716		
TC10	.696		
TC4	.690		
TC2	.687		
TC8	.647		
TC3	.616		
TC11	.562		
TC1	.545		
AT1		.831	
AT3		.800	
AT4		.781	
AT6		.766	
AT2		.765	
AT8		.763	
AT7		.657	
AE6			.832
AE2			.804
AE7			.774
AE3			.772
AE1			.743
AE4			.733
AE5			.703

Note: Extraction Method: Principal Axis Factoring; Rotation Method: Promax with Kaiser Normalization; a. Rotation converged in 5 iterations.

Confirmatory Factor Analysis (CFA)

To confirm the validity of scales before analyzing the structural model, the research applies the CFA method to evaluate the validity of scales including Convergent Validity, Discriminant Validity, Reliability (Figure 2).
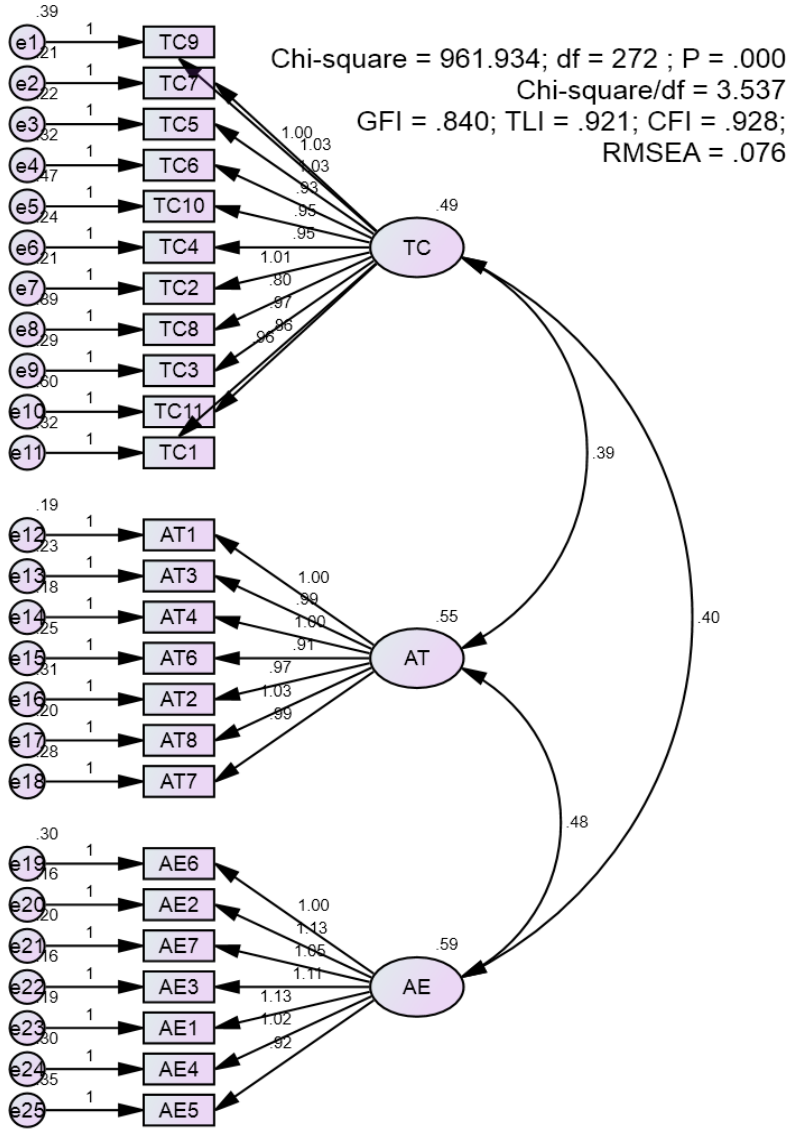
Figure 2. Results of Confirmatory Factor Analysis (CFA)

Table 6 reveals results of the Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), Average Shared Variance (ASV), and the correlations between observed variables. According to Chin (1998) and Hair et al. (2010), the CR should be higher than 0.6 to ensure the

reliability of scales. The results show that the CR of all scales is higher than 0.7, so it is ideal. Besides, the AVE should be higher than 0.5 and the ASV should be lower than the AVE in order to ensure the convergent and discriminant validity of scales (Hair et al., 2010). Meanwhile, the result of AVE is higher than 0.5, so the convergent validity is good. Also, it is proved that all concepts in the research model are satisfactory in terms of value (unidirectionality, convergent validity, and discriminant validity) and reliability.

Table 6. Results of Composite Reliability (CR) and Average Variance Extracted (AVE)

	CR	AVE	MSV	ASV	AT	AE	TC	ETA
AT	0.942	0.698	0.719	0.629	0.836			
AE	0.943	0.623	0.607	0.542	0.779	0.789		
TC	0.934	0.565	0.564	0.560	0.749	0.744	0.752	
ETA	0.950	0.731	0.719	0.583	0.848	0.683	0.751	0.855

The results of testing the relationships in the research model

The results of Structural Equation Modeling (SEM) indicate that Chi-square = 961.934 (P=0.000); Chi-square/df = 3.537 < 5; RMSEA=0.076 < 0.08; TLI = 0.921 and CFI = 0.928 (both TLI and CFI are higher than 0.9), only GFI = 0.84 < 0.9 but still acceptable. So, the results are consistent with the actual data (Figure 3).

As mentioned above, the Composite Reliability (CR) should be higher than 0.6 to ensure the reliability of scales (Chin, 1998; Hair et al., 2010). The results of Table 7 show that the CR of all scales is higher than 0.7, so it is ideal.

Table 7. Estimated results of research model

			Estimate	S.E.	C.R.	P-value
AE	<---	AT	.874	.049	18.001	***
TC	<---	AT	.373	.070	5.317	***
TC	<---	AE	.378	.068	5.527	***

Note: *** indicates p <0.001; SE: Standard error.

The result of a structural path calculation indicates that the Attitude towards an e-tax system (AT) has a direct and positive relationship to the Adoption of an e-tax system (AE) that can be observed from the Beta value (β = 0.874) with a significant value (P-value <0,001).
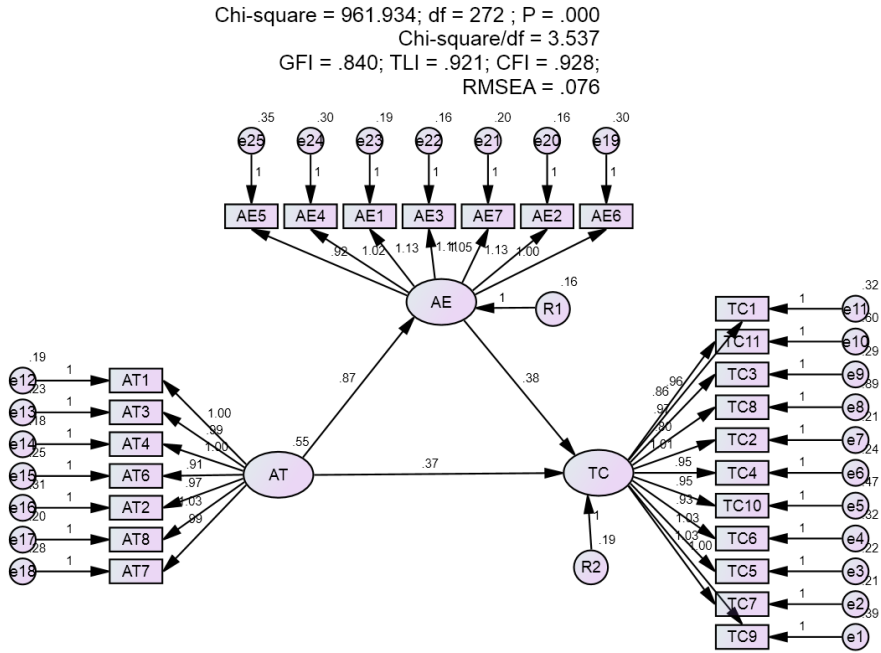
Figure 3. Results of Structural Equation Modeling (SEM)

So, hypothesis H3 is accepted. The result of a structural path calculation indicates that the Attitude towards an e-tax system (AT) has a direct and positive relationship to the Tax compliance (TC) that can be observed from the Beta value (β = 0.373) with a significant value (P-value <0.001). So, hypothesis H1 is accepted. The result of a structural path calculation indicates that the Adoption of an e-tax system (AE) has a direct and positive relationship to the Tax compliance (TC) that can be observed from the Beta value (β = 0.378) with a significant value (P-value <0,001). So, hypothesis H2 is accepted. The results also reveal that the adoption of an e-tax system partially mediates the association between attitude towards an e-tax system and tax compliance.

CONCLUSION AND IMPLICATIONS

The research results indicate that there are significant direct effects of the two independent variables, attitude towards an e-tax system and adoption of an e-tax system, with the dependent variable tax compliance.

In particular, the attitude towards an e-tax system has a direct and positive relationship to tax compliance and contributes to 37.3% to the change of tax

compliance. In other words, 1 unit change in the attitude towards an e-tax system is, on average, a 0.373 unit change in tax compliance. Based on the Theory of Reasoned Action (TRA), an explanation could be that when taxpayers find the e-tax system safe, secure, convenient, and time-saving, they will have positive feelings for the e-tax system. It then leads to the action of using the e-tax system, which results in improvements of tax compliance level. This result is consistent with some other findings such as Ondara et al. (2016) who found that there is a strong relationship between attitude towards electronic tax system and tax compliance; and Kiring et al. (2017) who concluded that there is a strong relationship between the perception towards online tax filing in terms of ease and simplicity to file and tax compliance.

Similarly, the adoption of an e-tax system has a direct and positive relationship to tax compliance and explains 37.8% of the change of tax compliance. Put it another way, 1 unit change in the adoption of an e-tax system is, on average, a 0.378 unit change in tax compliance. From the theoretical perspective, this finding is supported by the theory of the Technology Acceptance Model (TAM), which argues that the perception of using information technology is crucial to the adoption. The adoption of information technology will probably enhance tax compliance. From the empirical perspective, this finding agrees with Muturi and Kiarie (2015) who indicated that there is a strong positive correlation between the adoption of an e-tax system through online tax registration, online tax return filing, online tax remittance, and tax compliance.

Furthermore, the paper also reveals that the adoption of an e-tax system partially mediates the association between attitude towards an e-tax system and tax compliance. This mediating effect positively consolidates the impact of attitude towards an e-tax system and tax compliance, which is also consistent with some other findings such as Motwani et al. (2015), Muturi and Kiarie (2015), and Night and Bananuka (2018). Especially, Night and Bananuka (2018) prove that the relationship between attitude and tax compliance is partially mediated by the adoption of an e-tax system through quantitative results.

The findings of the study suggest some policy implications for improving tax compliance in Vietnam as following:

Firstly, it is important to improve continuously the information technology infrastructure for both tax authorities and enterprises. *For tax authorities*, it is necessary to establish information security and safety systems through (1) building information security management software (with functions of detecting information leaks and information disaster incidents information; preventing attacks and denying service); (2) developing a centralized information management system that limits access and operation for each

user; (3) building and operating an Information Security Center at the General Department of Taxation. *For taxpayers in general and enterprises in particular*, The General Department of Taxation should have solutions to more actively support the operation of e-tax services such as using e-invoices, e-tax refunds, and e-tax inspection procedures for enterprises. In parallel, the Government should have policies to invest in developing an internet infrastructure, upgrading the public information technology infrastructure, and providing robust internet coverage in remote and isolated areas to ensure the synchronization in the use of e-tax in the whole country.

Secondly, widely disseminating tax law and providing support services to enterprises by (1) publicizing tax administrative procedures at all levels of tax authorities on the mass media and the official website for enterprises to get information and supervise tax officials; (2) improving the one-stop service department to support enterprises in implementing tax administrative procedures, in particular focusing on providing electronic support services; (3) providing lookup and exchanging information services about enterprises' performance of tax obligations to encourage the awareness of self-compliance with the tax law.

Thirdly, the e-tax system should be upgraded to ensure the effective coordination between tax authorities, tax officials, enterprises, and other authorities in applying e-tax through an overall program that includes an e-tax application that is simple, clear, transparent, easy to adopt for taxpayers and a tax administrative application that is synchronous, stable, transparent, fair and appropriate. Moreover, tax procedures should be reformed as well as tax policies and timely handling if there are any problems or shortcomings. A modern and effective, tax authority, decentralization system should be established to ensure that tax authorities are capable of tax administration in both domestic and international scope.

Fourthly, the supervision and assessment of the adoption of e-tax should be consolidated. In terms of the subject supervising, the General Department of Taxation should define the responsibilities of tax authorities at all levels in e-tax supervision. In addition, the tax authorities could coordinate with commercial banks, tax agents, accounting, and auditing agents in monitoring e-tax implementation. In terms of periodic assessment, it should be implemented quarterly and annually. E-tax monitoring and evaluation tools also need to be modernized through electronic diaries alongside traditional tax reporting and documentation. Finally, focusing and strongly supporting professional training as well as professional working style for tax officials who are responsible for supervising and assessing the adoption of e-tax.

Fifthly, information and education on the perception of complying with the tax law should be promoted for taxpayers in particular and the entire

population in general. Tax authorities could take advantage of information technology and consider it as an effective solution to improve media efficiency. For example, sending messages about tax policy, tax law, or tax obligation information to stakeholders via email, social media (such as zalo), or sending SMS messages to individuals. In addition, the contents of tax laws and tax obligations should be accessible, with training programs at all levels, to form tax awareness that would lead to tax compliance behavior in the future.

Finally, a tax administration strategy based on tax compliance should be developed. Tax authorities manage enterprises' tax compliance by completing a set of criteria for assessing tax compliance and improving methods to assess tax compliance. The set of tax compliance, assessment criteria should be based on three compliance requirements such as declarative compliance, payment compliance, and reporting compliance, and mainly focusing on the assessment criteria of reporting compliance because tax reporting is the easiest activity to cheat.

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Abstrakt

CEL: *Przestrzeganie przepisów podatkowych jest przedmiotem troski wielu naukowców na całym świecie. Większość z nich wskazuje na czynniki wpływające na zgodność podatkową, a jednym z istotnych czynników jest przyjęcie zgodności podatkowej. Nie ma jednak wielu badań analizujących związek między podejściem do systemu e-podatków, przyjęciem systemu e-podatków a przestrzeganiem przepisów podatkowych. Niniejszy artykuł ma na celu zbadanie pośredniczącego wpływu przyjęcia systemu e-podatków na związek między postawą wobec systemu e-podatków a zgodnością z przepisami podatkowymi w oparciu o dowody empiryczne pochodzące od wietnamskich przedsiębiorstw.* **METODYKA:** *Na podstawie Teorii Rozsądnego Działania (TRA) zaproponowano model badawczy. W związku z tym rozwijane są hipotezy, zastosowano analizę ilościową na próbie badawczej 435 wietnamskich przedsiębiorstw. Kwestionariusz zawiera pytania zamknięte, które są przesyłane do menedżerów lub księgowych w przedsiębiorstwach poprzez: bezpośrednią rozmowę kwalifikacyjną, e-mailem oraz za pośrednictwem Generalnego Departamentu Podatków. Zebrane dane są następnie przetwarzane i analizowane przez SPSS v.22 i AMOS. W badaniu zastosowano Alfa Cronbacha jako narzędzie do oceny rzetelności lub spójności wewnętrznej skal. Zastosowano eksploracyjną analizę czynnikową (EFA). Wreszcie analiza regresji służy do oceny wpływu zmiennych niezależnych na zmienną zależną oraz do oszacowania modelu badawczego.* **WYNIKI:** *Istnieją znaczące bezpośrednie skutki dwóch zmiennych niezależnych, stosunku do systemu e-podatków i przyjęcia systemu e-podatków, ze zmienną zależną zgodności podatkowej. Ponadto przyjęcie systemu e-podatków częściowo pośredniczy w związku między podejściem do systemu e-podatków a przestrzeganiem przepisów podatkowych. Ten efekt mediacji pozytywnie utrwala wpływ podejścia do systemu e-podatków i przestrzegania przepisów podatkowych.* **IMPLIKACJE:** *Ten artykuł skupia się głównie na zgodności podatkowej wietnamskich przedsiębiorstw, które mogą być dalej badane z zagranicznymi przedsiębiorstwami działającymi w Wietnamie. Poza tym badania prowadzone są w kontekście Wietnamu, mogą stanowić odniesienie do badań w innych krajach rozwijających się o podobnej gospodarce lub administracji podatkowej.* **ORYGINALNOŚĆ/WARTOŚĆ**: *Niniejsze badanie przyczynia się do wzmocnienia badań związanych z przestrzeganiem przepisów podatkowych, w szczególności badaniem pośredniczącego wpływu przyjęcia systemu e-podatków na związek między podejściem do systemu e-podatków a przestrzeganiem przepisów podatkowych przez przedsiębiorstwa w kontekście Wietnamu. Wyniki badania sugerują pewne implikacje polityczne dla poprawy przestrzegania przepisów podatkowych w Wietnamie, w tym (1) ciągłe ulepszanie infrastruktury informatycznej zarówno dla organów podatkowych, jak i przedsiębiorstw; (2) szerokie upowszechnianie prawa podatkowego i świadczenie usług wsparcia dla przedsiębiorców; (3) unowocześnienie systemu e-podatków w celu zapewnienia skutecznej koordynacji między organami podatkowymi, urzędnikami podatkowymi, przedsiębiorstwami i innymi organami w zakresie stosowania e-podatków; (4) konsolidacja nadzoru i oceny przyjęcia e-podatku; (5) promowanie informacji i edukacji w zakresie postrzegania przestrzegania prawa podatkowego w szczególności wśród podatników i ogółu społeczeństwa; (6) opracowanie strategii administracji podatkowej opartej na zgodności podatkowej.*

Biographical notes

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Conflicts of interest

The authors declare no conflict of interest.

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