THE ACCEPTANCE OF THE ELECTRONIC TAX FILING SYSTEM BY MALAYSIAN TAXPAYERS

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Abstract
This paper discusses the factors that affect the acceptance of the e-filing system by Malaysian taxpayers. By understanding these factors, knowledge on taxpayers' decision making is enhanced and will improve the e-filing system in Malaysia. A new construct, perceived risk, was added into the Technology Acceptance Model (TAM). Based on the data collected from 166 respondents, the results showed that the proposed model explained up to 61% of the variance in behavioural intention. Results also indicate that perceived risk does influence perceived usefulness.

Keywords: Taxation; Internet tax filing acceptance; Technology acceptance model.

JEL Classification Codes: H29; M15.

1. Introduction

Internet and its applications are gaining popularity in the public sector. Through electronic-government, information and delivery of services are made through the Internet medium to citizens. A form of e-government in Malaysia is the electronic tax-filing system introduced in 2006 by the Inland Revenue Board (IRB). Electronic tax-filing in Malaysia began for trial and experimental use in the year 2006 for salaried taxpayers and sole-proprietors. For partnerships and private limited companies, electronic tax-filing was only introduced in the year 2007. Despite the introduction of electronic tax-filing system, taxpayers are still allowed to declare their tax manually. Taxpayers, who file their income tax manually, have to fill out the tax assessment form sent by the IRB and perform the necessary calculations to obtain the amount of tax that they are required to pay to the IRB. The completed form has to be submitted either over the counter or by postal mail. Thus, when filing manually, taxpayers need to ensure that the forms are filled in correctly and all calculations were done correctly. For the IRB officers, the manual method of filing means that details of the tax assessment forms have to be entered into their computer system quickly and accurately. Under the e-filing system, taxpayers need to only enter the required information and the system will calculate the amount of tax assessed based on the information that was provided. The forms are then, sent electronically to the IRB. Through the electronic tax-filing system, the IRB is improving the efficiency of the tax assessment method, thus, resulting in an increase of tax collection and the reduction of computation errors. Furthermore electronic tax-filing system also benefits taxpayers because taxpayers do not need to go to the tax office to submit the forms, saves taxpayers' time, and most importantly taxpayers will be able to receive their tax refunds (if eligible) faster. Thus, with the evolution of Internet technology, electronic tax-filing is a convenient and faster system that benefits the IRB and taxpayers.

Electronic tax-filing has the potential to benefit both taxpayers and IRB, but only if it is actually used by the Malaysian taxpayers. Identifying the factors that affect their decision to use the electronic tax-filing system are important considerations when trying to improve the electronic tax-filing system. Thus, the purpose of the study is to identify the factors that influence the perceptions that taxpayers have on the electronic tax-filing system and whether these perceptions influence their behavior to accept the e-filing system. To date, no study, known to the authors, has been conducted to study taxpayers' acceptance of the Malaysian electronic tax-filing system.

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This study is a preliminary study of this kind. The following section illustrates the research model and hypothesis used in this study. This is followed by the methodology section, the data analysis section, discussion and suggestions for future research.

2. Research Model and Hypotheses
Theoretical models such as Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980), the Theory of Planned Behavior (TPB) (Ajzen, 1991), and the Technology Acceptance Model (TAM) (Davis, 1989; Davis, et al., 1989), attempt to explain the relationship between user beliefs, attitudes, intentions, and actual system use. Among these theories, TAM was widely used and accepted to explain the relationship between perceptions and technology use (Agarwal and Prasad, 1999; Morris and Dillon, 1997).

According to TAM, individuals accept a particular system if they believe in the system. These believe are perceived usefulness (PU) and perceived ease of use (PEOU). PU is defined as the user's perception of the degree to which using the system will improve his or her performance in the workplace. PEOU is defined as the user's perception of the amount of effort they need, to use the system. Past research have provided evidence of the significant effect of perceived ease of use and perceived usefulness on behavioural intention (BI) (Venkatesh and Davis, 1996; Davis, et al., 1989; Jackson et al., 1997; Agarwal and Prasad, 1999; Hu et al., 1999; Venkatesh, 1999, 2000; Venkatesh and Davis, 2000; Venkatesh and Morris; 2000).

Past research was inconsistent on whether perceived usefulness (PU) or perceived ease of use (PEOU) was the stronger determinant. According to Davis (1989), perceived usefulness (PU) is shown as a primary determinant and perceived ease of use (PEOU) as a secondary determinant of intentions to use a certain technology. Fu, Farn and Chao (2006) found that behavioral intention was largely driven by perceived usefulness. However, Wang (2002) found that perceived ease of use (PEOU) was a stronger predictor of people's intention to e-file than perceived usefulness (PU). According to the findings in Wixom and Todd (2005), perceived usefulness (PU) was influenced by perceived ease of use (PEOU). Based on the literature mentioned above, the following hypotheses were formulated for the 3 constructs, which are PEOU, PU and BI:

H1: *Perceived ease of use (PEOU) will have a positive effect on perceived usefulness (PU) of the electronic tax-filing system.*
H2: *Perceived ease of use (PEOU) will have a positive effect on behavioral intention (BI) to use the electronic tax-filing system.*
H3: Perceived usefulness (PU) will have a positive effect on behavior intention (BI) to use the electronic tax-filing system.

The attitude construct from the original TAM model, however, was left out because it did not fully mediate the effect of perceived usefulness on behavioral intention (BI) (Venkatesh, 1999). Based on several other studies (Mathieson, 1991; Adam et al., 1992; Straub et al., 1995; Gefen and Straub, 1997; Venkatesh and Morris, 2000) the effect of perceived ease of use (PEOU) or perceived usefulness (PU) on the attitude construct have been disregarded. Instead, the impact of perceived ease of use (PEOU) and perceived usefulness directly on the actual system usage have been the focus. Thus, this study adapts the technology acceptance model (TAM) by dropping the attitude construct.

According to Davis, future technology acceptance research needs to address how other variables affect usefulness, ease of use and user acceptance (Davis, 1989; Davis et al., 1989; Moore, 1991; Mathieson, 1991; Taylor and Todd, 1995). However, factors affecting the acceptance of new information technology are likely to vary with the technology (Moon and Kim, 2001). Many researchers have utilized TAM as a base model to predict adoption. TAM has been applied to different technologies and extended by adding new variables. With regards to technology, originally, TAM was used to observe the use of email, word processing and graphic software (Davis, 1989; Davis et al., 1989). Since then, TAM has been extended to various types of information system (IS), such as spreadsheets (Mathieson, 1991; Venkatesh and Davis, 1996; Doll et al., 1998), voice mail (Adams et al., 1992; Segars and Grover, 1993; Subramaniam, 1994; Chin and Todd, 1995; Straub et al., 1995), telemedicine (Hu et al., 1999), personal computing (Agarwal and Prasad, 1999), database management system (DBMS) (Doll et al., 1998; Szajna, 1994; Szajna, 1996),Virtual Workplace System and proprietary system (Venkatesh, 1999; Venkatesh and Morris, 2000; Venkatesh and Davis, 2000).

Several recent studies (Hong et al. 2001; Moon and Kim, 2001; Wang, 2002; Featherman and Fuller, 2003; Featherman and Pavlou, 2003; Fu et al., 2006; Horst et al., 2007) have examined TAM to analyze user behavior towards e-services such as electronic tax filing, e-payment, digital libraries, e-commerce and e-government.

As indicated earlier, TAM has also been extended by adding new variables such as self-efficacy (Venkatesh and Davis, 1996; Wang, 2002), effectiveness (Segars and Grover, 1993; Chin and Todd, 1995), social presence and information richness (Straub et al., 1995; Gefen and Straub, 1997), subjective norm (Venkatesh and Morris, 2000; Venkatesh and Davis, 2000; Featherman and Fuller, 2003), job relevance (Venkatesh and Davis, 2000), image (Venkatesh and Davis, 2000), quality (Venkatesh and Davis, 2000), perceived credibility (Wang, 2002), perceived playfulness (Moon and Kim, 2001), perceived user resources (Mathieson, Peacock and Chin, 2001), compatibility (Chen, Gillenson and Sherrel, 2002) and perceived risk (Featherman and Fuller, 2003;Featherman and Pavlou, 2003; Fu et al., 2006 and Horst et al., 2007).

In this study, a new construct, which is 'perceived risk', is introduced. The extended TAM model is presented in Figure 1. The perceived risk construct in this study is adopted from Featherman and Pavlou (2003). In Featherman and Pavlou (2003), a study was conducted on the Internet-based bill payment. In this study, the perceived risk construct comprises of seven facets. The seven facets of perceived risk are 1) performance risk , 2) financial risk, 3) time risk, 4) psychological risk, 5) social risk, 6) privacy risk and 7) overall risk. In Featherman and Pavlou (2003), the finding supported the decomposition of the perceived risk variable into these facets. Performance risk, time risk, privacy risk, and financial risk are confirmed to be the most salient concerns to the study. Based on Featherman and Pavlou (2003), this study incorporates only two of the salient facets, which are performance risk and privacy risk. Although time risk and financial risk facets are important in Featherman and Pavlou (2003), these two facets are not included in this study for the following reasons. The reason for excluding financial risk is because under the e filing method, there is no possibility of monetary loss because the main purpose of the electronic tax-filing system is to file their tax return. In addition to that, the sample used for this study is taken from the salaried taxpayers who were paying taxes monthly under the Scheduler Tax Deduction Scheme (i.e. tax deducted from their monthly salary and remitted to the IRB by the employer). Under this scheme, if their monthly tax is correctly deducted then there will be no additional tax that needs to be paid when they file their tax return. The reason for excluding the time risk facet is because this facet is irrelevant to this study since e-filing of tax returns are still voluntary.

For the purpose of this study, perceived risk (PR) is defined as taxpayers' perception on the reliability of the system's usefulness/functionality and the control of their personal data information in an online environment. As indicated earlier, this definition is based on two risk facets, which are privacy risk and performance risk. Privacy risk in this study refers to the safeguard of various types of data that are collected during taxpayers' interaction with the electronic tax-filing system. Under the electronic tax-filing system, taxpayers are concerned whether third parties could access their personal tax information without their knowledge or permission. Although this concern is also present in the physical world but this issue is important due to the special characteristics of the Internet (Hoffman, Novak and Peralta, 1999; Friedman, Kahn and Howe, 2000). While, performance risk refers to the possibility a system malfunctions or the system's failure to deliver the promised benefits. The risk factor that taxpayers' perceived to have towards the system, which promise to complete their transaction securely and to maintain the privacy of their personal information, will affect their voluntary adoption of electronic tax-filing system.

The combination of privacy and performance risk that make up perceived risk have been shown to inhibit service evaluation (e.g. perceived usefulness) and behavioral intention to adopt. The system ease of use is likely to affect the taxpayers' perception of risk. Systems that are perceived to be complex, with steep learning curves are likely to be thought as risky to adopt and use. Taxpayers will perceive the system to be problematic, suffer from performance problems and usage uncertainties. On the contrary, if taxpayers perceive the system as easy to use and performs well, taxpayers evaluate the system positively and this leads to adoption. Because the system is highly usable and is less likely to cause usage concerns, therefore perceived ease of use may function as an important risk-reducing factor. Drawing from these arguments, this study proposes the following hypothesis on the perceived risk (PR) construct.

H4: *Perceived risk (PR) will have a negative effect on behavioral intention (BI) to use the electronic tax-filing system.*

H5: *Perceived ease of use (PEOU) will have a negative effect on perceived risk (PR) of the electronic tax-filing system.*

H6: *Perceived risk (PR) will have a negative effect on perceived usefulness (PU) of the electronic tax-filing system.*

Figure 1 presents the research model used for this study

Figure 1 The Research Model
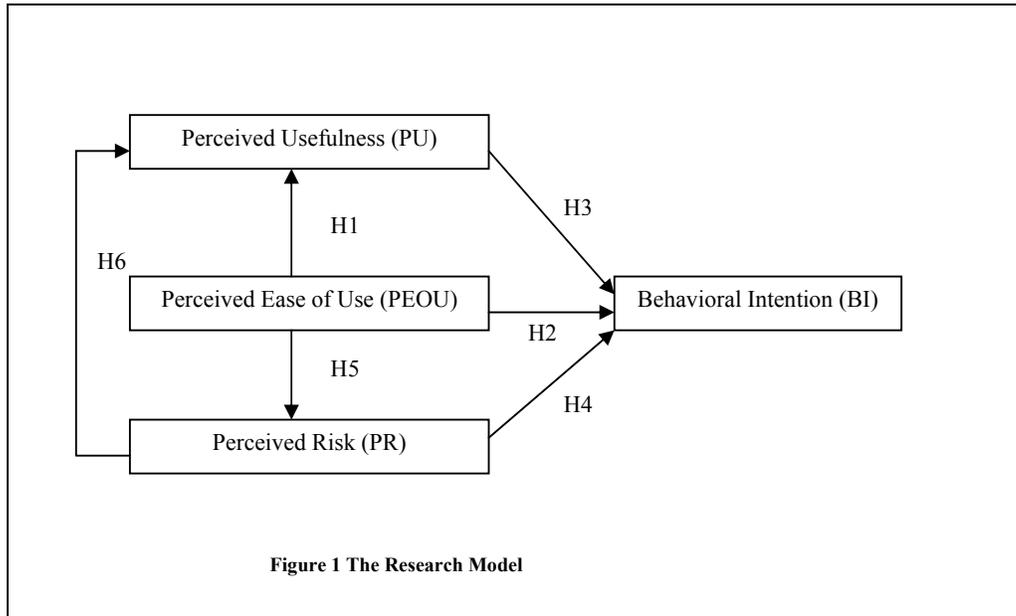
3. Research Methodology

Convenience sampling method was used for this study and the sample size is 200 respondents. The targeted respondents were eligible taxpayers in Klang Valley because it has the largest portion of eligible taxpayers in the country. The data collection method employed in this survey was by distributing questionnaires through email and mail. Taxpayers are selected based on the following requirements: 1) taxpayers who submit their income tax by filing the BE Form, 2) personally file their annual tax return, and 3) salaried taxpayer. Salaried taxpayers were chosen because they are the group of taxpayers that was eligible for e-filing since its implementation in 2006. Taxpayers who file their own tax return were considered as a sample in this study because of their hands-on experience with the electronic tax-filing system, thus, their perception on the system will be more accurate for this study.

The survey instrument is a 7 point Likert scale questionnaire survey, divided into three sections. Section A of the questionnaire measures the taxpayers' perception on the electronic tax-filing system and their behavioral intention to adopt. This section was adapted from Hung, Chang and Yu, (2006), Wang (2002), Davis (1989) and Davis et al., (1989). It has 3 constructs, which are perceived usefulness (PU), perceived ease of use (PEOU), and behavioral intention (BI). In section B, perceived risk of taxpayers was measured using two different dimensions, which were performance risk and privacy risk. This section consists of 6 statements. These statements were extracted from Featherman and Pavlou (2003), however, some modifications were made to tailor them to the electronic tax-filing system. Section C of the questionnaire was designed to examine taxpayers' preference on tax-filing method using close ended multiple choice format. This section includes taxpayers' information technology (IT) profile such as their computer experience and Internet experience. In addition, three questions were included to screen whether all respondents have met the required criteria of the sample for this study. The three criteria are; 1) taxpayers' personally file their own tax return, 2) filing is made through the BE Form, and 3) salaried taxpayer. Statistical Package for Social Science (SPSS) and Analysis of Moment Structure (AMOS) for Windows were used to analyze the data. SPSS is used to measure the internal consistency reliability by applying the Cronbach's alpha test to the individual scales.

4. Results
A total of 182 sets of questionnaires were received. From the 182 questionnaires, 16 questionnaires were not usable due to incomplete answers or did not meet the survey requirements of targeted salaried taxpayers only. As a result, the final questionnaires analyzed consisted of only 166 respondents. A profile of respondents is summarised in Table 1 and 2.

Table 1 Respondents by Method of Filing

Method of Filing	Manual		Internet	
	Frequency	%	Frequency	%
Last Year (Year 2006)	130	78.3	36	21.7
This Year (Year 2007)	94	56.6	72	43.4
Next Year (Year 2008)	71	42.8	95	57.2

Table 2 Respondents Characteristics

Item	Frequency	%
Personally File		
Yes	147	88.6
No	19	11.4
Computer Experience		
None	3	1.8
1 – 3 years	4	2.4
4 -6 years	15	9.0
7 – 9 years	32	19.3
10 years or above	112	67.5
Internet Experience		
None	3	1.8
1 – 3 years	16	9.6
4 – 6 years	33	19.9
7 – 9 years	53	31.9
10 years or above	61	36.7
Form Type		
Form BE	139	83.7
Form B	27	16.3
Income Type		
Salaried based income	166	100.0

The Cronbach's coefficient alpha for the four (4) constructs which comprise of sixteen (16) items are shown in Table 3. The alpha coefficients for perceived ease of use, perceived usefulness, perceived risk and behavioral intention were 0.95, 0.96, 0.96 and 0.98 respectively. This indicates that the developed scales in this research are highly reliable and acceptable.

Table 3 also exhibits the descriptive statistics. The mean of the perceived risk, perceive ease of use and perceived usefulness constructs are above 4.5. This could possibly indicate that even though taxpayers perceived the electronic tax-filing system as risky, they still perceived the system to be easy to use and useful. In addition to that, Table 3 shows that taxpayers have a positive intention to adopt the electronic tax-filing system.

Table 3 Mean and scale reliability of each construct

Constructs	Items	Mean	Cronbach's α
Perceived Ease of Use	4	4.80	0.946
Perceived Usefulness	4	4.55	0.955
Perceived Risk	6	4.75	0.957
Behavioral Intention to Adopt	2	4.77	0.976

A confirmatory factor analysis (CFA) using AMOS was conducted to test the measurement model. As there is no single recommended measure of fit for the structural equation model (SEM), a variety of measures are proposed by numerous literature to assess the relative fit of the data to the model (Adams et al., 1992; Segar and Grover, 1993; Subramaniam, 1994; Chin and Todd, 1995; Chau, 1997; Hu et al., 1999). They recommended the use of the Goodness-of-fit index (GFI), the Adjusted Goodness-of-fit Index (AGFI) (for sample size), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA). Table 4 shows that the overall model fit is adequate. The recommended values were derived from Hoyle (1995).

Table 4 Results of the model goodness-of-fit

Fit Index	Recommended Values	Results in this study
χ^2 / df	≤ 3.00	2.52
Goodness-of-fit index (GFI)	≥ 0.90	0.85
Adjusted goodness-of-fit index (AGFI)	≥ 0.80	0.79
Comparative fit index (CFI)	≥ 0.90	0.96
Tucker-Lewis index (TLI)	≥ 0.95	0.95
Root mean square error of approximation (RMSEA)	≤ 0.10	0.09

As shown in table 4, the value of χ^2/df is around 2.518, which is below the desired cutoff value of 3.0 as recommended. The GFI, TLI and the CFI compare the absolute fit of a specified model to the absolute fit of the independence model. Based on Hoyle (1995), the GFI should be at or above 0.90. AGFI is a variant of GFI which adjusts GFI for degrees of freedom. The recommended value for AGFI should be at or above 0.80. As shown in Table 4, the GFI value is 0.85 which is below the recommended value. However, several studies such as Chang et al. (2005); Hu et al. (1999), Segars and Grover (1993), have GFI value which is lower than 0.80. The AGFI value for this model is just slightly lower than the recommended value which is 0.79. The CFI statistic should be at or above 0.90 and a CFI above 0.95 is considered to be an exceptional fit. Thus, in this study, the CFI value of 0.96 is not only above the recommended value but also considered to be an outstanding fit for this model. TLI is more restrictive therefore it requires a value of 0.95 or above (Hung and Bentler, 1999). In this study, TLI recorded a value of 0.95 which meets the required value. Finally, RMSEA, which measures the discrepancy per degree of freedom, should be below 0.10. This last index also supported the overall fit for the model with RMSEA value at 0.09. Overall, this model is reasonable acceptable to evaluate the results of the SEM technique.

Comparison of all fit indices with their matching recommended values provided evidence of a good model fit. The next step in the model estimation was to examine the significance of each hypothesized path. The results are presented in the form of path diagrams in Figure 2. Figure 2 indicates that 61 percent of the variance in electronic tax-filing system adoption intention is explained by the model. Variance in taxpayers' intention to adopt electronic tax-filing system was 61 percent explained by perceived usefulness (β = 0.81), perceived ease of use (β = 0.38) and perceived risk (β = -0.15) constructs. All items in perceived usefulness, perceived ease of use and perceived risk construct significantly explain the variance of the three construct toward electronic tax-filing system adoption.
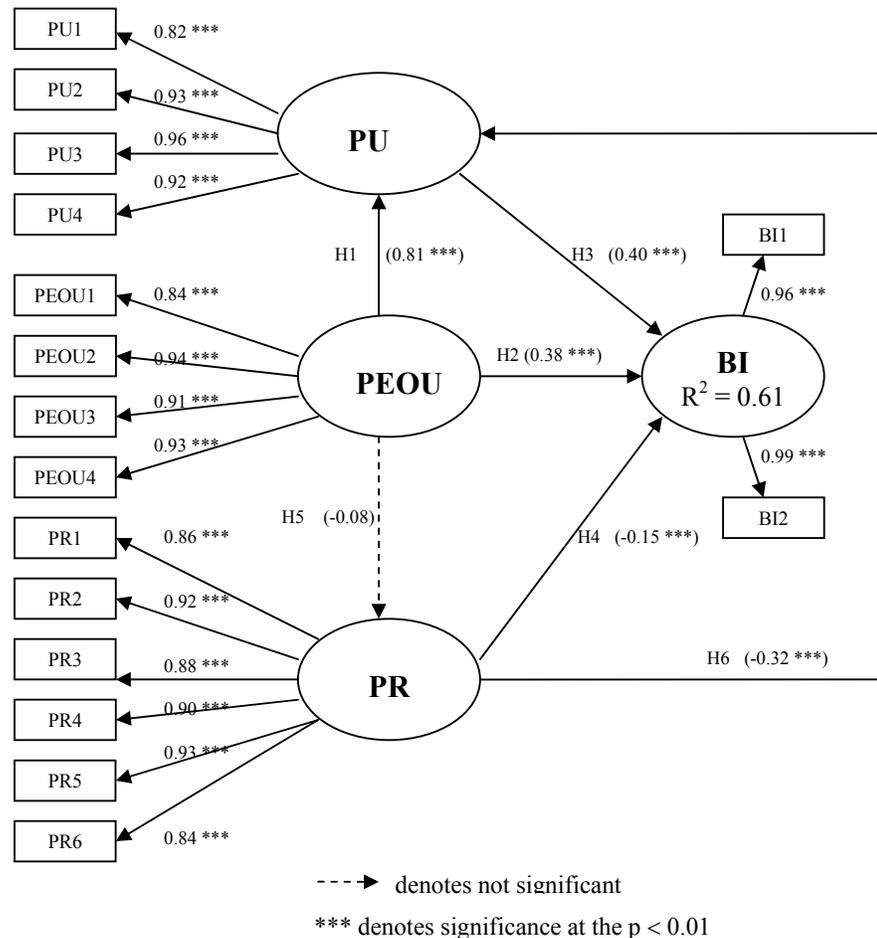
Figure 2: Results of the Study Framework

Based on Figure 2, hypotheses H2 and H3 were supported as perceived ease of use (PEOU) and perceived usefulness (PU) have significant positive effects on behavioral intention. Similar to past studies, perceived usefulness (PU) is found to be a more powerful predictor of behavioral intention (BI) than perceived ease of use (PEOU). Perceived usefulness ($\beta = 0.40$) showed a slightly stronger predictor to behavioral intention than perceived ease of use ($\beta = 0.38$). H1 is also supported as perceived ease of use (PEOU) has a significant effect on perceived usefulness ($\beta = 0.81$). Perceived risk (PR) was also a significant predictor of behavioral intention (BI) and this supports H4. This means that the risk factor will reduce taxpayers' intention to adopt the electronic tax-filing system (Pavlou, 2001, 2003; Featherman and Fuller, 2003). The relatively weak effect of perceived risk ($\beta = -0.15$) compared to other constructs on behavioral intention (BI) suggest that perceived risk might be influenced by perceived usefulness ($\beta = -0.32$); this validates H6. This negative effect between perceived usefulness and perceived risk towards adopting a system is confirmed here and also by other studies (Featherman, 2001; Pavlou, 2003; Featherman and Fuller, 2003; Featherman and Pavlou, 2003).

H5 was not supported, there is a negative effect of perceived ease of use on perceived risk but the path was not significant. This was also evident in the covariance results (Table 5). The results show there was no correlations between the perceived ease of use and perceived risk construct (p = 0.323). The results in Table 5 also support H1 and H6. The results showed that there is a correlation between the constructs with p = 0.000.

Table 5 Covariance Results

Hypothesis	Casual Relationship	β	S.E	C.R	P
H1	PU ↔ PEOU	1.528	0.204	7.484	0.000
H5	PEOU ↔ PR	-0.153	0.155	-0.989	**0.323**
H6	PU ↔ PR	-0.568	0.155	-3.655	0.000

β = Regression coefficient; S.E = Standard of Error of β; C.R = Critical Ratio (β/S.E), P = Statistical Significance of the Test

Discussion

Perceived usefulness, perceived ease of use and perceived risk were shown to be an important construct to influence taxpayer's perceptions on the electronic tax-filing system. In this study, the perceived risk construct was found to have a negative influence on behavioral intention. Given the fact that the adoption of the electronic tax-filing system is voluntary, the findings suggest that to attract more people to use the electronic tax-filing system, the system has to be useful and easy to use. It is also important to develop an electronic tax-filing system that is free from performance and privacy risk.

The findings also suggest that perceived risk is negatively related to perceived usefulness. This means that, if taxpayers perceived that the electronic tax-filing system is risky then the perception on usefulness of the system will decrease. Thus, if taxpayers' perceived the electronic tax-filing system as not useful then their behavioral intention to adopt the system will also decrease. Thus, to attract taxpayers to adopt electronic tax-filing system, IRB has to assure taxpayers that the e-filing system is safe and risk free. The findings also show that the relationship between perceived risk and perceived ease of use was negative but insignificant. This shows that ease of use of the electronic filing system could possibly reduce the perceived risk factor.

Limitation and Future research

As with any research, this study has several limitations. Firstly, the survey does not represent the whole of Malaysia. The sample in this survey is only selected from the Klang Valley. Hence, caution needs to be taken when generalizing this research to the whole of Malaysia. Secondly, the research model is based on perceived risk (PR), perceived usefulness (PU) and perceived ease of use (PEOU) constructs and this model only explains over half of the variance of the intention to use electronic tax-filing system [$R^2 = 0.61$]. The unexplained 39 percent of variance suggests that other constructs could be included in this model. The element of trust has been found to influence user intentions to adopt e-commerce (Gefen et al., 2003; Pavlou and Fygenson, 2006) and the key element of trust is risk. Trust has been identified as an essential element of relationship when uncertainty or risk is present (Warkentin et al., 2002; Pavlou, 2003; Siau and Shen, 2003). Trust and risk perception are very strongly interrelated. Research shows that trust reduces risk perceptions in the relationship between risk and intention (Salam et al., 2003). In E-service adoption, perceived risk mediates the effect of trust on behavioural intention (Pavlou, 2003). Furthermore, the level of perceived risk will decrease when individual have trust on people who are also involved in the transaction (Featherman and Pavlou, 2003). Since researchers are beginning to empirically explore the role of trust in e-government adoption (Warkentin et al., 2002; Carter and Belanger, 2005; Horst et al., 2007; Belanger and Carter, 2008), future research could incorporates the additional trust construct in the TAM model when studying on the adoption of e-filing in Malaysia. Another suggestion for future research is to study the level of technology readiness of Malaysian taxpayers. Previous study (Lai et al., 2004) found that there is a relationship between technology readiness and tax practitioners' usage intention towards the electronic tax-filing system. The findings also identify that technology readiness is a force behind the motivation to adopt the electronic tax-filing system.

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