

The Acceptance of the e-Filing System by Malaysian Taxpayers: A Simplified Model

Anna Che Azmi and Ng Lee Bee
University of Malaya, Malaysia

annaazriati@um.edu.my

Abstract: The e-filing system is an important e-government service in Malaysia. This paper investigates the factors that lead to the acceptance of e-filing among taxpayers by using TAM. This study proposes a model consisting of three constructs, which are perceived usefulness, perceived ease of use and perceived risk. The model proposed by this study is a simpler model compared to other studies on e-filing. The confirmatory factor analysis shows that the model is an adequate fit. Based on the data collected from 166 respondents, the results showed that the proposed model explained up to 61% of the variance in behavioral intention. All of the variables significantly influence behavioral intention. The perceived risk construct has a negative association with the perceived usefulness construct. However, there is no significant association between the perceived risk and perceived ease of use constructs.

Keywords: taxation, e-filing, technology acceptance model, perceived risk, e-government, Malaysia

1. Introduction

e-Government facilitates the public's access to government information and services. Malaysia recognizes the potentials of e-government and has invested a substantial amount of capital in developing its e-government. Malaysia began its e-government initiatives in 1997 and continues to promote its development until today. An annual Global e-government survey which evaluates online government websites of 198 countries scored Malaysia at 36.9. This was an improvement from the score in the 2005 survey which was 20.8. To date, the Malaysian e-government portal offers more than 1,000 services online and more than 3,000 downloadable government forms. The electronic tax-filing is one of the most popular e-government services in Malaysia. .

The electronic tax-filing system was introduced in 2006 by the Malaysian Inland Revenue Board (IRB) to the Malaysian taxpayers, which includes individuals and companies. In its 4th year of implementation nearly 1.25 million Malaysian taxpayers has filed their returns electronically. Under the e-filing system, taxpayers need to fill their tax returns through the internet. Throughout this process, the system provides some guidance to the taxpayers on the correct information to include in their tax return. The system also calculates the amount of tax assessed based on the information that was provided in the tax return. The forms are then, sent electronically to the IRB. Through the electronic tax-filing system, the IRB improves the efficiency of the tax assessment method, by increasing tax collection and reducing computation errors. Furthermore, the e-filing system also benefits taxpayers because tax returns are sent electronically to the IRB which saves taxpayers' time. In the e-filing promotion campaign, the tagline 'easy to use, accurate and safe to use' were used.

E-filing has potentials to benefit both taxpayers and the IRB, but only if it is actually used by the Malaysian taxpayers. Thus, the purpose of this study is to identify the factors that affect taxpayers' decision to use the e-filing system. This study contributes to the literature of e-government in two ways. Firstly, this study suggests a simplified version of the TAM model for the adoption of the e-filing system. This simplified model contains 3 important variables for e-filing; they are perceived ease of use (PEOU), perceived usefulness (PU) and perceived risk (PR). In most studies of e-filing (e.g. Carter et al, 2008; Fu et al, 2006), the PR variable was found to be a significant influence in explaining behavioral intention. In addition, these 3 variables epitomize the ideas behind the Malaysian IRB's introduction of the e-filing system in Malaysia. Secondly, to date, no study, known to the authors, has been conducted to study taxpayers' acceptance of the Malaysian e-filing system. Thus, 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 hypothesis

There have been a growing number of literatures on e-government. According to Lofstedt (2005), the e-government literature could be approximately divided into 5 various strands: management and organization, e-services, e-democracy, interactions and e-security. Lofstedt (2005: 42) concluded from her review of literature in this strand is that only a 'few studies have explored the core factors that influence citizens adoption of e-services'. Thus, this article contributes to the e-government services literature by focusing on aspects that are important for the adoption of e-government services.

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 beliefs 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). In the e-government literature, various studies (e.g. Carter and Belanger, 2005; Wang et al., 2005) have also adopted TAM in their model to test or evaluate the citizen adoption of e-government services. Perceived usefulness and perceived ease of use were found to be significant constructs in the e-government adoption literature (e.g. Carter and Belanger, 2004, 2005).

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 et al. (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 (i.e. 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.

One other common variable that have been included in the study of e-government is perceived risk (PR) (eg. Carter et al, 2008; Fu et al, 2006). The findings from these studies were inconclusive. In Fu et al. (2006), the perceived risk variable significantly influence the behavioral intention of taxpayers who file their tax returns through the internet. However, Belanger and Carter (2008) found that

perceived risk did not significantly reduce the intention to use e-government services. One possible reason for this is due to the different risk perceptions that users may have about e-commerce and e-government transactions. Belanger and Carter indicated that future studies could observe the constructs that may impact perceived risk.

Thus, perceived risk is included in this research model and is based on two risk facets, which are privacy risk and performance risk. 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 e-filing system. Under the e-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 et al. 1999; Friedman et al. 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 the e-filing system.

The combinations 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, 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 of this study

3. Research methodology

Convenience sampling method was used for this study and the sample size is 200 respondents. The targeted respondents were taxpayers residing in Kuala Lumpur (i.e. capital city of Malaysia). Questionnaires were distributed through emails. Taxpayers are selected based on two criteria. Firstly, salaried taxpayers were chosen because they are the group of taxpayers that was eligible for e-filing since its implementation in 2006. Secondly, taxpayers who file their own tax return were considered as a sample in this study because of their hands-on experience with the e-filing system.

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 e-filing system and their behavioral intention to adopt. This section was adapted from Hung et al. (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 e-filing system. Section C of the questionnaire contains questions on taxpayers' computer and internet experience. Statistical Package for Social Science (SPSS) and Analysis of Moment Structure (AMOS) were used to analyze the data.

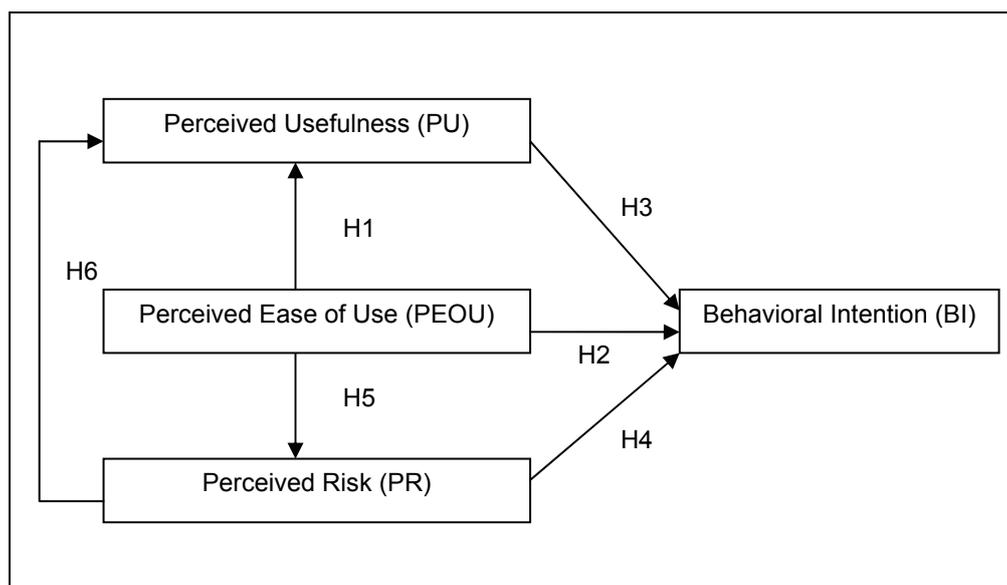


Figure 1: Research model

4. Results

A total of 182 sets of questionnaires were received and 16 of these questionnaires were not usable. Table 1 indicates that the respondents were IT literate as more than 50% of the respondents had more than 6 years of computer and internet experience.

Table 1: Computer and Internet experience of respondents

| Item | Frequency | % |
|---------------------|-----------|------|
| 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 |

The Cronbach's coefficient alpha for the four (4) constructs which comprise of sixteen (16) items are shown in Table 2. 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 2 also exhibits that the means 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 (i.e. PR), they still perceived the system to be easy to use and useful. In addition to that, Table 2 shows that these respondents have a positive intention to adopt the e-filing system.

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 3 shows that the overall model fit is adequate. The recommended values were derived from Hoyle (1995).

As shown in table 3, 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.

Table 2: 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 |

Table 3: 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 |

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 e-filing system adoption intention is explained by this model. In this model, taxpayers' intention to adopt electronic tax-filing system was 61 percent explained by perceived usefulness ($\beta = 0.81$), perceived ease of use ($\beta = 0.38$) and perceived risk ($\beta = -0.15$) 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.

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, 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 (Pavlou, 2003; Featherman and Fuller, 2003; Featherman and Pavlou, 2003).

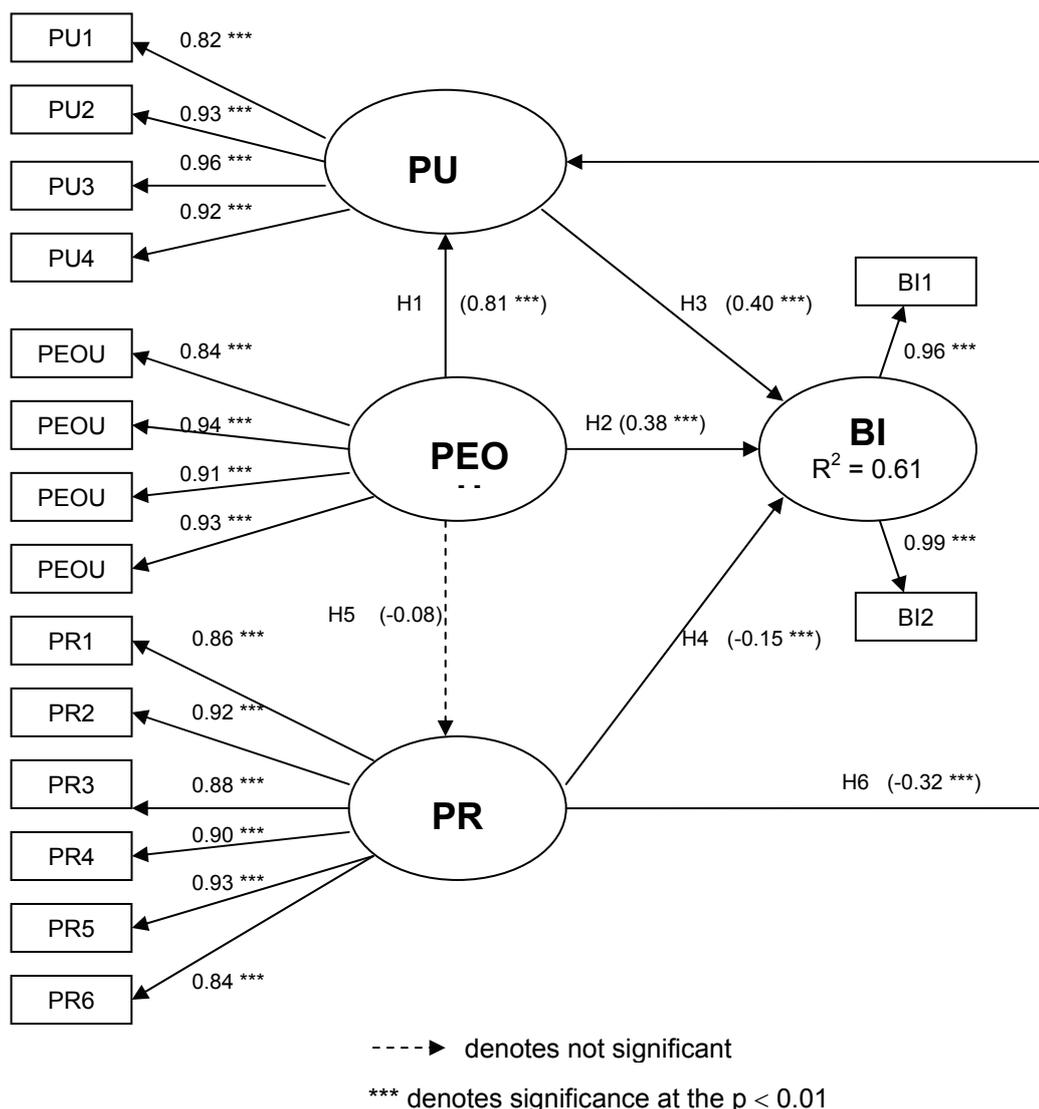


Figure 2: Results of the study framework

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 4). The results show there was no correlations between the perceived ease of use and perceived risk construct (p = 0.323). The results in Table 4 also support H1 and H6. The results showed that there is a correlation between the constructs with p = 0.000.

Table 4: 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

5. 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. Given the fact that the adoption of the electronic tax-filing system is voluntary in Malaysia, the findings suggest that a system that is usefulness and easy to use are important for taxpayers to voluntarily e-file their tax returns.

Thus, the government should increase its efforts to promote the usefulness and user-friendliness of the e-filing system. To increase the perceived usefulness of the system, the Malaysian government should invest in more advertising campaign that clearly denotes the usefulness of e-filing. This campaign should be strategically administered during the tax filing months. For example, advertising on billboards that are strategically located to capture a bigger audience. The system's ease of use should also be stressed in the advertisement campaign. Besides advertisement, the Inland Revenue Board (IRB) could also improve the user-friendliness of the system by creating web-based tutorials or videos that guides the taxpayers on how to use the e-filing system. IRB could also increase its online support such as providing this service for 24 hours during the tax filing months. This is very important as most of the taxpayers will choose to e-file their returns at odd hours.

In this study, the perceived risk construct, which was defined by privacy and performance risk, was found to have a negative influence on behavioral intention. IRB needs to reduce the taxpayers' perceived risk to encourage more taxpayers to e-file their tax returns. There are several initiatives that could lower the perceived risk of future adopters. Firstly, the IRB could increase the security features of the e-filing system. Besides a digital certificate, IRB could employ multiple firewalls, use the latest anti-virus and worm detection software, and all Internet transmissions should use SSL (Secure Sockets Layer) encrypted security measures. The embedded security features in the e-filing system need to be communicated to taxpayers so that they become aware that the e-filing system is secure. Secondly, IRB has to improve the performance of the e-filing system. If existing users perceive the system to be cumbersome and frequently malfunctions, this will deter any increase in the number of taxpayers who will e-file. Thirdly, taxpayers will e-file near the tax deadline creating a high volume of traffic, thus, IRB has to ensure that the system could cope with the traffic demand. IRB could also offer initiatives that could reduce traffic during this time by offering rebates to taxpayers that e-file their returns early. Another alternative is IRB could also outsource the e-filing service to private companies.

The findings also suggest that the perceived risk variable is important and it responds negatively towards perceived usefulness. This means that, if taxpayers perceived that the electronic tax-filing system is risky their perception on the usefulness of the system will decrease. Thus, to attract taxpayers to adopt e-filing system, IRB has to assure taxpayers that the e-filing system is safe and risk free. As indicated earlier advertising campaign is important to disseminate this information to the public. 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. Contrary to Featherman and Pavlou (2003), which found this relationship significant in the e-service transactions, the relationship is not significant for e-filing. A possible reason could be due to the definition of perceived risk in this study. In this study, only two of the risk facets were tested, there may be other perceived risk facets such as psychological risk that may significantly be influenced by perceived ease of use. A future study on e-filing or other e-government services could incorporate all of the perceived risk facets into the TAM model. It would also be interesting to incorporate the relationship of perceived artificiality and personal innovativeness in the model (Featherman et al., 2006). This may offer us a better understanding of the relationship between PEOU and PR in the e-government context. Future research on e-filing could also incorporate how the different forms of trust as those identified in Belanger and Carter (2008) could influence perceived risk and the adoption of the e-filing system.

As with any research, this study has several limitations. Firstly, the survey concentrates on an urban area and does not represent the whole of Malaysia. 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.

6. Conclusion

In summary, improving aspects of the e-filing system that would enhance taxpayers' perceived ease of use, usefulness and reduce the riskiness of the system are essential to increase adoption of the e-filing system. Reducing the taxpayers' perception of risk in e-filing will not only increase their perception on the usefulness of e-filing but also lead them to adopt the system. Thus, exploring further the antecedents of perceived risk will enhance our knowledge on the factors that are crucial for the adoption of e-government services.

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