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Antecedents to e-File Adoption: The U.S. Citizen's Perspective

Ludwig Christian Schaupp and Lemuria D. Carter *

Abstract

In the United States, congress set a goal for 80% tax and informational returns to be filed electronically in 2007(IRS, 2004). Although e-file adoption has grown incrementally the past, 80% has not been reached. This study proposes a model of e-filing adoption that incorporates risk perceptions and optimism bias to explain e-file diffusion. To test the model we surveyed 260 taxpaying U.S. citizens. Results of a multiple regression analysis are consistent with our predictions; effort expectancy, performance expectancy, social influence, perceived risk, and optimism bias significantly influence intention to e-file. Implications of results for practice and research are discussed.

1. INTRODUCTION

The United States (U.S.) government is one of the largest users of information technology (IT) systems in the world (Office of Management and Budget, 2006). A considerable percentage of the government's IT investment is allocated to e-government initiatives. E-government in the U.S. provides its citizens with convenient access to government information and services. The electronic filing of income tax returns (the e-file program) is an invaluable application that assists tax filers with the process of collecting their personal tax information and provides them with the ability to electronically transmit their return. Electronic filing of personal income taxes (e-file) has the potential of improving the overall process of tax filing for the individual filer while at the same time reducing the cost to both taxpayers and tax collection agencies (Fu et al., 2006).

The use of Internal Revenue Service (IRS) endorsed e-file systems has continued to grow over the last couple of years with 52.9 million individual returns being filed in 2003 and approximately 68 million in 2005 (IRS, 2004). In 2008, 90 million taxpayers in the U.S. used e-file to submit their federal tax returns (IRS, 2004). However, despite the numerous IRS endorsed e-file systems that are available, this still only accounts for about 50% of the total number of returns. Congress set a goal of having 80% of all tax and informational returns filed electronically by 2007 (IRS, 2004). However, the goal of 80% has fallen well short and the problem of

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underutilization continues to plague the IRS. The mission statement for e-file services is to ease taxpayer burden and increase compliance through innovative e-government solutions with the use of technology (IRS, 2004). The future vision of the IRS is one in which any exchange or transaction that currently occurs in person, over the phone or in writing can be accomplished electronically.

Throughout the Information Systems (IS) literature, the prediction of usage has always been a focus. With the growing interest in e-government and increased pressures to get to 80% utilization it raises the question of how to increase citizens' adoption of e-file. The literature frequently addresses this question by identifying predictors of behavioral intentions. Behavioral intention to use is defined as an individual's intention to use a specific IS for some purpose either presently or sometime in the near future. There is a large body of previous research which suggests that many usage studies were anchored in behavioral intention to use and have reported a strong link between behavioral intention and actual usage (Chau and Hu, 2001). Previous research has also noted that for survey research, analysis of intention to use is more appropriate than actual usage (Agarwal and Prasad, 1999). Intention to use has been used as a dependent variable in a number of empirical studies and continues to be developed and tested by IS researchers in numerous contexts, including e-filing (Fu et al., 2006). Intention to use has heightened importance in an e-filing context where citizen use is voluntary and essential to desired outcomes.

Building on previous technology acceptance studies along with studies of risk perceptions, the authors develop a model aimed at further understanding U.S. taxpayers' intention to use an e-file system to complete their taxes. Specifically, a survey is conducted to examine taxpayers' intentions to use an IRS endorsed e-file system, by addressing the following research question:

How do adoption factors and risk perceptions impact U.S. taxpayers' intention to use an e-file system?

Three adoption factors are explored in this study: performance expectancy, effort expectancy and social influence. According to the Unified Theory of Acceptance and Use of Technology (UTAUT), these three factors have a significant impact on intention to use a technology (Venkatesh et al., 2003). The risk perceptions of interest are perceived risk and optimism bias. Perceived risk is acknowledged in the literature as an important predictor of intention to use e-services (Fu et al., 2006, Pavlou, 2003, Warkentin and Gefen, 2002). Optimism bias - which is used in risk analysis (Sjoberg and Fromm, 2001), accident analysis (Dejoy, 1989), social psychology (Weinstein, 1980b), and behavioral medicine (Weinstein, 1982) literature - offers insight into how individuals handle risky situations.

The remainder of the article proceeds as follows: section 2 presents the theoretical foundations of the proposed research model. In section 3, we depict the research model and hypotheses. Section 4 describes the methodology used to test the model. The results are presented in section 5. We provide a discussion of the findings, an agenda for future research, and limitations in section 6. Finally, concluding comments are presented in section 7.

2. THEORETICAL DEVELOPMENT

How and why individuals choose to adopt new technologies has forever been the focal point of IS research. Within this broad area of research there is a core of literature that focuses on intention. UTAUT is the most predominant and comprehensive theory existing in the literature to date. The UTAUT model is derived from eight theoretical models: the theory of reasoned action (TRA), the technology acceptance model (TAM), the motivational model, the theory of planned behavior (TPB), a model combining the technology acceptance model and the theory of planned behavior, the model of PC utilization, the innovation diffusion theory, and the social cognitive theory. The goal of UTAUT is to understand intention/usage as the dependent variable (Venkatesh et al., 2003).

In addition to technology adoption factors, the literature also identifies perceived risk as an important predictor of intention (Fu et al., 2006). The proposed model combines adoption factors, perceived risk and optimism bias to explain citizens' intention to use e-filing in the United States.

2.1 Technology Adoption

Information technology diffusion has been explored extensively in the literature (Davis, 1989, DeLone and McLean, 1992, DeLone and McLean, 2003, DeLone and McLean, 2004, Doll and Torkzadeh, 1988, McKinney et al., 2002, Seddon, 1997, Szanja, 1996, Wixom and Todd, 2005). The UTAUT model integrates the eight theoretical models noted above and is made up of core determinants of usage intention (performance expectancy, effort expectancy, social influence, and facilitating conditions) and was empirically tested in four different organizational settings over a period of six months (Venkatesh et al., 2003). Four core determinants, performance expectancy, effort expectancy, and social influence were found to significantly predict intention. The UTAUT model is well suited for the context of this study in that the goal is to understand intention/usage as the dependent variable (Venkatesh et al., 2003), as is the case in the present study. UTAUT has also been utilized in prior e-government research investigating e-government service adoption (Al Awadhi and Morris, 2008). Therefore, it is in this setting that the use of the UTAUT model is best suited for an investigation into the use and adoption of an IRS e-file system.

Performance expectancy is defined as the degree to which individuals believe that using the system will help them improve their job performance (Venkatesh et al., 2003). Five variables comprise the performance expectancy construct: perceived usefulness, extrinsic motivation, job-fit, relative advantage, and outcome expectations (Venkatesh et al., 2003). Recent literature has shown that there are similarities between constructs: usefulness and extrinsic motivation (Davis, 1989), usefulness and job-fit (Thompson et al., 1991), usefulness and relative advantage (Davis, 1989, Moore and Benbasat, 1991, Plouffe et al., 2001) usefulness and outcome expectations (Compeau and Higgins, 1995, Davis, 1989), and job-fit and outcome expectations (Compeau and Higgins, 1995). Performance expectancy has been found to be the strongest predictor of intention in previous model tests (Agarwal and Prasad, 1999, Compeau and Higgins, 1995, Thompson et al., 1991, Venkatesh, 2000, Venkatesh et al., 2003).

Effort expectancy is the degree of ease associated with the use of the system (Venkatesh et al., 2003). The UTAUT model identifies three constructs from the eight

models which make up the concept of effort expectancy: perceived ease of use, complexity, and ease of use (Venkatesh et al., 2003). The similarity among these three variables has also been documented in prior literature (Moore and Benbasat, 1991, Plouffe et al., 2001, Thompson et al., 1991, Venkatesh et al., 2003). The effort expectancy construct has been found to be significant in both voluntary and mandatory usage contexts, but only in the initial usage of the technology (Venkatesh et al., 2003). It became insignificant after periods of extended and sustained usage which is consistent with previous research (Agarwal and Prasad, 1999, Thompson et al., 1991, Venkatesh et al., 2003). It has been noted that effort oriented constructs are usually found to be more salient in the early stages of a behavior (Venkatesh et al., 2003). This initial stage is when process issues are hurdles that need to be overcome by users and later are forgotten, giving way to concerns about specific features of the system (Szajna, 1996, Venkatesh et al., 2003).

Social influence is the degree to which an individual perceives that others who are deemed important to them believe that they should use the system (Venkatesh et al., 2003). Social influence is comprised of subjective norms, social factors, and image. The construct name "social norms" has been used in prior literature and is similar to "subjective norm" within the Theory of Reasoned Action (Thompson et al., 1991). It has also been noted that the social influence construct contains the explicit or implicit notion that people's behavior is influenced by the way in which they believe others will view as a result of having used the technology (Venkatesh et al., 2003). None of the social influence constructs were found to be significant in voluntary contexts; however, all of them were found to be significant when usage was mandatory (Venkatesh et al., 2003). These effects in a mandatory context could be attributed to compliance that causes social influence to have a direct effect on intention (Venkatesh, 2000). In contrast, social influence in voluntary contexts, as in this study, functions by influencing perceptions about the technology.

Facilitating conditions are the degree to which an individual believes that an organizational and technical infrastructure exist to support the system (Venkatesh et al., 2003). Facilitating conditions are comprised of three root constructs: perceived behavioral control, facilitating conditions, and compatibility. Each of these root constructs is operationalized to include aspects of the technological and/or organizational environment that are meant to remove barriers to use (Venkatesh et al., 2003). The authors found that when both their performance expectancy constructs as well as their effort expectancy constructs are present in the model, facilitating conditions becomes a non-significant construct in predicting usage intention. Facilitating conditions has a direct effect on actual system usage not behavioral intention (Venkatesh et al., 2003).

2.2 Perceived Risk

According to the literature, risk perceptions have a significant impact on use intentions (Fu et al., 2006). Perceived risk is defined as the citizen's belief that he will incur a loss while pursuing a given outcome (Warkentin and Gefen, 2002). Perceived risk is composed of behavioral and environmental uncertainty. Behavioral uncertainty exists due to the impersonal nature of the Internet. Since it is such a remote medium, online service providers could behave opportunistically and take advantage of the user. Environmental uncertainty arises due to the unpredictable nature of Internet-based technology. The Internet is beyond the control of the consumer (Pavlou, 2003).

Perceived risk reduces users' intentions to exchange information and complete e-commerce transactions (Pavlou, 2003). The literature suggests that perceived risk has the same effect on e-government adoption (Carter and Belanger., 2005, Fu et al., 2006, Warkentin and Gefen, 2002). In light of uncertainties that surround Internet-based transactions and the potential consequences of not successfully submitting an electronic tax return, we posit that perceived risk will significantly impact one's intention to use an e-file system.

2.3 Optimism Bias

Optimism bias is defined as "a systematic error in perception of an individual's own standing relative to group averages, in which negative events are seen as less likely to occur to the individual than average compared with the group, and positive events as more likely to occur than average compared with the group (Weinstein, 1980a)." This concept suggests that although people identify situations as risky; they do not think they are as susceptible to the risk as the average person. Many people believe that their knowledge and abilities minimize their susceptibility to risk. Optimism bias has been explored in several fields. For instance, it has been used to explain why some individuals drive under fatigue (Dejoy, 1989). Research shows that most people agree it is dangerous to drive when tired; however, the same people believe their driving abilities make them less likely to have an accident while fatigued than the average driver. Regarding information technology (IT), previous literature asked respondents to rate the risk of certain hazards (e.g. identity theft) to the general public and to them individually. Participants scored the risk to the general public higher (Sjoberg and Fromm, 2001). The authors found that participants were aware of technology related risks. However, risks of technology were mostly seen as issues of concern for other people.

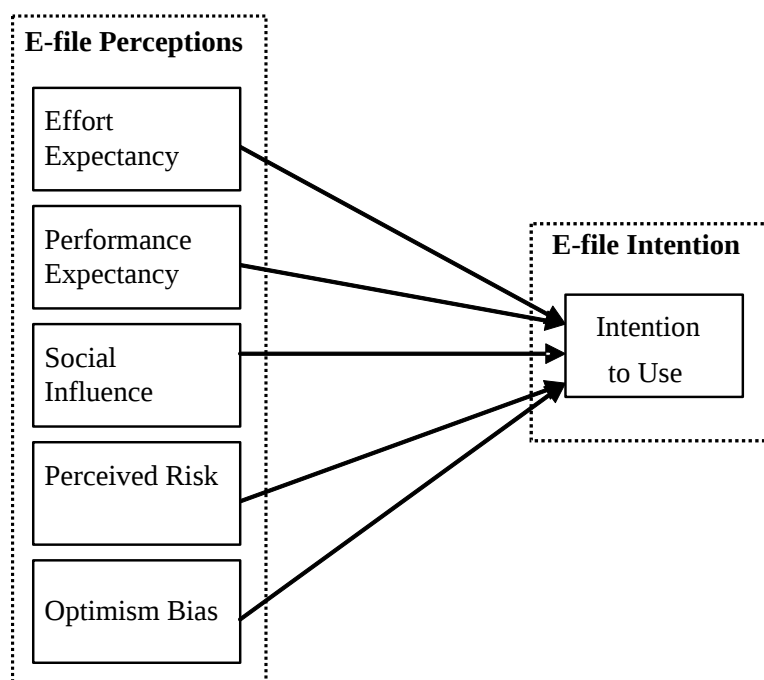
Regarding, e-government adoption, prior literature has found that despite high perceptions of risk citizens were still willing to adopt e-government services (Carter and Belanger., 2005). Citizens acknowledged the risk of completing electronic transactions; however, they were still willing to use e-government services. Optimism bias may explain this phenomenon. Perhaps citizens who believe they are more competent than the average Internet user are not deterred by the perceived risk of e-government transactions. Optimism bias is tested by asking participants to compare their ability to perform some task to the ability of the average citizen. We adapted survey items to assess e-filing optimism bias. Participants in this study were asked to rate their ability to perform several tasks (verify the authenticity of tax forms downloaded from the IRS website, recognize a fake website, complete a transaction with the IRS using an e-file system, etc.) compared to the average Internet user's ability.

3. RESEARCH MODEL & HYPOTHESES

Based on the aforementioned literature, we posit that citizens will identify e-filing as a risky transaction; however, due to optimism bias and adoption factors, citizens still will be willing to use an e-file system. The following research hypotheses (see Table 1) and research model are proposed (see Figure 1).

TABLE 1. RESEARCH HYPOTHESES

No.	Hypothesis
H1.	Effort Expectancy (EE) will have a positive effect on intention to use.
H2.	Performance Expectancy (PE) will have a positive effect on intention to use.
H3.	Social Influence (SI) will have a positive effect on intention to use.
H4.	Perceived Risk (PR) will have a negative effect on intention to use.
H5.	Optimism Bias (OB) will have a positive effect on intention to use.

FIGURE 1: PROPOSED RESEARCH MODEL

4. METHODOLOGY

To obtain study participants, an e-mail announcement was sent to members of master's level accounting and EMBA courses. Respondents were also encouraged to recruit other potential subjects at their workplace. Each survey participant was provided a link to a Web-based survey that they could access. The questions were aimed at assessing their perceptions of the dependent and independent variables. Demographic questions were last, as fatigue effects would have less influence on them. All surveys were confidential and no identifying personal information was required. The results were analyzed using multiple linear regression.

4.1 Sample

The survey was completed by 260 respondents. The response rate was quite good with 55% responding. 53 % of the respondents were female and the ages ranged from 21 – 84; 83% of the sample was in the 25-45 age group. 69% were Caucasians. 93% have completed an e-commerce transaction and 71% have completed an e-government transaction. 64% of the respondents used an e-file system last year to file their taxes.

4.2 Instrument Development & Validity

To investigate users' intentions to use an IRS endorsed e-file system, a questionnaire based data gathering technique was utilized (Moore and Benbasat, 1991). Questions were compiled from validated instruments in the IT adoption literature to represent each construct (see appendix), and wording was modified to fit the e-filing context being studied. The resulting items for each construct were then included in a random order on the survey instrument. Effort expectancy, performance expectancy, social influence, perceived risk, and intention to use questions were measured on a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Optimism bias questions were also measured using a 7-point Likert-type scale; anchored by 1 (much less able than the average Internet user), 4 (average ability), 7 (much more able than the average Internet user). Constructs showed internal consistency levels exceeding Cronbach's alpha (Nunnally, 1978) of 0.70.

TABLE 2. RELIABILITY ANALYSIS

Construct	# Items	Reliability
Effort Expectancy (EE)	6	.845
Performance Expectancy (PE)	3	.767
Social Influence (SI)	4	.783
Perceived Risk (PR)	5	.782
Optimism Bias (OB)	5	.890
Intention to Use (USE)	5	.892

Factor analysis using principal components with varimax rotation was used to evaluate construct validity (table 3). As can be seen from table 3, most items loaded properly on their expected factors except for PE2 which was below the .40 cut-off. This item was dropped from further analysis. Cross loading items EE1 and EE 2 were also dropped from further analysis.

TABLE 3. FACTOR LOADINGS

Item	EE	PE	SI	PR	OB	USE
EE1					.681	
EE2					.662	
EE3	.438					
EE4	.620					
EE5	.687					
EE6	.402					
PE1		.718				
PE2		.389				
PE3		.453				
SI1			.845			
SI2			.752			
SI3			.602			
SI4			.760			
PR1				.655		
PR2				.632		
PR3				.539		
PR4				.480		
PR5				.446		

OB1					.744	
OB2					.746	
OB3					.667	
OB4					.665	
OB5					.583	
USE1						.894
USE2						.912
USE3						.889
USE4						.608
USE5						.855

TABLE 4. FINAL REGRESSION VARIABLES

Construct	# of Items	Mean	Standard Deviation
Effort Expectancy (EE)	4	5.196	0.965
Performance Expectancy (PE)	2	5.372	0.985
Social Influence (SI)	4	3.984	1.101
Perceived Risk (PR)	5	3.782	1.094
Optimism Bias (OB)	5	4.830	0.932
Intention to Use (USE)	5	5.091	1.248

4.3 Data Analysis

The research model was tested using multiple linear regression analysis. Regression analysis is used to relate a dependent variable to a set of independent variables. The goal of this study is to determine the relationship between use intentions (dependent variable) and citizens' perceptions of electronic filing systems (independent variables). The model includes five independent variables (effort expectancy, performance expectancy, social influence, perceived risk, and optimism bias) and one dependent variable (intention to use).

5. RESULTS

The model explains a notable percent of the variance in citizen adoption of e-filing systems; adjusted R Square equals .727. Since the overall model was significant ($F=138.957$ $p=.000$), we tested the significance of each variable. All of the hypotheses were supported. Effort expectancy, performance expectancy, social influence, perceived risk, and optimism bias all have a significant impact on intention to e-file (see table 5).

TABLE 5. HYPOTHESES TESTING

Hypoth.	Coeff.	t-val.	Sig.	Supported
H1(EE)	.132	1.664	.097	YES*
H2 (PE)	.592	8.763	.000	YES***
H3 (SI)	.315	7.814	.000	YES***
H4 (PR)	-.155	-3.686	.000	YES***
H5 (OB)	.198	3.411	.001	YES***
* $p < 0.10$, ** $p < 0.05$, *** $p < .001$				

6. DISCUSSION

This study's overall purpose was to investigate users' intention to file their taxes online via an IRS endorsed e-file system. The study's research question focused on building an integrated model that identifies the impact of adoption factors and risk perceptions on U.S. taxpayers' intention to use an IRS endorsed e-file system.

6.1 Determinants of Use

To investigate the research question, we proposed a model of e-file adoption to be investigated. The results provide support for the research model. Five independent variables (effort expectancy, performance expectancy, social influence, perceived risk, and optimism bias) were investigated and all were shown to be significant predictors of intention to use an e-file system.

Effort expectancy was shown to be a significant predictor of intention to use in this study. This finding is not unexpected, having been identified as a predictor of intention to use in previous IT adoption literature (Venkatesh et al., 2003). This highlights the necessity for an e-file system to be easy to use in order to accommodate individuals that are not considered to be as computer savvy. This will be imperative to achieve the 80% e-file adoption goal set forth by Congress. This is perhaps the most important aspect of an e-file system in order to initially capture the non-traditional technology user. In this study, the sample was comprised primarily of experienced users of technology, which is a likely explanation as to why effort expectancy was found to be the least significant construct. Prior literature suggests the effort expectancy construct to be salient in the early stages of usage only (Venkatesh et al., 2003). One could also argue that with the act of filing taxes the importance is in conducting the transaction, not in the ease of use.

Performance expectancy was also shown to be a significant predictor of usage. This finding was also expected in this study. Performance expectancy has also been identified as a significant predictor of use in the IT adoption literature (Venkatesh et al., 2003). This finding should also not be unexpected. The ultimate goal of using an e-file system from the user perspective is whether or not the accomplished their task of filing their taxes.

Social influence was also shown to be a significant predictor of intention to use in this study. This finding is not unexpected, having been identified as a predictor of intention to use in previous IT adoption literature (Venkatesh et al., 2003). This finding provides evidence that indeed referent others' opinions influence users feelings about filing their taxes via an IRS endorsed e-file system. Whether it is recommending a good restaurant or doctor, we often rely on friends and acquaintances to make suggestions. The findings of this study suggest that the significance of social influence is the same in e-file adoption. Prior research has shown that for all but the simplest of decisions, people follow others and stick with what they know (Reeson and Dunstall, 2009).

Perceived risk had a negative impact on intention to use an e-file system. Yet, optimism bias had a positive impact on usage intent. High levels of perceived risk

reduce one's intention to use an e-file system. However, citizens who believe they are more competent interacting with electronic systems are more likely to use an e-file system despite the risks. These results are promising for e-service adoption research. Future studies should explore the role of optimism bias in conjunction with other intention predictors such as Internet self-efficacy (ISE). The results of this study suggest that beyond confidence in one's ability to use the Internet (ISE) a belief that one's abilities are better than the average Internet user encourages use of e-services despite risk. This use is motivated by the belief that "since I am more Internet savvy than the average user, I am not as susceptible to Internet risks as the average user." Future research should also integrate trust of the Internet and trust of the government into the proposed adoption model. Research suggests that trust is necessary when risk is present. It will be interesting to see how trust impacts adoption when optimism bias is accounted for.

One surprising finding was that in this study 71% of respondents reported having conducted some kind of e-government transaction previously, however, only 34% of respondents said they had e-filed their taxes. This is surprising given that around 50% of all returns in the U.S. are e-filed presently and with an experienced user base such as the subjects were in this study it would seem logical that they would at least be on par with the national average. This is especially surprising given the fact that so many of the respondents, 71%, had conducted some type of e-government transaction prior.

Based on the results of this study, the IRS should attempt to influence citizen perceptions of the usefulness (performance expectancy) of e-filing in order to increase adoption. Multiple linear regression allows us to analyze the magnitude of the coefficient for each independent variables. According to Table 5, performance expectancy has the highest impact on the intention to use; its coefficient is .592. This suggests the IRS should highlight the advantages of filing taxes electronically, such as quicker returns, as compared to traditional methods. An emphasis on the relative advantages of e-filing should have a notable impact on citizen adoption. The second most prominent factor is social influence; its coefficient is .315. This finding suggests the IRS should highlight characteristics of e-file adopters that citizen can relate and aspire to. For instance, the IRS could come up with slogans like "E-filing: how professionals submit their taxes" or "e-filing: it's earth friendly."

6.2 Limitations

There are some limitations to this study that should be noted. The most notable is the diversity of the subjects that were evaluated. While valid results were produced from testing, there was limited diversity in the sample. Future research should attempt to validate the findings of this study by testing a more diverse array of survey participants within the same context to increase the variance on some variable dimensions. Another limitation is that the data for this study was collected through surveys, therefore allowing a potential of self-report bias from respondents. Although the model explains 73% of the variance in intention to use, it does not include several adoption constructs explored in the literature. Future studies could include trust and self-efficacy for a more comprehensive view of the phenomenon.

7. CONCLUSION

Acknowledging the limitations of this study, this research has still made several significant contributions to the field of information systems research. This study is a first step towards understanding the role of UTAUT and optimism bias on e-file system adoption. In particular, it shows that the Unified Theory of Acceptance and Use of Technology in conjunction with risk perceptions explain a significant percent of the variance in intention to use. It introduces optimism bias as a viable explanation for the adoption of electronic services despite the inherent risks of remote transactions. It also serves as a building block for future studies by providing a parsimonious (five constructs) yet powerful (adjusted R-square=.727) tool for predicting use intentions.

8. REFERENCES

- AGARWAL, R. & PRASAD, J. (1999) Are individual differences germane to the acceptance of new information technologies? *Decision Sciences*, 30, 361-391.
- AL AWADHI, S. & MORRIS, A. (2008) The Use of the UTAUT Model in the Adoption of E-government Services in Kuwait. *Hawaii International Conference on System Sciences*. Kona, Hawaii.
- CARTER, L. & BELANGER, F. (2005) The Utilization of E-government Services: Citizen Trust, Innovation and Acceptance Factors. *Information Systems Journal*, 15, 2-25.
- CHAU, Y. K. & HU, J. H. (2001) Information technology acceptance by individual professionals: a model comparison approach. *Decision Sciences*, 32.
- COMPEAU, D. R. & HIGGINS, C. A. (1995) Computer Self-efficacy: Development of a Measure and Initial Test. *MIS Quarterly*, 19, 189-211.
- DAVIS, F. (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13, 319-339.
- DEJOY, D. (1989) The Optimism Bias and Traffic Accident Risk Perception. *Accident Analysis and Prevention*, 21, 333-340.
- DELONE, W. H. & MCLEAN, E. R. (1992) Information systems success: The quest for the dependent variable. *Information Systems Research*, 13, 60-95.
- DELONE, W. H. & MCLEAN, E. R. (2003) The DeLone and McLean Model of Information Success: A Ten Year Update. *Journal of Management Information Systems*, 19, 9-30.
- DELONE, W. H. & MCLEAN, E. R. (2004) Measuring e-Commerce Success: Applying the DeLone & McLean Information Systems Success Model. *International Journal of Electronic Commerce*, 9, 31-47.
- DOLL, W. & TORKZADEH, G. (1988) The measurement of end user computing satisfaction. *MIS Quarterly*, 12, 259-274.
- FU, J. R., FARN, C. K. & CHAO, W. P. (2006) Acceptance of electronic tax filing: A study of taxpayer intentions. *Information & Management* 43, 109-126.
- IRS (2004) IRS e-Strategy for Growth: Expanding e-government for taxpayers and their representatives.

- MCKINNEY, V., YOON, K. & ZAHEDI, F. (2002) The measurement of Web-Customer satisfaction: An expectation and disconfirmation approach. *Information Systems Research*, 13, 296-315.
- MOORE, G. & BENBASAT, I. (1991) Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, 2, 192-222.
- NUNNALLY, J. C. (1978) *Psychometric Theory*, New York, McGraw-Hill.
- OFFICE OF MANAGEMENT AND BUDGET (2006) Expanding E-government: Making a Difference for the American People Using Information Technology.
- PAVLOU, P. (2003) Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model. *International Journal of Electronic Commerce*, 7, 69-103.
- PLOUFFE, C. R., HULLAND, S. J. & VANDENBOSCH, M. (2001) Research report: Richness versus parsimony in modeling technology adoption decisions--Understanding merchant adoption of a smart card-based payment system. *Information Systems Research*, 12, 208-222.
- REESON, A. & DUNSTALL, S. (2009) Behavioural Economics and Complex Decision Making: Implications for the Australian Tax and Transfer System.
- SEDDON, P. B. (1997) A respecification and extension of the DeLone and McLean model of IS success. *Information Systems Research*, 8, 240-253.
- SJOBERG, L. & FROMM, J. (2001) Information Technology Risks as Seen by the Public. *Risk Analysis*, 21, 427-441.
- SZAJNA, B. (1996) Empirical evaluation of the revised technology acceptance model. *Management Science*, 42, 85-92.
- SZANJA, B. (1996) Empirical evaluation of the revised technology acceptance model. *Management Science*, 42, 85-92.
- THOMPSON, R., HIGGINS, C. & HOWELL, J. (1991) Personal computing: toward a conceptual model of utilization. *MIS Quarterly*, 15, 124-143.
- VENKATESH, V. (2000) Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model. *Information Systems Research* 11, 342-365.
- VENKATESH, V., MORRIS, M. G. & DAVIS, G. B. (2003) User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27, 425-478.
- WARKENTIN, M. & GEFEN, D. (2002) Encouraging citizen adoption of e-government by building trust. *Electronic Markets*, 12, 157-162.
- WEINSTEIN, N. D. (1980a) Optimistic Bias about personal risks. *Science*, 246, 1232-1233.
- WEINSTEIN, N. D. (1980b) Unrealistic optimism about future life events. *Journal of Personality & Social Psychology*, 39, 806-820.
- WEINSTEIN, N. D. (1982) Unrealistic optimism about susceptibility to health problems. *Journal of Behavioral Medicine*, 5, 441-460.
- WIXOM, B. H. & TODD, P. A. (2005) A Theoretical Integration of User Satisfaction and Technology Acceptance. *Information Systems Research*, 16, 85-102.

9. APPENDIX (SURVEY ITEMS)

Effort Expectancy

- 1) Learning to use an Internet tax-filing method would be easy for me.
- 2) I would find an e-file system easy to use.
- 3) It would not be easy for me to become skillful at using an e-file system.
- 4) It would be easy for me to input and modify data when I use an e-file system.
- 5) Instructions for using an e-file system will be easy to follow.
- 6) Using an e-file system would make filing my taxes clearer and more understandable.

Performance Expectancy

- 1) Using Internet Tax filing will speed the tax filing process.
- 2) The advantages of Internet tax filing will outweigh the disadvantages.
- 3) Overall, using Internet tax filing will be advantageous.

Social Influence

- 1) People who influence my behavior think that I should use an e-file system.
- 2) People who are important to me think that I should use an e-file system.
- 3) I use an e-file system to file my taxes because of the number of people around me who use it also.
- 4) People around me who use the e-file system to file their taxes have more prestige.

Perceived Risk

- 1) Use of an Internet tax-filing method may cause my personal income tax information to be stolen.
- 2) I will feel uneasy psychologically if I use Internet tax-filing methods.
- 3) I do not think it is safe to use Internet tax-filing methods because of the privacy and security concerns.
- 4) Providing personal information (i.e. social security number) to an IRS-endorsed e-file system is risky.
- 5) It is riskier to file taxes online than through the mail.

Intention to Use

- 1) I predict that I will use an e-file system in the future.
- 2) Filing taxes via e-file is something that I would do.
- 3) I would use the Internet to file my taxes.
- 4) I will experiment with an e-file service and then decide whether or not to use it in the future.
- 5) I intend to use an Internet filing method for my income tax return next year.

Optimism Bias

Please rate your ability to perform the following tasks compared to the average Internet user:

- 1) Submit personal information to the IRS using an e-file system.
- 2) Complete a transaction with the IRS using an e-file system.
- 3) Download forms and documents from the www.irs.gov website.
- 4) Verify the authenticity of tax forms downloaded from the IRS website.
- 5) Recognize a fake website.