

E-file Adoption: The impact of Diffusion Innovation and Online Trust

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ABSTRACT

This study integrates diffusion of innovation, online trust and e-experience into a comprehensive view of e-file adoption. To test the model we administered a survey to 260 graduate and undergraduate students. The results of multiple regression indicate that the proposed model explains 76% of the variance in intention to use.

Keywords: e-government adoption; e-file; diffusion of innovation, Internet trust

INTRODUCTION

The electronic filing of income tax returns (the e-file program) has grown into a Congressional initiative, however, its outright adoption by citizens has not yet been fully achieved. E-filing has the potential to improve 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 [1]. E-file services have been implemented with the goal of easing the burden on the taxpayer and increase compliance through the innovative use of technology [2]. The IRS has a documented goal in which any exchange or transaction that currently occurs in person, over the phone or in writing can be accomplished electronically. In response, congress set a goal of having 80% of all tax and informational returns filed electronically by 2007[2]. The use of 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, approximately 68 million in and approximately 73 million in 2006 [3]. However, this still only accounts for a little more than 50% of the total number of returns. Thus, the government has fallen well short of the 80% goal and outright adoption by citizens remains elusive for the IRS.

Building on previous technology acceptance studies, we develop a model aimed at further understanding U.S. taxpayers' intention to use an e-file system. Specifically, a survey is conducted to examine taxpayers' intentions to use an IRS endorsed e-file system. This study posits that by integrating literature on diffusion of innovation, online trust and e-experience researchers can gain a more comprehensive understanding of e-file adoption. In particular, we explore the impact of adoption factors, online trust factors and e-experience factors on intention to e-file.

BACKGROUND LITERATURE

Venkatesh [8] introduces UTAUT - the unified technology acceptance and usage theory- which combines eight behavioral models, including the Technology Acceptance Model (TAM) and the diffusion of innovation theory (DOI). In their study, Venkatesh et al. test each model individually and report that both TAM and DOI (referred to as IDT in their study) explain 38 percent of the variance in intention to use an information system in a voluntary setting. Regarding the plethora of adoption models, the IS literature posits that three adoption constructs -relative advantage, compatibility and complexity - are among the most relevant constructs to technology adoption research [4, 5]. Hence, we include the aforementioned diffusion factors in our model.

In addition to adoption factors, trust also plays an important role in technology acceptance. Definitions of trust abound in the literature. Trust in e-government is composed of the traditional view of trust in a specific entity (trust of the government) as well as trust in the reliability of the enabling technology (trust of the Internet) [6,7].

In addition to the aforementioned factors, the literature indicates that demographic variables also have an important impact on technology adoption [8]. Research suggests that frequency of Internet use and previous completion of electronic transactions can have a positive impact on one's intention to use an e-government transaction [5]. We posit the three electronic experiences will have a significant impact on e-file adoption; e-filing in the past year, previous completion of an e-commerce transaction and previous completion of an e-government transaction.

RESEARCH MODEL & HYPOTHESES

Based on the aforementioned literature, we propose the following research model (see figure 1). Intention to use an e-file system is influenced by three technology adoption factors – relative advantage, compatibility and complexity –three e-experience factors – e-commerce, e-government, and e-file usage- and two trust factors – trust of the government and trust of the Internet.

Figure 1. Proposed E-file Adoption Model

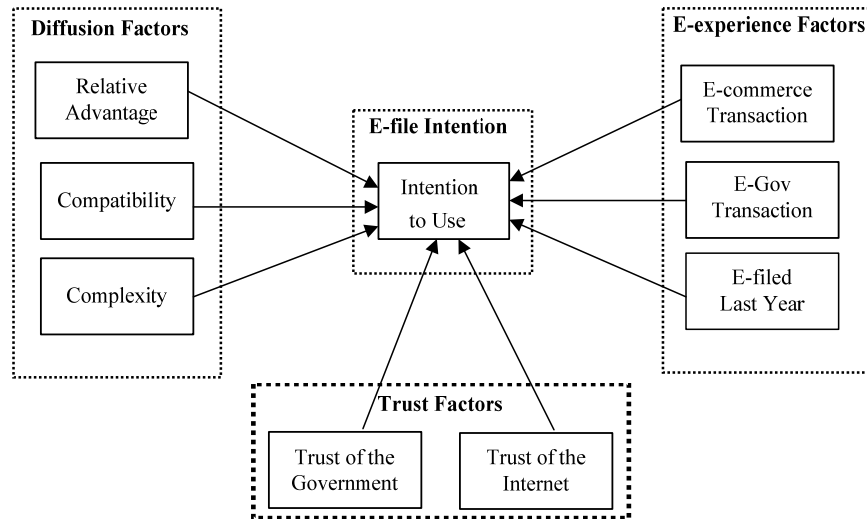


Table 1. Research Hypotheses

No.	Hypothesis
<i>Diffusion of Innovation</i>	
H1.	Relative Advantage (RA) will have a positive effect on intention to use.
H2.	Compatibility (CMP) will have a positive effect on intention to use.
H3.	Complexity (CLX) will have a negative effect on intention to use.
<i>Online Trust</i>	
H4.	Trust of the Government (TOG) will have a positive effect on intention to use.
H5.	Trust of the Internet (TOI) will have a positive effect on intention to use.
<i>E-experience</i>	
H6.	Previous completion of an e-commerce transaction (Ecom) will have a positive effect on intention to use.
H7.	Previous completion of an e-government transaction (Egov) will have a positive effect on intention to use.
H8.	Previous completion of an e-file transaction (Efil) will have a positive effect on intention to use.

METHODOLOGY

A Web-based survey was completed by 260 MBA, upper level and graduate accounting students. Questions were compiled from validated instruments [6, 7]. Questions were measured on a 7-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). 53 % of the participants were female. Items were tested for reliability using Chronbach’s alpha. Also, factor analysis was conducted using principal component analysis with promax rotation. The sample’s age ranged from 18 – 54; 83% of the sample was in the 18-24 age group. 89% were Caucasians. 71% have completed an e-

government transaction. 34% of the respondents used an e-file system last year. The data were analyzed using multiple linear regression in SPSS 15.0.

RESULTS

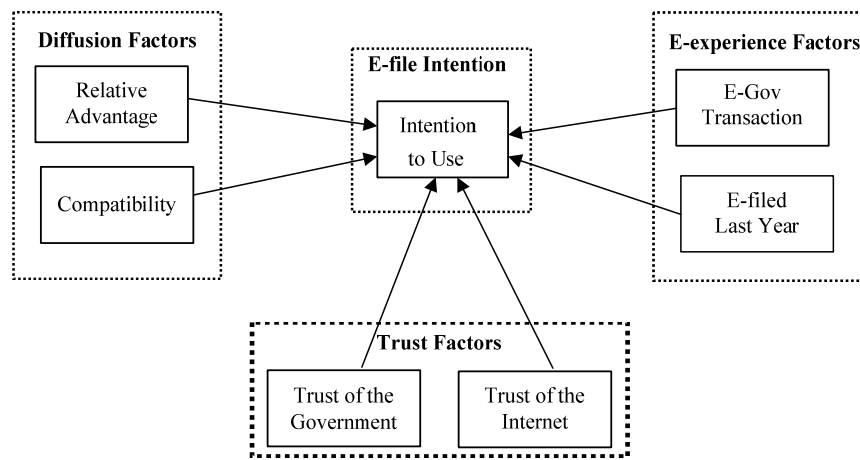
The model explains a large percent of the variance in citizen adoption of e-filing systems; adjusted R Square equals 0.769. Since the overall model was significant ($F=104.080$ $p=.000$), we tested the significance of each variable. Six of the eight hypotheses are supported. Relative advantage, compatibility, trust of the government, trust of the Internet, and previous use of e-government and e-file all have a significant impact on intention to e-file (see table 4). Interestingly, complexity and previous use of e-commerce did not have a significant impact on one's intention to use an e-file system. Implications for practice and research are provided in the discussion section.

Table 2. Hypotheses Testing

Hypoth.	Coeff.	t-val.	Sig.	Supported
H1(RA)	.218	3.859	.000	YES***
H2 (CMP)	.429	6.545	.000	YES***
H3 (CLX)	-.036	-.610	.542	NO
H4 (TOG)	.137	3.089	.002	YES**
H5 (TOI)	.105	2.394	.017	YES**
H6 (Ecom)	.021	.623	.534	NO
H7 (Egov)	.071	2.091	.038	YES**
H8 (Efil)	.160	4.475	.000	YES***
* $p < 0.10$, ** $p < 0.05$, *** $p < .001$				

The resulting model is presented below (figure 2).

Figure 2. Significant Results



DISCUSSION

Relative advantage 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. This highlights the necessity for an e-file system to be easy to use and effective in order to present taxpayers with a quicker, more efficient manner of filing their taxes. This is perhaps the most relevant aspect for most U.S. taxpayers. Promoting the benefits of e-filing will be imperative to achieve the 80% adoption goal. Compatibility was also shown to be a significant predictor of intention to use in the study. This finding highlights the necessity for an e-file system to fit into U.S. taxpayers' lifestyles. Complexity was not found to be a significant predictor of intention to use in this study. However, one possible explanation is that in this study, the sample was comprised primarily of experienced users of technology, which is a likely explanation as to why complexity was not found to be significant. One could also argue that with the act of filing taxes the importance is in conducting the transaction, not in the ease of use. Trust of the government was shown to be a significant predictor of usage. Trust is at the forefront of all transactions, whether it be monetary in nature or other. If there is not trust between the user and the government agency adoption will not occur, as was shown in this study. Trust of the Internet was also shown to be a significant predictor of intention to use in this study. This finding provides evidence that indeed citizen's trust of the Internet significantly influences e-file usage.

Previous e-commerce transaction experience did not significantly influence intention to use the e-file system. Although, interestingly well over 90% of the sample reported previous e-commerce transaction experience. However, previous e-government transaction experience and whether or not the citizen e-filed last year were both found to significantly influence intention to e-file in this study. This finding highlights the fact that an e-government transaction does not mimic an e-commerce transaction. There are unique elements involved with an e-government transaction as opposed to a simple e-commerce transaction. As a result there are added barriers to adoption.

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 relative advantage of e-filing in order to increase adoption.

LIMITATIONS & SUGGESTIONS FOR FUTURE RESEARCH

The most notable limitation is the lack of diversity in the sample. The sample was composed of graduate and undergraduate students, which have a higher affinity towards

and access to technology than the average citizen. 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 participants. Another limitation is that the data was collected through surveys, therefore allowing a potential of self-report bias from respondents. The survey was administered online which may also bias the results by capturing the views of those who may be more knowledgeable and comfortable with technology than the average citizen. Future research should consider using multiple-methods to collect and analyze data to test the proposed model.

CONCLUSION

In conclusion, this study presents a comprehensive yet parsimonious view of e-file adoption. It integrates adoption, trust, and experience factors to explain over seventy-six percent of the variance in intention to use an e-file system. The proposed e-file model can serve as a building block for future studies of e-file adoption. The constructs in the model are also applicable to other e-government systems, such as online license renewal. The proposed model adds to the current discourse on the evolution of e-government by presenting a very focused yet explanatory model of e-file utilization.

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