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Impact of Self-Support factors on Citizens' E-Tax Adoption Behavior: An empirical study

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Abstract: The objective of this study is to find out the potential antecedents of citizens' intention to use E-Tax filling system with the perspective of service consumers. Following the cross-sectional research design, the pool of 257 collected responses is analyzed using SEM technique, to empirical validate our proposed hypotheses. Citizens' self-support factors showed significant positive impact on perceived ease of use of E-Tax system, while a statistically insignificant relationship was found with perceived usefulness. In addition, perceived usefulness and perceived ease of use of E-Tax system had showed significant positive influence on intention to use E-Tax system. Previous studies have debated much on the importance of organizational factors in E-Tax adoption. Literature is silent on the segregation of these factors into the organizational and service consumers' related factor. By empirically validating the self-support factors, the study sheds lights on the importance of service consumers' related factors in adoption of E-Tax system. The findings of the study reveal that government as well as citizens' active participation is equally important in success of E-Tax filling system.

Keywords: Self-support factors, E-Tax system, G2C, Self-efficacy, Facilitating conditions, Taxpayers, E-Government, Technology adoption.

1. INTRODUCTION

Internet is not only reducing the cost of business transactions but also playing a vital role in the development of our economy. Most of the organizations, including both the governmental and non-governmental, are switching from the traditional manual system to electronic systems. However, the adoption rate in private sector is relatively higher than the government sector. In developed countries, majority of the government services are being delivered through electronic system. Conversely, governmental bodies in developing countries are in lane to switch their operations from conventional to electronic interface. From last few decades, the adoption behavior of IT is an area of interest of many social sciences researchers. Most widely accepted model in the IT adoption research was proposed by (Davis, 1989), called Technology Acceptance Model (TAM). In TAM proved that perceived usefulness (PU) and perceived ease of use (PEOU) are two core determinants that impact on user to adapt IT system. Later researches on technology adoption used this model as a base model to check out the users' adoption behavior of a particular IT system in different environmental settings. Same is the case here in the field of E-Government services adoption. Governments are facing severe issues in implementation of successful E-Government services adoption. Based on the nature of transactions, different types of electronic services currently being offered by the government include: Government to Government (G2G), Government to Business (G2B), Government to Citizens (G2C) and Government to Employees (G2E) services (Al Nagi and Hamdan, 2009; Shan, *et al.*, 2011; Yildiz, 2007). The main stream of government revenues comes from tax collected from the individuals and businesses, which is classified under the G2C services. So, a transparent, efficient, and foolproof tax collection system is one of the success factor of any economy. Before the use of IT in the field of tax collection, government used manual system to get the taxes collected. The conventional system was characterized by number of drawbacks i.e. time consuming, low service quality, and higher chances of fraud etc. With successful adoption of IT in different businesses in non-governmental organizations, governments realized that they should implement IT in their processes as well to overcome the issues, which governments were facing in conventional tax collection system. For electronic tax collection, different countries have developed their online tax collection systems called E-Tax systems. Government of USA was the first in the world who developed and implemented E-Tax system in USA in 1986 (Kamarulzaman and Azmi, 2010). Turkey and Taiwn's government implemented E-Tax system in 1998 (Cakmak, *et al.,* 2011). Malaysian's government implemented this system in 2005 (Kamarulzaman and Azmi, 2010). Furthermore, in Pakistan, this system was introduced in fiscal year 2007. Some other countries' governments have either implemented or in transition stage. To date, all the governments, who have implemented E-Tax system are not able to attract all the

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taxpayers to use this system. The E-Tax adoption rate among different countries varies between 50% to 70% taxpayers. It means, there are still some issues that are being faced by the taxpayers that resisting them to adopt this system. The problem may be either at any one or both sides including: service provider and service consumer. Several studies have been conducted on E-Tax adoption in different cultural context, yielding different success factors of E-Tax system, but none of these studies made a clear segregation of the success factors on the basis of parties involved in E-Tax system. Considering the role of two important factors with reference to service consumer (taxpayer), called self-support factors, our study add value in the existing literature. We used TAM (Davis, 1989) as base model to check out the impact of our proposed self-support factors on taxpayers' intention to use E-Tax system because several studies confirmed that TAM is best model to find out taxpayers' adoption intention of E-Tax system (Ozgen and Turan, 2007). After the introduction, rest of the paper is organized as follow: hypothesis and E-Tax system adoption model including self-support factors with the help strong literature review are explained. Followed by the research methodology, findings of the study are discussed. Finally, the conclusion, limitations, and directions for the future research are suggested.

Literature Review

Since last two decades a rapid growth has been seen in Information and Communication Technologies (ICT) implementation in the organizations (Hung *et al.*, 2009). E-Tax filling is one of the services, which are currently being focused by the governments because economy of any country totally depend on the tax revenue, which is collected by the governments from citizens and businesses by various means. The provision of electronic services to citizens and businesses by governments for filling tax returns and depositing tax revenues is defined as E-Tax or Tax E-Filling (Kamarulzaman and Azmi, 2010).

Facilitating Conditions

FC, perceived as availability of resources that enable users to use IT system i.e. computer, internet, basic helping material to use IT system etc. Bhattacherjee (2000) defined FC as, "beliefs about availability of resources to facilitate that behavior". FC are organization's support factor because past studies focused their research on technology adoption in organizational context but this study is focusing on G2C electronic services adoption so this study postulate FC as self-support factor because governments are not responsible to provide computer or internet to citizens to use online system. It is citizens' personal responsibility that they must have necessary resources like internet, computer etc. to use the online system. It means that higher the availability of FC higher the user perception of IT system usefulness and ease of use. Therefore, this study postulate that:

H1: Facilitating conditions with self-support has significant impact on perceived usefulness of E-Tax system usage.
H2: Facilitating conditions with self-support has significant impact on perceived ease of use of E-Tax system usage.

Self-Efficacy

SE perceived as individual's competency to perform a certain intentional task. Bandura (1982) defined SE as, "judgment of how well one can execute courses of action required to deal with prospective situations". But in the substance of E-Tax adoption, Anuar and Othman (2010) defined SE as "the belief that a taxpayer possesses about his capability on performing tax payment transactions through online tax collection system". In E-Tax adoption research, researchers proved SE as determinant to uplift citizens' E-Tax adoption intention (Anuar and Othman, 2010). Venkatesh (2000) proved SE is also determinant of PEOU. Moreover, Bandura (1982) suggested that PEOU is an outcome of SE. It means both SE and PEOU predicts same outcome (Davis, 1989) but later Venkatesh and Davis (1996) proved that computer SE is strong determinant of PEOU because SE of user deals with perception of user before using system but PEOU deals with the perception of user after system use. Therefore, SE and PEOU both measure different outcome but SE strongly influence on PEOU. On the other side, SE also has influence on PU. Wang (2002) proved that computer SE strongly influences PU, which ultimately influences user intention to technology system. This study used SE as self-support factor because SE relate to user's inner perception. To sum up higher the perception of SE then higher the degree of PU and PEOU. Therefore, on the base of strong literature support we postulate that:

H3: Self-efficacy with self-support has significant impact on perceived usefulness of E-Tax system usage.
H4: Self-efficacy with self-support has significant impact on perceived ease of use of E-Tax system usage.

Perceived Ease of Use

Davis (1989) defined PEOU as, "the degree to which a person believes that using a particular system would be free of effort." Studies proved that PEOU has a significant impact on PU (Anuar and Othman, 2010; Azmi, *et al.*,, 2012; Bhattacherjee and Hikmet, 2008). To sum up if we want to increase the user's intention to use E-Tax system, the system must be easy to use and easy to understand. It means higher the degree of PEOU then higher the degree of PU and the user's intention to use

E-Tax system. Therefore, on the base of strong literature support, this study postulate that:

H5: Perceived ease of use of E-Tax system usage has significant impact on perceived usefulness of E-Tax system usage.
H6: Perceived ease of use of E-Tax system usage has significant impact on intention to use E-Tax system.

Perceived Usefulness

Davis (1989) defined PU as, "the degree to which a person believes that using a particular system would enhance his or her job performance." According to Davis (1989), PU has stronger impact on intention to use IT system as compare to PEOU. Even studies proved that PEOU is an antecedent of PU (Azmi *et al.,* 2012). According to these studies to raise IT system user's intention, organizations should emphasize on PU instead on PEOU because according to these studies users prefer those IT systems that directly raise their job performance. To sum up if we want to increase the user's intention to use E-Tax system, the system must increase the performance of the taxpayer, taxpayer can submit tax returns more efficiently and effectively as compare to conventional system. It means higher the degree of PU, higher the users' intention to use E-Tax system. Therefore, on the base of strong literature support this study postulate that:

H7: Perceived usefulness has significant impact on intention to use E-Tax system.

On the base of our postulated hypothesis, we proposed a model, which we figure out in figure 1.

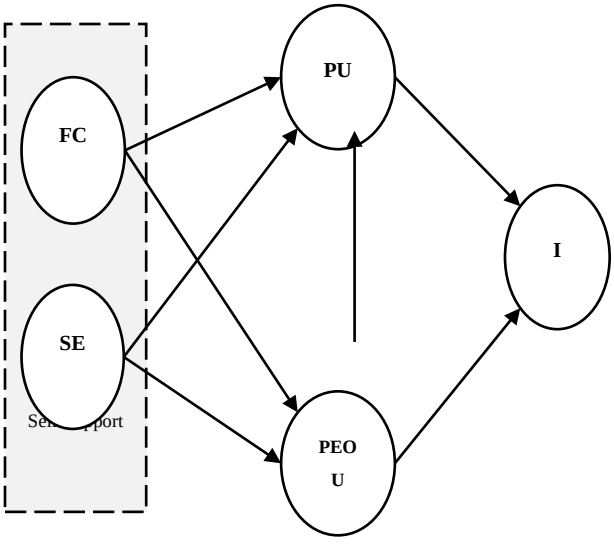


Fig. 1: Proposed Model

3. RESEARCH METHODOLOGY

In Pakistan, Federal Board of Revenue (FBR) is a government's organization which is offering services electronically to the citizens for the collection of taxes through online web portal called "E-FBR Facilitation Portal" since 2007. All those citizens of Pakistan who used this portal were our target population. We used cross sectional research design for the collection of data from our target population (Bryman and Bell, 2011). During data collection procedure, we asked from our respondents their age and their experience to use this portal. Our sample consisted of 257 participants. There were 12.1% participants whose age was between 22 and 25, 48.6% participants whose age was between 26 and 29, 27.6% participants whose age was between 30 and 33, 10.1% participants whose age was between 34 and 37, and 1.6% participants whose age was 38 and above. With regard to experience of our target respondents to use the E-FBR facilitation portal, 16.7% had one-year experience, 23.0% had two year experience, 21.0% had three year experience, 19.1% had four year experience, 12.8% had five year experience, 5.4% had six year experience and 1.9% had seven year experience. To measure the variables, we used well-developed scale adopted from prior research in the field of technology adoption. FC was measured by one item adopted from Bhattacherjee (2000) and two items adopted from Mathieson, *et al.,* (2001). SE was measured by three items adopted from Taylor and Todd (1995). PU was measured by five items taken from Davis (1989). PEOU was measured by five items taken from Davis (1989). In addition, Intention to use E-Tax system was measured by two items drawn from Davis (1989). We used seven point Likert scale anchors ranging from "Strongly Disagree" to "Strongly Agree". We used survey questionnaire technique to collect data from our respondents. In this method, respondents can easily fill questionnaire at their own convenience and also there is no external influence of data collector (Bryman and Bell, 2011). We collected data from different major cities of Pakistan, having a large contribution in country overall revenue. We used purposive sampling technique for the collection of data, a non-probability sampling technique. We distributed 500 survey questionnaires out of which we received filled 384 questionnaire; in which 127 questionnaire were found incomplete. Finally, we used a pool of 257 usable responses, yielding the response rate of 66.9%. We collected our data within three-month span of time. According to Kline (2011)'s sample measurement parameters, our sample size is justifiable to generalize our research results. Structural Equation Modeling (SEM) technique was used to analyze our data and test our proposed hypothesis. In regression analysis, this was not possible to test all previously mentioned variables analysis simultaneously (Hair, 2009). (Gefen, *et al.,* 2000) recommended to all the information system

and behavioral sciences researchers, they must use SEM to test their model and hypothesis, so we used SEM. We used IBM AMOS 22 to perform SEM on our collected data; we also used IBM SPSS 22 to conduct univariate and bivariate analysis on our collected data i.e. descriptive statistics, correlation, instrument reliability tests etc. To run SEM we followed two step procedure which was suggested by Anderson and Gerbing (1988). According Anderson and Gerbing (1988) two step procedure, In first step we performed confirmatory factor analysis (CFA) by measuring model, in which we correlated all the variables with each other to assess the constructs reliability and validity. In second step, after performing CFA, we run SEM to test our proposed model and hypothesis.

4. RESULTS AND DISCUSSION

Before following the two step procedure suggested by Anderson and Gerbing (1988) to run SEM, we calculated means, standard deviations and Cronbach α value of each variable that we used in our study**.** Mean value of variables that we used in our model was lying in between 5.371 and 5.535; standard deviation value was lying in between 1.003 and 1.253. These ranges was showing to us that majority of our respondents gave us their responses on Likert scale between "Agree (4)" to "Extremely Agree (7)". We calculated Cronbach α value to check out the reliability and internal consistency in between items of each variable. Threshold value to check out reliability and internal consistency of any variable's item should be equal or greater than 0.7 (Cronbach, 1951). Cronbach α value was meeting the threshold criteria. It mean our collected data is reliable, even mean and standard deviation values were showing favorable values. After that to check the scale convergent and discriminant validity by using CFA we draw all our variables in AMOS then linked all their respective constructs, and allowed all variables to freely covary with each other openly to check out scale reliability and validity. We calculated this measurement model's goodness of fit indices. All results were achieving minimum model fitting acceptance criteria. Recommended by Kline (2011) and normally used model's goodness of fit indices are Normed Chi-square (Chi Square (CMIN) / Degree of Freedom (DF)) which value should be less than 3 and non-significant. Goodness of Fit Index (GFI) which value should be greater than 0.95. Adjusted Goodness of Fit Index (AGFI) which value should be greater than 0.8. Tucker-Lewis coefficient (TLI) which value should be greater than 0.9. Comparative Fit Index (CFI) which value should be greater than 0.95. Root Mean Square Error of Approximation (RMSEA) which value should be less than 0.5 with PCLOSE value should be greater than .05. Our measurement model result was Chi-square=138.459, DF = 121, p=.123, Normed Chi-square=1.144, GFI = 0.945, AGFI = .922, TLI = 0.990, CFI = 0.992, RMSEA = 0.024, PCLOSE = .997, these all results were in the normally acceptance range. It means our measurement model is fit and we can rely and go further to check out our scale reliability and validity. According Fornell and Larcker (1981) there are three step to check out the convergent reliability of any instrument, in first step factor loadings of constructs should be > 0.7 and significant, in second step composite reliability of all variables should be > 0.8 and in third step Average Variance Extracted (AVE) should be > 0.5. **(Table-1)** presents the factor loadings of all the items, all were greater than 0.7 and significant at 0.001 except the one item of PU. While in **(Table-2)** depicts composite reliabilities (CR) and AVE of all the variables, which all are greater than 0.8 and 0.5 respectively. These all results were proving our scale convergent validity. It means our all items explaining variance in their respective variable on which these were loading not in other variable. After that, we had calculated discriminant validity. According to Fornell and Larcker (1981) for discriminant validity there is compulsory that value of square root of AVE should be greater by comparing with that and other variables' correlation values. In **(Table-2)**, we had shown square root of AVE bold in diagonal elements. All diagonal values are greater than the correlation values. This was proving our scale discriminant validity. It means our scale items are loading on their respective variable and do not have any conflict with other variables used in the study. Above all tests had proved our study used variables convergent validity and discriminant validity.

After checking convergent validity and discriminant validity, we finally concluded that our scale and

Table 1 Factors Loading

Variables	No. of Items	Factor Loadings
Intention to Use E-Tax (I)	2	0.794, 0.822
Perceived Usefulness (PU)	5	0.819, 0.722, 0.675, 0.608, 0.744
Perceived Ease of Use (PEOU)	5	0.749, 0.861, 0.744, 0.763, 0.773
Self-Efficacy (SE)	3	0.851, 846, 0.757
Facilitating Conditions (FC)	3	0.911, 0.731, 0.710

Table 2 Psychometric properties

Constructs	CR	AVE	I	PU	PEOU	SE	FC
I	0.790	0.653	**0.808**				
PU	0.840	0.514	0.222**	**0.717**			
PEOU	0.889	0.616	0.222**	0.380**	**0.785**		
SE	0.859	0.671	0.454**	0.228**	0.320**	**0.819**	
FC	0.830	0.623	0.329**	0.232**	0.271**	0.463**	**0.789**

collected data had met all the preliminary requirements that are necessary before testing SEM. We constructed our structural model by adding our proposed causal relationships in measurement model to check our proposed hypothesis. We calculated model fit results, which were Chi-square=170.967, DF = 123, p=.003, Normed Chi-square= 1.390, GFI = 0.932, AGFI = .905, TLI = 0.974, CFI = 0.979, RMSEA = 0.039, PCLOSE = .908. All results values were in acceptable ranges. It means we can rely on our hypothesis results. Then we checked one by one all the causal relationship, which we draw in structural model. PU of E-Tax system usage had significant positive effect on intention to use E-Tax

Table 3 Regression Weights

Relationships	Unstandardized β	Standardized β	S.E.	C.R.	P
FC → PEOU	.176	.156	.087	2.022	**
SE → PEOU	.238	.253	.074	3.218	*
PEOU → PU	.319	.326	.072	4.452	***
FC → PU	.120	.109	.085	1.420	ns
SE → PU	.072	.079	.072	1.000	ns
PU → I	.193	.160	.097	1.988	*
PEOU → I	.205	.174	.094	2.171	*

Note: ns=not significant, *=p<0.05, **=p<0.01, ***=p<0.001.

system (Unstandardized β=0.176, Standardized β = 0.156, p<0.01), which was empirically supporting our H7 hypothesis. Same PEOU of E-Tax system usage had significant positive effect on intention to use E-Tax system (Unstandardized β=0.205, Standardized β = 0.174, p<0.01), which was empirically supporting our H6 hypothesis. Further PEOU of E-Tax system usage had significant positive effect on PU of E-Tax usage (Unstandardized β =0.319, Standardized β = 0.326, p<0.001), which was empirically supporting our H4 hypothesis. After that, we checked our proposed self-support factors impact, the major contribution of this study, on PU of E-Tax system usage and on PEOU of E-Tax system usage, which hypothesized from H1 to H4. Factor facilitation conditions had not showed significant effect on PU of E-Tax usage (Unstandardized β =0.120, Standardized β = 0.109, p>0.05), which had not supported our H1 hypothesis. Moreover, SE had not showed significant effect on PU of E-Tax usage (Unstandardized β =0.72, Standardized β = 0.79, p>0.05), which had not supported our H3 hypothesis. However, Facilitation conditions had showed significant positive effect on PEOU of E-Tax usage (Unstandardized β=0.176, Standardized β = 0.156, p<0.01), which was supporting our H2 hypothesis. As hypothesized, SE showed significant positive effect on PEOU of E-Tax usage (Unstandardized β =0.238, Standardized β = 0.253, p<0.05), which was supporting our H4 hypothesis. To sum up, there was seven hypothesis that we postulated, out which five hypothesis empirically validated by our SEM results. The summary of all results related to hypotheses testing we showed in (**Table-3**).

5. CONCLUSIONS

Our study focused on the role of self-support factors FC and SE in E-Tax adoption. The result validated that both these factors have significant positive effective on PEOU but not on PU. The possible explanation of insignificant relationship of self-support factors with PU may be that self-support factors not help users to give rise in their job performance. Moreover, PEOU had showed positive significant impact on PU of E-Tax system and intention to use E-Tax system. These results imply that governments should arrange training programs for the citizens to rise the user degree of SE to use E-Tax system usage. Citizens should equip themselves with all the necessary equipment to submit tax online.

Like other studies, our study also has some limitations. First of all this study is conducted on the data collected from big cities of Pakistan. Therefore, it cannot be generalized that these findings are equally applicable to overall population. Secondly, the cross-sectional design used in the data collection for the study provides no confirmation that the results are consistent, based on one time contact with our respondents. In order to prove the generalizability of our results, the proposed model can be replicated in the same and well as different cultural context. Thirdly, future research can be focused to test the mediating role of PEOU and PU between the self-support factors and intention to use E-Tax system. Further research can be done on the adoption behavior of other electronic services currently being provided by the governments.

REFERENCES:

Al Nagi, E., and M. Hamdan, (2009). Computerization and e-Government implementation in Jordan: Challenges, obstacles and successes. *Government Information Quarterly*, *26*(4), 577–583.

Anderson, J. C., and D. W. Gerbing, (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411Pp.

Anuar, S., and R. Othman, (2010). Determinants of Online Tax Payment System in Malaysia. *INTERNATIONAL JOURNAL OF PUBLIC INFORMATION SYSTEMS*, *6*(1).

Azmi, A. A. C., Y. Kamarulzaman, and N. H. A. Hamid, (2012). Perceived Risk and the Adoption of Tax E-Filing. *World Applied Sciences Journal*, *20*(4), 532–539.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, *37*(2), 122Pp.

Bhattacherjee, A. (2000). Acceptance of e-commerce services: the case of electronic brokerages. *Systems, Man and Cybernetics, Part A: Systems and Humans, IEEE Transactions on*, *30*(4), 411–420.

Bhattacherjee A. and N. Hikmet(2008). Reconceptualizing organizational support and its effect on information technology usage: evidence from the health care sector. *Journal of Computer Information Systems*, *48*(4), 69–76.

Bryman, A., and E. Bell, (2011). *Business Research Methods 3e*. Oxford university press. Retrieved

Cakmak, A. F., S. Benk, and T. Budak, (2011). The Acceptance of Tax Office Automation System (VEDOP) By Employees: Factorial Validation of Turkish Adapted Technology Acceptance Model (TAM). *International Journal of Economics and Finance*, *3*(6), p107.

Chang, I. C., Y. C. Li, W. F. Hung, and H. G. Hwang, (2005). An empirical study on the impact of quality antecedents on tax payers' acceptance of Internet tax-filing systems. *Government Information Quarterly*, *22*(3), 389–410.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*(3), 297–334.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, *13*(3), 319–340.

Fornell, C., and D. F. Larcker, (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 39–50.

Gefen, D., D. Straub, and M. C. Boudreau, (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, *4*(1), 7Pp.

Hung, S. Y., C. M. Chang, and T. J. Yu, (2006). Determinants of user acceptance of the e-Government services: The case of online tax filing and payment system. *Government Information Quarterly*, *23*(1), 97–122.

Hung, S. Y., K.Z. Tang, C. M. Chang, and C. D. Ke, (2009). User acceptance of intergovernmental services: An example of electronic document management system. *Government Information Quarterly*, *26*(2), 387–397.

Kamarulzaman, Y., and A. A. C. Azmi, (2010). Tax E-filing Adoption in Malaysia: A Conceptual Model. *Journal of E-Government Studies and Best Practices*, 2010, 1-6.

Kline, R. B. (2011). *Principles and practice of structural equation modeling*. Guilford press. New York, NY.

Mathieson, K., E. Peacock, and W. W. Chin, (2001). Extending the technology acceptance model: the influence of perceived user resources. *ACM SIGMIS Database*, *32*(3), 86–112.

Ozgen, F., and A. Turan, (2007). Usage and Adoption of Online Tax Filing and Payment System in Tax Management: An Empirical Assessment With Technology Acceptance (TAM) Model in Turkey. Presented at the *9th International Scientific Conference, Management Horizons: Visions and Challenges*, Vytautas Magnus University, Kaunas, 215-233.

Shan, S., L. Wang, J. Wang, Y. Hao, and F. Hua, (2011). Research on e-Government evaluation model based on the principal component analysis. *Information Technology and Management*, *12*(2), 173–185.

Taylor, S., and P. A. Todd, (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, *6*(2), 144–176.

Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, *11*(4), 342–365.

Venkatesh, V., and F. D.Davis, (1996). A model of the antecedents of perceived ease of use: Development and test*. *Decision Sciences*, *27*(3), 451–481.

Wang, Y. S. (2002). The adoption of electronic tax filing systems: an empirical study. *Government Information Quarterly*, *20*(4), 333–352. doi:10.1016/j.giq.2003.08.005

Yildiz, M. (2007). E-government research: Reviewing the literature, limitations, and ways forward. *Government Information Quarterly*, *24*(3), 646–665.