

The Factors Influencing Customers' Decision to Adopt Internet Banking in Sri Lanka

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Abstract. Internet Banking is the delivery of banking products and services directly to the customer through the Internet. With the realization of the prospective benefits and capability of internet banking, all the banks all over the world quickly adopted the innovative way of delivering banking services to customers. Despite the efforts to promote internet banking in Sri Lanka, the adoption rate was low. This study was undertaken to identify the factors that influence the decision of customers to adopt internet banking in Sri Lanka. A quantitative survey conducted among internet banking customers revealed that factors such as perceived usefulness, perceived ease of use, perceived security and awareness are significant and influence the adoption decision of customers. The study has highlighted the most influencing factors that can be considered by bankers while making internet banking promotions.

Keywords: Internet Banking, Banking Industry, Technology Adoption, Innovation

1 Introduction

The proliferation of information and communication technology (ICT), particularly the advent of the Internet, has enabled banks to carry out their business transactions and to offer their products and services to customers through the Internet. Internet banking is the delivery of banking products and services directly to the customer through the use of various electronic distribution channels [1] and the open-access computer networks [2].

As the prospective benefits and capability of internet banking were realized [3] and internet banking was perceived as the solution to some of the financial issues in traditional banking [4] and [5], some major financial institutions have quickly adopted the internet banking. Globally increased competition in the adoption of new technologies has put pressure on all banks, regardless of their size and ability to innovate the delivery method and distinguished their products and services from their competitors to attract and retain customers[6].

The Sri Lanka banking industry has also embraced technological innovation to provide customers with internet banking solutions. Internet banking was first introduced by Sampath Bank in 1989 [7]. Though Sri Lanka was the pioneer in the South Asian region in introducing unrestricted commercial internet connection in April 1995 and many banks offered a range of internet banking services, the number of internet banking users was found lower among the internet users [8]. Although leading banks in Sri Lanka, including state banks, took measures to promote internet banking, the adoption rate was relatively low, suggesting that the service is mostly unaware and underused among Sri Lankan customers despite its availability [9] and [10]. It was also found that less than 1% of bank customers generally use online banking, mobile banking, telephone banking and internet payment

gateway [9]. Compared to advanced and some of the developing countries, the usage of the Internet to accomplish banking transactions is at an early stage in Sri Lanka [11]. At the backdrop of this scenario, this study was undertaken to identify the factors that influence the decision of customers to adopt internet banking in Sri Lanka. The findings would be instrumental for banking professionals, especially to develop strategies to promote internet banking among island wide customers in Sri Lanka.

2 Theoretical Background

Various factors influence both banks and customers to adopt internet banking. From the perspective of banks, the influencing factors are the reduction in the cost, time, and effort by providing online services and self-service kiosks and by connecting and reducing the number of branches [12]. Several studies have been conducted in the past to study users' technology acceptance. Figure 1 illustrates the conceptual framework and hypotheses developed for this study.

One of the well established and most cited models is the technology acceptance model (TAM) of Davis [13]. TAM explains and predicts the acceptance and use of information technology in the workplace. It is an intention-based model based on the theory of Reasoned Action (TRA) [14], but modified to meet the broader needs of information technology and received significant attention in the field. TAM was used to analyze customer acceptance of internet banking by many researchers [15] and it was found out that TAM as an appropriate model for explaining acceptance in the context of internet banking [15].

TAM proposes two particular beliefs, perceived usefulness and perceived ease of use that are primary drivers deciding acceptance of the technology. Perceived usefulness is defined as "the degree to which a person believes that using a particular system would enhance his/her job performance" [13]. It has been considered as a significant variable that influences the acceptance of technology by users and so it has received much attention from researchers. Internet banking offers two major advantages, such as convenience [18] and [19] and quick service [20] and [21]. Convenience and effective management of personal finance are two advantages of using internet banking. Therefore, it is hypothesized that the perceived usefulness influences the customers' decision towards the adoption of Internet Banking.

Perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort" physically and mentally [13]. Extensive research over the past decade demonstrates the important impact of perceived ease of use on usage, either directly or indirectly, through its impact on perceived usefulness [22]-[24]. Easy-to-use information technologies will be less of a threat to the individual [25]. It is also found that ease of use positively correlates with the use of computer technologies, such as computer software [13], [26]. Ease of use has been considered as one of the factors that affect internet banking adoption [27]. Therefore, it is hypothesized that the perceived ease of use influences the customers' decision towards the adoption of internet banking.

In addition to the above two factors determining the intention to adopt internet banking, perceived security and awareness are also considered as essential constructs of the study based on the prior studies of [28]. Security is commonly identified as one of the most intimidating factors in the adoption of internet banking. Perceived security is defined as the degree to which a person believes in the protection against the threats coming in the form of destruction, disclosure, modification of data, fraud and abuse [29]. Unless security is improved, no more households would be willing to conduct their transaction over the Internet [30]. Therefore security is one of the very important factors that influence customers

to use internet banking. Thus, it is hypothesized that perceived security influences the customers' decision towards the adoption of internet banking.

Similarly, customers' level of awareness is also one of the most important factors that have a significant impact on the adoption of internet banking. It was found in the literature that individual factors like knowledge have an impact on customers' adoption of internet banking and many customers were simply unaware of internet banking and the unique benefits of it [28]. In order for the customers to adopt internet banking, the availability of new products or services should be communicated, which is called awareness [31]. Hence, it is hypothesized that awareness influences the customers' decision towards the adoption of Internet Banking.

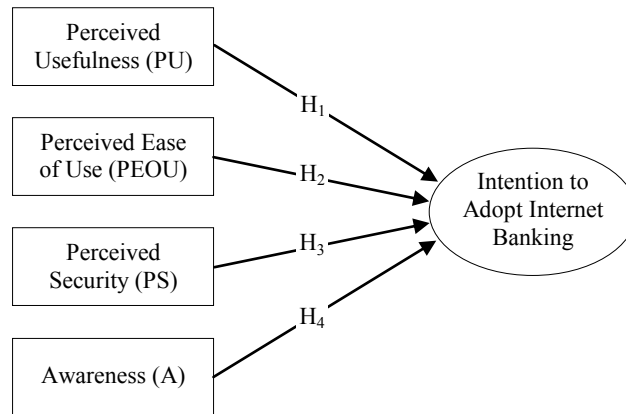


Fig. 1. Conceptual framework

H₁: Perceived usefulness influences the customers' decision towards the adoption of internet banking

H₂: Perceived ease of use influences the customers' decision towards the adoption of internet banking

H₃: Perceived security influences the customers' decision towards the adoption of internet banking

H₄: Awareness influences the customers' decision towards the adoption of internet banking

3 Methodology

A survey method was considered to be appropriate to conduct the study as it is to identify the factors affecting the adoption of internet banking. The target population for the study is the internet banking customers in the metropolitan city, Colombo. The reasons for choosing customers in the Colombo city are; i) higher number of branches of all the banks, b) the city is more diverse in terms of culture and ethnicity and c) the study was narrowed down to the city presuming the customers here are more technological sound comparing to the customer in other parts of the country.

The convenience sampling method was used to collect data from the customers as they are conveniently accessible and proximity to the researchers. According to Leedy [32], this method is appropriate to conduct a study among people or other units that are readily

available. Ten (10) banks, including state and private banks, were identified and 40 customers from each bank were approached to participate in the survey.

The survey instrument, the questionnaire consisted of two parts. The first part included questions to collect the demographic information of the respondents. The second part included five-point Likert items that were adopted from the previous empirical studies used to measure customers' decisions towards the adoption of internet banking. Out of 400 questionnaires distributed to the identified customers from each bank, 289 questionnaires were returned, which indicates a response rate of 72.25%. However, only 201 questionnaires were found filled fully and valid for further analysis.

4 Data Analysis and Findings

The profile of the respondents surveyed has been displayed in table 1. The majority of the participants in the survey are male and 65.2% of the internet banking users fall into the middle age group, i.e., 31-45 years. The majority of the respondents (97%) are employed. Those who are using internet banking have completed their secondary education (86%) and a university degree (12%). The income category has not highlighted any significant differences among the users of internet banking. However, 10% of respondents fall below Rs.30,000.00 in the income category, 33% fall within the income category between Rs.45,000.00-Rs.60,000.00 and 11% of respondents earn an income above Rs.75,000.00.

Table 1. Profile of survey respondents

Variable	Sample size	Percentage
<i>Gender</i>		
Male	157	78.1
Female	44	21.9
<i>Age group</i>		
19-30	18	9.0
31-45	131	65.2
46-60	42	20.9
>60	10	5.0
<i>Education</i>		
University	24	11.9
Secondary	173	86.1
Primary	4	2.0
<i>Employment Status</i>		
Employed	195	97.0
Unemployed	3.0	1.5
Pensioner	3.0	1.5
<i>Income</i>		
< Rs.30,000.00	20	10.0
Rs.30,000.00 - Rs.45,000.00	49	24.4
Rs.45,000.00 - Rs.60,000.00	66	33.0
Rs.60,000.00 – Rs.75,000.00	43	21.2
> Rs.75,000.00	23	11.4

Before performing actual data analysis, data screening, which is an essential scrutinizing process to ensure usability, reliability and validity of the data, was done. Then, a normality test was also conducted to determine whether the data were normally distributed.

Cronbach's Alpha reliability test is used for gauging the consistency between all items in the questionnaire and internal consistency among the items used for each construct. The minimum acceptable alpha, according to Nunnally [33], is 0.7. However, Hair et al. [34] suggested accepting the value of 0.6. Table 2 illustrates the Alpha values for all constructs that are above the recommended scores of 0.6 [34]. The alpha values indicate that the survey instrument is reliable to use to achieve the objective of the study.

Table 2. Results of reliability analysis

Variable	Number of items	Cronbach's coefficient
Perceived Usefulness	6	0.869
Perceived Ease of Usefulness	6	0.710
Security Perception	5	0.747
Awareness	4	0.916
Intention to Use Internet Banking	3	0.758

In order to ascertain performing factor analysis, Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity were carried out. The KMO test is used to confirm the adequacy of the sample size required for analysis and the sample could be adequate if the value of the KMO is .60 and more [35]. Bartlett's test is to ensure whether factor analysis could be performed and to check the inter-correlation between variables to determine the suitability for factor analysis. [36]. Table 3 illustrates the result of the test indicate that the sample is adequate and Bartlett's Test of Sphericity was tested through Chi-Square value having a value of 675.042, which is significant at 0% level of significance. So this indicates that the data are suitable for factor analysis.

Table 3. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.742
	Approx. Chi-Square	675.042
Bartlett's Test of Sphericity	df	21
	Sig.	.000

Subsequently, the principal component factor analysis was chosen as a method of data reduction towards the 21 survey items used to measure the constructs. The final output of factor analysis illustrated in table 4 retains the items which fall within each construct, surpassing the ceiling value of 0.5 [34]. The item no.3 used to measure perceived usefulness (PU) and the item no.5 to measure perceived ease of use (PEOU) were dropped from the analysis since these two items yielded a lower value than 0.5. All the items used to measure perceived security and awareness have been extracted.

Table 4. Factor Analysis

	1	2	3	4
PU1	0.683			
PU2	0.514			
PU4	0.618			
PU5	0.672			
PU6	0.773			
PEOU1		0.633		
PEOU2		0.571		
PEOU3		0.767		
PEOU4		0.811		
PEOU6		0.631		
PS1			0.778	
PS2			0.605	
PS3			0.729	
PS4			0.749	
PS5			0.601	
A1				0.558
A2				0.749
A3				0.618
A4				0.543

Table 5 displays the correlation between the independent and dependent variables and their significances. The strength of correlations is categorized as low correlation if the $r < 0.3$; moderate correlation if $0.3 < r < 0.5$ and strong correlation if $r > 0.5$ [37]. According to the result, three variables such as perceived usefulness ($r = .659$, $p = .000$); perceived ease of use ($r = .672$, $p = .000$) and perceived security ($r = .516$, $p = .000$) produced a strong positive correlation with the intention to adopt internet banking whereas awareness ($r = .311$, $p = .000$) yielded a moderate correlation, but all the correlations are statistically significant.

Table 5. Correlations Analysis

		Intention to Adopt Internet Banking
Perceived Usefulness	Pearson Correlation	.659**
	Sig. (2-tailed)	.000
	N	201
Perceived Ease of Use	Pearson Correlation	.672**
	Sig. (2-tailed)	.000
	N	201
Perceived Security	Pearson Correlation	.516**
	Sig. (2-tailed)	.000
	N	201
Awareness	Pearson Correlation	.311**
	Sig. (2-tailed)	.000
	N	201

** . Correlation is significant at the 0.01 level (2-tailed).

Table 6. Summary of Regression Analysis between Independent Variables and Intention to Adopt Internet Banking

Independent Variable	R	R Square	Adjusted R Square	F	t	Sig.
Perceived Usefulness	.659	.434	.432	267.653	16.360	.000
Perceived Ease of Use	.672	.451	.450	286.821	16.936	.000
Perceived Security	.516	.266	.264	126.322	11.239	.000
Awareness	.311	.097	.094	37.430	6.118	.000

To further determine the strength of the relationship, a linear regression analysis was separately conducted and the summary of the analyses has been shown in table 6. Evidently, the figure demonstrates that the variable, perceived usefulness, can singly explain 44% of the variation of the intention to adopt internet banking, $R^2=0.434$ with $F(1,199)=267.653$ and $p=0.000$. Since the p-value is less than 0.05, hypothesis H_1 , which was stated as the perceived usefulness influences the customers' decision towards the adoption of internet banking is supported. The variable, perceived ease of use, can explain 45% of the variation of the intention to adopt internet banking, $R^2=0.451$ with $F(1,199)=286.821$ and $p=0.000$. Thus the finding is in favour to accept hypothesis H_2 , i.e., perceived ease of use influences the customers' decision towards the adoption of Internet Banking. Hypothesis H_3 , which was stated as perceived security influences the customers' decision towards the adoption of internet banking, is also accepted since the variable perceived security can solely explain 27% variation of intention to adopt internet banking, $R^2=0.266$ with $F(1,199)=126.322$ and $p=0.000$. Finally, the regression analysis depicts that the variable, awareness can also determine 10% of the variation in the intention to adopt internet banking resulting $R^2=0.097$, with $F(1,199)=37.430$ and $p=0.000$ and suggests to accept the hypothesis H_4 that was stated as awareness influences the customers' decision towards the adoption of internet banking.

Table 6. Coefficients of Stepwise Regress between Predictors and Intention to adopt internet banking

Independent Variable	Standardized	t	Sig.
	Coefficients		
	Beta		
Perceived Usefulness	.366	6.686	.000
Perceived Ease of Use	.304	5.462	.000
Perceived Security	.167	3.771	.000

Although the results are evidential and show the influence of predictors on the intention to adopt internet banking, the stepwise regression (see table 6) has helped identify the strongest factors among all these factors. Accordingly, three factors were identified as the most influencing the adopt internet banking. The first influencing factor is the perceived usefulness that yielded a beta value of 0.366 and this indicates that if users believe using internet banking is more useful, then they tend to adopt internet banking. The second strongest factor, which is perceived ease of use (beta=0.304), implies that when users believe that using internet banking is free of physical and mental effort, they would decide to adopt internet banking. The factors, perceived security, which is the last strongest predictor yielding a beta value of 0.167, indicates that users tend to adopt internet banking when they trust the security is assured.

5 Conclusion

The study was conducted among internet banking users to identify the factors influencing their decision to adopt internet banking. The analysis of profile information of the respondents indicates that most internet banking users fall into the middle age group, i.e., 31-45 years of age and the vast majority of internet banking users are employed.

Through the literature search in the context of internet banking, four vital factors such as perceived usefulness, perceived ease of use, perceived security and awareness were hypothesized as influencing the intention of adopting internet banking. The study proved that these four factors are significant and influence the decision to adopt internet banking. The formulated hypotheses have been supported by the results of the correlation and regression analyses.

Additional analysis to identify the strongest predictors of influencing the decision to adopt internet banking among the bank customers returned three most influential factors that may provide the bankers with more insight about customers' perception towards the adoption of internet banking. And that would be helpful for them to enhance internet banking promotional activities.

One of the main limitations of the study is that this study was conducted among internet banking users in the metropolitan city where the majority of them have the Internet and other infrastructure facilities. The future study, including the customers from other areas and those who have no internet banking facilities, would bring more understanding about the customers' perception towards the adoption of internet banking.

References

- [1] J. Chavan, "Internet banking-benefits and challenges in an emerging economy," *International Journal of Research in Business Management*, 1(1), 19-26, 2013.
- [2] E. Lau, "Government policy on smart card applications and Internet Banking," *Hong Kong Monetary Authority*, 30, 1997.
- [3] A. Booz, & Hamilton, J *Internet banking: a global study of potential*. New York, NY: Booz, Allen & Hamilton Inc, 1997.
- [4] R. Kalakota, & Whinston, A. B, *Electronic Commerce: A Manager's Guide*. New Jersey, NJ: Addison-Wesley Professional, 1997.
- [5] S. Giannakoudi, "Internet banking: The digital voyage of banking and money in cyberspace," *Information and Communications Technology Law*, 8(3), 205-243, 1999.
- [6] H. Jenkins, "Adopting internet banking services in a small island state: Assurance of bank service quality," *Managing Service Quality*, 17(5), 523-537, 2007.
- [7] N. K. Jayasiri, & Weerathunga. WASP, "Popularity of E-banking in Sri Lanka," presented at International Research Conference on Management and Finance, University of Colombo. Sri Lanka, 2008.
- [8] M. Zarook, "Barriers Affecting Internet Users from Adopting Internet Banking in Sri Lanka," Master of Science in Information Systems Management. UK: University of Sheffield, 2010.
- [9] T. Suraweera, Kahingala, S., Batepola, A., Punchihewa, M., Senevirathna, K., & Kahandawaarachchi, C, "IT driven banking services in Sri Lanka: Customer acceptance and service quality," presented at the 2nd International Conference on Business & Information, University of Kelaniya, Kelaniya, 2011.
- [10] H. A. H. Hettiarachchi, "Factors Affecting to Customer Adoption of Internet Banking. Department of Commerce and Financial Management," University of Kelaniya, Sri Lanka. 2012.
- [11] N. J. Kariyawasam, & Jayasiri, N. K "Awareness and usage of internet banking facilities in Sri Lanka," *International Journal of Scientific Research and Innovative Technology*, 3(6), 173-190, 2016.

- [12] T. Pikkarainen, Pikkarainen, K., Karjaluoto, H. and Pahnla, S, "Consumer acceptance of online banking: an extension of the technology acceptance model," *Internet Research*, 14(3), 224-235, 2004.
- [13] F. D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quarterly*, 13(3), 319-339, 1989.
- [14] M. A. Fishbein, I, *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley, 1975.
- [15] B. Suh, & Han, I, "Effect of trust on customer acceptance of Internet banking," *Electronic Commerce Research and Applications*, 1(3-4), 247-263, 2002.
- [16] T. E. Cheng, Lam, D. Y., & Yeung, A. C, "Adoption of internet banking: an empirical study in Hong Kong," *Decision support systems*, 42(3), 1558-1572, 2006.
- [17] N. K. Jayasiri, Gunawardana, K., & Dharmadasa, P., "Adoption of Internet Banking in Sri Lanka: An Extension to Technology Acceptance Model.," presented at the 1st Asia Pacific Conference on Contemporary Research (APCCR), Kuala Lumpur, Malaysia, 2015.
- [18] P. A. Dabholkar, "Consumer evaluations of new technology-based self-service options: An investigation of alternative models of service quality," *International Journal of Research in Marketing*, 13(1), 29-51, 1996.
- [19] P. Gerrard, & Cunningham, J. B, "The diffusion of internet banking among Singapore consumers," *International Journal of Bank Marketing*, 21(1), 16-28, 2003.
- [20] H. Karjaluoto, Mattila, M., & Pentto, T., "Factors underlying attitude formation towards online banking in Finland," *The International Journal of Bank Marketing*, 20(6), 261-272, 2002.
- [21] A. Kluglak, "A strategy for selling service," *Security Distributing & Marketing*, 27(7), 85-88, 1997.
- [22] R. Agarwal, & Prasad, J, "A conceptual and operational definition of personal innovativeness in the domain of information technology," *Information Systems Research*, 9(2), 204-215, 1998.
- [23] F. D. Davis, Bagozzi, R. P., & Warshaw, P. R, "User acceptance of computer technology: A comparison of two theoretical models," *Management Science*, 35(8), 982-1003, 1989.
- [24] V. Venkatesh, Morris, M. G., Davis, G. B., & Davis, F. D, "User acceptance of information technology: Toward a unified view," *MIS Quarterly*, 27(3), 425-478, 2003.
- [25] J. W. Moon, & Kim, Y. G, "Extending the TAM for a World-Wide-Web context," *Information & Management*, 38(4), 217-230, 2001.
- [26] F. D. Davis, & Venkatesh, V, "A critical assessment of potential measurement biases in the technology acceptance model: three experiments," *International Journal of Human-Computer Studies*, 45(1), 19-45, 1996.
- [27] R. Suganthi, & Balachandher, G, "Internet Banking Patronage: An Empirical Investigation of Malaysia," *Journal of Internet Banking and Commerce*, 6(1), 20-32, 2001.
- [28] M. Sathye, "Adoption of Internet banking by Australian consumers: an empirical investigation," *International Journal of Bank Marketing*, vol. 17(7), 324-334, 1999.
- [29] S. Yousafzai, Pallister, J. & Foxall, G, "Multi-dimensional role of trust in Internet banking adoption," *The Service Industries Journal*, 29(5), 591-605, 2009.
- [30] S. Wallis, "The Financial System Inquiry Final Report," Australian Government Publishing Services (AGPS), Canberra 1997.
- [31] A. Musiime, & Ramadhan, M, "Internet banking, consumer adoption and customer satisfaction," *African Journal of marketing management*, 3(10), 261-269, 2011.
- [32] P. D. Leedy, Ormrod, J.E, *Practical Research: Planning and Design*. New Jersey, NJ: Pearson Prentice Hall, 2005.
- [33] J. C. Nunnally, *Psychometric Theory*, 2nd ed. New York: McGraw-Hill, 1978.
- [34] J. F. Hair, Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L, *Multivariate data analysis*. Upper Saddle River, NJ: Prentice-Hall, 1998.
- [35] S. J. Coakes, & Steed, L. G, *SPSS Analysis without Anguish*, Version 11.0 for Windows. Milton: Wiley, 2003.
- [36] D. Child, *The essentials of factor analysis*. New York, NY: Continuum International Publishing 2006.
- [37] J. Cohen, *Statistical power analysis for the behavioral sciences*. Abingdon. England: Routledge, 1988.