

## Determinants of Usage of ATM of Private Banks in Puttalam District

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### Abstract

Automated Teller Machines are expensive technological advancements that implemented by bankers. Bankers should clearly understand what features should be improved within the context of Automated Teller Machines to get it more familiar among customers. Those features simply decide the success or failure of Automated Teller Machines. The purpose of this paper is to investigate those factors that determine the Automated Teller Machine usage of Private Banks in Puttalam District. The conceptual model focuses factors affecting on Automated Teller Machine usage and it was developed based on reviewing existing literature. The model was employed by independent variables of ease of use, usefulness, behavioral control, risk, social influence and dependent variable of Automated Teller Machine usage. Data were randomly collected from two hundred (200) Automated Teller Machine users from Puttalam District to test this model. The data were analysed through descriptive and regression analyses with the help of a powerful statistical software SPSS 22.0. The mean and standard deviation result reveals that ease of use, usefulness, behavioral control, social influence and Automated Teller Machine usage are in high level while risk is in low level. Also, the simple regression analyses results show that all independent variables have significant impact on Automated Teller Machine usage while multiple regression results showing that ease of use is the most influencing factor towards the Automated Teller Machine usage. Finally, it is identified that there is no any variation of variables with personal factors according to ANOVA and independent sample t-test results. The results of this study provide a good evidence for banks to identify the present status of Automated Teller Machine usage among Private Bank Automated Teller Machine users of Puttalam District and further enhancements of work practices regarding Automated Teller Machines within the area of Puttalam District.

**Keywords:** Ease of use, usefulness, Behavioral control, Risk, Social influence, Automated Teller Machine

### Introduction

While delivering banking services to customers, most banking sectors try to reduce pressure within the banking hall and because of that they have introduced the use of Automated teller machines (ATMs) and various E-banking applications. Nowadays in business environment, the need for ATM cannot be overemphasized and ATM is a computerized telecommunications device that provides access to financial transactions of a financial institution with in a public space without the need for a cashier, human clerk or bank teller (Wikipedia,2018).

Banks have continued to increase the number of ATMs across Sri Lanka as bank branch and non- bank branch locations with many of enhanced service delivery characteristics. ATMs have greatly reduced the queues in the banking halls and it save customer's valuable time, provides anytime access with 24X7 service, provide

withdrawing facilities when overseas etc. Therefore, the usage of ATM has been increasing day by day. And also, in some cases customers face problems while using ATMs as accounts are debited with not receiving money, insufficient funds in ATMs, not accepting the card by machine, issuing poor quality of money and balances are declined without money transferring. Beside of above factors there are more factors that determining the usage of ATM services. Thus, this is very important to have an in-depth analysis for identifying factors that determining ATM usage among customers.

Puttalam is a district which is situated in North Western Province in Sri Lanka and it is considered as one of rural area in Sri Lanka. By now, with the improved literacy rate of Puttalam District bank customers, they engaged with lot of financial activities with their banks. Currently, almost all of the banks operate ATMs in Puttalam District to provide best services to their customers. Accordingly, Commercial Bank of Ceylon, Hatton National Bank, Sampath Bank and Seylan Bank are providing ATM services to their customers in Puttalam District as Private Banks.

The empirical literature provides that there are many of researches regarding the ATM usage [Omari & Richard , (2012), Wole & Louisa, (2009), Khan (2010) etc.] But most of them go beyond very past and they have revealed certain amount of ATM service delivery characteristics. Because the concept of ATM is very old and it is going nearly fifty (50) years back. Therefore, this is the time for recall an empirical study which is suitable for enhanced ATM services. And also, when considering the availability of sufficient regional context, it shows none of the relevant literature in Puttalam District. Hence, there is a gap in the understanding of how Sri Lankan Putalam District banking customers affected by factors that determining their ATM usage. Therefore, this is the time for recall an empirical investigation on the preceding topic and make the needful.

To the best of researchers' knowledge, there is no previous research work concerning above matter in particular area. Therefore, this is the time to fill this empirical gap comprehensively. All the above reasons call for the need to assess factors that determining ATM usage. From the above arguments, the problem statement can be stated as;

“What are the factors determining the usage of ATM of Private Banks in Puttalam District?”

Based on the problem statement, following objectives are set;

- i. To identify the level of ATM usage of Private Banks in Puttalam District.
- ii. To identify the level of factors that determining the usage of ATM of Private Banks in Puttalam District.
- iii. To examine the impact of factors on usage of ATM of Private Banks in Puttalam District.
- iv. To identify the most influencing factor that determining the usage of ATM of Private Banks in Puttalam District.

- v. To explore whether factors determining ATM usage varies with demographic factors of Private Bank customers in Puttalam District.

## Literature Review

The existing literature shows that perceived usefulness, perceived ease of use, perceived self- efficacy, social influence, relative advantage, perceived complexity, behavioral control and perceived risk are major factors influencing the usage of technology-based activities. Ease of use, usefulness, behavioral control, risk and social influence have selected to assess the determinants of ATM usage in this study.

Ease of use refers to "The degree to which a person believes that using a particular system would be free of effort" (Davis, 1989). When customers perceive on ease of use while ATM transactions, then they tend to use ATM in repeatedly. Wole & Louisa, (2009) says when ATMs be easy to handle, it means their use would be more widely used in the future. Usefulness refers to "The degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989). When customers perceive that ATM is very useful then they tend to use it again and again. It was revealed by Wole & Louisa (2009) and they have stated that ATM's use is widespread today because of its usefulness. The behavioral control means that customers can direct their own activities. Many self-service options could be built around the consumers' perception of control over transactions (Xin, et al., 2007). Risk refers to "The potential for loss in the pursuit of a desired outcome of using electronic services" (Featherman & Pavlou, 2002). Risk, has been found out as an important determinant of overall satisfaction and desire to use ATM (Goode, et al., 1996). Social Influence refers "The level to which a person perceives that essential others believe he/she should exercise the technology" (Venkatesh, et al., 2003). Wole & Louisa, (2009) said that "Influence was apparently a factor for using ATM probably because users are likely to encourage by others".

Researchers have identified "Technology Acceptance Model", "Theory of Planned Behaviour" and "Unified Theory of Acceptance and Use Theory" for their research construction.

## Hypothesis Formulation

Based on previous research arguments [ Sindhu & R. (2018), Salva & Sevgi (2014), James & Matthew (2005) etc.]

Researchers have formulated and tested following hypotheses within this research;

- Hypothesis1a: Ease of use has a positive impact on customer's use of ATM.  
 Hypothesis2b: Usefulness has a positive impact on customer's use of ATM.  
 Hypothesis3c: Behavioral control has a positive impact on customer's use of ATM.  
 Hypothesis4d: Risk has a negative impact on customer's use of ATM. Hypothesis5e: Social influence has a positive impact on customer's use of ATM.

Researchers have tested whether there are any significant differences between personal factors with variables (ease of use, usefulness, behavioral control, risk, social influence and ATM usage). Following hypothesis have formulated based on that;

- Hypothesis6f: Ease of use varies with personal factors.  
 Hypothesis7g: Usefulness varies with personal factors.  
 Hypothesis8h: Behavioral control varies with personal factors.  
 Hypothesis9i: Risk varies with personal factors.  
 Hypothesis10j: Social influence varies with personal factors.  
 Hypothesis11k: ATM usage varies with personal factors.

## Methodology

Study population is ATM users of Private Banks in Puttalam District while sample is selected as two hundred (200) customers who are ATM users of Private Banks in Puttalam District. Although there is lot of techniques that can be used for data collection, convenient sampling technique has been applied by researchers. They could not be able to collect the exact population of ATM usage though they got their possible efforts to complete that task. Because such information is being banks' internal confidential information and hence they did not comply to issue such information to the outside.

Data were collected by primary and secondary methods. The main instrument used to collect necessary data and information from users for this research is questionnaire. Questionnaires were issued to Private Banks' ATM users who are from Puttalam District. Questionnaire used in this research were developed with the help of relevant literature. All variables were measured by the five-point Likert scale. The five-point Likert scales for the variables have ranged from "Strongly Disagree" to "Strongly Agree" with the points of 1 to 5 and 5 to 1 for

the positive and negative statements order respectively. As well as, secondary data were collected from the various books, journal articles web sites and interviews with people.

### Univariate Analysis - Mean, Standard Deviation

Univariate analysis has used to measures the mean, standard deviation for each variable for assessing levels of each and every indicator and variable. The below decision rule (Table 01) is applicable for those variables.

**Table 1: Decision Rule**

Variable	Decision rule	
Ease of use, usefulness, behavioral control, social influence, and ATM usage	$1 < X_i \leq 2.5$	Low level
	$2.5 < X_i \leq 3.5$	Moderate level
	$3.5 < X_i \leq 5.0$	High level
Risk	$1 < X_i \leq 2.5$	High level
	$2.5 < X_i \leq 3.5$	Moderate level
	$3.5 < X_i \leq 5.0$	Low level

Where;

$X_i$  = Mean values of variables  $i =$

1, 2,3,4,5,6

$X_1$  = Mean value of ease of use  $X_2$

= Mean value of usefulness

$X_3$  = Mean value of behavioral control  $X_4 =$

Mean value of risk

$X_5$  = Mean value of social influence  $X_6$

= Mean value of ATMusage

### Bivariate Analysis - Simple Regression Analysis

The bivariate analysis is a method of analyzing data on two variables. Here, it was made to determine whether there is any impact of variables on the ATM usage. According to that, the simple regression analysis was made to determine the functional relationship between the

dependent variable (ATM usage) and independent variables (ease of use, usefulness, behavioral control, risk and social influence).

### **Multivariate Analysis - Multiple Regression Analysis**

Multivariate data analysis is a data analyzing method that arises from more than one variable. Here, researchers have tested the impact of five determinants on ATM usage at simultaneously. For that, researchers have used multiple regression analysis and based on results they have identified the most influencing factor on ATM usage.

### **ANOVA and Independent Sample T-Test**

One-way ANOVA analysis of variance (ANOVA) and the independent sample t-test examines the significant differences between samples. Here, ANOVA test was used to analyze whether there are any significant differences between personal information (account holders bank, age, income and education) of ATM users with variables. The independent sample t-test was used to analyze whether there are any significant differences between personal information (gender and status) of ATM users with variables.

### **Data Analysis and Findings**

Cronbach's alpha test is the most common measure of internal consistency. Results of this test are given in the Table 2, suggest that the internal reliability of each research instrument is satisfactory.

**Table 2: Cronbach's Alpha Test**

Variable	Reliability
Ease of use	0.804
Usefulness	0.876
Behavioral control	0.783
Risk	0.718
Social influence	0.782
ATM usage	0.809

Source: Survey Data

According to the research objective one and two, researchers have tested means and standard deviations of each and every variable and indicator to formulate their levels respectively. All indicators and variables except risk present high level while risk presents low level. Usefulness has highest mean value comparatively to other variables while behavioral control has lower mean value among other variables. Further, behavioral control and social influence has lowered high level than ease of use and usefulness. Results were formulated according to the decision rule which was presented in Table 1 and it is shown in the below Table 3.

**Table 3: Mean / Standard Deviation for Variables / Indicators**

Variable/ Indicator	Mean	Standard Deviation
Conduct every transaction activity through ATM	4.04	0.55
Frequently usage	4.07	0.58
Consuming all facilities	4.10	0.58
ATM usage	4.07	0.48
Information availability and content	4.11	0.59
Lesser steps	4.17	0.69
Flexible use	4.19	0.65
Extent of service offerings	4.21	0.66
Easy to learn	4.06	0.65
Ease of use	4.15	0.49
Extent of fast service	4.16	0.70
Convenient access time	4.11	0.68
Small quantity of money transactions	4.24	0.61
Reduction in paper/card-based services	4.17	0.64
Quality of service	4.17	0.66
Usefulness	4.17	0.54
Self-confidence	4.07	0.65
Self-controllability	3.94	0.71
Self-manageability	3.98	0.64
Patient	3.90	0.72
Behavioral control	3.97	0.53

Security risk	4.22	0.68
Legal risk	4.19	0.64
Privacy risk	4.23	0.65
Financial risk	3.98	0.66
Risk	4.15	0.48
Influence of family	3.98	0.70
Bank pressure	3.96	0.69
Influence of society	3.88	0.67
Influence of peer groups	3.78	0.63
Social influence	3.90	0.52

Source: Survey Data

Third objective attempts to find the impact of each variable on the usage of ATM. All “R” values show that there is strong relationship of variables with ATM usage while “R square” values show that all variables are significant / good predictors of the ATM usage since “p values” are less than 0.05. And also, all results show that p values are less than 0.05 ( $p < 0.050$ ) and it indicates that first five alternative hypothesizes (from Hypothesis 1a to Hypothesis 5e) are not rejected. Results are shown in the below Table4.

**Table 4: Statistics of Regression between Variables**

Method	Ease of use	usefulness	Behavioral control	Risk	Social influence
R	0.507	0.394	0.191	0.321	0.436
R Square	0.257	0.156	0.037	0.103	0.190
a- Constant	1.976	2.595	3.378	2.735	2.497
b- value	0.505	0.354	0.175	0.321	0.403
Sig t	0.000	0.000	0.007	0.000	0.000

Source: Survey Data



Fourth objective of this research is identifying the most influencing factor that determining the usage of ATM. For that, multiple regression analysis has used by researchers. According to results of Table 5, “R” represents 0.727 correlational value. This value express that there is a strong positive correlation between determinants and ATM usage. 52.8% of ATM usage explained by determinants of ATM usage and remaining value represents by other determinants which creating ATM usage. In other words, 52.8% of variation in ATM usage is explained by ease of use, usefulness, behavioral control, risk and socialinfluence.

**Table 5: Model Summary**

Model	R	R Square	Adjusted R. Square	Std. Error of the Estimate
1	0.727	0.528	0.516	0.33688

Source: Survey Data

According to Table 6, “p” value ( $0.000 < 0.050$ ) states that there is a significant impact of variables on ATM usage.

**Table 6: ANOVA**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	24.623	5	4.925	43.393	0.000
Residual	22.017	194	0.113		
Total	46.639	199			

Source: Survey Data

The unstandardized constant statistic 0.750 units show that model would predict if all five- independent variables were zero. The B coefficient for ease of use is 1.219. This means if the ease of use goes up by 1 point, the customer usage of ATM will improve by 1.219. The B coefficient for usefulness is 0.132. This means if usefulness goes up by 1 point, customer usage of ATM will improve by 0.132. The B coefficient for behavioral control is 0.149. This means if behavioral control goes up by 1 point, ATM usage will improve by 0.149. The B coefficient for risk is -0.914. This means if risk go up by 1 point, ATM usage will reduce by

0.914. The B coefficient for social influence is 0.235. This means if social influence goes up by 1 point, usage of ATM will improve by 0.235.

According to Table 7 results, ease of use (B = 1.219) has significantly most influence on the ATM usage of Private Banks in Puttalam District. Because it has the highest beta value than others.

**Table 7: Coefficients**

Model	Unstandardized		Standardized	T	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
Constant	0.750	0.318		2.360	0.019
Ease of use	1.219	0.132	1.224	9.248	0.000
Usefulness	0.132	0.048	0.147	2.716	0.007
Behavioral control	0.149	0.045	0.164	3.305	0.001
Risk	-0.914	0.129	-0.912	-7.059	0.000
Social influence	0.235	0.050	0.254	4.732	0.000

Source: Survey Data

Last objective of this research is finding whether there is any variation of selected variables with personal factors. According to the below Table 8, account holders' bank, age level, monthly income level and educational qualification level were analyzed by using ANOVA test while gender and status were analyzed by using independent sample t-test. All results show that p values are greater than 0.05 ( $p > 0.050$ ) and it indicates that all next five alternative hypotheses (from Hypothesis 6f to Hypothesis 11k) are rejected.

**Table 8: Results of ANOVA and T- Test for Personal Factors of Respondents**

Personal Factors	Account holders' bank	Gender	Status	Age Level	Monthly Income level	Educational qualification Level
Variable						
P values						
Ease of use	0.422	0.425	0.218	0.707	0.628	0.579
Usefulness	0.094	0.559	0.195	0.933	0.840	0.073
Behavioral control	0.508	0.189	0.723	0.484	0.738	0.805
Risk	0.085	0.651	0.443	0.869	0.553	0.674
Social influence	0.873	0.298	0.533	0.912	0.114	0.927
ATM usage	0.547	0.292	0.174	0.627	0.361	0.227

Source: Survey Data

## Discussion

Personal information is any data which identifies relation to an individual such as age, gender, educational level etc. Here, results show the majority of respondents were males, most of ATM users were married, most of customers' age ranged from 41 to 60 years, level of education was high with majority of the respondents having up to G.C.E.(A/L) and most of respondents' monthly income ranges from Rs 40,001/= to Rs60,000/=.

“ATMs seemed to be easy to use, it means their use would be more widely adopted in the nearest future” (Wole & Louisa, 2009). This suggests that easy to use should be at high level for the enhancements of ATM usage. Here, researchers also have able to find that the ease of use is in the high level. Customer should be want to feel that using ATM is easier for them. According to Davis, Bagozzi & Warshaw (1989) and Salva & Sevgi (2014) ease of use has a significant positive impact on actual usage of technology. Here, results are consistent with that finding and this implies that if customers perceive ATM is easy to use, then they would adopt and use it. It can be concluded that ease of use is a good predictor of customer usage. Also, ATM users more rely on its perceived ease of use of Private Banks in Puttalam District. Therefore, ease of use should be more considered by bankers.

According to results of Wole & Louisa, (2009) they have revealed that ATM's use is widespread today because of its usefulness. Here, results are consistent with it. Same to those results researchers have able to find that there is a high level of usefulness. Actually, ATMs have more benefits on its users. Customers are more likely to adopt ATM if they believe using ATM will give more benefits as compared to other traditional banking channels. Researchers have able to identify that usefulness is a good predictor of ATM usage.

Clearly, the ATM environment does not allow for human interaction and it leads to control customer's performances in his own way. Reason for high level could be freedom of conducting transactions in own way. Also, the nature of the people is to get the work through others. That may be cause for the reduction of level comparatively other variables. Alinda & David, (2015) has stated that "However, unlike previous studies, the variable of control was not found to be significant" relating to SSTs usage. But here researchers have able to identify significant influence of behavioral control on ATM usage.

Normally customers do not like to get risk when they deal with the bank. They want to minimize the risk. When they engage with ATMs they have to face some risks such as loses of money, unauthorized usage etc. Banks are trying to reduce the risk to give better services to their customers. According to the results researchers have found that there is a low level of risk. ChauShen, (2013) demonstrate that risk is negatively and significantly affects attitudes towards adopting on technology and usage. Salva & Sevgi, (2014) have stated that their research has not provided any significant impact on the technology usage. Anyway, based on findings, risk has a negative relationship with ATM usage and it leads to risk becoming a good predictor of ATM usage.

"Influence was apparently a factor for using ATM probably because users are likely to encourage by others" (Wole & Louisa, 2009). According to that, social influence also should be in a high level. Researchers have able to find that there is a high level of social influence but it gets a slightly lowered amount comparatively to other variables. Sindhu & R (2018) shows social influence is not statistically significant within their tested technology. But here, researchers have able to find the significant influence of social influence on ATM usage. It shows that the social influence is a good predictor of ATM usage.

## Conclusions and Recommendations

Descriptive statistics provides that ease of use, usefulness, behavioral control, social influence and ATM usage having high level while risk having low level. Bivariate analyses suggested that each and every variable has a significant impact on the ATM usage while ease of use being the most influencing factor on ATM usage. ANOVA and independent sample t- tests suggested that any variable does not vary according to customers' personal information within the area of Puttalam District.

Whereas the study was focused on limited number of Private Banks' ATMs, findings should be applicable to all banks that offering ATM services. According to findings and discussion, banks must take much consideration about those variables to maximize the ATM usage among bank accountholders even they are ATM users or non-users. The following recommendations were given on banks by researchers in order to enhance their ATM services among account holders.

- Install many service outlets within the area.
- System developers can minimize the number of steps in the transaction process.
- Employ an immediate problem-solving assistant on the service outlets.
- Management should get quick solutions to customer complaints.
- Advertise new ATM facilities.
- Use the opinion leaders of the society.

Findings of this research will be important on the practical level. In order to increase usage rate, banks should focus on ATM non-users also. Improving ease of use, usefulness, social influence and behavioral control of ATM transaction may bring value to the service and customers may choose ATM banking rather than one of other available options. And also, bankers should try to further reductions of the risk of ATM usage.

Researchers have identified some limitations of this study. The study was limited to investigate factors determining the usage of ATM in four (04) Private Banks which are operating in Puttalam District. Further investigation of Private Banks' ATM usage in other Districts may provide additional scope into findings of the study. Also, this research focuses on Private Banks only. Therefore, this research results are specific into Private Banks.

But all Sri Lankan Public Banks also provide ATM services to their customers. To increase the value and accuracy of results, future research can explore Public Banks also. Because of limited time scale researchers have used only two hundred (200) sample. And, researchers have used convenient sampling method because they could not obtain exact population in numbers because banks not providing their internal confidential information to the outside. This provides a further insight for researchers to conduct their research with cross sectional data with an increased number of sample size.

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