

## Customer Adoption of Internet Banking in Mauritius

**N. Mamode Khan**

*Faculty of Social Studies and Humanities  
/Department of Economics and Statistics  
University of Mauritius  
Reduit, Mauritius*

*n.mamodekhan@uom.ac.mu*

**N. Emmambokus**

*University of Mauritius  
Reduit, Mauritius*

*nausheen.emmambokus@umail.uom.ac.mu*

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### Abstract

Internet banking offers many benefits but little research has been done about its acceptance in Mauritius. This paper aims at assessing the factors that contribute to the adoption of internet banking in Mauritius. To support our arguments, we use a logistic regression model based on a sample survey to analyze the factors that influence internet banking in Mauritius. We conclude that factors such as age, income, service usefulness, risk factor, checking account frequency and internet location are the main determinants for a person to opt for online banking.

**Keywords:** Internet Banking, Factors, Logistic, Regression Model.

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### 1. INTRODUCTION

Mauritius can be considered to be one of the safest places to bank, invest or establish a fund trust as it is economically and politically stable with good law and order appliance. The presence of the Banking Act 2004, the Finance Act 2004 and the Financial Services Act 2007 confirms the reliability of the banking sector of the country. The Bank of Mauritius as the Central Bank, licenses, supervises and regulates the banking system. Mauritius is said to be regional financial center with 19 licensed banks where the majority of which are foreign-owned locally incorporated banks or branches of foreign banks. The increasing business flow in Mauritius and a booming Global Business sector banks have helped to urge innovation in terms of products and services in order to keep pace with new client's requirements. Internet banking is one of them. Shih and Fang (2004) describe internet banking as a new type of information system that uses the innovative resources of the internet to enable customers to effect financial activities in virtual space. Customers enjoy self-service, freedom from time and place constraint, and reduced stress of queuing in banking hall. Customers can reach a given institution from literally anywhere in the world. In fact from any location where there is internet accessibility, users can conveniently and quickly use online banking. There is perfect information available to all market participants which brings efficiency in the banking market and dismantles the oligopolistic market of the banking sector this alleviating the market towards a perfect competition one. There are three kinds of internet banking that are currently employed in Mauritius and these are: Informational, Communicative and Transactional. Informational internet banking which is the most basic level of Internet banking and first level of banking is about the marketing information about the bank's products and services on a standalone server and provided by four banks in Mauritius.(Barclays, Bank of Baroda, Deutsche bank and Pt bank international). This level of Internet banking service can be provided by the bank itself or by sourcing it out. Thirteen banks (MCB, SBM, SBI, Bank One, MPCB, Banque des Mascareignes, Standard Chartered Bank of Mauritius, Afrasia, Hsbc, Standard Bank and Investec) allow the following two other types of internet banking which are communicative transactional and advanced transactional internet banking websites. The organization of the paper is as follows: In section 2, we consider the factors influencing the

internet banking. In section 3, we present the logistic regression model and the results. The conclusion and recommendations are presented in the last section.

## 2. FACTORS INFLUENCING INTERNET BANKING

Researchers (Dickerson and Gentry, 1983; Mattila, Karjaluoto and Pento(2003) Zeithaml and Gilly, 1987) considered demographic variables to be important. Karjaluoto et al. (2002) showed that occupation was a significant factor for adoption of internet banking. (2003). Sathye (1999), Liao and Cheung (2002) and Polatoglu and Ekin (2001) found that the reliability dimension was an important determinant for consumers who used electronic banking. Additionally, Munhurrun and Naidoo (2008) findings revealed that reliability and security was perceived as the most important dimensions in internet banking transactions that influences satisfaction and behavioral intentions. The more people feel secure, the more they will adopt internet banking. According to Cooper (1997) and Daniel (1999) the factor affecting the acceptance and adoption of new innovation is the level of security or risk associated with it. An empirical survey by Sathye (1999) of Australian consumers confirmed this fact and Ho and Ng (1994) and Lockett and Littler (1997) empirically support that the use of electronic banking involves risk. Johnson et al (1995) and Chan (2001) stated convenience as one of them as one of the adoption factor. Baldock (1997) found that the implementation of internet banking would remove the constraints of time, place and form. Birch and Young, (1997) asserted that consumers would also enjoy the privilege of access to far more providers of banking services. Ma`enpa`a (2006) find seven dimensions of internet banking services which are convenience; security; status; auxiliary features; personal finances; investment; and exploration and also examined that customers using internet banking could be divided into four clusters namely their needs, behavior, age and education.

## 3. ESTIMATION OF PARAMETERS AND INTERPRETATION

In this section, we present the statistical model used to analyze the factors that influence internet banking. We have initially collected data based on a sample of 1240 interviewers. Since the variable of interest is whether a person adopts online banking or not, that is binary, we adopt a logit link specification based on the generalized linear regression model where

$$\ln \frac{P_i}{1 - p_i} = x_i^T \beta$$

where  $p_i = P(Y_i = 1)$  indicate that the  $i^{th}$  person has opted for online banking and  $(1 - p_i) = P(Y_i = 0)$  signify the person has not adopted online banking. The vector of explanatory variables for the  $i^{th}$  individual constitute of the intercept term, the age of the person, the level of income, the area of residence (1 for urban and 0 for rural), the perceived risk (1 for internet banking is risky and 0 for not risky), the usefulness (1 for internet banking being useful and 0 for not useful), the frequency of assessing bank accounts, the type of person (1 for risk-lovers and 0 for risk-averse) and internet location(1-Home, 2-Work, 3-Mobile or similar devices,4- elsewhere and 5- no internet).

Variables	Estimates	Standard Errors
Age	-1.589	(0.5627)
Income	2.3669	(0.6053)
Area	0.3670	(0.8413)
Risk	-6.522	(1.8660)
Usefulness	5.1411	(1.1100)
Frequency	1.3520	(0.3797)
Type of Person	-1.4581	(1.0591)
Internet Location	-2.1091	(0.5022)
Constant	2.2710	(2.1812)

**Table 1:** Regression Table

Generally, the model fitted the data well. The likelihood ratio chi-square 47.60 with a p-value of 0.0000 tells us that the model as a whole is statistically significant, as compared to model with no predictors or an empty model. The pseudo-R-squared is present as we are using a non-linear model and due to the non-direct equivalence of R-square which is in ordinary least square models. We see that the variation caused by the various independent variables have impacted on the dependent by 0.8517. We do not consider demographic variables such as gender, area of residence and marital status since they have been found to be insignificant as demonstrated in by Padachi et al (2007) and Tandrayen-Ragoobur (2010). Among the factors we consider, we note that the type of person whether he is a risk-seeker or risk-adverse person is also insignificant but this variable has indeed influenced how the person perceives internet banking. Age has been a significant factor in the survey if we consider p value significance at 0.05. The negative coefficients 1.589285 demonstrate that as people tend to be older, they tend to not adopt Internet Banking. Considering the senior bank customers are more risk averse and they prefer a personal banking relationship rather than a machine-generated one. Instead, young customers are more dynamic to do all the formalities and adopt Internet Banking and conduct their transactions. Another reason for that is greatly due to mobile phones top-ups which is a popular service among the younger population conducted through internet banking. So the regression did really abide by the logical belief would be that the younger people are more prone to adopt new technologies as internet banking. As income increases, it is shown that people are more likely to use Internet Banking by 2.36669 unit change in the log of the odds which was in contrary to developed countries where high income earners were less likely to adopt Internet Banking as they preferred a personal contact towards the staff due to big transactions. Here in a developing country, this shows that as people get more earnings they are more prone to adopt technologies to do their banking privately and on their own. Moreover, higher income earners are more able to access internet connection and thus internet banking. The risk factor (financial risk, social risk, performance risk, time risk) about internet banking seems to negatively affect the probability to adoption by 6.522081 unit change in the log of the odds. This may be attributed to perception and another variable in the study which is type of person whether the bank customer is a risk-averse or risk lover. Moreover, for the usefulness variable, we find a very significant positive relationship of 5.140606 unit change in the log of the odds. This actually refers to how bank customer perception about internet banking as a useful technology in terms of ease of use, cost and time efficiency, user friendliness. This means that the more bank customers find internet banking to be useful, the more they will adopt it. Additionally, all respondents have stressed on the idea that internet banking saves time as the priority reason to make use of this service and consequently that banking can be done whenever it is convenient. The frequency variable is quite significant. This signifies that the more the bank customer checks his account per month, the more he is likely to adopt internet banking. This is so because of convenience as the customer would not have to lose time, money and energy resources to check his account in a branch or ATM. For example, customers checking their account more than 12 times find it much easier to log into the website than to physically go to the bank. Many respondents find the reason to use of internet banking is due to the 24-hours internet availability. Internet location had a negative impact of 2.109156. This demonstrates that internet location has an overall negative impact on internet adoption. Internet location was individually regressed and we see that internet at home had a positive impact and internet at work had a negative impact. Furthermore, no internet definitely has a high negative effect as evidently if there is no internet, there is no internet banking.

#### **4. CONCLUSIONS**

A logistic regression is used to regress from the surveyed data of 1240 customers and we conclude that six explanatory variables namely age, income, risk, usefulness of internet banking, frequency of checking bank accounts and internet location are significant. In our developing economy, demographics such as gender, area of residence and marital status have been insignificant in this case unlike in developed countries. Mauritius has a well-developed banking sector but it has lagged behind in terms of internet banking. This can be due to lack of information

as we have remarked that non-adopters of internet banking are quite ignorant about this service as they prefer branches or ATMs; prefer personalized service with social-related counters; perceived tedious formalities to have an internet bank account or simply lack of funds. The last reason is due to many economic attributed reasons where bank customers simply do not seem it having any value as they do not have enough money or simply prefer using cash and cards. Moreover, although banks have security arrangements such as network and data access controls, user authentication, transaction verification, virus protection, privacy policies and detection of possible intrusions which include penetration testing, intrusion detection, still bank customers still beware of possible risks from internet banking. Last year's advent from e-filing payment for MRA where tax payers can file their returns electronically by 5 banks has greatly helped to boost up internet banking. Banks should implement more marketing strategies to enhance internet banking usage and educate the public, especially low and middle-income earners and higher aged people more about the benefits of this service and make available more computers and qualified staff to explain about the different bank formalities and websites. Compared to previous studies, we have not considered demographic variables as they were found to be insignificant. So far, our binary regression model has provided a good insight about the factors that may influence internet banking and has also yielded reliable estimates.

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