

## **Investigating into the factors that influence the adoption of internet banking in Mauritius**

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### **Abstract**

This paper analyses the factors that influence the adoption of internet banking for the case of Mauritius, the future IT-hub of Africa. Results based on the analysis of data relating to 200 respondents indicate that the mostly used services are inter account transfer, payment to other personal account, transfer to credit card account, recharge mobile phones among others. Comparing demographic variables of the internet banking users to the non-internet banking users, the analysis also reveals that there is no significant difference between the two groups of users with respect to age group and the education level of the respondents. This is, however, not the case for the mean monthly income. Using factor analysis to identify the factors affecting the adoption of internet banking in Mauritius, it was found that the most significant factor is ease of use and that other important elements featured reluctance to change, trust and relationship in banker, cost of computers, internet accessibility, convenience of use and security concerns. Further analysis using cross tabulations suggest important statistical relationship between awareness, access to Internet facility, length of banking relationship, people working in the banking/finance sector, education level in the category 'post graduate' and also income group with the usage of internet banking.

**Keywords:** Internet-banking; Internet; Mauritius

## Introduction

A feature of the banking industry across the globe has been that it is increasingly becoming turbulent and competitive, characterized by an increasing trend towards internationalization, mergers, takeovers and consolidation of the banking industry. Moreover a number of non-banking companies are entering the banking industry by offering financial products and services (e.g., Toyota's credit card, GM's auto financing, Merrill Lynch investments). This has given a myriad of options to customers in choosing banking services. As a response and aided by technological developments, banks have attempted to build customer satisfaction through providing better products and services and at the same time to reduce operating costs. Thus the banking industry has been constantly innovating and with the advent of technological developments, particularly in the area of telecommunications and information technology, one of the latest innovation that took birth, and quite inevitably, has been the internet banking. This phenomenon has attracted a number of empirical studies, for instance Bielski (2000), Balachandher et al (2000), Karjaluo, Mattila, and Pentto (2002) and Pikkariainen et al (2004) among others, which analyzed the development of electronic banking and its operations. A general consensus exist that e-banking enables banks to provide an inexpensive and direct way of doing banking business, exchanging information and to sell or buy products and services.

In this era of globalization, with increased competition around the globe in all sectors and with the proliferation of MNCs, many firms are modifying their strategies to reach customers worldwide more easily and cheaply. Therefore, banks have to develop the technologies that will help them deliver banking products and services by the most cost-effective channels and one of such channel is the Internet banking. Internet banking is a way to keep existing customers and attract new ones to the bank. The transaction costs of providing these services on the net are lower than the traditional approach. Booz and Hamilton (1997) found that the cost to deliver manual transaction at a branch was typically more than a dollar, while ATM and call center transactions cost about 25 cents, and internet transactions cost about a penny.

A number of studies have been carried out relating to issues in the wider context of e-banking (Balachandher, Santha, Norhazlin and Prasad, 2000; Suganthi, Balachandher and Balachandran, 2001), particularly in relation to the rationales and benefits of internet banking, customer loyalty and service quality. However, comprehensive research investigating the relative importance of factors influencing the adoption of internet banking and other customer preferences, particularly for the case of an African country namely Mauritius, has never been carried out.

This study thus aims to fill the gap in the literature by focusing on the factors that influence the adoption of internet banking for the case of the emerging African economy of Mauritius. Mauritius provides a good case study as the country is actually one of the best performers of the continent and has a relatively well-developed financial system. Today the financial services, particularly banking sector play a critical role in the economy both in the provision of employment and also in foreign currency inflow to the economy. Moreover the country also possesses a relatively good quality infrastructure, particularly with respect to communication and has among the highest education attainment level as well. Indeed it is estimated that around 15%<sup>1</sup> of major bank customers have an internet banking account and make use of it.

Specifically this paper aims at i) identifying the most widely used internet banking services in the first place and ii) investigating if elements such as accessibility and cost of computers and internet, customers reluctance, awareness of the service, security of internet banking transactions, convenience and ease of use influence the usage of e-banking. The results are expected to highlight the factors influencing consumer adoption of internet banking and thus specific business action could be devised.

The structure of the paper is as follows: in the next section, we give some background information on Mauritian banking sector and review the relevant literature in the area. The following section describes the research methodology, which is then followed by the data analysis and results from the survey. The paper concludes with a summary, outlining the implications of the findings and the limitations of the study.

## **Mauritian Banking Sector & Internet Banking**

### *The Banking Sector*

Mauritius has realized rapid economic growth due to its diversification policies from agriculture to information technology and financial services. Today the financial services, particularly the banking sector plays a critical role in the economy both in the provision of employment and also in foreign currency inflow to the economy. The country has a relatively well-developed domestic financial system and a growing offshore sector. There

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<sup>1</sup> Bank of Mauritius, Annual Report, 2007

are 11 domestic commercial banks and 12 offshore banks in the country. Among the domestic banks, the two largest foreign banks are the Hong Kong Shanghai Bank (HSBC) and Barclays International. These two banks control around 25 % of the market. As regards the local banks, they are dominated by the Mauritius Commercial Bank Ltd and the State Bank of Mauritius Ltd. They have more than two-thirds of the market. These two banks are also listed on the Mauritian Stock Exchange.

The domestic banking sector, which constitutes over two-thirds of the domestic financial system, has grown at an average 13 percent p.a. over the past five years. In 2005, the net foreign assets of the banking system went up by 7.3 per cent compared with a rise of 7.9 per cent in 2004. Domestic credit grew by 14.9 per cent in 2005, down from 19.1 per cent in 2004. Net credit to Government expanded by 8.0 per cent lower than the growth of 45.9 per cent registered in the preceding year. Credit extended by banks to the private sector, inclusive of non-financial public corporations, increased by 18 per cent in 2005, up from 11.2 per cent in 2004 (Bank of Mauritius Annual Reports, various issues).

### *Communication and Internet*

Communication infrastructure and provision in Mauritius is one of the best of the Continent. Access to the Internet on the island is accessible to residential and business users and the number of Internet users has grown rapidly over the years. In 2007, the number of dial up Internet subscribers is around 60,000 (40% business and 60% residential) and the estimated number of users is around 146,000 (Central Statistical Office). The table below provides some basic information and key facts on the status of communication and internet on the island. It shows that in general, there has been a constant progression in the communication and internet access since 1998.

**Table 1: Key Facts: Communication and Internet**

	1998	2000	2002	2004	2006
<b>Population (million)</b>	1.14	1.15	1.18	1.2	1.21
<b>Main Telephone lines per 1000 inhabitants</b>	200	237	252	290	310
<b>Telephone faults per 100 lines per year.</b>		56	48	41.77	39

<b>Internet host per 10000 inhabitants.</b>		20	22	27.62	30
<b>Personal Computers per 1000 inhabitants.</b>	90	100	140	176	200
<b>Av Mon. cost for unlimited Internet pack.</b>		U\$20	U\$ 18	U\$ 15	U\$ 15
<b>Internet Host Sites.</b>		577	3275	4000	4500
<b>Internet Subscribers.</b>	12000	30000	45000	60000	75000
<b>Internet Users per 1000 inhabitants.</b>	49	73	100	146	175

*Source: ITU (International Telecommunication Union), NW (Network Wizards) Internet Host Surveys and partially adapted from Mike Jensen's Overview of Africa Internet Status [www3.sn.apc.org/africa/afstat.htm]. Updated World bank: ICT at a glance, Bank of Mauritius Annual Reports and Central Statistical Office*

### ***The internet banking revolution in Mauritius***

Internet banking in the country is a relatively recent phenomenon and one can actually ascertain that it has really become in operation since the year 1997. Actually out of the 11 banks only 4 of them, namely the Mauritius Commercial Bank, The State Commercial Bank, Banque des Mascareignes and Barclays offer internet banking services while the National Postal and Cooperative Bank (NPCB) and HSCB have already planned to launch this service by next year. It is further estimated that the total number of internet banking users is around 50000<sup>2</sup> (Bank of Mauritius, Annual Report, 2007) as at date, representing an increase of around 20% since last year, with the bulk of users being individual (around 75%) as compared to corporate.

The type of service offered encompasses the following main ones among others: inter account funds transfer, payment to other account, transfer of funds to credit card account, foreign transfer, draft or SWIFT payment orders (MUR & F/C), recharge mobile phones, credit cards and cheques transactions, request the issue of a current account statement, standing order transactions, application for various accounts, loan and credit cards.

<sup>2</sup>It is estimated, from unofficial discussion with various large banks, that around 15-20% of their clients have an internet account with them.

## Literature Review

Pikkarainen, Pikkarainen, Karjaluoto, and Pahlila, (2004, p. 224) defines internet banking as an *'internet portal, through which customers can use different kinds of banking services ranging from bill payment to making investments'*. With the exception of cash withdrawals, internet banking gives customers access to almost any type of banking transaction at the click of a mouse (De Young, 2001). Indeed the use of the internet as a new alternative channel for the distribution of financial services has become a competitive necessity instead of just a way to achieve competitive advantage with the advent of globalization and fiercer competition ( Flavián, Torres and Guinalú, 2004; Gan, Clemes, Limsombunchai, and Weng, 2004). All banks using the internet as an additional channel or a bank using only the internet as delivery channel are now on equal footing to offer their banking services on the internet and to compete for customers around the world. As Karjaluoto, Mattila, and Pento (2002, p.261) put it *'this could be the reason why the internet is widely seen as the most important delivery channel in the era'*

Of course the rise of Internet Banking is also due to its number of benefits for both the provider and the customer as well. From the bank's perspective these are mainly related to cost savings (Sathye, 1999; Robinson, 2000) and internet banking remain one of the cheapest and more efficient delivery channels (see Pikkarainen et al, 2004). Other rationales for the adoption of such services are also related to competition as internet banking strategy has been an interesting way to retain existing customers and attract new ones (Robinson, 2000) and to the numerous advantages to banks for instance, mass customization, more effective marketing and communication at lower costs amongst others (Tuchila, 2000). Benefits for the end users are numerous as well and include mainly conveniency of the service (time saved and globally accessible service), lower cost of transaction and more frequent monitoring of accounts among others (see Pikkarainen et al, 2004). However, it should also be noted that there are still customers who fear to make use of Internet banking, as they are concerned with security aspects of such a system.

### ***Factors determining the demand for E-banking***

Since the main objective of the paper is to identify the factors that influence internet banking, below we discuss the theoretical underpinnings and provide some empirical evidences on such potential factors. It should be noted that empirical evidences has been indeed scant in the literature until now.

One factor that determines the level of demand for e-banking services is that of the number of people having access to Internet. Moreover the cost and speed of internet connections have also been argued to be important elements (see Sohail and Shanmugham, 2003; Li and Worthington, 2004). The latter authors also argued that customer confidence on e-banking transactions is yet another factor. This depends on how the banks would deal with any erroneous transactional and security concerns that may occur during online banking. It is good to point out that Stewart (1999) claimed that the failure of the Internet in retail banking is largely attributable due to the lack of trust consumers have in the electronic channels. In fact, although almost ten years have elapsed since Stewart (1999) made this claim on lack of trust, we have noticed through our survey that some customers still lack trust on the Internet banking system. Those who usually use Internet banking claim that at times they doubt the security aspects of the system but due to its convenience, they still use it. Therefore even if in the current days Internet banking is a success, the lack of trust is still an important aspect.

Provision of infrastructural facilities is another factor that could lead to quicker diffusion of innovation. Study from Jayawardhena and Foley (2000) reveals that there is a significant correlation between the website downloaded speed and web-users satisfaction. Moreover other features such as content and design, interactivity, navigation and security are relevant according to the author. Broderick and Vachirapornpuk (2002) found through observations and narrative analysis of internet banking customers, that problems such as slowness, poor navigational possibilities, poor interactivity and critical incidents such as lack of help and empathy by internet banking service providers, triggered considerable switching and negative word-of-mouth.

The type of relationship customers wishes to maintain, and this differ, with banks is another aspect to consider. Indeed there is evidence to suggest that in the choice of communication the channel will affect on the development of relationships. In the debate on the degree to which face to face communication and inter-personal relationships is more efficient than behind-the-curtain services, there exist a number of studies in literature to significantly conclude that indeed proximity and personal relations do matter (see Sathye, 1999, Karjaluoto, Mattila and Pento, 2002). This implies that customers desiring social and psychological benefits by establishing personal relationships with banks will prefer face to face interactions, at the detriment of e-banking. Tomiuk and Pinsoneault (2001) concurred with the above view and stated that the lesser degree of 'richness' and 'sound presence' of e-banking environment will affect banks' ability to create a trusting relationship between their customers and employees. On the other hand, for those customers whose relationship is primarily based in efficiency of services, e-banking will be an attractive alternative.

There are also several other theories relating to consumer behavior what may explain the rate of adoption and degree of acceptance of the use of the likes of internet banking. Rogers and Shoemaker (1971) argued that consumer go through several stages in knowledge conviction and decision confirmation before they finally adopt a product of service. Guiltinand and Donnelly (1983) emphasized on the importance of awareness before adoption of any innovative products. Interestingly as Doll, Raghunathan, Lim and Gupta (1995) also claimed that product information content on the web design and layout are also important factors that affect customer satisfaction. Sohail and Shanmugham (2003, pg 4) further argued *'that proper navigational attributes and search facilities, leading to higher level of interactivity will have an impact on the customer perception on user friendliness of the e-banking site'*. Mattila and Mattila (2005) also claimed that security has been widely recognized as one of the main barriers to the adoption of internet innovation following empirical work on Finnish banking customers' survey responses including both internet users and non-user.

Although there have been some, nonetheless overwhelmingly few studies which investigated consumers' preference to adopt internet-banking recently, however, these empirical work were based mainly on developed country cases and also failing often to focus on social and psychological factors as well. This study is believed to supplement the literature as it brings new insights from a fast growing African state and caters for a number of potential factors, including social and psychological, using rigorous survey analysis techniques.

## **Research Objectives & Methodology**

### ***Objectives***

The study has three aims. The first is to determine the internet banking services most demanded; the second is to examine the factors that affect the adoption of e-banking and the third to investigate if there are any differences between the Internet and non-Internet users relating to the various factors. The broad research question is:

*What are the factors affecting the adoption of internet banking in the Mauritian context?*

### ***Methodology***

To assess the factors influencing the use of internet banking in Mauritius, a survey was conducted during the first quarter of year 2007. Questionnaires were designed and distributed to retail users of banking services of different age group and of different educational level attained across the island (university campus, shopping mall, city centre). The questionnaire we prepared and used had been pre-tested initially with few people working in different sectors to ensure consistency and relevance to the Mauritian case. Minor changes were requested by those people, which we implemented before carrying out the final interview. For the purpose of the survey, a stratified cluster sampling strategy as shown in Table 2 was to be used. The sampling approach was a proportionate stratification and the sample size of each stratum was proportionate to the population size of the stratum determined by the following equation:

$$nh = \left( \frac{Nh}{N} \right) * n$$

where  $nh$  is the sample size for stratum  $h$ ,  $Nh$  is the population size for stratum  $h$ ,  $N$  is total population size, and  $n$  is total sample size. Out of 300 questionnaires delivered, a total of 188 useable responses were obtained, giving a response rate of 63%. The sample is representative to the banking population.

**Table 2: Clusters for Sampling**

Age	Educational Attainment					
	<Standard VI	Standard VI	Lower Secondary	Upper Secondary	Tertiary	Technical & Vocational
18-25	A	B	C	D	E	F
25-45	G	H	I	J	K	L
>45	M	N	O	P	Q	R

The survey instrument was divided into 3 sections. The first section concentrates on the general profile of the respondent including his/her age group, education level and profession and income group. In the second section issues such as internet facility was addressed to know how far the availability of the internet can influence the use of internet banking transactions. Also, the respondent was asked to provide details about the number of years he/she has been dealing with his/her main bank and to rate the services provided by the internet banking. In section 3, we were interested in finding the factors affecting the adoption of internet banking in Mauritius. The

selection of the questions was based on the literature review that we conducted before the survey. To a large extent, the factors determining the use of Internet banking were obtained from existing empirical studies both in developed and developing countries. Then once the questionnaire was ready, we consulted high-cadre from reputed financial institutions (not only banks) so that the questionnaire could be adapted to the Mauritian context. The respondents were provided with a list of factors and were required to rate each one, using a 5 point likert scale.

## Data Analysis and Results

### *Most widely used services*

Descriptive statistics and bar charts (Appendix 1) were constructed as a preliminary analysis to determine which of the services the internet banking users make use of more often. It could be interpreted that the mostly used services are inter account transfer, payment to other personal account, transfer to credit card account, recharge mobile phones, standing order transactions, savings, current and fixed deposit account application and debit/ credit card. To better assess this statement, t-tests were also performed and the results displayed in Table 3.

**Table 3: t - test for services offered by e banking**

<b>Payments</b>	<b>T-test significance</b>
Inter account funds transfer	0.227
Payment to other personal account	0.200
Payment to other local bank account	0.006
Payment by office cheque	0.044
Transfer of funds to credit card account	0.092
Foreign transfer: Draft or SWIFT	0.014
Recharge mobile phones	0.075
 <b>Requests/Applications</b>	
Order cheque books	0.093
Stop lost/stolen Cheques	0.000
Remove 'Stop Cheque' request	0.000
Apply for a credit card limit change	0.000
Request the issue of a Current account statement	0.001
Standing order transactions	0.023

Savings/current/Fixed Deposit account	0.333
Foreign currency accounts	0.014
Debit/ Credit card	0.149
Loan	0.015
Telephone banking	0.044

Table 3 confirms the preliminary analysis to quite a large extent. As depicted by the preliminary analysis, inter account transfer, payment to other personal account, transfer to credit card account, recharge mobile phones, current and fixed deposit account application and debit/ credit card remain the services mostly practiced by internet banking users. However, the t-test also illustrates that order chequebooks is a mostly common service among internet banking users.

### ***Factors influencing Internet Banking in Mauritius***

To examine whether the demographic variables of the respondent affect the adoption of internet banking, the demographic variables of the internet banking users are also compared to the non-internet banking users. The rationale for such a belief is that

- The younger the generation the more they are used to the new technological advancements as compared to the older generation, thereby they are more likely to adopt internet banking;
- The higher the education level achieved, the greater the probability of the customer adopting internet banking;
- The higher the income ladder, that is the more affluent people are more likely to possess a personal computer, thus the more the tendency to use internet banking.

Descriptive analysis of these demographic variables is presented in *Appendix 1*. Based on the above-mentioned demographic variables, the 2 groups of users were further compared (internet banking users and non-internet banking users) using the z-test (due to sample data being not a normal distribution). Table 4 below show the results computed.

**Table 4: Demographic characteristic and preference for e-banking**

Demographic variables	E banking users	Non-e banking users	Significance
Mean age	45	47	0.100
Mean monthly income	Rs 20 230	Rs 17 571	0.035
% of undergraduates & postgraduates	2.19*	2.06*	0.401

\* Mean score

As far as age group is concerned, there is no significant difference between the two groups of users. Moreover, there is no significant difference between the education level of the respondents and their preference for either conventional (non-e banking users) and e-banking users. However, the mean monthly income is seen to be significant. The results are consistent to that of Sohail and Shanmugham (2003) who found similar results.

To identify the factors affecting the adoption of internet banking in Mauritius, factor analysis has been performed to determine whether the data can be condensed or summarised into smaller sets of factors. Table 5 below illustrates the condensed factors named in line with their factor loadings. The seven factors accounted for 83 percent of the variance explained.

A final factor analysis was completed using the resulting 18 variables and all the assumptions of the PCA model were satisfied (Hair et al., 1995). The results were rotated, using the varimax rotation to isolate more meaningful dimensions. After varimax rotation seven factors (those with eigenvalues greater than 1.0 were retained and used to identify groupings of items which affect the adoption of internet banking. Most of the variables reported high loadings (greater than .50) with the exception of three variables, namely range of services offered, time saving and clear and understandable instructions. These variables were considered to be representative of the characteristic reflected by that factor, indicating that convergent validity is adequate.

**Table 5: Factors affecting adoption of e-banking**

<b>Factors</b>	<b>Rotated factor loading</b>	<b>% of variance explained</b>
<b><i>Ease of use</i></b>		
User friendly web site	0.692	45.90
Ease of performing E-Transaction	0.519	
<b><i>Reluctance to change</i></b>		
Willingness to adopt technology	0.910	9.31
Level of awareness of the service	0.881	
<b><i>Trust and relationship</i></b>		
Reliability of your banker	0.832	8.13
Bank response rate to queries	0.806	
Ethical and professional conduct	0.805	
Bank's policy to compensate for losses	0.543	
<b><i>Cost</i></b>		

Cost of acquiring a computer	0.916	6.60
Cost of internet connection	0.837	
<b>Accessibility</b>		
Convenience to access the service	0.935	5.41
Connection speed	0.782	
<b>Convenience</b>		
Range of services offered	0.429	3.78
Convenient way of doing bank transactions	0.852	
Time saving	0.465	
<b>Security</b>		
Clear and understandable instructions	0.427	3.68
Security of internet transaction	0.802	
Length of internet experience	0.541	

Table 5 concludes that the most significant factor is ease of use. The other factors which are of influence are namely reluctance to change, trust and relationship in banker, cost of computers, Internet accessibility (consistent with works from Sohail and Shanmugham, 2003; Li and Worthington, 2004) convenience of use and security (Matilla and Matilla, 2005 found similar results for the Finish customers) concerns.

### ***Cross tabulations***

To provide greater insight than single statistics, further analysis was conducted by the use of cross tabulations relating selected factors and usage of internet banking facilities. Cross tabulations allow us to display the joint distribution of two or more variables and thus describe the distribution of two or more variables simultaneously. Each cell shows the number of respondents that gave a specific combination of responses, that is, each cell contains single cross tabulation. The results from cross tabulation analysis are presented and briefly discussed below.

**Table 6: Internet Facility and Adoption of Internet Banking**

			Make use of this service		Total
			yes	no	
internet facility	yes	% within internet facility	36.7%	63.3%	100.0%
		% within make use of this service	94.3%	90.5%	91.8%
		% of Total	33.7%	58.2%	91.8%
	no	% within internet facility	25.0%	75.0%	100.0%
		% within make use of this service	5.7%	9.5%	8.2%
		% of Total	2.0%	6.1%	8.2%
Total	% within internet facility	35.7%	64.3%	100.0%	
	% within make use of this service	100.0%	100.0%	100.0%	
	% of Total	35.7%	64.3%	100.0%	

From the above table it can be noted that 36.7% respondents who have Internet facility actually use internet banking facilities, thus confirming that access to internet is an important element.

**Table 7: Heard of internet banking (awareness) and usage of e banking**

			Make use of this service		Total
			yes	no	
heard of e-banking facilities	yes	% within heard of e-banking facilities	36.0%	64.0%	100.0%
		% within make use of this service	91.4%	90.5%	90.8%
		% of Total	32.7%	58.2%	90.8%
	no	% within heard of e-banking facilities	33.3%	66.7%	100.0%
		% within make use of this service	8.6%	9.5%	9.2%
		% of Total	3.1%	6.1%	9.2%
Total	% within heard of e-banking facilities	35.7%	64.3%	100.0%	
	% within make use of this service	100.0%	100.0%	100.0%	
	% of Total	35.7%	64.3%	100.0%	

Results from table 7 suggest that 36% of respondents who are aware of e banking do make use of same, suggesting that level of awareness of the service is a potential factor as well.

**Table 8: Length of time doing business with same bank and use of e banking**

			Make use of this service		Total
			yes	no	
long doing business with same bank	1 - 5 yrs	% within long doing business with same bank	35.7%	64.3%	100.0%
		% within make use of this service	15.2%	15.8%	15.6%
		% of Total	5.6%	10.0%	15.6%
	6 - 10 yrs	% within long doing business with same bank	44.4%	55.6%	100.0%
		% within make use of this service	24.2%	17.5%	20.0%
		% of Total	8.9%	11.1%	20.0%
	11 - 15 yrs	% within long doing business with same bank	40.0%	60.0%	100.0%
		% within make use of this service	18.2%	15.8%	16.7%
		% of Total	6.7%	10.0%	16.7%
	> 16 yrs	% within long doing business with same bank	32.6%	67.4%	100.0%
		% within make use of this service	42.4%	50.9%	47.8%
		% of Total	15.6%	32.2%	47.8%
Total	% within long doing business with same bank	36.7%	63.3%	100.0%	
	% within make use of this service	100.0%	100.0%	100.0%	
	% of Total	36.7%	63.3%	100.0%	

Table 8 also shows that 35.7% of the respondents who are new to the bank (having done business with the bank for 1 –5 years) make use of e banking, the majority users, 44.4%, being with the range of 6-10 years, 40% within the range of 11-15 years and 32.6% having been loyal to the bank for more than 16 years.

Other cross tabulations analysis was also carried out, but the statistical results are not reported here. Interestingly, 74% of the respondents who have an internet package are internet banking users as well. As such it has been observed that people working in the banking/finance sector are more prone to use the service (68%), followed by those in the communication industry (56%). Thus being in the sector it makes bank customers more aware, less reluctant and more accustomed to the service, thus favoring its use. Another important element is the fact that 57% of respondents having an education level in the category 'post graduate' uses the service, as compared to 33% in the category of 'undergraduate'. Lastly people in the income group of Rs 30 000 to 49 000 are the one making mostly usage of internet banking (48%) while 34% of those in the income range Rs 20 000-29 000 and 33% in the range of 10 000- 19000 use the service. Therefore, as we hypothesized, people with higher education level have more trust in the use of internet banking as well as those with higher income levels.

## Conclusions

Mauritius provides a good case study as the country is actually one of the best performers of the continent and moreover has a relatively well-developed financial system and communication technology as well. Specifically this work analysed in the first instance the most widely use internet banking services and subsequently investigated the relative importance of elements such as accessibility and cost of computers and internet, customers reluctance, awareness of the service, security of internet banking transactions, convenience and ease of use influence the usage of e-banking.

Using survey analysis, results shows that the mostly used services are inter account transfer, payment to other personal account, transfer to credit card account, recharge mobile phones, standing order transactions, savings, current and fixed deposit account application and debit/ credit card. The results are confirmed by the use of t-tests.

Comparing demographic variables of the internet banking users to the non-internet banking users, the analysis shows that there is no significant difference between the two groups of users, for the variable age group and the education level of the respondents. This is however not the case for the mean monthly income.

Using factor analysis to identify the factors affecting the adoption of internet banking in Mauritius, we found that the most significant factor is ease of use and that other important elements are reluctance to change, trust and relationship in banker, cost of computers, Internet accessibility, convenience of use and security concerns.

Further analysis using cross tabulations relating selected factors and usage of internet banking facilities detected the presence of important statistical relationship between awareness, access to Internet facility, length of banking relationship, people working in the banking/finance sector, education level in the category 'post graduate' and also income group with the usage of internet banking.

From a policy perspective, the results of this study are of importance especially at the current time as the Government has the aim of making the ICT sector the fifth pillar of the economy. If ICT is to become a pillar of the economy, then definitely e-banking or Internet banking or mobile banking should necessarily be very well developed and the results of this study show the determinants of Internet banking in the Mauritian context. This paper is therefore of high policy relevance.

The study suffers from the survivor bias inherited in survey instrument. The survey instrument administered at the exit point of the shopping mall was somewhat influenced by the persuasive nature of the survey to get as many questionnaire filled in. It is also common that big shopping mall in Mauritius may have a regional bias. Nonetheless, the generalization of the results for internet banking in Mauritius, based on the sample size which is deemed adequate to suggest that the results are representative, appears reasonable. However, the applicability of the general findings to other countries cannot be easily asserted.

## References

- Booz, D. and Hamilton, K. (1997) 'E-banking: A Global Study of Potential Effects', Booz Allen & Hamilton Inc., New York, NY.
- Balachandher, K.G.; Santha, V.; Norhazlin, I.; and Prasad, R. (2000) 'E-banking in Malaysia: A note on evolution of services and consumer reactions', *Journal of International Banking and Commerce*, Vol 5, No. 1, pp 34-45.
- Bielski, L. (2000) 'E-business models stress putting the customer first', *ABA Banking Journal*, Issue 2000, pp. 67-76.
- Broderick, A. and Vachirapornpuk, Y (2002) 'Service quality in Internet banking: the importance of customer role', *Marketing Intelligence and Planning*, No. 20, pp.55-77
- Clark, M.S and Mills, J. (1993) 'The difference between communal and exchange relationships', *Personality and Social Psychology Bulletin*, Vol 19, pp. 684-691.
- Daft, R.L and Lengel, R.H (1986) 'Organizational information requirements, media richness, and structural design', *Management Science*, Vol 32, pp. 554-571.
- DeYoung, J. (2001) 'The Internet's place in the banking industry', *Chicago Fed Letter*, No.163, pp.1-4
- Doll, W.J.; Raghunathan, T.S.; Lim, J.S and Gupta, Y.P (1995) 'A confirmatory analysis of the user information satisfaction instrument', *Information Systems Research* Vol 6, No 2, pp. 177-188.
- Flavian, C.; Torres, E. and Guinalú, M (2004) 'Corporate Image measurement A further problem for the tangibilization of Internet banking services' *International Journal of Bank Marketing*, Vol. 22, No. 5, pp. 366-384.

Gan, C.; Clemes, M.; Limsombunchai, V. and Weng, A (2004) 'A Logit Analysis of the electronic banking in New Zealand', *Discussion Paper No 108, Commerce Division, Lincoln University, Canterbury*.

Guiltinand, J.P and Donnelly, J.H. (1983) 'The use of product portfolio analysis in bank marketing planning', in: Shanmugam, Burke (Eds.), *Management Issues for Financial Institutions*, pp. 50.

Hair, J. F., Anderson, R. E., Tatham, R.L. and Black, W.C (1995) *Multivariate Data Analysis*. Prentice-Hall Inc. Englewood Cliffs, New Jersey.

Jayawardhena, C. and Foley, P. (2000) 'Changes in the banking sector – the case of internet banking in UK, Internet Research', *Electronic Networking Applications and Policy*, Vol. 10, No. 1. pp.19–30.

Karjaluoto, H.; Mattila, M. and Pento, T (2002) 'Factors underlying attitude formation towards online banking in Finland', *International Journal of Bank Marketing*, Vol 20, No. 6, pp. 261-272.

Mattila, A. and Mattila, M. (2005) 'How perceived security appears in the commercialisation of internet banking', *Int. J. Financial Services Management*, Vol , No 1, pp 23-34.

Li, S. and Worthington, A.C. (2004) 'The relationship between the adoption of Internet banking and electronic connectivity: - An international comparison', *Discussion paper*, School of Economics and Finance, Queensland University of Technology, Brisbane QLD, Australia.

Pikkarainen, T.; Pikkarainen, K.; Karjaluoto, H. and Pahlila, S. (2004) 'Consumer acceptance of online banking: an extension of the technology acceptance model', *Internet Research*, Vol 14, No. 3, pp.224–235.

Rogers, E.M. and Shoemaker, F. (1971) 'Communications in Innovation', Free Press, New York, NY.

Robinson, G. (2000) 'Bank to the future', *Internet Magazine*, [www.findarticles.com](http://www.findarticles.com).

Sathye, M. (1999) 'Adoption of Internet banking by Australian consumers: an empirical investigation', *International Journal of Bank marketing*, Vol 17, No. 7 pp. 324-334.

Sohail, M.S and Shanmugham, B. (2003) 'E-banking and customer preferences in Malaysia: An empirical investigation', *Information Sciences*, Vol 150, No 4, pp 207-217.

Stewart, K. (1999) 'Transference as a means of building trust in World Wide Web Sites', in: *Proceedings of the 20th ICIS*, Charlotte, North Carolina.

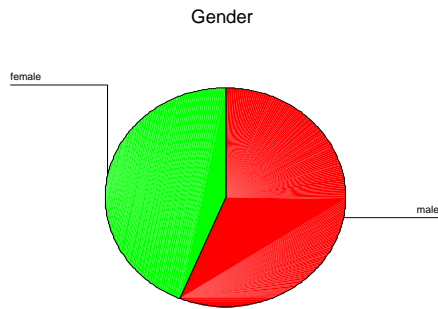
Suganthi, B.; Balachandher, S. and Balachandran, K.G. (2001) 'E-banking patronage: An empirical investigation of Malaysia', *Journal of International Banking and Commerce* Vol 6, No 1, pp 43-54

Tomiuk, D.; Pinsonneault A and Alain C. (2001) 'Customer loyalty and electronic-banking: A conceptual framework (Industry trend or event)', *Journal of Global Information Management*, Vol 9, No. 3, pp 4-12

Tuchila, R. (2000), 'Servicii bancare prin Internet', *E-finance Romania*, Vol 3, No3, pp 23-32

## Appendix A

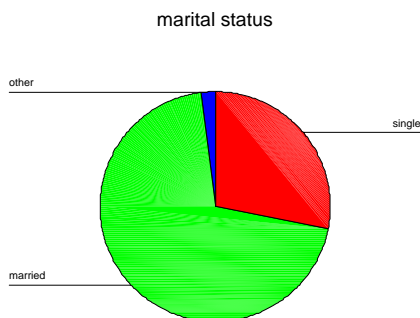
### Respondent profile



*56% male and 44 % female*

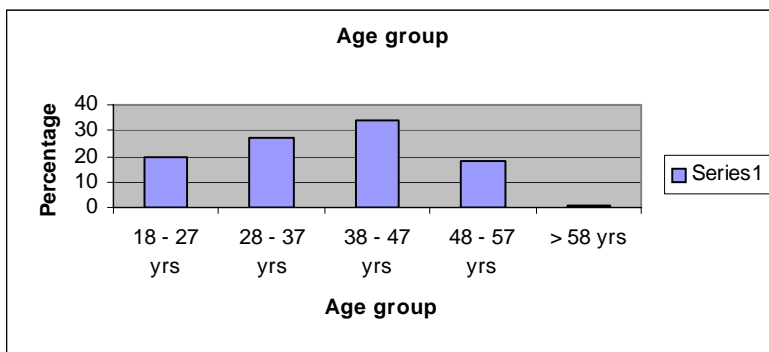
### Marital Status

	Percent	Valid Percent	Cumulative Percent
<b>Single</b>	56	28	28
<b>Married</b>	140	70	98
<b>Other</b>	4	2	100
<b>Total</b>	200	100	



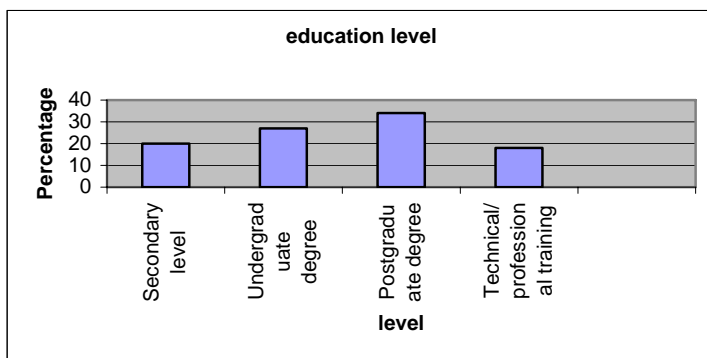
### Age group

	Percent	Valid Percent	Cumulative Percent
<b>Age group</b>			
18 - 27 yrs	40	20	20
28 - 37 yrs	54	27	47
38 - 47 yrs	68	34	81
48 - 57 yrs	36	18	99
> 58 yrs	2	1	100
<b>Total</b>	<b>200</b>	<b>100</b>	



### Education level

	Percent	Valid Percent	Cumulative Percent
<b>Education Level</b>			
Secondary level	50	25	25
Undergraduate	90	45	70
Postgraduate	48	24	94
Technical/professional	12	6	100
<b>Total</b>	<b>200</b>	<b>100</b>	



## Income level

	Percent	Valid Percent	Cumulative Percent
<b>Income level</b>			
< 10 000	6	3.2	3.2
10 000 - 19 000	114	61.3	64.5
20 000 - 29 000	42	22.6	87.1
30 000 - 49 000	22	11.8	98.9
> 50 000	2	1.1	100
Total	186	100	
Missing	14		
Total	200		

