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Usage Patterns of Electronic Banking Services by Urban Educated Customers: Glimpses from India

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Abstract

The major banks in India are increasingly providing services through electronic channels such as ATMs, internet banking, tele banking and mobile banking. The paper is an attempt to examine the various usage patterns by customers of these technology-enabled services provided. A survey research is conducted among the customers of some of the leading banks in India who are residing in the selected metro and urban banked centres in India . The findings show that though ATMs have been widely adopted, the level of adoption of other electronic banking means like internet banking, tele banking and mobile banking despite their potential are yet to pick in a big way. The usage patterns revealed through this study has several pointers to bank managements in india.

Keywords: **banking; electronic banking services, technology-enabled banking services, usage pattern of electronic banking; research study; India**

Introduction

Banks all over the world have been effectively deploying information technology as an innovative resource to achieve speed, efficiency, cost reduction, customer service and competitive advantage. Technology enabled products and delivery channels offer value to customers providing them with anywhere, anytime, anyway banking to customers. Even in a developing country like India the banks have realized that in order to remain competitive and provide the best services to their customers they need to have the latest technology in place. These technological changes have been pioneered in India by foreign sector and private setor banks but now it is seen that the traditional banks in the public sector are also increasingly pursuing technology.

Though these technologies have been prevalent in the Indian banking sector for over a decade and a half, very few studies have been carried out regarding the Indian bank consumers' usage patterns and their experience in using them. The few published studies done in India deal with only aspects pertaining to any one of the technology-enabled banking self-services such as ATM (Thamaraiselvan and Raja, 2007) or internet banking (Singh and Malhotra, 2005; Mukherjee and Nath, 2003). Therefore there is a need to understand the usage behavior of the bank consumers using multiple electronic banking channel services as they tend to use various services of the different banking channels in a complimentary manner.

This paper examines various usage patterns of technology-enabled banking self-services such as ATM services, internet banking services, tele banking services and mobile banking services. The usage of computers and internet by the respondents are also examined as they are considered as enablers in the usage of electronic banking. The the frequency and duration of usage of these services have been examined.

Literature Survey

Several studies which had been done mainly in other countries have been examined to understand the pattern of usage of electronic banking services by bank customers.

Lewis (1991) found that users mainly used ATMs for withdrawal of cash and obtaining account balances. Negative factors regarding ATM usage were concern over personal safety, lack of privacy and operational problems such as machine being regularly out of cash or out of order and cards getting stuck in it. In their study in Australia, Rugimbana and Iversen (1994) found that ATM customers mostly used it for cash withdrawal and conducted less than 50% of their transactions through it, hence they concluded that most users perceived ATMs to be just convenient cash dispensers, while the non-users preferred contact with human tellers and had a need for personal service.

A study conducted in UK on Direct Banking customers (Phone Banking) by Lockett and Littler (1997) found that risk averse households were less likely to adopt direct banking and households that used other technologies (ATMs and online shopping) were more likely to adopt direct banking. Al-Ashban and Burney (2001) after researching Saudi Arabian tele banking consumers concluded that tele-banking has resulted in substantial cost savings for the banks and has given rise to increasing convenience for the increasingly discerning consumers. They also found that customers tend to increase their usage of tele-banking services depending on their past experience. Jayawardhena and Foley (2000) from their work among UK banks found out that the advantages for banks through using internet banking as cost savings, increased customer base, mass customization and marketing & communication opportunities, innovation and development of non-core businesses. They categorized internet banking functions into four: view-only functions, account control functions, applying for new services and reconciliation functions.

Mattila (2001) opined after studying Finnish bank customers that Experience with computers was a major driver for internet banking use. Polatoglu and Ekin (2001) found that those who use the internet banking services for the longest time or who use more of its services find internet banking to be very reliable. Internet banking not only reduces operational costs to banks but also increases customer satisfaction and retention. Bradley and Stewart (2002) concluded that the key drivers for bank adopting internet banking were the external factors such as competition and industry adoption, low risk, enhanced ability to deal with customers and the availability of technology. The key inhibitors were mostly internal like resistance to change, internal attitudes, internal resources and legal issues. The findings of research by Karjaluoto et al. (2002) amongst Finnish bank customers showed that ‘prior experience’ with computer and technology along with ‘attitudes’ towards computer, influence both attitude and behaviour towards online banking. Gerrard and Cunningham (2003) who conducted a study among Singapore bank customers identified eight characteristics relating to the adoption of internet banking such as social desirability, compatibility, convenience, complexity, confidentiality, accessibility, economic benefits and PC proficiency as eight influential factors of adoption.

Research Methodology

The primary data for the study was collected through a survey research using a self-completion questionnaire delivered personally to the respondents to be filled up at a later stage and returned to the researcher or his representative either collected by hand or mailed back as the case may be. A multi-stage sampling design has been done for the study in which the geographical locations were first fixed, followed by the banks from which the respondents were sampled and finally the sampling of the population of

interest in the study. Hence when selecting the geographical locations care was taken so that the locations selected had an adequate representation of the users of internet banking, tele banking and mobile banking. Therefore the study was limited to metro banked centres (population over a million) and urban banked centres (population less than a million but above one lakh) in India.

The *population* for the study was the banking customers in the selected cities belonging to nine leading banks in India. The customers were sampled randomly from the partial list of customer databases provided by the banks. The intention of the sampling was to get a sample of users and non-users of these electronic banking services. The sample size for this particular study followed the guidelines given by Alreck and Settle (2004) which states that for a survey research if the population is 10,000 or more, usually a sample size of between 200 to 1000 respondents are considered adequate to give reasonable results. The final usable sample size obtained in the study was 553.

Research Instrument

The survey instrument/questionnaire was designed and developed after an extensive literature review, close consultation with experts in the banking area (both practitioners and researchers) and inputs from two focus group discussions. The questionnaire contains questions pertaining to the respondents' accessibility to computers and internet, plus the hours that they spent using the computer and browsing the internet. The questionnaire included questions to gauge the awareness, frequency of usage and the duration of usage if using of the ATM services, internet banking services, tele banking services and mobile banking services offered by their respective "most frequented banks". The respondents were also required to indicate the approximate percentage of banking transactions done by them through various modes of banking such as branch banking, ATMs, internet banking, tele banking and mobile banking. Finally the demographic variables were also captured.

Results

Demographic profile of the respondents

The sample population comprised of 56.2% males and 33.8% females indicating that men might use the electronic banking services more than women. Age-wise distribution of the sampled respondents showed that majority of the respondents (58.4%) are below 36 years which points out the fact that the adoption level of electronic channel is more among the younger population. More than 98% of the respondents have graduation or higher qualifications, which again shows that it is the educated category of the population who has widely adopted electronic banking channels. The median income of the respondents were between Rs 3 to 4 lakhs per annum which was much higher than the annual per capita income Rs 34,250 (for 2006-07) of Karnataka state, India. Similar studies done in other countries also show that it is mostly the well-educated and well-off youngsters, predominantly males who take to these electronic channel self-services. Out of the respondents 100% were using ATMs, 68.2% were using internet banking services, 32.9% were using tele banking services and 27.1% were using mobile banking services.

Table 1**:** Electronic banking delivery channel users and non-users

Electronic Banking delivery channel	Frequency (percentage)	
	Users	Non-users
ATM	553 (100)	------
Internet Banking	377 (68.2)	176 (31.8)
Tele banking	182 (32.9)	371 (67.1)
Mobile Banking	150 (27.1)	403 (72.9)

Comparison between users and non-users regarding hours of computer usage per day, frequency of internet browsing and internet browse hours

A comparison was made between the users and non-users of internet banking, tele banking and mobile banking across the parameters taken for measuring the extent of usage of computers and internet such as hours of computer usage per week, internet browse frequency and hours of internet browsing per week.

Table 2**:** Comparison between users and non-users regarding hours of computer usage per day

Technology-enabled banking self-service	Hours of computer usage per day* (mean)		t-test for equality of means	
	Users	Non-users	t-value	Sig. (2-tailed)
Internet banking	3.87	2.67	10.58	0.000
Tele banking	3.79	3.34	3.88	0.000
Mobile banking	3.89	3.34	4.91	0.000

*****5 = More than 6 hours per day, 4 = Between 3-6 hours per day, 3 = Between 1-3 hours per day, 2 = One hour or less per day and 1 = Hardly any

From the table 2 it is found that the hours of computer usage by users of technology-enabled banking self-services are significantly more than the non-users at 99% confidence level as the p-value is less than 0.01. This shows that the users are more experienced with computers than the non-users as they spend more hours using the computers. This result also shows that the users are more technology-oriented as it can be assumed that they are more comfortable with technology products such as computer by virtue of using the computers more.

Table 3**:** Comparison between users and non-users regarding their frequency of internet browsing

Technology-enabled banking self-service	Frequency of internet browsing* (mean)		t-test for equality of means	
	Users	Non-users	t-value	Sig. (2-tailed)
Internet banking	3.95	2.85	10.8	0.000
Tele banking	3.93	3.44	5.35	0.000
Mobile banking	4.02	3.45	6.6	0.000

*****5 =2/3 times daily, 4 = daily, 3 =2/3 times weekly , 2 = monthly, 1 = never used

The frequency of internet browsing is significantly high among the users of electronic banking as compared to the non-users at 99% confidence level since the p-value is less than 0.01 (table 3).

Table 4**:** Comparison between users and non-users regarding their hours of internet browsing per week

Technology-enabled banking self-service	Hours of internet browsing per week*		t-test for equality of means	
	Users	Non-users	t-value	Sig. (2-tailed)
Internet banking	3.19	2.05	11.68	0.000
Tele banking	3.05	2.72	2.93	0.004
Mobile banking	3.07	2.73	2.78	0.006

*****5 = More than 15 hours per week , 4 = Between 10-15 hours per week , 3 = Between 5-10 hours per week , 2 = Between 1-5 hours per week , 1 = Hardly any

From the table 4 it is also found that the hours of internet browsing are significantly higher for the users of electronic banking when compared with non-users. The p-values of the independent sample t-test are found to be less than 0.05 signifying the differences at 95% confidence level. From these two aspects it can be concluded that those who adopt technology-enabled banking self-services tend to browse internet more often and have greater familiarity in the usage of internet.

Usage frequency of electronic banking services by users

From table 5 it can be seen that it is the ATM service which is being most frequently used. Most of the users of ATM (74.3) use it at least once or twice a week. This show the popularity and widespread adoption levels which the ATM services have achieved. The key reasons for the same could be convenience it offers (Leblanc, 1990; Marr and Prendergast, 1991), the widespread availability of ATM locations, and 24 X 7 transactions facilitated.

Table 5**:** Frequency of use of electronic banking services

	Daily (%)	Weekly once or twice (%)	Fortnightly once or twice (%)	Monthly once or twice (%)	Number of Users
ATM	13.2	61.1	20.1	5.6	553
Internet Banking	9.8	34.2	30	26	377
Tele banking	6	20.9	29.1	44	182
Mobile Banking	8.7	16.0	37.3	33.3	150

Internet banking was the next widely adopted electronic banking service since about 44% (9.8 + 34.2) of its users were using the internet banking services at least once or twice a week. However, from the studies done in India it was found that even though most of the scheduled commercial banks except for the regional rural banks and cooperative banks were offering the internet banking services, there remained a considerable number of customers who were not using the internet banking services.

Tele banking services are not very popular since only 27% (6 + 20.9) of its users were using it at least once or twice a week. Most of the respondents who claimed to have used tele banking services were using it marginally with 44% of them reporting that they are using this service only once a month.

Mobile banking services also had marginal patronage as only about 24.7% (8.7 + 16) of its users were using it on a regular basis at least once or twice a week. Mobile phone banking services was the latest introduction to the technology-enabled banking self-services. Late introduction and limited number of banks offering mobile services currently might be the reasons for low usage rate of this service. Nevertheless, in future it is expected to have tremendous scope as a facilitator for banking transactions considering the high penetration of mobile telephones among Indian population with a subscriber base of 375.74 million as on March 2009 and growing at more than 13 million per month according to Wireless Federation (a wireless industry research conglomerate).

Duration/Length of usage of the electronic banking services

In order to analyse the adoption level of electronic banking services another parameter used is the length or duration of usage by the respondents.

From table 6 it is obvious that ATM services were well-adopted as about 59.7% of the respondents had been using ATM services for more than 3 years. In contrast to this the corresponding figures of internet banking services are 13.26%, that of tele banking services is 17.58% and the mobile banking services 4.67%.

Table 6: Length/Duration of usage by users of TEBSS

	(0-1) Yr (%)	(1-2)Yrs (%)	(2-3)Yrs (%)	More than 3yrs (%)	Number of users
ATM	1.8	14.1	24.4	59.7	553
Internet Banking	23.6	44.56	18.57	13.26	377
Telebanking	25.82	37.36	19.23	17.58	182
Mobile Banking	44	36.67	14.67	4.67	150

The lower period of usage of internet banking, tele banking and mobile banking services may be assigned to the fact that three years before the survey only a limited number of banks were offering these services. These services were being offered by foreign banks and a few private banks at that time, that too mainly in the metros and bigger cities. Very few public sector banks were offering these services and it is only in the past two to three years there has been increased provisioning of these services by the public sector banks. The very low figure of mobile banking services may be assigned to the fact that till a few years back only a few foreign banks like ABN Ambro bank and CITI bank, and a few new private banks like ICICI bank and HDFC bank were offering the mobile banking services. The mobile banking services was the latest electronic banking self-service to be offered by the banks, even while this study was going on it was only in its introductory phase.

With reference to the internet banking the largest percentage (44.56%) of the users had been using the services for a period between 1-2 years. In case of telebanking services the largest group of users (37.36%) had been using it for a period between 1-2 years. In the case of mobile banking services the largest group of users (44%) had been using the services for less than a year.

Perception regarding percentage of use of different banking channels

The respondents were asked regarding the average percentage of transactions usually conducted by them through different banking channels namely branch banking, ATMs, internet banking, tele banking and mobile banking.

Of the total percentage of banking transactions by the respondents their perception was that on an average they did 24.1% through branch banking, 54.65% through ATMs, 15.02% through internet banking, 3.51 % through tele banking, 2.21 % through mobile banking and 0.51% through other means.

Table 7: Comparative percentage of use of banking channels by users and non-users

Banking Channel	Average percentage of transactions	Internet banking (%)		Tele banking (%)		Mobile banking (%)	
		Users	Non-users	Users	Non-users	Users	Non-users
Branch banking use percentage	24.1	19.04	34.91	16.8	27.62	17.9	26.43
ATMs use percentage	54.65	51.41	61.57	48.92	57.4	46.47	57.72
Internet banking use percentage	15.02	22.03	0	18.85	13.18	19.17	13.46
Tele banking use percentage	3.51	3.99	2.49	10.66	0	8.11	1.79
Mobile banking use percentage	2.21	2.98	0.57	4.13	1.29	8	0
Other means (percentage)	0.51	0.55	0.46	0.64	0.51	0.35	0.6

*Other means is included to accommodate those transactions perceived to be conducted through other means like door to door banking, banking transactions using third parties etc.

The respondents perceive that their usage of ATMs for banking transactions is the maximum (54.65%), followed by branch banking transactions (24.1%) and internet banking is the second widely used technology-based banking self-service (15.02%). The usage of telebanking and mobile banking is marginal at 3.51% and 2.21%

respectively. Out of all the technology-enabled banking self-services it is the ATMs which are most widely adopted, followed by internet banking while tele banking and mobile banking services are the least adopted. Branch banking is still important in Indian conditions as it is found to be second most used channel after ATMs (table 7).

Banking channel usage by users and non-users of electronic banking services

The use percentages of banking channels by users and non-users of technology-enabled banking self-services are compared and the results are shown along with the average percentage of the respondents taken together. From table 9 the percentage of use of various categories of users and non-users is examined.

Internet banking users

The users of internet banking on an average did 22% of their total banking transactions through internet banking. However they relied mostly on ATMs to conduct majority of their transactions (51.41%), which is understandable as most important transactions like cash withdrawal and cash/cheque deposit cannot be conducted over internet banking. But their reliance on branch banking transactions is found to be less than that of average respondents (19.04%). Their usage of telebanking and mobile banking was marginal at 3.99% and 2.98% respectively, which was slightly above that of average respondent.

Internet banking non-users

Internet banking non-users use ATMs (61.57%) the most followed by branch banking (34.91%). Their usage of telebanking and mobile banking was below average in comparison with that of the total respondents with values of 2.49% and 0.57%.

Tele banking users

The tele banking users on an average did about 10.66% of their transactions over the tele banking. Their usage of branch banking and ATMs was less than that of an average respondent with figures of 16.8% and 48.92% respectively. Their usage of internet banking was higher than that of an average respondent at 18.85%. Interestingly their usage of mobile banking at 4.13% was not only higher than that of an average respondent, it was even more than that of an average internet banking user.

Tele banking non-users

Tele banking non-users relied more on branch banking and ATMs than an average respondent at 27.62% and 57.4%. However their usage of internet banking at 13.18% and mobile banking at 1.29% was below that of an average respondent.

Mobile banking users

Mobile banking users, on an average, did 8% of their transactions in the mobile banking mode. They used lesser of branch and ATM transactions which were 17.9% and 46.47 respectively which is well below the same in case of an average respondent. Average mobile banking users did more than average internet banking and tele banking which

were19.17% and 8.11% respectively.

Mobile banking non-users

The mobile banking non-users used branch banking and ATMs marginally more than the average respondent at 26.43% and 57.72% respectively. They used internet banking and tele banking lesser than average respondents at 13.46% and 1.79% respectively.

To conclude, it was observed that users, in general, used less of branch banking and ATMs as compared to the non-users. They used more of the electronic banking channels such as internet banking, tele banking and mobile banking.

Discussions

Majority of the respondents in this study have computer and internet access and they are also mostly proficient in using them. The users of internet banking, tele banking and mobile banking are in general found to be spending more hours using computers and internet than non-users of these services. The hours of computer usage, the frequency of internet usage and hours of internet browsing were found to be significantly higher among users as compared to non-users of technology-enabled banking self-services. Hence banks can target those customers whose usage of computers, internet and other technology products are relatively on the higher side.

When the perception regarding the usage of various banking channels as compared between users and non-users, it was found that users in general used less of branch banking and ATMs as compared to non-users. They used more of the electronic banking channels such as internet banking, tele banking and mobile banking.

Frequency and duration of usage of the respective electronic self-services among ATM users shows that this mode of banking has, in fact, become the most popular one, surpassing the traditional branch banking. However, frequency and duration of the usage of internet banking is a distant second showing that there is much scope for improvement pertaining to its usage, while the same regarding tele banking and mobile banking is only marginal. Similar pattern is seen in the perceived use percentage with maximum usage perceived through ATMs, followed by branch banking and internet banking, with only minimal use through tele banking and mobile banking.

Managerial Implications

The banks have to target those customers whose usage of computers, internet and other technology products are on the higher side for promoting electronic banking services usage.

The banks have to encourage the existing users of internet banking, tele banking and mobile banking to use these services more frequently, as the study showed that the majority of the users are not even using these services at least once a week.

The banks could encourage customers to use these services more frequently through rewarding customers for conducting transactions through these electronic channels with

incentives such as reduced service charges. For instance, ICICI bank had launched a pure online banking savings account in July 2008 called 'b2-Branch-free-Banking', the advantages of which includes 'zero minimum balance', 'zero charges for fund transfer', 'online bill payments', 'mobile top-ups' and 'multi-layered security' (Business Line, 8th July08).

Only if the users start using all kinds of services within the ambit of the electronic banking would the adoption of these services would be complete and the users would then derive maximum benefit from these electronic banking channels.

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