CUSTOMERS' PERCEPTION ON ATM USAGE IN COIMBATORE CITY

SUBMITTED BY

L.SAGANA

(12PEC011)

A DISSERTATION SUBMITTED TO THE
AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND
HIGHER EDUCATION FOR WOMEN, UNIVERSITY
COIMBATORE-641 043

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE
DEGREE OF MASTER OF ARTS IN ECONOMICS

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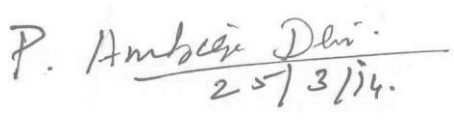
CERTIFIED AS BONAFIDE RESEARCH WORK



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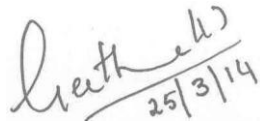

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CHAPTER I
INTRODUCTION

Infrastructural development is the yardstick for measuring the magnitude of economic development of a nation. Among the different sectors that contribute to economic development of a nation, banks plays a pivotal role as it promotes savings in the economy, speeds up capital formation and is a source of finance for trade and industry. Growth in the banking sector benefits other sectors as well. The trickle-down theory of economic growth or top down approach works if banks are kept at the apex. Gains to the entire economy depend on how efficiently the banks function, performs the basic function of intermediation at a minimum cost while avoiding systematic instability. Last couple of decades witnessed substantial changes in banking system; primarily led by globalization and financial liberalization. Responding to these changes, banking system is continuously expanding the choice of services offered to the customers and increasing their reliance on technology to offer such services (Al-Smadi and Al-Wabel, 2011). Further, intensified competition is continuously forcing banks to find new markets and expand their customer base. Here again, banks are looking towards information and telecommunication technology as panacea; so they are rapidly adopting electronic channels to reach their target markets (Al-Smadi, 2012). Banks are increasing their technology-based service options to remain competitive. The number of bank customers preferring to use self- service delivery systems is on the increase. This preference is attributed to increased autonomy in executing the transactions.

Fierce competition from inter and intra bank group along with the global forces have compelled the banks to adopt the technological changes to face the electronic age. The influence of technology over product innovations in banks is enormous. One of the channels of banking service delivery is through the ATMs or Automatic Teller Machines of which the traditional and primary use was to dispense cash upon insertion of a plastic card and its unique Personal Identification Number (PIN). ATM is such type of innovation that can mechanically accept deposits, issue withdrawals, transfer funds between accounts and collect cheques. The ATM is an innovative service delivery mode that offers diversified financial services like cash withdrawal, funds transfer, cash deposits, payment of utility and credit card bills, cheque book requests, and

other financial enquiries. The trend in banking has, thus, evolved from cash economy and transformed to cheque economy which has further been converted to plastic card economy. Within two decades, ATM technology development is happening at an alarming rate. Gone are the days when customers were limited to only withdrawing cash from ATM's. We have now reached an era, where we can use multi-function and biometric ATMs, equipped with touch sensitive and user friendly options to transfer funds, book air and train tickets, go for mobile recharge, and even deposit cheques with scanning.

Automated teller machines offer significant benefits to both banks and their depositors. The machines enable depositors to withdraw cash at more convenient times and places than during banking hours at branches. At the same time, by automating services that were previously completed manually, ATMs can reduce the costs of servicing some depositor demands. These potential benefits are multiplied when banks share their ATMs, allowing depositors of other banks to access their accounts through a bank's ATM. Banks have become the principal deployers of ATMs. Two reasons for this are that they want to increase their market share, although due to the prevalence of ATMs, it is not likely to be the primary means by which ATMs increase profitability for most banks; or/and above a certain level of operations, the cost of a single transaction performed by an ATM is potentially less than the cost of a transaction conducted by a teller, as ATMs are capable of handling more transactions per unit of time than are tellers (Laderman, 1990).

The development of ATM has gone through many stages; it started from its baby stage in the late 1930s and then geared up for longer runs in the 1960s, and finally a matured and stable stage that we see today. The idea of self service in retail banking developed through independent and simultaneous efforts in Japan, Sweden, the United Kingdom and the United States. In the USA Luther George Simijian has been credited with developing and building the first cash dispenser machine. The rollout of this machine called Bankograph was delayed by a couple of years but removed six months after installation due to lack of customer acceptance. The Bankograph was an automated envelope deposit machine (accepting coins, cash and cheques) and it didn't have cash dispensing features. The first cash dispensing device was used in Tokyo in 1966. Although little is known of this first device, it seems to have been activated by a debit card rather than accessing current account balances. It was followed in 1967 by a machine in

Uppsala. Developments have been made since then to improve services offered by banks through ATMs. Undoubtedly, most of the ideas and patents contributed for makeover of the ATM from time to time form the backbone of what was initiated as “holes in the wall”.

Today, ATMs hold a strong foothold in the world, offering everyone a better access to their money, be it in any corner of the world. There are about 1.8 million ATMs in use around the world with ATMs on cruise and navy ships, airports, newsagents and petrol stations. ATMs too have been categorized as on and off premise ATMs. On Premise ATMs are capable to connect the users to the bank with multi-function capabilities. Off premise ATM machines on the other hand are the "white label ATMs" and are limited to cash dispense. Within two decades, ATM technology development is happening at an alarming rate. Gone are the days when customers were limited to only withdrawing cash from ATM’s. We have now reached an era, where we can use multifunction and biometric ATMs, equipped with touch sensitive and user friendly options to transfer funds, book air and train tickets, go for mobile recharge, and even deposit cheques with scanning (Kumar, et.al.2011). ATMs are placed not only near or inside the premises of bank but also in locations such as shopping centers/malls ,airports ,petrol/gas stations, restaurants or anywhere frequented by large numbers of people.

According to the survey conducted by the Retail Banking Research (RBR) on “Global ATM market and forecast to 2011”, the global ATM installed base will expand to over 440,152 units by 2011. As per its report there were 1544,853 ATMs operating worldwide at the end of December 2005 and it may increase to 1,985,805 by the end of 2011. The emerging markets of Central and Eastern Europe, Middle East, Africa and continued growth in Asia Pacific will drive this growth. No doubt that all over the world, this explosive growth of ATMs may be driven by customer demand for greater convenience. Of 1,985,805 global ATMs operating worldwide in 2011, Asia-Pacific region accounted for the largest regional ATM market with 32.3 percent of the global market. North America is in the second position with 468,000 machines, accounting for 23.57 percent of the global market, followed by Western Europe region with 384,655 ATMs. (Karamala and Anchula, 2012).

As per the Global ATM Market and Forecasts to 2016, the maximum growth of ATMs is happening in Asia pacific region. India and Indonesia are having one-fourth of the number of ATMs, and China is accounted for half of the New ATMs. Worldwide growth of ATMs is steadily increasing. The number of ATMs is expected to go up from 1,647,644 in 2006 to 3,195,880 in 2016. The growth of ATMs in Western countries and other advanced countries has reached a mature stage. However; there is a lot of scope of growth of ATM industry in developing countries like India (Hota, 2013).

The Indian ATM Industry

In India, HSBC set the trend and set up the first ATM machine in1987.Banks have been deploying ATMs to increase their reach. While ATMs facilitate a variety of banking transactions for customers, their main utility has been for cash withdrawal and balance enquiry. At the end of October 2007, the number of ATMs deployed in India was 31,078. According to some estimates the total cash movement through ATMs across India was around Rs. 70,000 crore. As of October 2012 the total number of ATMs was 1, 04,500. Public sector banks and the State Bank group with about 61,500 ATMs accounted for 59 per cent of the ATMs. The private sector and foreign banks put together have about 41,800 ATMs accounting for 40 percent of the ATMs and the balance 1 per cent represents about 1,150 ATMs that have been deployed by co-operative banks/ RRBs. The State Bank of India (SBI) is the oldest and largest bank in the country. Its origins go back to the first decade of the 19th century, when the Bank of Calcutta was established on 2 June 1806. The bank got its present name after an Act of Parliament in May 1955 and the State Bank of India was constituted on 1 July 1955. Today, SBI has a phenomenal 9,559 branches and its ATM network is spread across 6,473 of its own locations and total 8,000 ATMs including of those of its associate banks. From the first ATM set up 25 years ago, its footprint has increased to more than 100,000 today bringing banking services closer to the customers. (Krishnsan, 2013).

Taking a look at the number of branches and ATMs in different bank groups in India, at the end of 2009, foreign banks were operating in India with 277 branches. Of these, only seven major foreign banks have installed ATMs in India. The aggregate number of ATMs installed 1,034 far exceeded the number of branches (277). Thus, ATMs as a percentage of total branches

stood at a whopping 377.4 percent for foreign banks in 2007-08. New private sector banks also have more ATMs than branches, the percentage being 279.9 percent. However, in the case of old private sector banks, SBI group and nationalized banks this percentage was 47.2 percent, 55.8 percent and 35.4 percent respectively, with branches exceeding ATMs in numbers (Sujatha and Sugunalakshmi, 2009).

There are basically two types of ATM installations, namely, on-site ATMs and Off-site ATMs. On-site ATMs are installed inside the premises of the bank or adjacent to the bank branch, while off-site ATMs (a site away from the branch) are installed at various locations such as airports, railway stations, petrol pumps, malls, shopping centers, restaurants, colleges, commercial areas or places where the bank does not have a service branch nearby. Of all the ATMs installed in the country, by the end of March 2009, New Private sector Banks had the largest share of off-site ATMs (7480) , while nationalized banks had largest number of on-site ATMs (9861). Off-site ATMs as a percentage of total ATMs was highest in case of foreign banks (74.4 percent), followed by new private sector banks (59.2 percent), SBI group (37 percent), nationalized banks (34.4 percent) and Old private sector banks (31.6 percent) as on March 2009. In order to expand the number of off-site ATMs, SBI had entered into an agreement with Ministry of Railways for installation of off-site ATMs at railway station across the country. Some banks like State Bank of India, State Bank of Patiala, Citi Bank, Bank of India, ICICI bank and Jammu and Kashmir Bank have deployed mobile ATMs, in order to reach remote areas that may not have a large enough population for the bank to invest in an ATM centre.

As per an interaction with senior general managers (South Asia channel partners and strategic alliance), ATM segment witnessed a growth rate of 30 percent since last 5 years in India. ATM terminals in India are expected to grow at a compound average growth rate of 25 percent between 2011 and 2015. There is now a major focus on financial inclusion, which means ATMs should have a wider reach in rural and remote corners of the country. There is also a huge demand from the urban population who are looking for instant services, alongside seeking to avail more value-based features. As per RBI, for ATM industry, India is a huge market. It is a place with 1.2 billion people, where 40 percent of them were unbanked. As per the ATM Statistics computed by Reserve Bank of India, total number of onsite and offsite ATMs of all Indian Banks are 100042 by July 2012. As of October 2012 the total number of ATMs was

1,04,500. Public sector banks and the State Bank group with about 61,500 ATMs accounted for 59 per cent of the ATMs. The private sector and foreign banks put together have about 41,800 ATMs accounting for 40 per cent of the ATMs and the balance 1 per cent represents about 1,150 ATMs that have been deployed by co-operative banks/ RRBs.

Research Gap

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 review of literature suggest that most of the studies have been done on issues related to Internet banking in countries like USA, UK, Malaysia, Singapore Finland, Australia (Sathye, 1999; Mukti, 2000; Wang et al, 2003; Gerrard and Cunningham, 2006 etc.) However, not sufficient work has been done in India with regard to ATM service and customer satisfaction issues. This is the gap which the study intends to fill. Against this background, this study attempts to answer the following research questions; what are the levels of access and utilization of ATM by the bank customers in the study area? What are the real benefits and challenges of using the machine? Based on the customers' real experiences, how do they evaluate the ATM services? Is there any association between the customer's socio-demographic characteristics and their evaluation of ATM services.

Rationale for the study

Rapid changes in the financial services environment; increased competition by new players from non-banking sector, product innovations, globalization and technological advancement, have led to a market situation where battle of customers is intense. In order to rise to the challenges, service providers are even more interested to enhance their understanding of consumer behaviours patterns. Customer satisfaction has significant relationship with customer retention because satisfied customer retain with the organization, while the unsatisfied customer from the services received from organization, would no longer have relation with the organization . Indian banks after financial sector reforms since 1991 have leveraged technology and have introduced an array of products and services with the intention to increase their market share. ATM is an alternate delivery channel for host of banking services. Since April 2009,

customers can use the entire ATM network in the country for various banking services. This study examines the extent of use of ATM based services by customers and the emerging issues for making ATMs a single window self-service Centre for enhancing customer service. This study is very helpful to find out the positive and negative responses and features required by the customers for satisfaction and retention. The bank management can make decisions for improving and maintaining the ATM service quality.

Statement of the Problem

Though ATM has become ubiquitous in India, its widespread adoption by bank customers yet remains unclear. It appears that customers' perception of the technology differ which affects the decision to use or not to use ATMs. Ideally, ATMs are set up to provide 24 hour service to bank customers who cannot transact with banks in the same period of time. Nevertheless, it is observed that banks still have long queues of customers transacting with tellers within banking halls. Also, the patronage of the ATM is not well defined as it is observed that sometimes long queues are seen at ATM Centre while at other times, there are few or no customers waiting to use the ATM. As a technology, the ATM is supposed to make life easier and more efficient for customers and at the same time increase banks' turnover. It is therefore necessary to study and understand the reason for this and help banks establish and maintain a strong profit base by way of improving ATM services, if need be, to better satisfy customer needs.

Objectives of the Study

The specific objectives are to:

- Examine the socio-economic profile of the selected respondents'.
- Analyze customer's knowledge on ATM services.
- Determine customers perception on the benefits associated with ATM services.
- Identify the problems faced by customers while using ATM services.
- Offer suggestions to overcome the problems in ATM services in near future.

Hypothesis

In the course of the study the following hypotheses will be examined;

- The frequency of usage is independent of socio-economic profile of the usage.
- ATM service was preferred by bank customer for quick cash withdrawal only.
- Perceived usefulness, ease of use and convenience had significant effect on ATM usage.
- Cost and security were the major factors hindering the use of ATM services.

The findings of the study would help the financial institutions to segment their target market, retain their customers and strengthen the relationship while capitalizing the new technology towards ensuring the profitability of the bank. The findings are expected to make the industry at large aware that ATM system use can easily be attained by sensitizing customers about usefulness and ease of use of the system.

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

The review of literature for the present study is discussed under the following heads:

I. Importance of Adoption of Banking Technology.
II. Significance of ATM Services.
III. Positive and Negative Factors in Adoption of ATMs.
IV. Related Studies.

I. Importance of Adoption of Banking Technology

There are several competitive advantages associated with the adoption of technology in the banking sector, including the creation of entry barriers, enhancement of productivity, and increased revenue generation from new services (Fitzsimmons and Fitzsimmons, 1997). Delivery methods have become an increasingly important technique to retain customers in today's dynamic banking environment since customers can make withdrawals, deposits and access balances at their own convenience (Tanzi, 1997).

In the world of banking, the development of information technology has an enormous effect on development of more flexible payments methods and more-user friendly banking services. Internet banking involves, consumer using the Internet to access their bank account and to undertake banking transactions. At the basic level, Internet banking can mean the setting up of a web page by a bank to give information about its products and services. At an advanced level, it involves provision of facilities such as accessing accounts, transferring funds, and buying financial products or services online. This is called "transactional" online banking (Sathye, 1999).

Last couple of decades witnessed substantial changes in banking system; primarily led by globalization and the choice of services offered to the customers and increasing their reliance on technology to offer such services (Al-Smadi& Al-Wabel, 2011). Further, intensified competition is continuously forcing banks to find new customer base. Here again, banks are

looking towards information and telecommunication technology as panacea; so they are rapidly adopting electronic channels to reach their target markets (Al-Smadi, 2012). Electronic banking is a bigger platform than just banking via internet i.e. online banking (Alagheband, 2006).

According to Prakash and Malik (2008), electronic banking (further referred as e-banking) is the application of telecommunication technology that enables individuals or business to access accounts, transact, or obtain information on financial products and services. It may include different channels viz. Automated Teller Machine (ATM), Electronic Transfer of Funds (EFT), Internet Banking, Phone Banking, Electronic Clearance System (ECS) (Kolodinsky et al., 2004; Nitsure, 2003).

Pyun et al (2002) for example, note that banks have moved quickly to invest in technology as a way of controlling costs, attracting customers and meeting convenience and technical expectations of their existing customers. Joseph and Stone (2003) also note that the instalment of customer friendly technology (such as menu-driven automated teller machines, telephone and internet banking service) has become commonplace in recent years as a way of maintaining customer loyalty and increasing market share. According to Alu (2000), information technology affects financial institutions by easing enquiry, saving time and improving service delivery. Similarly, Yasuharu (2003) found that the implementation of information technology and communication networking has brought revolution in the functioning of the banks and the financial institutions. A number of studies (Balachandher et al, 2001; Idowu et al, 2002; Yasuharu, 2003) have concluded that information technology has appreciable positive effects on bank productivity, cashiers' work, banking transaction, bank patronage, bank service delivery, customers' services and bank services. They concluded that, these have positive effect on the growth of banking.

Mannan Syed Abdul (2010) attempted to analysis the implementation of technology in Indian banks and understanding the customers' perception. This study was based on the survey and the data was collected through the issue of questionnaire to the bank's customer. The results show that customers are satisfied with technology-oriented bank's products and services. The empirical findings not only determine the different parameters also provide guidelines to bankers

to focus on the parameters on which they need to improve and spread the awareness of electronic banking products and services to each and every section of the society.

Joshua A J and Moli P Koshy (2011) observe that 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 sector banks but now it is seen that the traditional banks in the public sector are also increasingly pursuing technology.

Tater Bindiya, Manish Tanwar, and Krishna Murari (2011) in their paper explores the perception of Indian customers towards the use of technologies with respect to such factors as convenience, privacy, security, ease of use, real time accessibility, and accurate record of varied transaction that enable customer's adoption of Banking Technology. Other factors such as slow transfer speed, technical failure, frauds and unawareness among customers that make hindrance in adoption, are also tested. The results show that demographic variables such as gender, age, qualification and income play a positive role in adoption of banking technology. All the banks are using information technology as a strategic vehicle to stay competitive against other players. There was no significant difference between adoption rates of banking technologies by the customers of different private banks. The paper also shows that banking technology helps in increasing customer satisfaction, customer loyalty, improvised growth, and performance of the banks.

Discussing the advent of new technology ,Falaye, Adepoju, Robert and Alabi, (2013) argues that the continuous advances in internet technology characterized by a complex and competitive environment have brought huge impact on business operations and have in particular brought about a paradigm shift in banking operations. In a bid to catch up with global development, improve the quality of service delivery, and reduce cost of transactions, the application of information and communication technology concepts, techniques, policies and

implementation strategies to banking services is now a subject of fundamental necessity and concern to all banks and indeed a prerequisite for local and global competitiveness in banking.

According to Krishna Mahalakshmi (2013), **"**Technology has greatly helped the banking sector to smoothen their interaction with the customers. With rapid advancements in ICT, alternate channels are made available to customers. ATMs have replaced tellers. This has considerably reduced the transaction cost for the banks and the customer has the choice of withdrawing money anytime, anywhere, whereas previously he was restricted to the business hours of the bank. With the advent of internet, online banking has further simplified transactions. Customers can easily make funds transfer from one account to another and make online purchases. With the advent of wireless mobile telephony, mobile banking as a means of anytime anywhere banking has come to stay. The services offered in mobile banking are information based, transaction based and relationship based. Banks are also using mobile banking as a marketing medium to promote their products and services".

II. Significance of ATM Services.

The history of ATM can be traced back to the 1960s, when the first ATM machine was invented by John Shepherd-Barron, managing director of De La Rue Instruments. That machine was used by Barclays Bank (Barclays Bank in Enfield Town in North London, United Kingdom) in 27 June 1967 (Wikipedia E-encyclopedia). However, the first bank to introduce the ATM concept in India was the Hong Kong and Shanghai Banking Corporation (HSBC) in the year 1987 followed by Bank of India in 1988. According to R.B.I. Annual Report (2008-09) almost all commercial banks are providing ATM facilities to its customers and till date 27,277 ATMs were installed by public sector banks and 15320 ATMs by private sector banks in India.(Kumbhar, 2011).

ATM is the abbreviation of automated teller machine which acts as a teller in a bank who takes and gives money over the counter and it was the first well known machines to provide electronic access to customers. With the appearance of automated teller machine, banks are able to serve customers outside the banking hall because ATMs are placed inside or near the banks and also outside the banks such as shopping malls, restaurant, airports or any places that people

may gather. ATM is designed to manage the most important function of bank. ATM services includes some function such as cash withdrawal, balance enquiry, bill payment, cash and cheque deposit, saving and credit account. With appearance of ATMs, some limitation of time and geographic location has been resolved. ATMs undoubtedly are one of the most popular delivery ways for banking services in Malaysia.

In most developing economies, the automation of banking services has become a critical factor in the process of attaining efficiency in delivering customer services. Many banks have pursued the development of technology-driven strategies towards meeting customer preferences. The ATM is one tool that has played a pioneering and pivotal role in advancing the technological transformation of banking. According to Leblanc (1990), the main reason for using ATMs was the accessibility factor. This factor involved the ATM users' perceptions of it being fast, easy to use, improving the quality of service, and reducing costs. The ATM technology has advanced faster than changes in the habits of customer (Stanley, 1983). Stevens *et al*. (1986) suggested that ATM users who adopted this form of service payments as an integral part of their banking methods should obviously become the prime targets of any new ATM features and other automated banking innovations. This suggestion is based on the premise that the relationships between banks and their customers might change through the introduction of new technologies (Barnes, 1997).

The concept of ATM is quite old and has been developing throughout. No doubt, a fair number of theoretical and empirical researches have been undertaken throughout the world. Moutinho (1992) established that ATM facility resulted in speed of transactions and saved time for customers.

The ATM flourishes within societies where time is precious and money readily available. This culture is composed of individuals, who have personal bank accounts and access to a wide range of technology. For these people, ATMs are convenient and reliable everyday artifacts: push a few buttons and get your money. As ATMs cross new borders and pervade different cultures, we need to understand the role of cultural characteristics on people's perception of, attitudes towards, and action on, the machine. This understanding is instrumental in facilitating

technology uptake and improving design localisation, or the process of infusing a specific cultural context into products designed for different cultures (Carey, 1998).

Stuart E. Weiner (1999) pointed out that the total number of ATM transaction has more than doubled over the last ten years and is estimated to reach near 11 billion and total number of ATM terminals in United States has tripled over last ten years. This shows that ATM cards have become the most popular non-cash instruments in US and its popularity has been explosively increasing throughout the world.

Shastri (2001) analysed the effect and challenges of new technology on banks. He found that technology has brought a sea of change in the functioning of banks and use of ATMs has increased with the passage of time. Cabas (2001) noted investment opportunities, reduction in costs, satisfaction of customers and competitiveness as motives to install and add new ATM to the existing network.

In another article James J. Mcandrew (2003) talked about the various utilities of ATMs which has given worldwide popularity. The utilities include withdrawal of cash as per convenience of the customers than during the banking hours at branches. Besides providing off time and off shore services, there was reduction of cost of servicing.

Globally, Automatic Teller Machine (ATMs) has been adopted and is still being adopted by banks. They offer considerable benefits to both banks and their depositors. The machines can enable depositors to withdraw cash at more convenient times and places than during banking hours at branches. In addition, by automating services that were previously completed manually, ATMs reduce the costs of servicing some depositor demands. These potential benefits are multiplied when banks share their ATMs, allowing depositors of other banks to access their accounts through a bank's ATM (McAndrews, 2003). Banks have become the principal deployers of ATMs. Two reasons for this are that they want to increase their market share, although due to the prevalence of ATMs, it was not likely to be the primary means by which ATMs increase profitability for most banks; or/and above a certain level of operations, the cost of a single transaction performed at an ATM is potentially less than the cost of a transaction

conducted from a teller, as ATMs are capable of handling more transactions per unit of time than are tellers (Laderman, 1990).

Singh Sultan and Komal (2009) point out that the Indian ATM industry has seen explosive growth in recent times. ATMs represent the single largest investment in the electronic channel services for the Banks. In India, HSBC set the trend and set up the first ATM machine here in 1987. Since then, they have become a common sight in many of our metros. Automated Teller Machines (ATMs) have gained prominence as a delivery channel for banking transactions in India. Banks have been deploying ATMs to increase their reach. While ATMs facilitate a variety of banking transactions for customers, their main utility has been for cash withdrawal and balance enquiry. As at the end of October 2007, the number of ATMs deployed in India was 31,078. According to some estimates the total cash movement through ATMs across India was around Rs. 70,000 crore in 2006. Clearly, industry watchers forecast a bright future for ATMs in India. While the ATM is a great service for customers, for the banks it means immense savings on the cost of operations. While a typical cash transaction carried out in a bank's branch premise would cost Rs 40 that in an ATM will only cost Rs18 translating into a cost saving of Rs 22 per transaction.

Pravin and Hossain(2010) discussing the significance of ATM observe that "Debit card is a great financial tool, a source of plastic money, which is used every day for making life easier by giving access to cash while transacting. As a part of "electronic banking," the importance of debit card has been increased day by day. Banks are the financial institutions that provide different services through deposit products, loan-products, etc. Debit card is one of the prominent card services related to deposit-products, which offers customers 24- hours banking access, such as cash withdrawal, purchasing of goods and services, etc. But sometimes customers have to face many problems i.e. non-availability of Taka, network problem, lack of desired value denominated notes and so on."

Pijush Chattopadhyay and Saralelimath (2012) observes that one of the most popular channels of banking service delivery is through the ATMs or Automated Teller Machines of which the traditionally and primary use was to dispense cash upon insertion of a plastic card and its unique Personal Identification Number (PIN). ATM is such type of innovation that can

mechanically accept deposits, issue withdrawals, transfer funds between accounts, collect cheques, recharge mobiles and offer a vast variety of facilities to customers.

Sounding a note of caution Shaikh and Shah (2012) observes that "ATM occupies an important position in the e-Banking portfolio. It has given the consumers a quality of life allowing them to access cash and other financial information. Its role in promoting, developing and expanding the concept of 'Anytime, Anywhere, Anyplace", banking is undeniable. It offers a real convenience to those who are on the run in their everyday life, but at the same time, it also carries a big element of risk."

Kani, Melba and Merlin Thanga Joy(2013) observes that "the most commonly used delivery channel introduced for financial services is the ATM. ATM is a cash rending teller machine. This helps a bank customer to withdraw money from his account without having to go to the bank. ATM is a user friendly, computer driven system, which operates 24 hours a day, 7 days a week. A totally menu-driven system, it displays easy-to-follow, step-by-step instructions for the customer".

III. Positive and Negative Factors in Adoption of ATMs

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 percent 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.

Wan et al. (2005) studied the customers' adoption of banking channels in Hong Kong. They covered four major banking channels namely ATM, Branch Banking, Telephone Banking and Internet Banking. The study segmented the customers on demographic variables and psychological beliefs about the positive attributes processed by the channels. The psychological

factors were ease of use, transaction security, transaction accuracy, speediness, convenience, time utility, provision of different personal services, social desirability, usefulness, economic benefits, and user involvement.

Singh Sultan and Komal (2009) examined the impact of ATM on customer satisfaction. This was a comparative study of three major banks i.e. State Bank of India, ICICI bank and HDFC bank. A sample of 360 respondents equally representing each bank has been taken and the data was collected through questionnaire. The study concludes that material satisfaction level was highest in SBI, followed by ICICI Bank and HDFC Bank. This was due to the size of the respective bank and number of years of its establishment. But according to abstract customer satisfaction i.e. in terms of efficiency and performance, HDFC Bank was in 1st position, ICICI Bank in 2ndposition, and SBI in the third position. Material customer satisfaction level was highest for SBI at 79 percent, followed by ICICI Bank with 77 percent and HDFC Bank with 73 percent. The average customer satisfaction level was highest in HDFC bank with 70 percent, 60 percent in ICICI Bank and 55 percent in SBI.

Wole Michael Olatokun and Louisa Joyce Igbinedion (2009) tested the attributes of the theory of Diffusion of Innovation empirically, using Automatic Teller Machines (ATMs) as the target innovation. The population comprised banks customers in Jos who used ATMs. The sampling frame technique was applied, and 14 banks that had deployed ATMs were selected. Cluster sampling was employed to select respondents for the study. Data collection instrument was a structured questionnaire administered to 600 respondents of which 428 were returned giving 71.3 percent return rate. Principal Factor Analysis and Multiple Regression were the analytical techniques used. The demographic characteristics of the respondents revealed that most of them were students and youths. From the factor analysis, it was revealed that the respondents believed in their safety in using ATM; that ATMs were quite easy to use and fit in with their way of life; that what they observed about ATMs convinced them to use it and that ATM was tried out before they used it. The constructs Relative Advantage, Complexity, Compatibility, and Trial ability were all found to have a significant impact on the Attitude towards ATM, which in turn had a significant impact on the Intention to use it. Relative Advantage and Compatibility had almost the same weight of impact on Attitude; while Observability had the highest impact on attitude. To increase the diffusion of ATMs, it was

recommended that banks should ensure enhanced salience of ATM to customers' needs, greater compatibility of ATM to customers banking norms and lifestyle, less complex and easy to use system and opportunity for adopters to experiment with the system before using ATMs.

Adepoju and Alhassan (2010) carried out an empirical research to analyses the cases of ATM usage and fraud occurrences within some banks in Mina. The research identifies the common ATM fraud, how, where and when these frauds are perpetuated and then proffer security recommendation that should be adhered to by both the banks as financial institutions and the ATM users in order to eliminate or reduce it to the barest minimum.

Muhammad Asif Khan (2010) investigated significant dimensions of ATM service quality and its effect on customer satisfaction. Questionnaire was used to collect the data from a convenience sample of 500 customers of multinational and national banks. Regression results indicate that convenience, efficient operation, security and privacy, reliability and responsiveness are significant dimensions of ATM service quality and that ATM service quality positively and significantly contributes toward customer satisfaction.

Pravin and Hossain (2010) in their paper reveal how much debit card users of banks in Bangladesh are satisfied. The study has used both primary and secondary data**.** Primary data are collected by interviewing the cardholders using a questionnaire (which includes both open-ended and closed-ended questions).The sample size of the study was 200 selected from nine private commercial banks located in Khulna city using convenient sampling method .Findings reveal that on an average debit card users are satisfied. Regarding availability of Taka in the ATM booth, users are most satisfied and regarding network service users are least satisfied. By improving network service, providing receipt after transactions and solving of problems promptly, banks can make their debit card users fully satisfied.

Hazlina Abdul Kadir, NasimRahmani and Reza Masinaei (2011) tried to identify the effects of services offered by Malaysian banks through online media and ATMs on customer satisfaction. About 500 students from different universities in Malaysia including University of Malaya, University Kebangsan Malaysia, University Putra Malaysia, Multimedia University Malaysia and Limkokwing University was chosen as a sample frame of the study. Questionnaires

were distributed among them and they were asked to respond to questions which ask about their perception as well as experience. Two analyses are employed to fully reflect the effect of online and ATM services on their satisfaction level. The first one was service quality model which compares the difference between satisfaction and expectation level in order to find out which dimensions need to be improved. Second analysis was Two-Way ANOVA analysis which tried to identify the relationship between demographic factors and the study's outcome. Finally, the study determined which factors have the most effect and which factors have the least effect on customer satisfaction level. Findings revealed that after summarizing all demographic, perception and expectation information, gaps of online banking and ATM services in Malaysia were found. Three out of 11 dimensions of ESERVQUAL model are found unable to respond customers' need. These dimensions are responsiveness, customization, and flexibility for E-SERVQUAL model which was applied for online banking system in Malaysia. Therefore, Malaysian anchor banks are required to improve their services related to these dimensions in order to fulfill the customers need. On the other hand, tangible and responsiveness dimensions out of 5 dimensions of SERVQUAL model are found unable to fulfill the respondents demand as well. So, ATM services related to these dimensions need for further enhancement to satisfy customers.

Kumbhar, Vijay M. (2011**)** in his study provides a preliminary comparative investigation of the customer satisfaction in ATM service of public and private sector banks in India. For this investigation primary data was collected from 150 respondents of public and private sector banks through a structured questionnaire. Collected data was analyzed according to the objectives of the present research and results of the statistical analysis indicates that private sector banks are providing more satisfactory ATM service as compared to public sector banks. Empirical evidences indicates that customers perception about efficiency, security and responsiveness, cost effectiveness, problem handling and compensation and contact service related to ATM service was low in both public and privates sector banks (ranging between 3.00 to 3.50). Therefore both types of banks should be aware about these aspects of ATM service to enhance customers' satisfaction.

Sanda Mohammed-Aminu and Eric Arhin (2011) in their study explored the issue of whether the use of the Automated Teller Machines (ATM) as a service delivery tool in the banking industry of many developing countries has achieved its intended objective of increasing the effectiveness of customer service provision and reducing the workload of bank tellers. The purpose was to understand customers' behaviour towards the use of ATM as a banking service delivery tool, and the influence of such customer-usage behaviour on the banks' human resource capacity building, in terms of employee workload relief and performance. This was because most banks in sub- Saharan African countries have introduced the ATM in bid to satisfying customers' service needs and making the work of employees easier. Data was collected using questionnaires that were administered to bank customers who use the ATM facility, as well as bank managers. The findings showed that though most bank customers who use the ATM services perceive the ATM as a convenient, reliable, accurate and suitable service delivery tool for their banking transactions; they still underutilize the ATM's service capacity by choosing to go to the banking halls to make cash withdrawals of amounts that could be obtained from the ATMs. It is also found that by virtue of this customer behaviour of not using the ATM's to their full potential, the relief that it was expected to provide bank tellers was not realized. It was concluded that because of customer behavioural challenges to the effective utilization of the ATM technology, banks in developing economies are not benefiting from its full potential as a customer service delivery tool, and also as a strategic workload reliever for tellers who service customers inside the banking halls.

Kumaran.C (2011), analyzed the satisfaction levels of the customers of ICICI Bank holding ATM cards in Tiruvarur district with respect to some aspects such as the service quality of ATM personnel, location, sufficient number of ATMs in the district, regularity in working of ATMs, their impact on overall performance and their opinions on various other related issues. About 120 customers were selected on a random basis. Mean levels of satisfaction of the respondents were calculated using SPSS. The customers are highly satisfied with the availability of cash in the ATMs and the quality of currency notes in the ATMs being ranked 1st and 2nd. The features like security, safety, privacy and behaviour of ATM personal were moderately satisfied. The respondents were not satisfied with the availability of complaint book, location aspect and number of ATMs in the city.

Pahwa Manvinder Singh and Karunesh Saxena (2011) in their study aimed at analyzing the satisfaction levels of the customers of ICICI Bank holding ATM cards in Udaipur City with respect to some aspects such as the service quality of ATM personnel, location, sufficient number of ATMs in city, regularity in working of ATMs, their impact on overall performance and their opinions on various other related issues. This study was a type of exploratory research using random sampling technique. Findings revealed that the customers are highly satisfied with the availability of cash in the ATMs, the quality of currency notes, promptness of delivery of ATM cards and the correctness of cash withdrawn. However, the respondents were not satisfied with the availability of complaint book, location aspect, and number of ATMs in the city.

Omari, Richard Kwaku Bamfo (2012) explored the use of the ATM services at Akim Oda branch of Barclays Bank Ghana Limited. The main objective of the study was to determine the reasons underlining the low patronage of ATM services at the branch. This was done by analysing customer knowledge on ATM services, determining customer perception on the benefits and problems of the ATM services and also determining strategies the customers prefer the bank management to adopt in order to improve upon ATM services at the branch. The study adopted the descriptive approach which uses quantitative method of data collection and analysis. Questionnaires were the main instrument used for the data collection and it was solicited from 295 respondents using stratified sampling method to break the sample unit according to their level of education. Both primary and secondary data sources were used for the study. The secondary data sources included the branch teller transaction reports, branch customer complain file, journals and the internet. It was found that most of the customers have a good knowledge on the services offered by the ATM. A major problem found through the study was that there was a high perception that the branch ATM was associated with technical problems such as frequent network failures and frequent breakdowns. It was also found that the ATM withdrawal charges for savings account holders were high. It was therefore concluded that majority of ATM subscribers have a good knowledge on the services offered by the branch ATM. The motivating factors for using the branch ATM services are privacy in carrying out banking transactions, time saving element and the flexibility in use. The de-motivating factors that prevented respondents from using the branch ATM are high charges, technical failures and unfavourable daily withdrawal limit.

Shariq Mohammed (2012) in his study aims at identifying the factors affecting the customers demand for ATM services, by analyzing sample of 450 consumers' responses who have been interviewed personally through structured survey in 3 districts of Uttar Pradesh, India. The results indicate that graduated and employed male customers who belong to higher income groups and having a bank account preferably in public sector bank was greatly emphasized to use of the banking services. Significant positive influence of the characterized socio-economic attributes on the use of ATM service was found. The service occupied customers significantly more emphasized to the use of ATM services. Noticeable, the banking attributes such as account type, convenience, number of services offered, and cost of banking services don't have very attentive influence on the use of advanced IT based banking services.

Fawzi Al Sawalqa (2012) in his study assessed the effect of low cost services, security and privacy and ease of use on customers' financial needs and satisfaction of Automatic Teller Machines (ATMs) in Jordan. The study also assessed if there was a difference in customers' financial needs satisfaction due to gender, age or academic qualification. Based on survey responses from 132 users, the results indicate that only privacy and security contributes significantly to the customers' financial needs satisfaction. The results also revealed that the demographic characteristics of users make no difference in the financial needs satisfaction of ATMs users. An important implication of the study was that the results brought the need for Jordanian banks to put more emphasis on the different aspects of privacy and security, to decrease or remove the cost of ATMs usage and to introduce a good training to ATMs users.

Okafor E.Emeka and Favour N. Ezeani (2012) conducted a study in purposively selected eight ATM location points of four banks in Ibadan metropolis, Nigeria. The sample size was made up of purposively selected one hundred and eight-two (182) and another twelve (12) respondents for survey and in-depth interviews respectively. Data were collected and analyzed through quantitative and qualitative methods. Results showed that most respondents were utilizing the machine for various purposes. Also, respondents mentioned convenience, quick funds transfer, and time saving as the real benefits of the machine. Some respondents mentioned fear of armed robbery attack, technical hitches, invalid debit and perennial network failure as the challenges of utilizing the machine. On the whole, most respondents (67 percent) evaluated the machine as having benefited them more than it had cost them. The bi-variate analysis showed

that more female bank customers (χ^2 =6.469; p<0.05); more relatively younger customers (χ^2 =66.846; p<0.05); more customers with relatively higher level of education (χ^2 =26.892; p<0.05) and more student customers (χ^2 =61.196; p<0.05) agreed the machine had benefited them more than other groups. Qualitative data also confirmed the various benefits and challenges of the machine to the customers. Using the modernization and rational choice theories, the study argued that ATM is a modern technology which some bank customers were selectively adopting based on their real subjective and objective experiences. The study concludes that for the benefits of ATM to be consolidated and to gain wider acceptance among bank customers, the challenges inherent in the machine should be addressed.

Winfred Ofoe Larkotey, Ed. DansoAnsong, Dominic Damoah, and Ebenezer Laryea (2012) study looks at the attitudes of customers towards the use of the ATM and what influences these attitudes have. Quantitative analysis was used to gather the needed data for the work. The outcome of the study showed that even though customers were happy about the ATMs and its operation, they were however characterized by frequent breakdowns, frequent light outs and other technical problems which created lots of inconveniences for customers of the bank. Some other issues that came up were as a result of accuracy, availability, reliability, suitability, ease of use and privacy among others. It was realized that a diligent work on the part of the bank towards the maintenance of the ATM will go a long way to make customers have a positive attitude towards its usage.

Tuli, Richa, Abhijeet Khatri and Anita Yadav (2012), in their study aimed at comparing the attitude of people toward ATM of SBI and ICICI bank. It also aims at find out the factors influencing the use of ATM. It also outlines the problem usually faced by customer while using ATM of their banks. Target group chosen for the study were the people who have account in SBI and ICICI bank in Sirsa City (Haryana, India) and who are using the facility of ATM. The study reveals that on some point there were differences in attitude of customer of ICICI and SBI bank towards ATM services. It reveals that most important factor which influence customer to use the ATM services was its convenience in use in case of both ICICI and SBI bank. Easy availability of machines also affects its use. Customer also uses ATM of ICICI because they agree that its use was secure. The study finds that the main problem faced by customers of SBI was that they

get old currency notes from ATM of SBI. The main problem from ICICI ATM was that its machine goes out of cash. The study also finds that use of ATM was increasing from last 2 years. People are now moving towards using the Automated Teller Machine.

Nadar, T. Ramaraj (2012) in his study focus on the customer satisfaction towards ATM services offered by the banks and tries to suggest some ways out to improve their level of services to keep the force on. The study area was restricted to Navi Mumbai city of Maharashtra. The study found that all the customers were fully satisfied with ATM services and ATM service was preferred for quick cash withdrawal. Most of the respondents (80 percent) experienced that there was no difference between ATM balance and bank pass book balances.

Pijush Chattopadhyay and Saralelimath (2012), analyzed the customer preference towards use of ATM services of cooperative banks viz. VishweshwarSahakari Bank Ltd., Pune, with respect to some aspects such as use of services offered through ATMs, whether number of ATMs implemented in city are sufficient, regularity in working of ATMs, problems faced by customers and their opinions on various other related issues. A structured questionnaire was used to collect the data from a convenience sample of 300 customers from three sample cooperative banks in Pune city. Frequency and age analysis and chi square tests are applied for data analysis and interpretation. The study found that a majority of the customers are highly satisfied with ATM services and view them as essential services. The customers prefer ATM with time and cost utility which provides efficient services. Despite drawbacks in ATMs, it was still preferred as it benefits the bank, employees and customers.

Aliabadi Reza Lotfinia, et.al; (2012) in their study studied the influence of external variables entitled self-effectiveness of individuals in use of automatic teller machine (ATM) on individual perceptions about ease of use and usefulness of these services. The findings of the study showed that technology acceptance model was an appropriate model for describing the behavior of use from electronic banking services and in fact individual perception about the ease of use of ATM machines and self-effectiveness of the individual in use of ATM machines has direct relationship with willingness to use this service.

Aliabadi Reza Lotfinia, et.al; (2012) research paper focuses on measuring the ATM standards and service quality of Banks in Ghana with a research focus on Intercontinental Bank Ghana (IBG) Ltd (private) and Ghana Commercial Bank (GCB) Ltd (public) as well as other banks in Ghana. The methodologies used for this research involved interviews with IT officers of the case study Banks and administrations of questionnaires to a number of bank customers in Ghana. The research, based on its findings, discusses how to improve ATM standards and service quality of the banking industry in Ghana for promotion of productivity and enhancement of customer retention and satisfaction.

BishnoiSunita (2013) attempted to find out the perception of customers regarding various issues related to ATM/Debit cards. To achieve the objectives, a survey of 220 respondents who are using ATM services has been conducted and the collected data was analyzed with the help of SPSS by using appropriate statistical techniques. The study concludes that ATM was very convenient mode of electronic banking. The demographic relations among various issues are also highlighted in the study.

DawoduBamidele Friday and Osondu Mary (2013) looked at the adoption of automated teller machine in Nigerian banks: use enhancements and limitations. The researchers used primary data throughout the work by distributing questionnaires. The study found that attributes of diffusion (relative advantage, complexity, compatibility, taxability and observability) as a whole have significant impact on the adoption of ATM. At any given time, the interaction and combination of these five attributes will either lead to the adoption or rejection of the ATM by users. This was however subject to users' different perceptions. Relative advantage as an attribute of diffusion significantly affects the adoption of ATM. Respondents found the ATM to be of more advantage than traditional human tellers. Some of these advantages are evident in the ATM's speed, efficiency, availability and relative safety of personal information (e.g. personal identification number, PIN and account balance). Complexity as an attribute of diffusion has no significant impact on the adoption of ATM. Though most people had trouble comprehending the maze of options on the ATM initially, persistence by some users led to successful use of the machine. Besides, the model of the machine has not changed much over the years. Compatibility as an attribute of diffusion significantly impacts the adoption of the ATM. It shows that the use of the ATM accommodates the lifestyles, activities and past values of the respondents. Also,

societal trend which sees the ATM as a modern way of doing things contributed to the significance of this attribute in the adoption of ATM. Taxability as an attribute has no significant impact on the adoption of ATM.

Hasan Ameer, et.al, (2013) attempts to find the technology based ATM service quality, how the customers are satisfied with it and hence being retained with the bank. The study tried to identify the factors of ATM service quality that are helpful in retaining the customers. Data was collected from different banks of Pakistan and results depicts that the satisfaction of the bank customers with ATM service quality leads to retain the customers with the bank. Hence, the manger should need to focus on the quality ATM service, to retain their customers with the Banks.

Falaye, Adepoju, Robert and Alabi, (2013) in their research work reviews the current practices in Nigeria's customer banking services with an empirical investigation into ATM fraud as well as a physical and technical implementation of security. The survey was conducted using questionnaire as the research instrument. Four hundred questionnaires were distributed among Entrepreneurs, Civil servants and Students from four states of the federation namely Lagos, Abuja, Kaduna and Jos. Three hundred and twenty seven (327) were retrieved successfully while three hundred and three (303) were properly responded. The data collected was analyzed using Chi-Square test and one way ANOVA. The results obtained shows there was no statistically significant difference in the perception of entrepreneurs, civil servants and students on the positive impact of ATM on banking. The perceptions of the three variables on security challenges of ATM services are equal. The study concluded that the current security implementation does not proffer the adequate security necessary to secure electronic transactions, customers' information and funds.

Kani, Melba and Merlin Thanga Joy (2013) aimed at identifying the issues and challenges faced by customers. The paper highlights ATM services most preferred by customers as well as the awareness level and problems faced by customers regarding ATM services. The area of the study was State Bank of India bank branches in South Tamil Nadu comprising of Kanyakumari district, Tirunelveli district and Thothukudy district. In each district 40 customers were selected by simple random sampling method from State Bank of India. It was found that

ATM services of SBI in South Tamil Nadu were well received and utilized by the customers. Withdrawal of cash through ATM was very convenient and majority of the respondents had used ATM services regularly. With regard to purpose more weightage was given to 'withdrawal' facility of ATM. The positive association between the age of respondents and purpose of using ATM cards was well accepted by the study. The study has demonstrated that a considerable number of customers have access to this machine and are consequently utilizing them for multi-purpose transactions, despite its challenges and shortcomings. It is important to note that most of the people using the machine are young person. The conclusion that may be reached here is that young people today are the drivers of emerging technology in a developing area.

Discussing the usage of ATM, Krishna Mahalakshmi (2013) reiterate that while ATM has become popular among the customers for cash withdrawals, other ATM services like utility payments, etc. are sub-optimally used. Another important factor that has emerged from the study was that merely setting up ATMs as convenience points was not sufficient. Customers have to be persuaded to migrate to ATMs for all their basic banking needs. While more and more people are moving towards ATMs for their banking needs, it was still largely used as cash dispensers. Large number of customers still do not use other value added services on offer at ATMs. Banks therefore have a task on hand to make ATMs self-serving model for customers. This would become imperative with push towards white label ATMs to increase ATM network across the country and to achieve economies of scale.

IV. Related Studies

Nadim Jahangir and Noorjahan Begum (2008) proposed a conceptual framework that will investigate the effects of perceived usefulness, ease of use, and security and privacy on customer adaptation mediated through customer attitude in the context of e-banking. To test the framework, structural equation modeling techniques have been applied to data collected from 227 customers of private commercial banks in Bangladesh. Primarily this study aims to test the theoretical models to measure the causality whether perceived usefulness, ease of use, security and privacy, and customer attitude can foster customer adaptation. The initial results of the study significantly and positively related to customer adaptation. Implications for practicing managers and for future research were also discussed.

Swami Nathan, J and A. Ananth (2010) examining customer satisfaction level based on the analysis of data relating to 200 respondents observed that there was significant correlation between age and occupation with other factors. In the analysis it was observed that particular age group had used these services; The satisfaction of the customer was mainly influenced by convenience, awareness, and responsiveness. In the present technology society, most of the banking customer prefer and switch to e-banking facilities. So the banker need to improve their services, loyalty to customers and their retention by increasing awareness of other age groups and concentrating on the factors contributing customer satisfaction.

Dixit,Neha and Saroj,K.Datta, (2010) investigates the factors which are affecting the acceptance of e-banking services among adult customers and also indicate level of concern regarding security and privacy issues in Indian context. Primary data was collected from 200 respondents, above the age of 35, through a structured questionnaire. Descriptive statistics was used to explain demographic profile of respondents and factor and regression analyses were used to know trend of internet use and factors affecting e-banking services among adult customers in India. The finding depicts many factors like security and privacy, trust, innovativeness, familiarity and awareness level increase the acceptance of e-banking services among Indian customers. The finding shows that in spite of their security and privacy concern, adult customers are willing to adopt online banking if banks provide him necessary guidance. Based on the results of current study, bank's managers would segment the market on the basis of age group and take their opinion and will provide them necessary guidance regarding use of online banking.

Joshua A J and Moli P Koshy (2011) examined the various usage patterns by customers of these technology-enabled services provided. A survey research was 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 like internet banking, telebanking 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. 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.

Omar Abdullah Bin, et.al (2011), examined the customer perception, preferences, problems and suggestions about online banking in Pakistan. The study reveals that mostly customers prefer internet banking (IB) services over branch banking due to reliability, convenience, speed, safety and security, cost effectiveness, user-friendly, and error free system. In contrast the parallel finding shows that security problems, lack of trust and knowledge, ATM machine problems etc. affect the adoption decision of customers of internet banking services. The services which are not in Pakistan e.g. cash depositing facility through ATM machines, "SMS/E-mail Alert" service, transfer funds through ATM machines, payment of utility bills through internet are found most required / demanding services by the customers in this study.

Marfo-Yiadom Edward and Abraham Ansong (2012) explored how innovative banking products are perceived by consumers. The study used purposive sampling technique to gather data from 288 students from a public university in Ghana. The study revealed that the critical features that influenced customers' choice of banking products and their adoption were convenience, reliability, security, flexibility, time saving and ease of use. The most popular innovative products were Automated Teller Machines and E-zwich. Telephone banking and credit cards were not very popular. The mean preference for innovative banking products for female (15.0568) was slightly higher than that of male (14.7100). The mean usage of female (8.7955) was slightly higher than that of male (8.350). Due to the low usage of products such as the telephone and internet banking, it is recommended that banks in Ghana should embark on an educational campaign to highlight the benefits of these products to the populace.

Nishi Sharma, (2012) attempts to explore different factors that might be interrupting the burgeoning development of e-banking in rural areas. The study was based on the primary data collected from 520 rural respondents regarding 17 variables which are expected to affect the satisfaction level of e-banking users. The data has been tested through Cronbach Alpha, Kaiser-Meyer-Olkin measure, Bartlett's test and correlation among different variables. It has further been analyzed though factor analysis, regression analysis and ANOVA. The study found that rural customers are quite satisfied with the provisions of updating, accuracy of transactions and convenience. However, they were not found to be much satisfied with the regulatory mechanism and compensation given in case of fraudulent attack by unauthorized person or error by bank. Further they expect better services should be provided for differently able persons. The study

found that more than 60 percent of surveyed population comprises of non-graduates and approximately 72 percent feel uncomfortable in transacting with e-banking because of language problem. Most of them were also not aware of multi-language provision in e-banking. Therefore, in order to enhance the propensity to use e-banking channels in rural areas the use of regional languages during transactions should be promoted as well as publicized. The availability of bio-metric and voice-call system for making transactions through e-banking like while using ATM may have magnifying results for securing patronage of rural customers particularly that of illiterate section.

Aijaz Ahmed Shaikh and Syed Mir Muhammad Shah(2012), investigated and demonstrated a mapping flaw (bug) in the ATM Controller (commonly known as financial middleware), which allows the ATM card holders of various banks to fraudulently withdraw cash from the ATMs of ACB Bank Limited. The flaw remained undetected for nearly 3 months. Since the breach has been thoroughly investigated, the study concluded that the banks' internal control system had failed to detect the implantation of mapping bug which deprived the bank of more than 21 million Pakistani rupees. In addition, lack of understanding of higher management on the systems and procedures supporting ATM infrastructure played a significant role in developing the bug. Considering the nature of the fraud and the degree of losses incurred, the paper has recommended strong internal control implementation over the payment system applications. A detailed review of fraud screening strategy was also recommended to ensure that the security tools are optimized for their particular product or service. Turnkey ATM solution has also been recommended for the ACB Bank Limited.

Bamoriya, Prerna, Bamoriya, Hemant and Singh, Preeti (2013) uses Multidimensional Scaling (MDS) approach to develop a perceptual map of select electronic channels and to derive relevant dimensions. Findings suggest that Automated Teller Machine (ATM) was distinctly placed and was perceived to be most secure and useful electronic banking channel. Internet banking and mobile banking were perceived to be low on security dimension. Phone banking although perceived secure, but it scored high on complexity and low on usefulness. Further, paper presents important implications for bank to improve adoption of electronic banking services.

Saibaba and Narayana Murthy (2013), in their study identified the factors that are significantly influencing the bank customer's intention to use Internet banking services in India. The research proposed a comprehensive model called "Internet banking Acceptance in India, constructs of which were developed based partially on the Unified Theory of Acceptance and Use of Technology (UTAUT) and three additional variables were identified to be context-specific. The data presented in the study are based on 325 questionnaires collected from individual bank customers in Hyderabad city. The empirical findings of the study confirm the relationships between the identified latent variables and their impact on the adoption of Internet banking services. The proposed model explained about 67 percent of the variance in behavioural intention to adopt the Internet banking in India. The study contributes to the literature by providing a new research framework for predicting Internet banking adoption in India and its findings provide useful insights for bank managers and policy makers in planning Internet banking promotion strategies.

Fozia (2013) attempted to determine the customer's perception toward the e-banking services. The total number of customer taken for the study was 196. Analysis of variance technique was employed to study the significant relationship between the occupation and customer perception of e-banking services and significant relationship between the age and customer perception of e-banking services. The result of the study clearly shows that different age group of customer and different occupation group of customers have different perception toward the e-banking services. The results also propose that demographic factors impact significantly internet banking behaviour, specifically, occupation and age. Finally, this paper suggests that an understanding about the customer's perception regarding the e-banking services of public and private banks will help the banker to understand the customers need in better way.

Ajiboye and Dunsin, Abimbola (2013) in their research work intends to investigate the factors influencing the customer satisfaction with e-banking in Nigeria. The study covered twenty (20) randomly selected banks in Ibadan, Oyo state, Nigeria. A structured questionnaire was used in gathering relevant data from the bank staff and their customers respectively. About 105 questionnaires were filled and returned by the respondents. The participants were drawn randomly from different departments of selected banks in Ibadan metropolis. The selection was

done in such a way include all categories of workers (senior and junior staff) and cut across the gender, while their customers' selection was done in banking hall. The result reveals that quality service (SMS alerts, E-mail alerts, and electronic opening of account etc.) and Automated Teller Machine are the major factors that influence customer satisfaction significantly in Nigerian banks. The study also reveals that telephone banking; mobile banking, point of sale terminals, smart cards and television banking have positive influence on customer satisfaction. The paper recommends that management should improve on the service quality, increase the numbers of ATM dispensers and protect confidentiality of consumer data.

Onyedimekwu Okechi and Oruan MemoyeKepeghom (2013) in their research study focuses on empirically evaluating customers' use of electronic banking systems. DE Lone and McLean Information System Success model (2003) was employed as a conceptual framework. The survey instrument employed involved design and administration of 240 questionnaires within Omoku town in Rivers state. Fourteen returned questionnaires were rejected due to wrong filling. A total of 220 questionnaires were analyzed which represents 91.7 percent. The result of the research shows that among all e-banking systems, ATM has the highest level of usage. The age of respondents who claimed to always use the various forms of e-banking systems was as follows: ATMs (22.7 percent), PoS (6.4percent), Internet Banking (7.3percent), Mobile Banking (10.5percent), Mobile Money (8.7 percent), MasterCard (11.0 percent), and Web Merchants (5.5 percent). Correlation analysis of the hypothesis variables indicates the following: System Quality and Continuance Intention ($\chi 2 = .421$, $\rho = .000$), Information Quality and Continuance Intention($r = .437$, $\rho = .000$), Service quality and Customers' Satisfaction($r = -0.097$, $\rho =. 150$). Most bank customers were not satisfied with ATM service quality in terms of how banks handle their customer complaints, functionality of the ATM and long queues in using the ATM. Bank customers should be well informed on how to use all forms of e-banking systems for their financial transactions.

Conclusions

The introduction of ATM seemed to have offered a temporary relief both to the bank customers and the bank themselves; however, it has created new anxieties and challenges on the part of customers which are rarely and empirically investigated by the scholars in qualitative terms (Olatokun and Igbinedoin 200; Adeoti 2011). Further very few studies were done in second tier cities to examine the attitude of bank customers in using ATM. This is the gap which the study intends to fill. Against this background, this study attempts to answer the following research questions: What are the levels of access and utilisation of ATM by the bank customers in the study area? What are the real benefits and challenges of using the machine? Based on the customers' real experiences, how do they evaluate the ATM services? Is there any association between the customers' socio-demographic characteristics and their usage of ATM services? The present study intends to analyse the factors affecting the acceptance of ATM by customers and also indicates level of concern regarding security and privacy issues in Coimbatore city.

METHODOLOGY

CHAPTER III

RESEARCH METHODOLOGY

The methodology for the present study is discussed under the following heads:

I. Profile of the area
II. Selection of the sample
III. Data base of the study
IV. Period of study
V. Techniques of analysis
VI. Limitations of the study

I. Profile of the Area

Coimbatore also known as Kovai, is the second largest city and urban agglomeration in the state of Tamil Nadu, after Chennai and the sixteenth largest urban agglomeration of India. It is one of the fastest growing tier-II cities in India and a major textile, industrial, commercial, educational, information technology, healthcare and manufacturing hub of Tamil Nadu. Other important industries include software services. It is the capital city in the Kongu Nadu region and is often referred to as the Manchester of South India. The city is located on the banks of the Noyyal River surrounded by the Western Ghats and is administered by the Coimbatore Municipal Corporation. Coimbatore has been ranked 4th among Indian cities in investment climate by Confederation of Indian Industries (CII) and ranked 17th among the top global outsourcing cities. Coimbatore is the fourth largest metropolis in South India. Coimbatore city is the administrative capital of Coimbatore district.

The total area of Coimbatore district is 7470.79 sqkms which is divided into three Revenue Divisions, nine Taluks, 19 Blocks and 482 Revenue Villages. This district is an inland district in the southern part of the peninsula. It lies between 10^0 $10^{'}$ and 11^0 $30^{'}$ of the northern latitude and 76^0 $40^{'}$ and 77^0 $30^{'}$ 0f eastern longitude in the extreme west of Tamil Nadu. It is bounded by Dindugal district in the south, Kerala state in the west, The Niligiris in the north and Erode district in the east.

According to 2011 census, Coimbatore had a population of 1,050,721 with a sex-ratio of 997 females for every 1,000 males, much above the national average of 929. Scheduled Castes and Scheduled Tribes accounted for 10.27 percent and .07 percent of the population respectively. The average literacy of the city was 82.43 percent, compared to the national average of 72.99 percent. There were a total of 425,115 workers, comprising 1,539 cultivators, 2,908 main agricultural labourers, 11,789 in house hold industries, 385,802 other workers, 23,077 marginal workers, 531 marginal cultivators, 500 marginal agricultural labourers, 1,169 marginal workers in household industries and 20,877 other marginal workers. In 2011, the population density in the city was 10,052 per km² (26,035 per mi²).

With more than 25,000 small, medium and large industries, the city's primary industries are engineering and textiles. Coimbatore is called the "Manchester of South India" due to its extensive textile industry, fed by the surrounding cotton fields. The district also houses the country's largest amount of hosiery and poultry industries. The city has two special economic zones (SEZ), the Coimbatore Hi-Tech Infrastructure (CHIL) SEZ at Saravanampatti and the TIDEL Park near Peelamedu, and at least five more SEZs are in the pipeline. As of 2005, when Tirupur was a part of Coimbatore district, Coimbatore was the highest revenue earning district in Tamil Nadu.] In 2010, Coimbatore ranked 15th in the list of most competitive (by business environment) Indian cities.

In terms of banking development, Coimbatore ranks second in the state in number of bank branches, total deposits and total advances after Chennai. Being the second most industrialised district after Chennai, Coimbatore registered per capita deposits and credit higher than the State average. Both Tamil Nadu and Coimbatore experienced an unprecedented credit expansion with outstanding fiscal end credit as a proportion of deposits (CD ratio) crossing 100 percent in 2012. The population served per bank office in Coimbatore (8578) is much favourable than for Tamil Nadu as a whole (11,470).

As on March 2012 there are 519 bank branches in and around the district and nearly 265 branches are located in the city itself (which includes public sector banks, private sector banks and foreign banks). During 2012, the banks in Coimbatore had deposit of Rs.30502.2 crores and disbursed Rs.42700 crores, of which 45.12 percent was for priority sector. Needless to say the

money transfer has also grown significantly. The tremendous advances in technology and the aggressive infusion of information technology had brought in a paradigm shift in banking operation from a 'product-centric' model to a 'customer-centric' model as they develop their new e-banking capabilities. ATM is the most popular electronic channel for banking services. Numbers of ATM cardholders are increasing and are expected to go up in the near future. However there are several issues such as operational problems and security which hamper the continued progress of ATM services not only in Coimbatore but the country as a whole. In this context, a micro level study assumes immense significance to assess the consumer's reactions to these delivery channels. The present study is conducted to know customers perception about ATM services, their advantages and disadvantages and the areas of customers inconvenience while using ATM cards in Coimbatore.

II. SELECTION OF THE SAMPLE

The universe of the study consisted of all bank customers residing in Coimbatore city. From this universe, 100 bank customers were selected by adopting purposive sampling technique as not all the customers were willing to cooperate with the investigator and due to time constraints. Hence the investigator approached only those customers who were willing to cooperate and supply the needed information. Bank customers were approached on their entering the bank and after confirming their possession and usage of the ATM cards and after obtaining their consent, the customers were included as a sample in the study.

III. DATA BASE OF THE STUDY

Relevant and required data for the present study were collected from primary sources by administering an interview schedule to the selected respondents. The interview schedule was first pre-tested to check for clarity and specificity and the necessary modifications were made on the basis of the experience gained during pre-testing. The finalized schedule used in the study is given Annexure I.

IV. PERIOD OF STUDY

The field investigation and data collection for the study was carried out during the period November-December, 2013.

V. TECHNIQUE OF ANALYSIS

Data collected were tabulated and analyzed for the purpose of giving precise and concise information. Besides percentages and graphs, following tools were used.

Chi – Square test

The chi- square test was used to determine whether there is any association between selected socio-economic variables and ATM usage. The chi-square χ^2 value was calculated from the formula:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Where 0 is observed frequency in each category and E is expected frequency in each category. The degrees of freedom are given by (c-1) (r-1) where 'c' denotes number of columns and 'r' number of rows. The obtained value is compared with the critical value at the given degrees of freedom to draw inference about the sample. (Gupta, 2005).

Garrett's Rating Scale

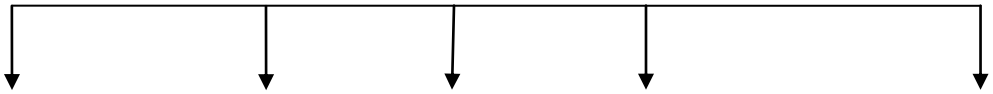
To determine the order of merit of the motives for using the ATM cards, the respondents were asked to rank the various purposes. The ranks were converted into percent position by using the following formula:

$$\text{Percent Position} = \frac{100\,(R_i - 0.5)}{N}$$

Where R_i is the rank given by the i^{th} respondent for the reasons for using ATM cards and N is the number of items ranked. Based on the percent position, for each item individual scores were determined, on a scale of 100, by using Garrett' scoring table. (Garrett, 2005).

Likert's Summated Scale

The Likert's Summated Scale was used to scale the benefits and problems of using ATM cards. In the Likert's scale, the respondent was asked to respond to each of the statements in terms of five degrees of agreement or disagreement.



Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
(5)	(4)	(3)	(2)	(1)

Each point on the scale carries a score. Response indicating the least favorable degree of satisfaction is given the least score (say 1) and the most favorable is given the highest score (say 5). This way the instrument yields a total score for the respondents which would then measure the respondents' favorableness or unfavorableness towards the given point of view.

Cronbach's Alpha

Cronbach alpha evaluates the unidimensionality of a set of scale items. It measures the extent to which all the variables in a scale are positively related to each other. In fact, it is really just an adjustment to the average correlation between every variable and every other. The formula for alpha is

$$\alpha_{standardized} = \frac{K.\bar{r}}{(1+(K-1).\bar{r})}$$

Where k is the number of variables and $\bar{r}$ is the average correlation among all pairs of variables. Cronbach alpha values ranges from 0 to 1. The higher the score, the more reliable the generated scale is. Nunnally (1978) has indicated 0.7 to be an acceptable reliability coefficient but lower thresholds (0.6) are sometimes used in the literature. In the study, the reliability testing was done for benefits and problems of ATM services.

Structural equation model by using Partial Least square method

PLS regression is arecent technique that generalizes and combines features from principal component analysis and multiple regressions. It is particularly useful when we need to predict a set of dependent variables from a (very) large set of independent variables (i.e., predictors). PLS regression is becoming a tool of choice in the social sciences as a multivariate technique for non-experimental and experimental data alike. PLS model is a combination of confirmatory factor analysis and path analysis. The main aim is to analyse the interdependent relationships between factors and the unidimensionality of factors in one analysis algorithm. It consists of two stages, initially, the assessment of a proposed structural modeland subsequently, measurement of the model.

` The structural model is assessed by using the techniques of R^2, path co-efficient, bootstrapping, direct and indirect effect and moderating effect. In structural equation model, the path co-efficient indicate the strength of relationship between constructs and are expressed in standardized form to permit comparison of the relative strength (Yue, 2004). To assess the significance of path co-efficient, bootstrapping techniques is used. The basic premise of any theory is to examine the interrelationships between the underlying constructs being studied. Each relationship is considered hypothetical and is to be tested. Being a non-parametric method, the hypothesis cannot be directly tested. Testing is done by means of two re-sampling methods namely bootstrap or jack knife, either of which are used for estimating the precision of the PLS estimates. In the bootstrap technique, samples are taken from the observed data such that each sample consists of randomly sampled cases from the original data set. The size of each sample equals the number of samples collected in the study. Bootstrap is then performed by collecting a large number of such re-samples and using their means to test the hypothesis using the t-test. For a good stable result, the number of re-samples should not exceed 500. (Chin, 2006e as cited by Savanid, 2007). The cut off value for 't' co-efficient depends on the assumed significance level. A commonly assumed significance level in a two tailed test at 5% level of significance is indicated by $t > 1.65$; $P < 0.05$ and if $t > 2$; $p < 0.01$, and applied to assess the significance level (Yue, 2004). If the computed value of t-statistics happens to be higher than it implies, then the path considered is significant.

Factor Analysis

Factor analysis is a multivariate statistical analysis whose objective is to define the underlying structure in the data matrix. Broadly speaking, it addressed the problem of analyzing the structure of interrelationship (correlation) among a large number of variables by defining a set of underlying dimensions known as factors. Once these dimensions and the explanation of each variable are determined, the two primary uses for factor analysis, namely summarization and data reduction can be achieved. In summarizing the data, factor analysis derives underlying dimensions that, when interpreted and understood, describe the data in a much small number of concepts than the original individual variables.

Factor analysis was used in the present study to identify the underlying pattern of relationship between the various dimensions of benefits and problems of using ATM cards.

Multiple Regression Analysis

Multiple regression analysis was used to analyse the determinants that hinders the usage of ATMs. The coefficient of determination and 't' values were computed to verify the extent of variation and the level of significance of the independent variables.

VI. LIMITATIONS OF THE STUDY

The major limitations of the present study is that the quality of the estimates depends on the reliability of the data collected from the respondents, which may have errors due to memory lapses of the respondents. Besides errors arising out of lack of cooperation of the respondents, deliberate under-statement, over-statement or evasion of information, etc may have affected the results.

The present study relies only on the information gathered through surveys, observations and personal interviews, which are subject to bias. Further, the findings and conclusion could only be applicable to similar set of socio-economic situation.

But these limitations in no way negate the findings of the study and offer scope for further research in future.

RESULTS AND DISCUSSION

CHAPTER IV

RESULTS AND DISCUSSION

The results of the present study are presented and discussed under the following heads:

(i) Socio-demographic profile of the respondents.
(ii) Banking Profile of the Respondents
(iii) Details on ATM usage.
(iv) Garrett Rating scale.
(v) Benefits of ATM usage.
(vi) Problems associated with ATM usage.

(i). Socio-demographic Profile of the Respondents

The social and demographic factors do play a significant role in shaping the personality and characteristics of an individual. A clear insight into the factors is of paramount significance to establish the influence of these factors on the life and activities of the respondents .The socio-demographic characteristics considered for the study are respondent's sex, religion, caste, age, educational status, occupation, and income. Table 4.1 presents socio-demographic profile of the respondents.

Sex

Out of 100 respondents surveyed 70 percent were males and the remaining 30 percent were females. Swineherd and Ghee (1986) had observed that most of the ATM users were more likely to be males. In the percent survey also, male members were dominant.

TABLE 4.1

SOCIO-DEMOGRAPHIC PROFILE OF THE RESPONDENTS

S.No	Variables	Categories	Percentage
1	**Sex**	Males	70
		Females	30
2	**Religion**	Hindus	79
		Christians	11
		Muslims	10
3	**Caste**	SC/ST	6
		BC	54
		MBC	12
		Others	28
4	**Age(in years)**	20-30	40
		30-40	28
		40-50	16
		50-60	16
5	**Educational Level**	Primary	2
		Middle	4
		Secondary	6
		Graduates	3
		Professional	41
		Post graduate	44
6	**Occupation**	Professional	18
		Private sector	56
		Self employed	13
		Others	13
7	**Income(in Rs)**	Less than -10000	27
		10000-30000	58
		30000-40000	6
		40000 and above	9

Source: Based on field survey, 2013

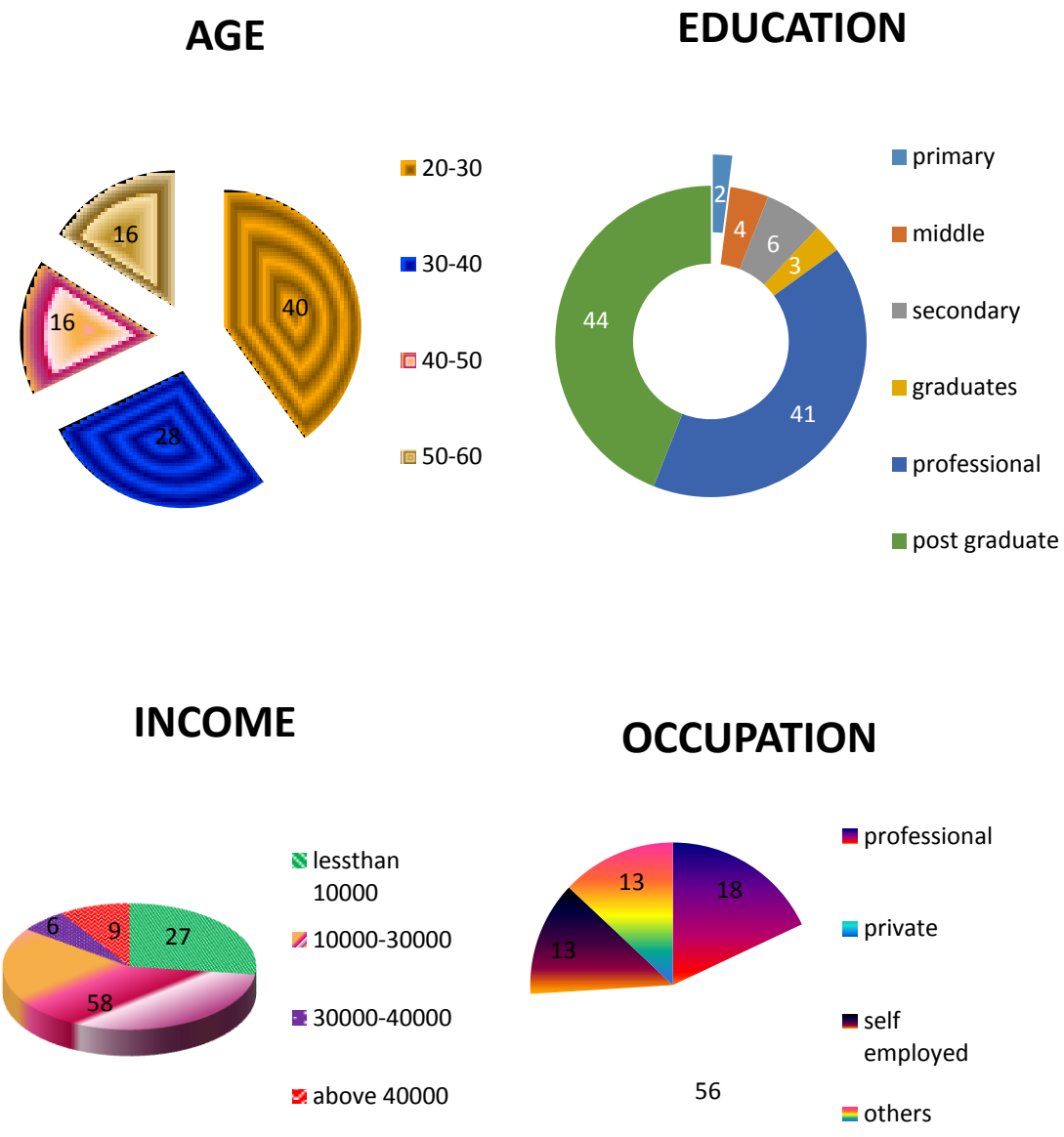

AGE
16
16
40
28
20-30
30-40
40-50
50-60
EDUCATION
2
4
6
3
44
41
primary
middle
secondary
graduates
professional
post graduate
INCOME
6
9
27
58
lessthan 10000
10000-30000
30000-40000
above 40000
OCCUPATION
13
18
13
56
professional
private
self employed
others

FIGURE 4.1

Religion and caste

Religion has always played an important role in shaping the attitude and behaviour pattern of the people. Caste has been a peculiar feature of Indian society determining the status of its members on the basis of birth as also prescribing the corresponding roles. Date pertaining to religion and caste of the surveyed respondents unravel that 79 percent were Hindus, followed by Christians (11 percent) and Muslims (10 percent). Caste-wise, the largest single group was backward caste (54 percent).The next important group was others (28 percent), followed by Most Backward community (12 percent) and Scheduled caste/Scheduled tribes (6 percent).Thus the respondents were mostly from Hindu community predominantly belonging to Backward caste.

Age

Wan et.al. (2005) in their study in Hong Kong showed that age has a significant effect on the pattern of use of technology-based and innovative services. Data pertaining to age composition of the members' highlights that the single largest group was in active age of 20-30 years (40 percent): The proportion of members in the age group of 30-40 years was 28 percent. There were equal proportions (16 percent) of the members in the age group of 40-50 years and 50-60 years. About 68 percent of the respondents were in the age group of below 40 years. Usually youth prefer to use technology-based and innovative service delivery channels like ATMs. People of higher age group are reluctant in using ATMs because of perceived risk of failure, complexities, lack of knowledge, lack of awareness programmes by the bank and security reasons (Moutinho, 1992). However, for growing business banks should come up with some schemes that may attract the older generations to use ATMs.

Educational status

Education not only creates knowledge and understanding but also generates attitude and behaviour patterns and thereby plays an important role in all kinds of decisions. Among ATM users, 85 percent were under-graduate and post graduate, while a lesser percentage (15 percent) had completed school education only. Higher qualification serve as a proxy for income effect since educated people earning more money are likely to use banking. Further qualification is a

factor that makes the customer aware of the banking technology and also facilitates easy adoption.

Occupation

The nature of occupation is a significant factor that determines the living standards of the people and their accessibility to banking services. About 56 percent of the respondents were working in private sector, followed by professionals (18 percent), self-employed (13 percent) and others (13 percent), which included academicians, services and housewives. From the above it was inferred that professional who is expected to use the ATM services to a large extent, was not doing so. Further, large number of housewives should be encouraged to use ATM services. This will help in diverting idle cash to productive uses.

Income

Income earned from economic activities is an indicator that determines the availing of ATM services by the customers. Out of 100 respondents surveyed 27 percent of the respondents were earning less than Rs10, 000 per month, 58 percent were earning Rs 10, 000 -30, 000 per month, 6 percent above Rs 40000.

From the demographic details of the respondents it can be seen that ATM usage was seen more among males, youngsters falling in the age group of 20-30 years, educated, working in private sector and earning more than Rs.10, 000 per month.

II. Banking Profile of the Respondents

Number of Accounts

From the table 4.2 it is evident that 58 percent of the respondents had only one account, while 34 percent of them had two accounts and a negligible proportion (8 percent) had 3 accounts. Increased competition among the public and private sector banks in wooing customers may be reason for the respondents having more than two accounts.

Table 4.2 presents the details of banking profile of the respondents

TABLE 4.2

ASSOCIATION OF THE RESPONDENTS WITH BANK

S.No	Variable	Categories	Percentage
1	Number of Accounts	1	58.0
		2	34.0
		3	8.0
2	Type of Account	Savings account	91.0
		Current account	3.0
		Both Savings and Current account	6.0
3	Type of bank	Public Sector	73.0
		Private Sector	14.0
		Both Public and Private Sector	13.0
4	Age of account	Less than 5 years	33.0
		5-10 years	32.0
		10 and above	35.0

Source: Based on field survey, 2013

Type of Account

The analysis of account type revealed that 91 percent of the respondents were savings account holders, 3 percent were current account holders and about 6 percent hold both savings and current accounts .Thus saving account holders were more compared to current account holders.

Type of bank

About 73 percent of the account holders had accounts in public sector banks and about 14 percent had accounts in private banks. About 13 percent of account holders had account in both public and private sector banks. The increased preference for public sector banks over private sector banks may be attributed to the increased trust that customers repose on public sector banks when compared to private sector banks.

Age of accounts

Of the total respondents 33 percent of the respondents were holding account more than 5 years 32 percent were holding account for 5-10 years and 35 percent above 10 years. Majority (67 percent) of the respondents were account holders for more than 5 years.

III. Details on ATM usage

ATM is a product of Information and Computer Technology. The technology customizes service offerings, reduces waiting time for customers, service as an alternative channel for service delivery and provides vital information needed by the customer in the shortest possible time (Lovelock, 1996). Table 4.3 presents the details on ATM usage by the respondents.

Among the surveyed population 100 percent were using ATM. About 82 percent of the respondents have stated that they had applied for ATM cards on their own while 18 percent have stated that it was imposed on them by the bank. The key reason for the popularity of ATM service could be the convenience it offers (Leblanc, 1990, Marr and Prendergast, 1991) and 24 x 7 transaction it facilitate.

About 92 percent of the respondents observed that ATM services was available in bank premise itself, while 8 percent have stated non-availability ATM services in bank premise. Thus most banks have installed the ATM in their premises to serve their customer better and also prepare them for cashless banking.

While for 65 percent of the respondents their accessibility to ATM services was moderate, about 24 percent have stated it was ‘high’ and 11 percent have said it was ‘low’. A similar finding was also noted by Okafor and Ezeani (2012) that most of the respondents in Ibadan metropolis were using ATM moderately in their financial transactions.

TABLE 4.3

DETAILS ON USAGE OF ATMS

S.No	Variable	Categories	Percentage
1	Possession of ATM	Yes	100
		No	0.0
2	Motivation to possess ATM	Self	82.0
		Bank	18.0
3	ATM in bank premise	Yes	92.0
		No	8.0
4	Physical access to ATM	Low	11.0
		Moderate	65.0
		High	24.0
5	Number of ATM cards possessed	1	58.0
		2	35.0
		3	7.0
6	Duration of owning ATM card	1-5 year	31.0
		5-10 year	38.0
		10 years and above	31.0
7	Frequency of using ATM cards per week	1	13.0
		2	52.0
		3	23.0
		4	12.0

Source: Based on field survey, 2013

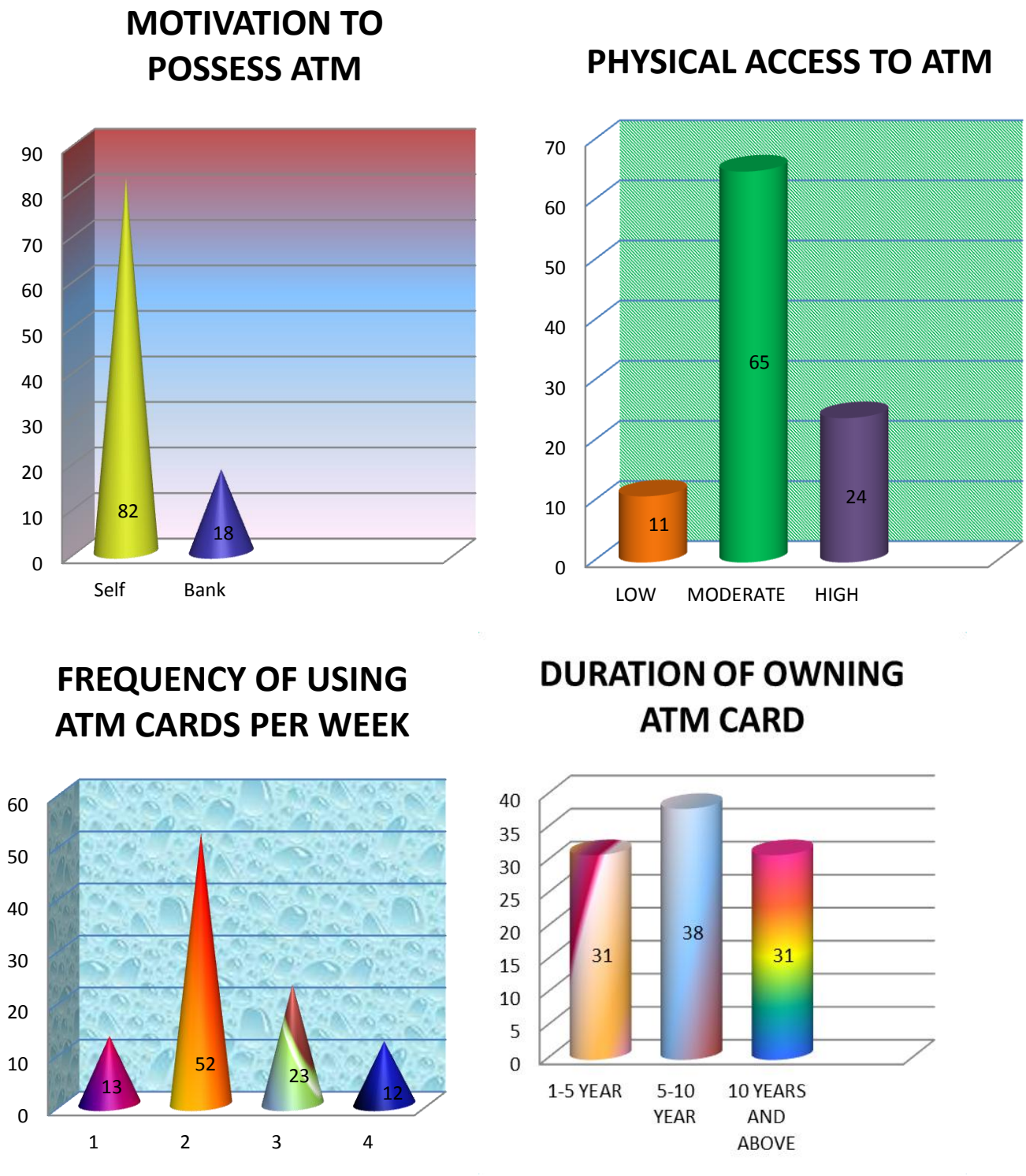

MOTIVATION TO POSSESS ATM
90
80
70
60
50
40
30
20
10
0
82
18
Self
Bank
PHYSICAL ACCESS TO ATM
70
60
50
40
30
20
10
0
11
65
24
LOW
MODERATE
HIGH
FREQUENCY OF USING ATM CARDS PER WEEK
60
50
40
30
20
10
0
13
52
23
12
1
2
3
4
DURATION OF OWNING ATM CARD
40
35
30
25
20
15
10
5
0
31
38
31
1-5 YEAR
5-10 YEAR
10 YEARS AND ABOVE

FIGURE 4.2

The number of ATM cards owned by the respondents also varied with 58 percent possessing only one card, followed by 35 percent owning two cards and negligible proportion (7 percent) having three cards. The growing popularity of ATM cards may be because of ease of using these cards in meeting growing-financial needs of the respondents.

Although the electronic banking commenced in the early 1980's, the official recognition to electronic transaction came into effect with the passing of the Information Technology Act in 2000. Hence the widespread use of electronic banking may be still several years away. However the use of ATM services is increasing year to year. The analysis of duration of using ATM cards by the respondents reveals that 38 percent have been using the cards for 5-10 years, 31 percent more than 10 years and the remaining 31 percent 1-5 years. This signifies the growing acceptance of ATM services among the bank customers. Tuli, Richa; et al (2012) in their study concludes that use of ATM services is increasing year to year.

The extent of usage of ATM services by the respondents during a week highlights that more than one half of the respondents were using card 2 times a week, followed by 23 percent using 3 times a week,12 percent using 4 or more times and about 13 percent using it once a week. The banks should encourage the customers to use these services more frequently by rewarding customers for conducting transactions through this channel with incentives such as reduced service charges. Only if the users start using this channel more frequently within the ambit of the electronic banking would the adoption of these services would be complete and the customers would derive the maximum benefits from this channel. (Jothau, A.J and Koshy, 2011).

Chi-square Analysis

In order to investigate the relationship between frequency of using ATM services and socio-economic profile (gender, age, marital, education, occupation and income) of the ATM usage, Pearson's chi-square test was done. The null hypothesis framed was

H_o: The frequency of usage is independent of socio-economic profile of the users.

H_a: The frequency of usage is not independent of socio-economic profile of the users.

TABLE 4.4

RELATIONSHIP BETWEEN THE FREQUENCY OF ATM USAGE AND SOIO-ECONOMIC PROFILE

Variable	chi-square value	Degrees of freedom	Asymptotic significance	Inference
Sex	9.375	3	0.025	Reject Ho
Age	5.712	9	0.768	Accept Ho
Education	6.884	3	0.620	Accept Ho
Occupation	13.114	9	0.158	Accept Ho
Income	3.763	3	0.298	Accept Ho

Source: Estimation based on field survey, 2013

From the table it is evident that frequency of using ATM cards was independent of age, education, occupation and income but was dependent on sex of the respondents. Thus there was a significant difference in the usage of ATM cards by males and female respondents. Males used the cards more frequently when compared to female respondents. As quoted in many earlier studies most of the ATM users were males (Swinyard and Shee, 1986; Nadar, 2012).

IV. Purpose of using ATM

ATM cards offers a wide range of services to the users starting with cash withdrawal to paying utility bills, checking account balance, e-ticketing, payment of insurance and tax, shopping and print mini statement of transaction. Customers are able to interact with their bank accounts as well as make financial transaction from virtually anywhere without time restrictions. Hence an attempt was made to identify the most sought after use of ATM cards by the users. The respondents were asked to rank the uses of ATM according to their order of priority. The ranks were then converted into percent position and from the percent position the individual scores were determined on a scale of 100 points by using Garrett's rating scale. The average scores and ranks corresponding to each uses are presented in table 4.5

TABLE 4.5

PURPOSE OF USING ATM CARDS

S.NO	PURPOSE	SCORES	RANK
1	Cash withdrawal	70.56	1
2	Utility bill payment	48.27	4
3	Checking Account Balance	55.29	2
4	E-ticketing	40.21	6
5	Insurance & Tax payment	37.35	7
6	Print Mini Statement of Transaction	46.1	5
7	Shopping	50.86	3

Source: Estimation based on field survey, 2013

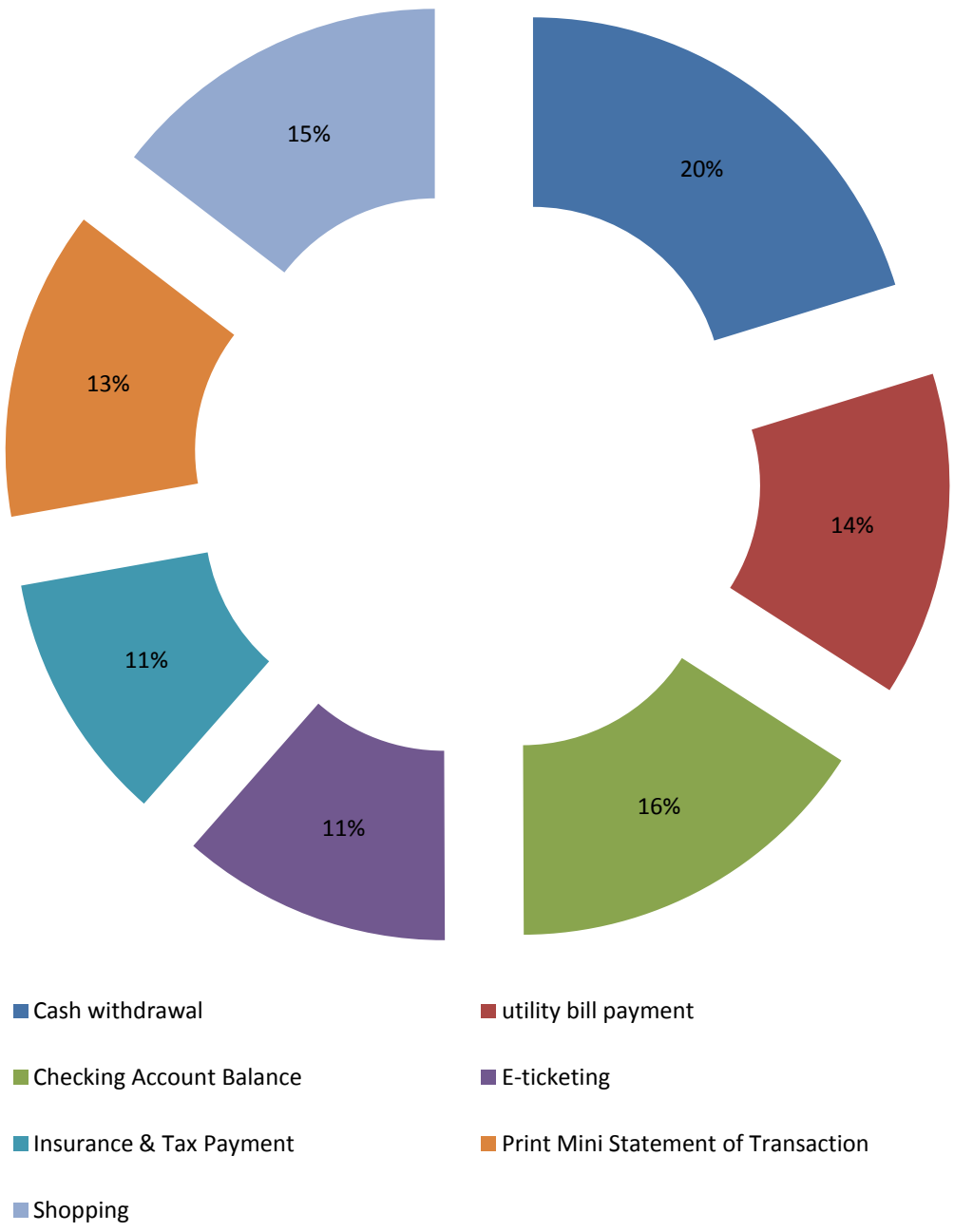

PURPOSE OF USING ATM CARDS
20%
14%
16%
11%
11%
13%
15%
Cash withdrawal
utility bill payment
Checking Account Balance
E-ticketing
Insurance & Tax Payment
Print Mini Statement of Transaction
Shopping

FIGURE 4.3

For the respondents, the major use of ATM cards was to 'withdraw cash' (1st rank), followed by 'checking account balance' (2nd rank), 'shopping' (3rd rank) and 'paying utility bills' (4thrank). The least preference was given to 'payment of insurance and tax' (7th rank) and e-ticketing (6th rank). ATM cards were primarily used by the customers' for cash withdrawal, check balance and for shopping. Thus the respondents have used ATM cards mainly to save time instead of queuing up in banking halls. Nadar (2012) also opined that ATM service was preferred by bank customer for quick cash withdrawal. While more and more people are moving towards ATMs for their banking needs, it was still largely used as cash dispensers. Large number of customers still do not use other value added services on offer at ATMs. Banks therefore have a task on hand to make ATMs self-serving model for customers.

V. Benefits of ATM usage:

Use of ATM has become extremely popular among the customers as convergent mode of transactions. The technological innovation has transformed banking system. Today banks all over the world are aggressively adopting this mode. The advantage of using ATM has given new impetus in dimensions of service quality and banks are offering new choices to customers.

Literature review indicates different dimensions of ATM service quality and have divergent views about the use and effectiveness of ATMs. Joseph and Stone (2003) through focus group study in United States, found that easy access, user-friendly ATM and security as important factors that influence bank customer's perception of ATM service quality. Rugimbana and Iversen (1994) found that convenience, reliability and ease of use as important aspects, whereas complexity and unreliability (risk) were causes of dissatisfaction. Based on literature review, an attempt was made to examine the impact of convenience, perceived usefulness, ease of use and security on the usage of ATM by bank customers.

Cronbach alpha coefficient was used to determine the internal consistency and reliability of the multiple item scale and the results are presented in table 4.6

TABLE 4.6

RELIABILITY TEST

Constructs	Number of Items	Cronbach alpha
Convenience	3	0.745
Perceived usefulness	4	0.786
Ease of use	5	0.921
Security and Privacy	4	0.858

Source: Estimation based on field survey, 2013

Cronbach alpha value for the four constructs indicated that the items that formed them had reasonable internal consistency and reliability- varying from 0.745 to 0.921. The items which had lower alpha value (less than 0.5) were deleted as it might affect the consistency of the results for further analysis. The final number of items that constituted the constructs is us shown in the table4.7.

The operational model for evaluating and validating the usage of ATM is depicted in the figure 4.4 below

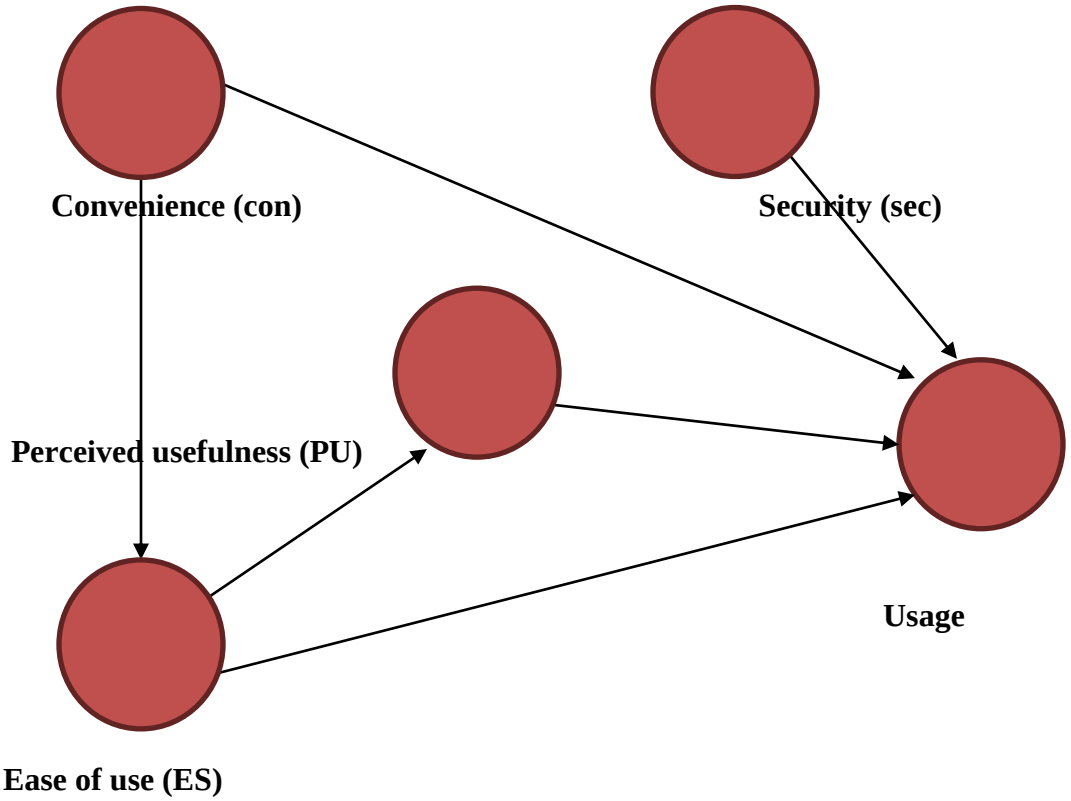
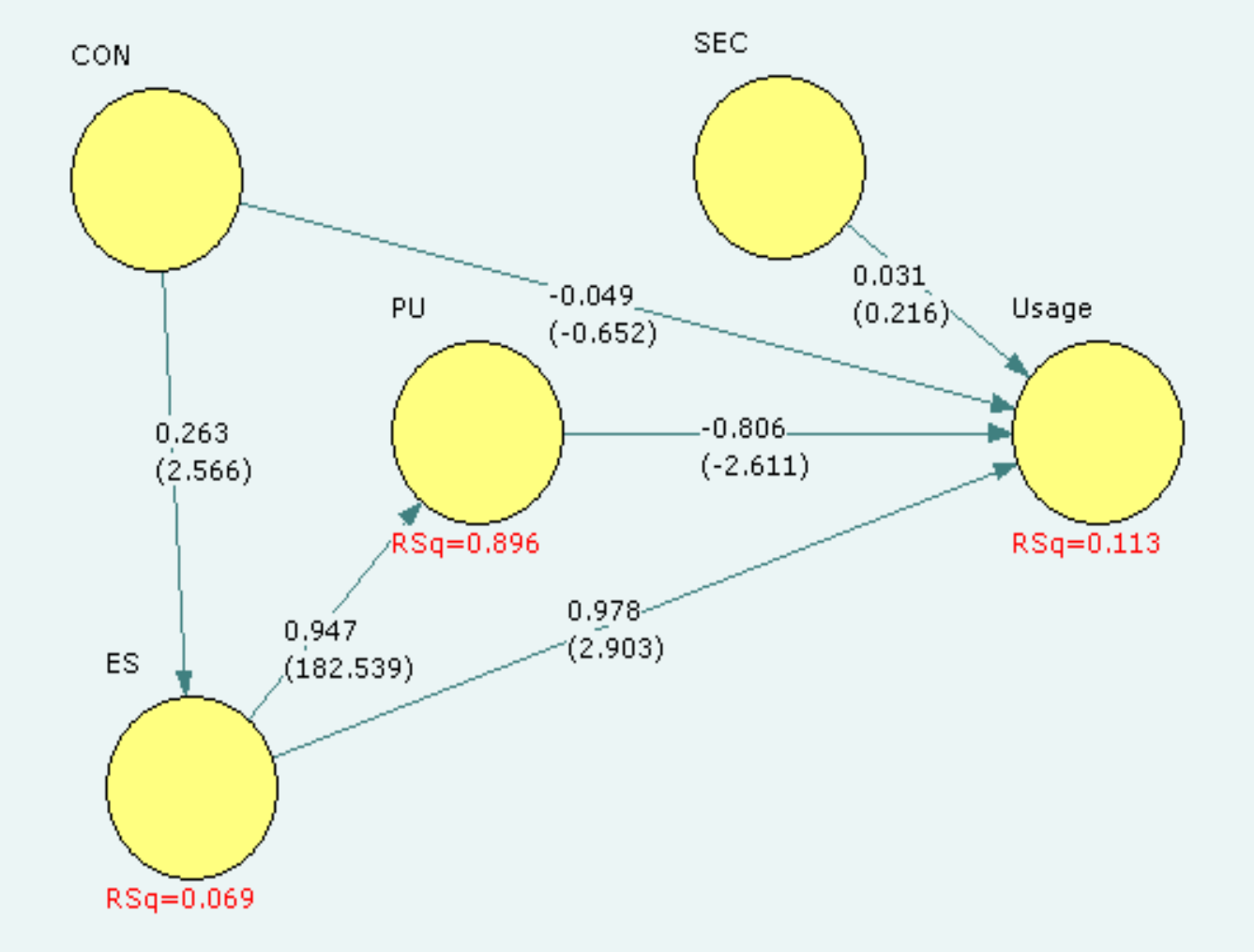


FIGURE 4.4 Proposed Models

The figure 4.4 depicts the proposed operational model positing as convenience influence ATM usage; convenience influencing ease of use, ease of use influence perceived usefulness; perceived usefulness influencing ATM usage; ease of use influencing ATM usage; security influencing ATM usage and perceived usefulness influencing ATM usage.

The proposed operational model was estimated and validated using structural equation modelling with partial least square technique. Figure 4.5 depicts the estimated model of ATM usage.

Figure 4.5 .The Estimated Model



The model shows the direct influence of ease of use on ATM usage. Further convenience influence the ease of use which in turn affects the perceived usefulness leading to ATM usage Another path validated by the model was: convenience influencing ease of use, which in turn influence ATM usage

The composite reliability, average variance extracted (AVE) and Cronbach alpha values of each constructs are shown in table 4.7

TABLE 4.7

RELIABILITY AND AVE

Constructs	Composite Reliability	AVE	Cronbach alpha
PU	0.862009	0.61146	0.785799
CON	0.854300	0.661901	0.745157
ES	0.940638	0.761438	0.920810
SEC	0.874396	0.649313	0.858091
Usage	1.000	1.0000	0.0000

Source: Estimation based on field survey, 2013

All the constructs employed in the estimation are reliable and have valid composite reliability calculated by PLS which is similar to Cronbach alpha without the assumption that all indicators are equally weighed. Chin (1998) recommends that the composite reliability should be more than 0.7. The composite reliability of all the 4 constructs varied from 0.95 to 0.94. The AVEs of all constructs was showing acceptable levels of convergent validities (greater than 0.50). Cronbach alpha values show the internal consistency of the constructs varied from 0.75 to 0.92 in the estimated model. Thus the present model exhibits acceptable levels of reliability and validity measures for the constructs.

Table 4.8 gives the path co-efficient values and the related 't' statistics which test the significance of the path co-efficient and the extent of relationships between constructs. The inference from the tabs is indicated by $t>1.65$; $p<0.05$ and if $t>2$, $p<0.01$.

TABLE 4.8

STRUCTURAL MODEL-BOOST STRAP

Paths	Entire sample estimate	Mean of sub samples	Standard error	t-statistics
SEC → Usage	0.0310	0.2049	0.1436	0.2158
CON → ES	0.2630	0.2846	0.1025	2.566*
ES → PU	0.9470	0.9471	0.0052	182.539*
PU → Usage	-0.806	-0.7948	0.3087	-2.610*
CON → Usage	-0.049	-0.1044	0.0752	-0.6518
ES → Usage	0.9780	0.8945	0.3369	2.9032*

Source: Estimation based on field survey, 2013

The path coefficient between 'convenience' and 'ease of use' are: beta=0.263, t=2.566, $p<0.01$ and $R^2=0.069$. This indicates there was significant but low correlation between 'conveniences' and 'ease of use' construct. The path coefficient between 'ease of use' and 'perceived usefulness are: beta=0.947, t=182.539, $p<0.01$ and $R^2=0.896$. This indicates there was significant correlation between 'ease of use' and 'perceived usefulness' .The path coefficients between 'perceived usefulness' and usage of ATM are: beta = -0.806, t= -2.610, $p<0.01$ and R^2 0.113, indicating a low but significant correlation between perceived usefulness and ATM usage. The third path which emerged significant was between ease of use and ATM usage with a beta = 0.978; t = 2.9032; $p<0.01$ and $R^2 = 0.113$.This indicates there was significant but low correlation between ease of use and ATM usage.

From the model validated in the present study it can be reasonably concluded that perceived usefulness and ease of use provides for the predominant use of ATM by bank customers. The construct 'convenience' however indirectly affected ATM usage through 'ease of

use' and 'perceived usefulness'. No significant relation was found between security and ATM usage directly. Patri'cio et al (2003) in their study identified accessibility and speed of operation as strong predictors of customers' satisfaction whereas security and technical failures were main causes of dissatisfaction. Similar findings were also reported by Rugimbana and Iversen (1994) that convenience, reliability and ease of use are important aspects whereas complexity and unreliability (risk) were causes of dissatisfaction. Extensive research over the past decade provides evidence of the significant effect of perceived ease of use on usage intention, either directly or indirectly through its effect on perceived usefulness (Agarwal and Prasad, 1999; Davis et al., 1989; Hu et al., 1999; Jackson et al., 1997; Venkatesh, 1999, 2000; Venkatesh and Davis, 1996, 2000; Venkatesh and Morris, 2000).

To sum up, considering the cost that has been incurred in developing e-banking systems throughout the country, it is of paramount importance to ensure that people actually use them. In order to achieve this goal, attention should be given to developing an easy-to-use, useful and reliable system, which will motivate the bank customers to use e-banking services. Internet technologies that are easy to use are less threatening to the individual (Moon and Kim, 2001).

VI. Problems Associated with ATM Usage

There is increased concern about privacy and security of customers information as a result of the fragility of information collected and held electronically and transferred via computer- mediated communications. Besides security issues, there are problems or inconveniences experienced when using ATM services. An assessment of bank customers ATM usage patterns and perceptual variables by Joseph and George (2003) showed that ATMs were not being utilized to their potential also and had largely not been accepted by some bank customers as innovations that could fully replace bank tellers in nominated functions. This observations relates to the finding that technology based services have the likelihood of inculcating in customers a sense of incompetence which tend to isolate them from the technology, and also increase their passiveness towards its usage (Grabber – Krauter and Kalusha,2003). ATM shortcomings are a big concern to banks since they can result in a high level of defections. Therefore an attempt was made to identify the major problems the customers face in using ATM and the impact it has on the usage of ATM services.

The respondents were asked questions relating to the challenges they faced in using ATM services on a five point scale ranging from 5 (strongly agree) to 1(strongly disagree). The measurement scales were standardized to check whether they truly measure what they are supposed to measure by computing squared multiple correlations R^2 for each measurement items, composite reliability and variance extracted for each factor. As a rule of thumb, measurement variables are reliable when R^2 of each one of the items is greater than 0.5 (Holmes – smith 2001; Byrne, 2001). Prior to standardizing the instrument used for identifying the problems faced by the respondents in using ATM services, the items were classified under six constructs namely technical problem, poor services, low accessibility, poor human interface, cost factor and security issues. Item analysis was done for each constructs to cheek for internal consistency and all those items whose R^2 value was less than 0.5 were excluded from the analysis. Thus out of 24 items only 18 items were taken for final analysis. The Cronbach alpha and the number of items included under each constructs is shown table 4.9

TABLE 4.9

RELIABILITY ANALYSIS

S.No	Construct	Cronbach alpha	Number of items included
1	Technical problem	0.759	3
2	Services Delivery	0.773	4
3	Low Accessibility	0.827	2
4	Poor human interface	0.651	2
5	Cost Factor	0.745	4
6	Security issue	0.753	3

Source: Estimation based on field survey, 2013

The Cronbach alpha value for all constructs ranged from 0.651 to 0.827, exceeding the maximum score 0.60 suggested by Nunnally (1978) for an early research or unstandardized questionnaire. Hence the items in the questionnaire were relevant for doing factor analysis.

To determine the underlying structure the correlation matrix was initially examined to determine how appropriate it was for factor analysis. The Kaiser-Meyer-Oklin (KMO) and Bartlett's test of sphericity was computed and the results are presented in table 4.10.

TABLE 4.10

KMO AND BARTLETT'S TEST MEASURES

Measures	Values
KMO measure of Sampling Adequacy	0.734
Bartlett's Test of Sphericity	
Approx. Chi-square	772.521
Degrees of freedom	15.3
Significant	0.00

Source: Estimation based on field survey, 2013

The KMO Value was 0.734, which was higher than the recommended minimum of 0.6 (Kaiser, 1974) indicating that the sample size was adequate for applying factor analysis. In addition, the value of the test statistics for sphericity on the basis of Chi-squared transformation of the determinant of the correlation matrix was large. Bartlett's test of sphericity was significant supporting the factor ability of the correlation matrix and the associated significance was extremely small (0.000)

For factor extraction, principal component method was used under the restriction that the Eigen value of each generated factor was more than one. prior to this the communalities for each item were assessed and were found to be greater 0.5 signifying substantial portion of the variance are accounted by the factors. Table 4.11 enlists the Eigen values, their relative explanatory power and factor loading for 18 components identified within the data sets. However in the estimation of factor loading only those loading whose value exceeded 0.60 were included in estimating the factor scores.

TABLE 4.11

ROTATED COMPONENT MATRIX

S.No	Variables	Components				
		1	2	3	4	5
	Technical problem					
1	Machine being out of cash			**0.821**		
2	No printing of statement			**0.642**		
3	Machine out of order			**0.853**		
	Service Delivery					
4	Wrong amount in slip	**0.849**				
5	Poor visibility of payment slip	**0.726**				
6	Balance reduced without receipt					
7	Difficulty in inserting card					
	Poor Accessibility					
8	Limited amount of money to be withdrawn				**0.853**	
9	Limit on Withdrawal				**0.798**	
	Poor human interface					
10	ATM is rigid and inflexible to interact with					
11	No personal touch					
	Cost factor					
12	Unnecessary charges					
13	High hidden cost					**0.772**
14	High charges on e-ticketing					**0.619**
15	Fear of spending too much					
	Security issue					
16	Unsecured ATM Location					
17	Fraud and Forged transaction					
18	Lack of safety in withdrawing cash		**0.865**			
	Eigen value					
	Percentage of Variance					
	Cumulative percentage					

Source: Estimation based on field survey, 2013

Extraction method: Principal component analysis

Rotation method: Varimax with Kaiser Normalization

a. Rotation converged in 7 iterations.

Factor one had significant loading on one dimensions, namely, ‘service delivery’ which included ‘wrong amount in slips’, ‘poor visibility of payment slip’ and ‘difficulty in inserting card’. This dimension explains nearly 32 percent of the variance. Factor two had significant loading on one dimension, namely security factor (lack of safety in withdrawing cash) and accounted for 12 percent of the variance. Factor three had significant loading on the dimension ‘technical problem’ which included ‘machine being out of cash’, ‘no printing of statement’ and ‘machine being out of order’ and explains 8 percent of the variance. Factor four are significant loading on the dimension ‘poor accessibility’ which included ‘withdrawal limits’ and limited amount of money to be withdrawn’ and explained nearly 8 percent of the variance. Factor five had significant loading on the dimension ‘cost factor’ which included ‘high hidden cost’ and ‘high charges on e-ticketing’ and explains nearly 7 percent of the variance.

Thus the major problems identified by the respondent were poor service delivery, security issues, technical problems, poor accessibility and cost factor. Omari, Richard KwakuBamfo (2012) observe that the de-motivating factors that prevented respondents from using the branch ATM are high charges, technical failures and unfavourable daily withdrawal limit. Machine maintenance is one of the inconveniences that are frequently faced by majority (60%) of the respondents as per the study of Nadar (2012).Bishnoi (2013) examining problems of using ATM services found that 'machine out of cash', 'machine out of order', 'no printing of statement' and 'poor visibility of statement slip' were the important issues. Hence efforts have to be made by the banks to improve the service quality, the number of ATM dispenser and the confidentiality of consumer data, all of which will enhance the usage of ATM services by the customers.

MULTIPLE REGRESSION ANALYSIS:

The regression analysis was done to determine the effect of the above factors, namely, poor service delivery, security issue, technical problem, poor accessibility and cost factor on the frequency of using ATM services. The estimated results are shown in table 4.12.

TABLE 4.12

REGRESSION COEFFICIENT AND LEVEL OF SIGNIFICANCE

S.no	Factor score for	Regression coefficient	Standard error	t value	Significance
1	Service delivery	-0.117	0.078	-1.503	0.136
2	Security	0.197	0.078	2.528	0.013
3	Technical problem	0.090	0.078	1.151	0.252
4	Poor accessibility	-0.039	0.078	-0.495	0.622
5	Cost factor	-0.314	0.078	-4.024	0.000
	R^2	0.468			
	F value	5.282			
	Significance	0.000			

Source: Estimation based on field survey, 2013

Dependent Variable: Frequency of using ATM services.

Out of the variables considered only 'cost factor' (t=-4.024; p< 0.000) and 'security factor' (t=2.528; p<0.013) are statistically significant. The cost had a negative impact on the usage of ATM services while security had a positive effect. Thus a unit variance in cost could cause the usage of ATM services to decline while an improvement in security would increase the usage of ATM services. The overall model was also statistically significant (R^2=0.468; p<0.000).Thus nearly 47 percent of variance in the usage of ATM services was accounted by cost and security factors.

The analysis established that the level of satisfaction is reduced by the customer perception that the service delivery is expensive and insecure. Hence the banks needs to highlights the benefits of ATM services by enhancing the security to improve customer trust and also reduce or waive the cost of using ATM services in order to attract more customers in using ATM services.

SUMMARY AND CONCLUSION

CHAPTER V

SUMMARY AND CONCLUSIONS

Fierce competition from inter and intra bank group along with the global forces have compelled the banks to adopt the technological changes to face the electronic age. Driven by new technologies, changing customer preferences, and increased competition, banks have taken to heavy investments in new distribution channels like advance automated teller machines, telephone systems, and on-line banking. As per the Indian e banking scenario Automated Teller Machine (ATM) is the most acknowledged as compared to than any other e-channels. Over the last four decades, ATM has emerged as a major channel for routing banking services to customer's .ATM segment witnessed a growth rate of 30 percent since last 5 years in India. ATM terminals in India are expected to grow at a compounded average growth rate of 25 percent between 2011 and 2015.ATMs provide customers with numerous benefits such as time and cost savings, greater control over the service delivery and convenience. Despite these benefits, customers still complaint of shortcomings on the use of the system like; break downs of ATMs, long queues at ATM service points, retention of customer's cards, limited knowledge on the use of ATM cards, fraudulent transactions and its operation in just a few languages. Some consumers consider ATMs threatening .Anxiety and low-perceived ease of use are two common barriers inhibiting consumers' usage of ATMs. Yet, it is in the interest of service organizations to reduce these barriers as ATMs can reduce costs, increase productivity and improve competitiveness and market share.

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. Review of literature suggest that most of the studies have been done on issues related to Internet banking in countries like USA, UK, Malaysia, Singapore Finland, Australia (Sathye, 1999; Mukti, 2000; Wang et al, 2003; Gerrard and Cunningham, 2006 etc.) However, not sufficient work has been done in India with regard to ATM service and customer satisfaction issues. This is the gap which the study intends to fill. As a technology, the ATM is supposed to make life easier and more efficient for customers and at the same time increase banks' turnover. It is therefore necessary to study and understand the

reason for this and help banks establish and maintain a strong profit base by way of improving ATM services, if need be, to better satisfy customer needs.

Objectives

The specific objectives are to:

- Examine the socio-economic profile of the selected respondents'
- Analyse customer's knowledge on ATM services.
- Determine customers perception on the benefits associated with ATM services.
- Identify the problems faced by customers while using ATM services.
- Offer suggestions to overcome the problems in ATM services.

Hypothesis

In the course of the study the following hypotheses were examined;

- The frequency of usage is independent of socio-economic profile of the usage.
- ATM service was preferred by bank customer for quick cash withdrawal only.
- Perceived usefulness, ease of use and convenience had significant effect on ATM usage.
- Cost and security were the major factors hindering the use of ATM services.

Methodology

The universe of the study consisted of all bank customers residing in Coimbatore city. From this universe, 100 bank customers were selected by adopting purposive sampling technique as not all the customers were willing to cooperate with the investigator and due to time constraints. Hence the investigator approached only those customers who were willing to cooperate and supply the needed information. Data was collected by administering a pretested interview schedule to the selected respondents. Data collection was carried out during the period November-December, 2013. Data collected was analysed by using techniques like, chi-square test, Garrett's rating scale, Likert's summated scale, Cronbach Alpha, Partial Least Square regression method, Factor analysis and Multiple regression analysis.

Empirical Findings

The major findings of the study are summarized below:

Socio-demographic Profile of the Respondents

- Out of 100 respondents surveyed 70 percent were males and the remaining 30 percent were females. ATM users were predominantly males in the present survey in line with the findings of Swineherd and Ghee (1986) that most of the ATM users were more likely to be males.
- Date pertaining to religion and caste of the surveyed respondents unravel that the respondents were mostly from Hindu community predominantly belonging to backward caste.
- The single largest group of ATM users in the present study was in active age of 20-30 years (40 percent) and about 16 percent were in the age group of 50 and above. People of higher age group are reluctant in using ATMs because of perceived risk of failure, complexities, lack of knowledge, lack of awareness programmes by the bank and security reasons (Moutinho, 1992).
- Among ATM users, 85 percent were under-graduate and post graduate, while a lesser percentage (15 percent) had completed school education only. Higher qualification serve as a proxy for income effect since educated people earning more money are more likely to use e-banking services.
- About 56 percent of the ATM users were working in private sector, followed by professionals (18 percent), self-employed (13 percent) and others (13 percent), which included academicians, services and housewives. If a large number of housewives were encouraged to use ATM services it would help in diverting idle cash to productive uses.
- Out of 100 respondents surveyed 27 percent of the respondents were earning less than Rs10, 000 per month, 58 percent were earning Rs 10,000 -30, 000 per month, 6 percent above Rs 40000.
- From the demographic details of the respondents it can be seen that ATM usage was seen more among males, youngsters falling in the age group of 20-30 years, educated, working in private sector and earning more than Rs.10, 000 per month.

Banking Profile of the Respondents

- About 58 percent of the respondents had only one account, while 34 percent of them had two accounts and a negligible proportion (8 percent) had 3 accounts. Increased competition among the public and private sector banks in wooing customers may be reason for the respondents having more than two accounts.
- Saving account holding respondents were 91 percent, followed by current account holders (3 percent) and about 6 percent hold both savings and current accounts .Thus saving account holders were more compared to current account holders.
- About 73 percent of the account holders had accounts in public sector banks and about 14 percent had accounts in private banks. The increased preference for public sector banks over private sector banks may be attributed to the increased trust that customers repose on public sector banks when compared to private sector banks.
- Of the total respondents 33 percent of the respondents were account holders for more than 5 years, 32 percent were account holders for 5-10 years and 35 percent were above 10 years. Thus for nearly three-fourths of the respondents the banking habits was good.

ATM usage

- About 82 percent of the respondents have stated that they had applied for ATM cards on their own while 18 percent have stated that it was imposed on them by the bank. The key reason for the popularity of ATM service could be the convenience it offers (Leblanc, 1990, Marr and Prendergast, 1991) and 24 x 7 transaction it facilitate.
- About 92 percent of the respondents observed that ATM services was available in bank premise itself, while 8 percent have stated non-availability ATM services in bank premise.
- While for 65 percent of the respondents their accessibility to ATM services was moderate, about 24 percent have stated it was ‘high’ and 11 percent have said it was ‘low’. Okafor and Ezeani (2012) noted that most of the respondents in Ibadan metropolis were using ATM moderately in their financial transactions.

- The number of ATM cards owned by the respondents also varied with 58 percent possessing only one card, followed by 35 percent owning two cards and negligible proportion (7 percent) having three cards.
- The analysis of duration of using ATM cards by the respondents reveals that 38 percent have been using the cards for 5-10 years, 31 percent more than 10 years and the remaining 31 percent 1-5 years. This signifies the growing acceptance of ATM services among the bank customers. Tuli, Richa; et al (2012) in their study concludes that use of ATM services is increasing year to year.
- The extent of usage of ATM services by the respondents during a week highlights that more than one half of the respondents were using card 2 times a week, followed by 23 percent using 3 times a week,12 percent using 4 or more times and about 13 percent using it once a week.
- In order to investigate the relationship between frequency of using ATM services and socio-economic profile (gender, age, marital, education, occupation and income) of the ATM users, Pearson's chi-square test was done. The analysis revealed that frequency of using ATM cards was independent of age, education, occupation and income but was dependent on sex of the respondents. Males used the cards more frequently when compared to female respondents. As quoted in many earlier studies most of the ATM users were males (Swinyard and Shee, 1986; Nadar, 2012).

Purpose of using ATM

- The major use of ATM cards was to 'withdraw cash' (1^{st}rank), followed by ' checking account balance' (2^{nd} rank), 'shopping' (3^{rd} rank) and 'paying utility bills' (4^{th} rank). The least preference was given to 'payment of insurance and tax' (7^{th} rank) and e-ticketing (6^{th} rank). ATM cards were primarily used by the customers' for cash withdrawal, check balance and for shopping. Nadar (2012) also opined that ATM service was preferred by bank customer for quick cash withdrawal.
- While more and more people are moving towards ATMs for their banking needs, it was still largely used as cash dispensers. Large number of customers still do not use other value added services on offer at ATMs. Banks therefore have a task on hand to make ATMs self-serving model for customers.

Benefits of ATM usage

- An attempt was made to examine the impact of convenience, perceived usefulness, ease of use and security on the usage of ATM by bank customers. Cronbach alpha value for the four constructs indicated that the items that formed them had reasonable internal consistency and reliability- varying from 0.745 to 0.921.
- The operational model estimated and validated using structural equation modeling with partial least square technique. The composite reliability of all the 4 constructs varied from 0.95 to 0.94. The AVEs of all constructs was showing acceptable levels of convergent validities (greater than 0.50).
- The estimated model revealed that perceived usefulness and ease of use provides for the predominant use of ATM by bank customers. The construct 'convenience' however indirectly affected ATM usage through 'ease of use' and 'perceived usefulness'. No significant relation was found between security and ATM usage directly. Patri'cio et al (2003) in their study identified accessibility and speed of operation as strong predictors of customers' satisfaction whereas security and technical failures were main causes of dissatisfaction.

Problems Associated with ATM Usage

- Factor analysis to identify the problems of ATM usage showed that the major problems identified by the respondent were poor service delivery('wrong amount in slips', 'poor visibility of payment slip' and 'difficulty in inserting card), security issues(lack of safety in withdrawing cash), technical problems('machine being out of cash', 'no printing of statement' and 'machine being out of order'), poor accessibility('withdrawal limits' and limited amount of money to be withdrawn') and cost factor(high hidden cost' and 'high charges on e-ticketing').
- The regression analysis was done to determine the effect of poor service delivery, security issue, technical problem, poor accessibility and cost factor on the frequency of using ATM services.
- Out of the variables considered only 'cost factor' ($t=-4.024$; $p< 0.000$) and 'security factor' ($t=2.528$; $p<0.013$) are statistically significant. The cost had a negative impact on

the usage of ATM services while security had a positive effect. The overall model was also statistically significant (R^2=0.468; p<0.000).

- The analysis established that the level of satisfaction is reduced by the customer perception that the service delivery is expensive and insecure.

Conclusion

The study brings to light that ATM had positive features such as convenience, speed of delivery and ease of use. However the customers were facing certain problems, namely poor service delivery and high hidden cost. Effective ATM transactions lead to customer loyalty and thus customer retention. Hence the banks should try to ensure customer retention by devising effective strategies to improve ATM services. Though this study can't provide conclusive evidence to determine particular courses of action and further research will be required to provide conclusive evidence, the banks can take the following steps to ensure that the dissatisfaction among customers about ATM services is reduced to zero.

- Banks should ensure that all its ATMs are properly functional at all times and faulty machines should be fixed immediately. The bank can also communicate to its customers about the faulty machines in order to save them the trouble of going to those particular ones.
- Banks should incorporate more functions to the ATMs such as adding more languages to ATMs depending on the region of the country in which they are installed, adding voice tellers and video tellers to the machine in order to encourage more reliance on them and thus lower chances of defection.
- Banks should lower transaction charges on ATM transactions or further customize their loans to attract clients to stick with the bank.
- Banks should improve on the service quality, increase the numbers of ATM dispensers and confidentiality of consumer data should be protected.
- Banks should develop strategies to motivate non- users through awareness, education, extending personalized services, and demonstrating the functions of ATMs.
- Quick response to customers' needs and queries about the ATM related services are important to improve the service standards of ATM. This would facilitate customers to

participate in improvement of service quality, learn and perform, and have a pleasant experience through two-way communication. Bank should make a commitment to redress the service failures of ATMs.

- The study found that there are more males ATM subscribers than females in the study area. To reverse this situation management should draw an educational program that would target female customers in order to increase the patronage of women in the use of the branch ATM. Management should also conduct frequent education on all the services the ATM can offer to customers.
- Above all, the Bank management should monitor the environment and identify the trends through marketing intelligence. They need to constantly up-date and differentiate their ATM service quality dimensions to ensure continuous satisfaction and retention of customers, and optimize their limited resources.

As the Government moves towards creating cashless economy, all efforts must be made to continuous enlighten and educated the masses and make banks to address all the genuine concerns and challenges raised by the bank customers. Also, to spread the benefits machine could be made more user-friendly in order to accommodate the physically challenged and visually impaired ones in the society. Through this the machine could gain more acceptances in the economy.

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APPENDIX

Interview Schedule

Socio- economic Profile

1. Name :
2. Sex : Male ☐ Female ☐
3. Religion : Hindu ☐ Christians ☐ Muslims ☐
4. Caste : SC/ ST ☐ BC ☐ MBC ☐ OC ☐
5. Age :
6. Educational Status :
7. Occupation :
8. Organization you work for : Public Sector ☐ Private sector ☐
   Non-profit Organization ☐ Others ☐
9. Monthly Income (in Rs.) :

Banking Details

10. How many accounts do you hold? :
11. Type of Account : Savings Account ☐ Current Account ☐
    Both Savings and Current Account ☐
12. Name of banks where you have accounts:
13. Years of Bank Account Ownership :
14. Do you own an ATM card? : Yes ☐ No ☐
15. How did you get an ATM card? : Applied for it ☐ imposed on me by Bank ☐
16. Did your bank ever prompt you to apply for the card? Yes ☐ No ☐
17. Does your bank have ATM in its premises? Yes ☐ No ☐
18. How would you rate your physical access of ATM of your Bank?
    Low ☐ Moderate ☐ High ☐
19. How many ATM cards do you own? : 1 ☐ 2 ☐ 3 ☐ 4 or more ☐
20. Duration of ownership of ATM cards:
21. Do you use ATM cards? :
22. Frequency of using ATM cards per Month:
    0 times ☐ 1-2 times ☐ 3-4 times ☐ 5 or more times ☐

23. Purpose of using ATM (rank them in order of priorities) (1-7):

Banking Services	Ranks
Cash Withdrawal	
Utility Bill payments	
Account Balance	
E-ticketing	
Insurance & Tax	
Print mini statement of transaction	
Shopping	

24**. Benefits of using ATM**

Please indicate the extent to which you agree or disagree with each of the following statements by ticking the most accurately indicate your response what is your feeling about the following statements? Please tick your choice (SA-strongly Agree, A-Agree, N-neutral, DA- disagree, and SDA- strongly disagree.)

S.No	Statement	SA	A	N	DA	SDA
1	**Perceived Usefulness** Using ATM enables me to utilise banking services more quickly.					
2	Using an ATM makes it easier for me to utilize banking services.					
3	ATM offers freedom, flexibility and convenience in the time of banking.					
4	Using ATM has reduced the burden one encounters in the Bank					
5	All my banking inquiries are done at the ATMs.					
6.	ATM gives me choice to use a language I understand better.					
7	**Perceived Ease Of Using ATMS** ATM is user friendly.					
8	ATM is easy to use even by people without prior computer knowledge					
9	ATM enables me do transactions anywhere around the country					

10	Simplicity involved in using ATMs encouraged you to use the system					
11	Using ATM doesn't require a lot of mental efforts					
12	ATMs have made banking so easy that even when not trained one can use it.					
13	**Security Issues** ATM provides reliable security controls I need.					
14	ATM gives an option to change pin code.					
15	Ensures safety of my account details.					
16	ATMs are private enough					
17	Receives alerts on completion of transaction from banks.					
18	I trust the security of the ATMs					
19	**Convenience** Reduces cash requirement					
20	Convenient while traveling					
21	Anytime and anywhere cash withdrawal					
22	Connectivity to other banks ATM					
23	ATM offers freedom, flexibility and convenience in the time of banking.					
24	One stop banking					

25. Problems while using ATM/Debit Cards

S.No	Statement	SA	A	N	DA	SDA
1	Card gets blocked					
2	Machine Out of Cash					
3	No Printing of Statement					
4	Machine Out of Order					
5	Wrong Amount in The Slip					
6	Poor Visibility of Statement slip					
7	Balance Reduced Without receipt					
8	Difficulty in Retrieving cards					
9	Limited amount of money to be withdrawn					
10	Withdrawal limit					
11	Unsecured ATM location					
12	ATM is rigid and inflexible to interact with;					
13	Unnecessary charge					
14	Long Queue					
15	Difficulty in inserting card					
16	There are chances of Fraud and forged transactions					
17	No personal touch					
18	Old currency notes					
19	Fear of spending too much					
20	Inconvenient location of ATM centre					
21	High hidden cost					
22	High charges on e-ticketing					
23	Lack of safety while withdrawing cash					
24	Inadequate ATM centre					