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An Investigation of Factors Affecting Usage and Adoption of Internet & Mobile Banking In Pakistan

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Abstract

Evolution of technology is a swift process, however, its acceptance and adoption in the society is slackened despite its promising results. Internet / mobile banking is a technological

way of conducting banking transactions. The purpose of the current study is to find out the affect of various factors effecting successful adoption of internet / mobile banking using TAM, technological acceptance model in Pakistan, especially rural areas of the country. Results of the current study obtained using regression analysis reveals that the effect of perceived usefulness and security is significant on internet / mobile banking attitude where attitude significantly impact on intentions to use internet / mobile banking. Also due to the cultural effect this modern banking is not compatible with the lifestyle of rural population of Pakistan though the population widely acknowledged its usefulness.

Keywords: Internet banking, mobile banking, trust, security, compatibility, Technology Acceptance Model, Pakistan

1. Introduction

With the dawn of a new era of technology, many innovations have been brought forward in financial services specially the retail banking sector. These momentous changes occurred because of many demanding factors including customer satisfaction, parallel competitive pressure, technology innovations, use of IT and communication channels etc. The need of time was to provide value added services to meet customer needs and not only satisfy them but also enhance market scope and gain competitive advantage over the rest of others.

Information and communication technology (ICT) also known as self service technology (SST) permits the customer to deal with the electronic means without interacting with any firm's service personal. These services include interactive kiosks, self scanning supermarket checkouts, automated teller machines (ATMs), telephone banking, mobile banking (M-Banking), internet banking (I-Banking), self-pumping at gas stations, electronic funds transfer etc. These technologies form a conglomerate which is called Banking Information System (BIS). This system involves conducting transaction inquiries, insurance ordering, portfolio management, funds transfers, bill payments, account balance inquires, stock trades, credit card and loan payments, and much more.

With advancement of technology, internet banking also known as I-banking has emerged as a "*one window services and information entity*" which promises great boon to both banks and consumers. This beneficial system allows the customers to interact via the use of internet and covers all the grounds of financial and business information as well as personal information regarding how to access accounts, do transactions etc. Another helpful service is provided in the form of mobile banking (M-Banking) which enables the customer to have direct link with the bank via mobile anywhere and everywhere, hence enhancing customer comfort. Information system researches has proved that mobile banking is emerging as one of the most powerful platform for conducting banking transactions and hence a great technological innovation of today. Since the number of cell-phones is more than PCs, M-Banking has become more popular than I-Banking among bankers & consumers.

All good being said and witnessed about the innovations in technology, some researches shows that although BIS is readily available for the customers, it is not fully availed and utilized. Trends in I-Banking and M-Banking throughout the world demonstrate the consumer uptake falls below the level of expectations. These researches support the notion that advancement of technology and information does not automatically leads to the adaptation of latest scientific approach. It also points towards our little understanding of those factors that have positive and negative influence on the adoption of these technologies. This has been also confirmed by the researches that have been undertaken in this arena. Hence the need of time is to further investigate regarding all the factors which inhabit the customer in using these technologies and further educate them regarding the technological benefits.

Looking into and studying the aims and objective of BIS will not only lead toward a better understanding of it but will also instigate the potential user to use the advanced technologies and will alter their attitude and beliefs, hence creating the conditions which will accelerate the adoption of BIS by the customer. In recent years, many researches have been conducted and analysis has been made to understand the factors that influence adoption and usage of BIS. For purpose of better understanding intention models from social psychology has been studied among which theory of planned behavior (TPB) by Ajzen, 1991 and technology acceptance model (TAM) by Davis, 1989 are of great significance. These models have major contribution towards successful prediction of technology acceptance behavior and were furthered verified by many other researchers like Maragahh, Iivari & Igbaria, 1995, Hu & Chau, 2001 and Straub & Gefen, 2000, Szajna, 1994).

So the aim of the current research is to investigate the prime factors which are related to the behavioral intentions of the customer in using BIS. This research reviews the effect of independent factors of compatibility, perceived usefulness, trust, perceived ease of use, and, security on dependent factors of attitude and intention to use I. banking & M-banking.

2. Literature Review

2.1. The technology acceptance model (TAM)

Davis et al In 1989 developed the technology acceptance model (TAM) that has been one of the most popular behavioral intention models in the social psychology. This model has been widely used and extensively verified by the researchers as a powerful tool for predicting user acceptance and adoption of new technology. The classic tam model explains relationships between perceived usefulness perceived ease of use, attitude and intention and their affects on one another. To further enhance the usefulness of TAM, many researchers incorporated various external variables like demographic, personality traits, cognitive factors and social factors etc into the classical TAM model to explore the effects of these variables on the technology acceptance and adoption.

2.2. Attitude (ATT)

Attitude is an individual's feelings, sense or thinking towards a desired behavior. Attitude can be positive or negative depending on what a person's perception is about the behavior and its related outcome. Davis, 1989 believes that attitude towards technology greatly influence

behavior which result in actual usage or dismissal of it. Whereas Ajzen and Fishbein, 1989 argues that attitude do not effect behavior directly rather it has an indirect effect on behavior via individual's internal beliefs. some researchers like Weiner, 1986 are of opinion that attitude is the antecedents of beliefs .still few researchers believes that attitude and beliefs co-determine the behavioral intentions

In 1980 Fishbein & Ajzen presented the Theory of Reasoned Action (TRA) which says that individual's behavior can be predicted based on his beliefs. Individual's intention to perform a specific behavior is based on his attitude towards that behavior and the associated resultant outcomes. TRA is a broad spectrum structure that can explain almost all human behavior. Technology acceptance model and theory of planned behavior were both developed as an extension to TRA. The first determinant, attitude toward behavior, reflects an individual's beliefs that the behavior leads to certain outcomes and the person's evaluation of those outcomes, favorable or unfavorable. The more positive the attitude, the stronger the behavioral intention and, ultimately, the higher the probability of a corresponding behavior should be. Therefore it is concluded that the intention to use a particular system is highly influenced by an individual's attitude towards it. This intention in turn leads to the actual usage behavior.

H1: Attitude positively affects behavioral intention towards adoption of M-Banking & I-Banking.

2.3. Perceived Usefulness (PUF)

Taken from classical TAM model of Davis, 1989, perceived usefulness (PUF) indicates the *probability of enhanced individual performance resulting from the use of technology***.** This proposition is justified from the perspective that people's intentions to use the technology will be greater, in spite of their attitude toward the technology alone, if they believe that using the technology will increase their job performance along with other benefits. Many existing studies have shown that perceived usefulness have a direct significant influence on behavioral intention to use a particular online system (Chen and Ching, 2002; Heijden *et al*., 2003; Guriting and Ndubisi, 2006; Khalifa and Shen, 2008; Liao *et al*., 2007; Lin and Chang, 2011; Lin and Wang, 2005; Lai and Yang, 2009; Wei *et al*., 2009).

In the context of mobile business service, researchers like Kleijnen *et al*, 2004 and Wang et.al, 2006 found that perceived usefulness is a vital force affecting the adoption of mobile service since users consider its benefits. This was further confirmed by the researches of Luarn and Lin, 2005. In their research In 1991, Moore and Benbasat found out that rate of adoption is directly and positively related to the perceived usefulness of a new technology. The more a person believes that technology offers many uses, the more he is inclined towards its adoption. Immediate, convenient and affordable transactions are few of the reported benefits of M-Banking & I-Banking to customers (Laukkanen, 2007). In general, customers tend to have more positive attitude towards adoption and usage of new technology when they

comprehend the numerous benefits offered by M-Banking & I-Banking .The following hypothesis thus is proposed.

H2. Perceived usefulness positively affects the attitude towards using M-Banking & I-Banking.

H3. Perceived usefulness positively affects the behavioral intention to use M-Banking & I- Banking.

There are many advocates of the significant relationship between perceived usefulness & attitude like Chen *e tal*., 2002, Cheung and Liao, 2003, Porter and Donthu, 2006, and Robinson *et al*., 2005.The link has been validated by further contribution by Meuter ad Curran, 2005; Gribbins *et al*., 2003, Heijden *et al*.,2003 and Nysveen *et al*., 2005

2.4. Perceived Ease of Use (PEU)

The other antecedent belief taken from classical TAM is perceived ease of use (PEU), which indicates how easy it is to use the technology in question. Complexity of one particular system can detect the use of an innovation (Rogers, 1995). The existing studies done by Chen *et al*., 2002; Heijden *et al*., 2003, Guriting , 2006 suggest that ease of use is a major attribute of e-business applications such as internet commerce, I-Banking and mobile commerce. Users would be concerned with the effort required to use that application and the complexity of the process involved. Such perceived ease of browsing, identifying information and performing transactions should enable favorable and compelling individual experience (Curran and Meuter, 2005, Kleijnen *et al*., 2004, Nysveen *et al*., 2005, Porter and Donthu, 2006, Robinson *et al*., 2005, Heijden *et al*., 2003 and Chen *et al*., 2002). If the M-Banking & I-Banking applications have user friendly interfaces, then customers are likely to perceive them as easy to use, and this perception will develop positive attitude towards them. Hence, the following hypothesis is proposed:

H4. Perceived ease of use positively affects the attitude towards using M-Banking & I-Banking.

Also studies suggest a strong relationship between usefulness of technology and ease of using that technology. As using the new technology becomes easier to use, the expected benefits in terms of performance enhancement increases. This relationship has also been validated in online technology context (Gefen and Straub, 2003; Gefen *et al*., 2003; McCloskey, 2006; McKechnie *et al*., 2006; Moon and Kim, 2001; Morosan and Jeong, 2008). Based on these arguments, we propose the following hypothesis:

H5. Perceived ease of use positively affects the perceived usefulness of M-Banking& I-Banking.

2.5. Compatibility (COM):

Studies by Wu and Wang, 2005 have found compatibility to be a strong antecedent having significant effect on in determining consumers' intention to use I-baking /M-banking. This antecedent has been developed from Rogers, 1962. Innovation Diffusion Theory (IDT).Compatibility is defined as the level of consistency between new technology and customers needs, daily life routine, experiences and values . Greater the compatibility between individual's life style and technology, greater will be its interpretation in a more familiar context.

Studies have confirmed compatibility to be one of the strong indicators of attitude towards M-Banking & I-Banking. Research on BIS services reveals financial transactions need gaps which have not been fulfilled by the traditional channels used by financial institutions. These channels have been unable to provide the ubiquity offered by an M-Banking & I-Banking as also discussed by Howard & Hourahine, 2004 in their studies. Chen et al., 2002 has been found that chances of technology adoption increases much with high compatibility. This leads to our 6th hypothesis:

H6. The compatibility of M-banking & I-banking with users' lifestyle and current needs will have a positive effect on intention to use M-Banking & I-Banking.

2.6. Security (SCE):

Many previous studies such as Cheung, Liao, 2002 and Durkin et al., 2008, identified personal information and financial transactions security as one of the determinants of M-Banking &I-Banking adoption. Greater the customer's perception about the risk associated with the use of internet, greater will be the importance of security for customer. Also the more customer uses internet for his financial transactions less will be his concern regarding the security issues of internet. The studies of Fernandez & Miyazaki conducted in 2001 confirms the same that risk and security concerns associated with internet will be lower with higher level of internet usage and experience. Therefore, we establish the following hypothesis.

H7. Perceived security of M-banking & I- banking affects the attitude towards Intention to use M-Banking & I-Banking.

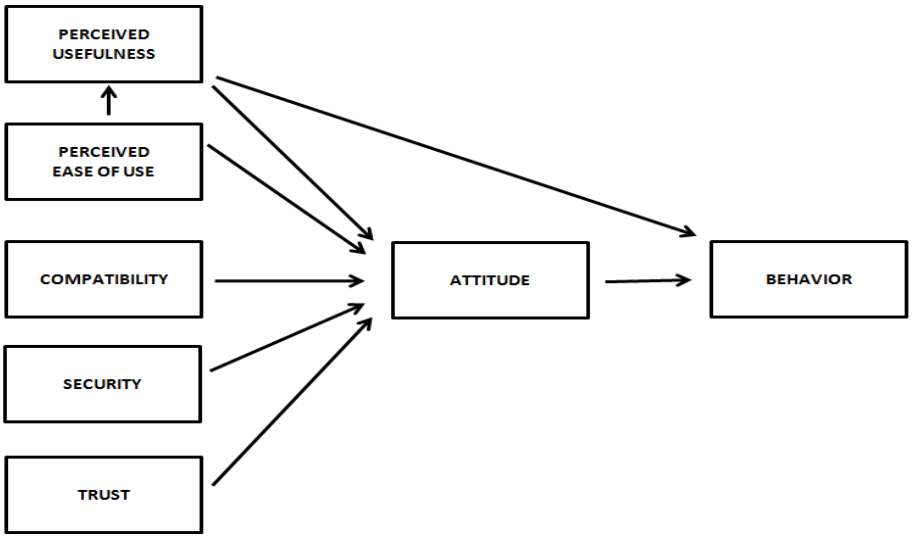
2.7. Trust (TRU):

Trust, the degree to which a person believes that others will live up to his expectations and will not take undue advantage of the situation, is one of the most frequently discussed external factor that hinders adoption of technology. McGoldrick and Laforet says that one of the reason people may choose not to adopt M-Banking & I-Banking is the privacy and secrecy concerns governing these new electronic channels being offered by financial institutions and banks. According to Peralta and Novak, 1999, lack of trust and security issues fear, including fear of leakage of personal information, the lack of profitable business models and the lack of standards for secure payment creates barrier towards successful e-commerce implementation and adoption. Trust plays important role in diminishing of these

fears. It helps make possible the reduction in uncertainties, ambiguities, risks and frauds related to financial transactions in e-commerce thus enhancing the likelihood of increasing customers adopting of I-banking / M-banking. This notion is supported by various researches done by Benbasat and Wang, 2005, Pavlou, 2003, Lin &Luarn 2005 and Han and Suh, 2002.Recent researches have incorporated trust as another key construct of TAM. Accordingly, this research proposes the following hypotheses:

H8: Trust on M-banking & I- banking services positively affects the attitude toward intention to use mobile banking & internet banking.

Research Model



4. Methodology

Research conducted for the purpose of this study is of descriptive nature. Such research method is used only for describing some phenomena or explaining any situation. It is not used to infer results or make judgment. The main objective of the descriptive research is verification of developed hypothesis that reflect current situation (M.Rizwan, M.Adil Jan, 2012) using past & present literature. It describes attributes of environment, groups, objects, organizations and people and portrays them according to a given situation (Zikmund, 1997).

4.1. Sampling & Data Collection:

Convenience sampling technique was used to collect the data from a sample of I50 customers who are using mobile/internet banking services provided by three private banks in Pakistan. Our sample, the population under study represented a cross-section of gender, income, education, status and age and belongs to Bahawalpur, Lodhran, Ahmedpur East, Gilliwaal, Kehrorpacca and Yazman cities.

Convenience sampling is a technique that obtains & collects the relevant information from the sample or the unit of the study that are conveniently available (Zikmund, 1997) The questionnaire used to collect the data was administered by personal delivery & e-mail. Convenience sampling coupled with questioner helps obtain large number of questioner data quickly and at low cost.

4.2. Development of Instrument:

The survey instrument contains two sections. 1st Section includes different personal and Demographic variables. This section obtains the respondent's information about gender, age, Income, education, status, frequency of internet use and willingness to use I-banking / M-banking in the future.

2nd Section of the paper-based survey questionnaire was developed from previous studies using multiple-item scales with minor changes to tailor them to the I-banking / M-banking context. It measured five dimensions of internet / mobile banking and its effect on customer attitude & behavior. The variables for the current study are; perceived usefulness (7 items); trust (8 items); security (7 items); perceived ease of use (7 items); behavior (4 items); attitude(4 items) and compatibility (6 items) respectively.

The research design used two scales to collect the data. The nominal scale was used to collect demographic information about respondents. It is a widely used elementary level scale that assigns values for the purpose of only classification and identification of objects and variables. (zikmud,1997)it is useful qualitative scale and one of the most frequently used too. (Table 1)

Five point Likert scale ranging from five (strongly agree) to one (strongly disagree) was used to measure the response of all dimensions of I-banking / M-banking and its effect on customer attitude & behavior. It is a popular attitude measuring scale developed by Resis Linkert. It allows respondents to specify how strongly they agree or disagree with the carefully constructed statements.

Table1: Scales of the Study

No	Variables	Items	Reference
1	Perceived Ease of Use	1. Learning to use bank's Website and/or Mobile application for transactions is easy for me 2. My interaction with the bank's Website and/or mobile banking application is clear and understandable. 3. Using internet/mobile for banking transactions would be easy to do for me.	Payam & Tabar, 2012

		4. It would be easy for me to become skillful in using the bank's Website and/or mobile banking application. 5. I find the bank's Website and/orMobile banking easy to use 6. I think that interaction with online banking / mobile banking does not require a lot of mental effort. 7. Internet/mobile banking application has easy navigation.	
2	Perceived Usefulness	1. Using the bank's Website and/or mobile banking improves my banking experience 2. Using the bank's Website and/or mobile banking improves my banking productivity 3. I find using the bank's Website and/or mobile banking useful 4. I think that using the internet/mobile banking would enable me to accomplish my tasks more quickly. 5. Overall, I think that using the internet/mobile banking is advantageous. 6. Using the internet/ mobile banking enhances the efficiency of my Banking activities. 7. I believe that internet banking enables me to manage my financial resources more effectively	Rizwan et al., 2013
3	Attitude	1. Using internet/mobile to do banking transactions is a good idea. 2. My general opinion of Internet/Mobile Banking is positive 3. Using bank's Website and/or mobile banking is a pleasant experience 4. Using mobile banking will be good for me.	Yu *et al.* (2005)
4	Trust	1. I believe the bank's Website and/or mobile banking application will keep the commitments promises made to me 2. The bank's Website and/or mobile banking I am using is totally trustworthy 3. I believe in the information provided by bank's Website	Shumaila Yousafzai and Mirella Yani-de-Soria no,2011)

		and/or mobile banking 4. My tendency to trust the bank's Website and/or mobile banking application is high 5. Trusting in the bank's Website and/or mobile banking is not difficult 6. I have trust in the technology that internet/mobile banking is using 7. I would trust my bank telecommunication operator to provide secure data connections to conduct internet/ mobile banking 8. Any business transaction that I do electronically should be confirmed later with something in writing.	
5	Security	1. I feel secure putting my personal information in the bank's Website and/or mobile banking application 2. I believe the bank's Website and/or mobile banking application has security feature to protect users 3. I trust in the ability of internet /mobile banking application to protect my privacy 4. Using internet/mobile banking is financially secure 5. I am not worried about the security of internet/mobile banking 6. Using mobile banking would not divulge my personal information 7. I think there is little danger that anything will go wrong if I use internet/ mobile banking	Payam & Tabar, 2012
6	Behavior intention	1. I intend to use internet/mobile banking Continuously in the future. 2. To the extent possible, I would take advantage of internet/mobilebanking for my banking activities 3. Given that I have access to a web-enabled mobile phone/internet, I predict that I would use internet/mobile banking 4. I will adopt mobile banking as soon as possible	Payam & Tabar, 2012

7	Compatibility	1. Using internet/mobile banking would fit my lifestyle 2. Using internet/mobile banking would fit well with how I like to do my banking 3. Using internet/mobile banking would be compatible with most aspects of my banking activities 4. I like the idea of Internet /mobile banking as I am not limited to regular banking hours 9-5 5. I find internet/mobile banking to be mentally stimulating 6. Internet/mobile banking gives me more freedom of mobility.	Shumaila Yousafzai and Mirella Yani-de-Soriano,2011

4.3. Procedure:

150 questioners were distributed among respondents selected on criteria mentioned above. They were thoroughly briefed about the purpose of study and method of attempting the questioner. The filled questioners were coded and entered into the SPSS (Statistical Package for Social Sciences) to compute and analyze the data. The statistical tests used in the analysis of data included reliability analysis and regression analysis.

4.4. Reliability Analysis:

Reliability analysis allows us to study the properties of measurement scales and the items that make them up. It helps us to establish the extent of relationship between various items in our questionnaire, to check the internal consistency of our scale, help recognize problem items in the scale and to calculate overall index of the repeatability preset in the scale.

To measure the reliability of scales we usually use Cronbach's alpha value. It measures the internal consistency (Introduction to SAS. UCLA: Statistical Consulting Group,2007) , means how closely related are the items of a variable. The recommended values are 0.50 by Nunnally (1970) and 0.60 by Moss *et al.* (1998).

Overall value of 0.773 of Cronbach's alpha shows that all the 43 items are reliable and valid scales for measurement of variables under study.

Table1: Reliability of Measurements Instrument

Scales	Items	Cronbach Alpha
Perceived Ease of Use	7	0.848
Perceived Usefulness	7	0.830
Attitude	4	0.681
Trust	8	0.737
Security	7	0.733
Behavior intention	4	0.839
Compatibility	6	0.748

5. Analysis

5.1. Profile of the Respondents:

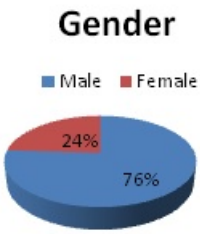
The respondents of our survey were the bank customers who were familiar with baking procedures, online baking and ATM. The male to female distribution was 76 and 24 percent, respectively. This difference is mainly due to the cultural environment of the areas from where data was collected. Generally baking related activates are conducted by males in these areas. Respondents' age ranged from 15 to above 50 years with an average of 25 years. Most of our respondents were employed, between 25-30 years of age. In terms of education, 56 percent of the respondents had master's degree. Finally, in terms of household income, 26 percent reported household incomes between Rs. 15 to 25k & 25 percent reported incomes between $35 and 45K. Internet use and awareness of internet/mobile baking are presented in the following table (Table 2).

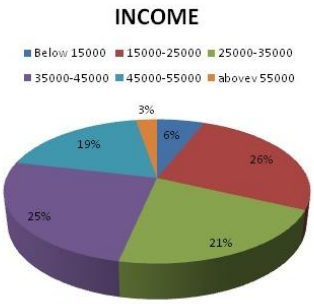
Table 2: Profile of the Respondents

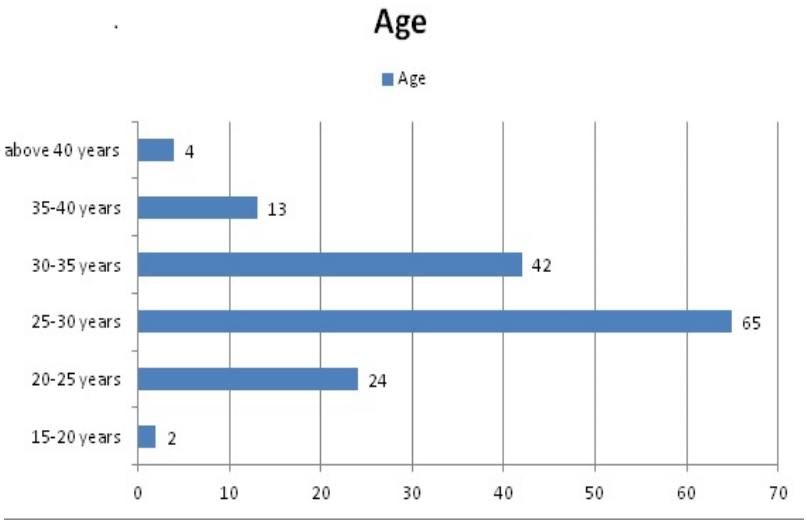
	Category	Frequency	Percentage
Variable			
Gender	Male	114	76
	Female	36	24
Age	15-20 years	2	1.3
	20-25 years	24	16

	25-30 years	65	43.3
	30-35 years	42	28
	35-40 years	13	8.7
	Above 40 years	4	2.7
Income	Below 15000	9	6
	15000-25000	39	26
	25000-35000	32	21
	35000-45000	38	25
	45000-55000	28	18
	Above 55000	4	2
Education	Inter	9	6
	Bachelor	28	18.7
	Master	84	56
	Above Master	29	19.3
Marital Status	Single	58	38.7
	Married	85	56.7
	Separated	7	4.7
Economic Status	Student	6	4
	Employed	132	88
	Business man	9	6
	House wife	3	2
Frequency of internet use	Less than 1-Hour	87	58
	1-2 Hours	19	12.7
	2-3 Hours	19	12.7
	3-4 Hours	4	2.7
	More than 5 Hours	21	14
Awareness about	Yes	140	93.3

internet / mobile banking	No	10	6.7
Availing or Willingness to avail internet / mobile banking	Yes No	110 40	73.3 26.7







5.2 Hypothesis Testing:

After confirming the reliability of our items above, in this section we measure the relationship between dependent and independent variables and put our hypothesis to test using linear regression and multiple regression techniques with the help of SPSS software.

Regression is used for predicting relationship between variables. Liner regression is used to determine the strength of the relationship between two variables one of which is dependent and other independent. When the effect of more than one independent variable is determined on the dependent variable the regression then becomes multiple regression.

5.2.1. Perceived usefulness, Perceived Ease of use and Attitude:

According to the results obtain from regression analysis of our data via SPSS, the relationship between usefulness and attitude is highly significant and positive with (β=0.523 & p=0.00) this shows that attitude is highly influenced by the usefulness of the technology. The more a

person believes that internet/mobile baking is useful in his banking related activities in terms of ease, Time & cost savings, the more he will develop positive attitude towards it which will increase the chances of his adopting/using I-banking/M-banking. This result is consistent with previous studies of Wang et al., 2008, 2005, Cheong and Park, 2005; Chiu et al., 2005; Curran and Meuter, 2005, Mathieson, 1991, Todd and Taylor, 1995, Nysveen et al.thus H2 is validated and thus we fail to reject our hypothesis.

The value of (β=0.129 & p=0.121) for ease of use opposes most of previous studies by Curran and Meuter, 2005, Venkatesh et al., 2003, Bagozzi & Dabholkar 2002 that suggested a significant relationship between ease of use and attitude. However few scholars came up with similar results as ours (Lisa Wessels, 2011; Judy Drennan 2010) the reason of such variance from past studies might be the reason that the ease of use is important only for the initial stages or first time usage of the technology. According to Davis et al 1989 and Wang et al., 2006, once a person is proficient in its use, the ease of use aspect of technology loses its significance and usefulness gains importance .similarly previous experience with smart phones, ATMs and other technological devices might have increased self-efficacy that has reduced the effect of ease of use. H4 is not validated means our hypothesis is rejected.

The effect of ease of use on usefulness is quite significant with (β=0.663 & p=0.00) the importance of this effect is enhanced especially in initial usage of any technology. The more easily any new technology will be to use, the more useful it will be considered. H2 is validated and we fail to reject our hypothesis. This result is consistent with past studies (Gefen and Straub, 2003, McCloskey, 2006, Moon and Kim, 2001, McKechnie *et al*., 2006, Morosan and Jeong, 2008) also a byproduct of this link is the indirect effect of ease of use on attitude through usefulness.

5.2.2. Perceived usefulness and behaviors

Usefulness and behavior has highly significant relationship with (β=0.559 & p=0.00. H3 is valid and we failed to reject our hypothesis .result is consistent with past studies. This shows that usefulness contributes more than 55% to behavior intention of internet/mobile baking adoption.

5.2.3. Attitude and behavior:

(β=0.696 & p=0.00) attitude has highly positive and significant influence on behavior. The more positive attitude is towards internet /mobile baking, the more will be the behavior intention to adopt /use it.H1 is valid means we fail to reject our hypothesis. Attitude contributes more than 69% to behavior intention.

5.2.4. Compatibility and attitude:

Compatibility and attitude has insignificant relationship shown by (β=0.147 p=0.123).this result is oppose to past studies. It can be mainly due to two reasons. One is that past studies were conducted in technological advance courtiers where rate of technology adoption is higher than that of underdeveloped countries such as Pakistan. Second is the cultural impact of the area. Physical evidence of transaction carries high weight age for people living in

Bahawalpur and surrounding areas which is not easily available with internet/mobile banking.H6 is not valid and hence the hypothesis is rejected.

5.2.5. Security and attitude:

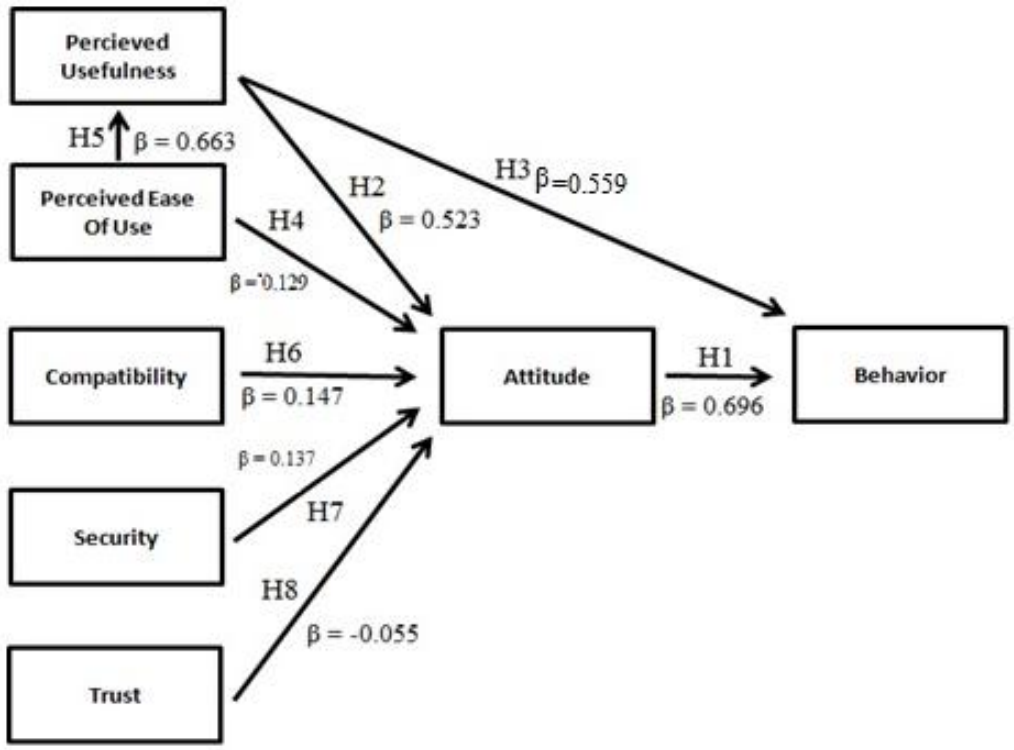
Significance though low, still exists between the relationships of security ad attitude. (β=0.137 p=.049).result is consistent with past literature. (Polatoglu & Kin, 001; Devlin & Young, 2003).the more a customer believes in security of technology the more positive attitude will be developed towards usage/adoption of that technology.H7 is valid and we fail to reject out hypothesis.

5.2.6. Trust and attitude

In our current study trust and attitude has a negative relation shown by (β= -0.055 & p=0.498) this relationship is also not significant. This finding hugely contradicts with previous literature which suggests that trust is a key motivator for usage of technology.H8 is rejected.

Table 3: Regression Results

Hypothesis	**Model Variables**	**Estimate**	**S.E.**	**C.R.**	**P**	**Results**
H1	Attitude → Behavior	0.696	0.069	11.779	0.000	Supported
H2	PU → Attitude	0.523	0.080	6.572	0.000	Supported
H3	PU → Behavior	0.559	0.080	8.211	0.000	Supported
H4	PEU → Attitude	0.129	0.070	1.559	0.121	Not Supported
H5	PEU → PU	0.663	0.052	10.774	0.000	Supported
H6	Compatibility → Attitude	0.147	0.092	1.552	0.123	Not Supported
H7	Security → Attitude	0.137	0.076	1.982	0.049	Supported
H8	Trust → Attitude	- 0.055	0.095	- 0.680	0.498	Not Supported



6. Discussion

The main objective of the current study is to understand the factors playing role in shaping up attitude towards internet/mobile baking adoption using TAM in context of rural areas of Bahawalpur, Pakistan. Despite high awareness level and internet usage, mobile /internet banking is the least used feature of the services provided by institutions especially baking sectors. The results of the study help us to develop and verify the hypothesis and understand the relationships among various variables of TAM.

Starting with TAM and its classical variables perceived usefulness (PUF) and perceived ease of use (PEU),we have see from past researches and literature review that these two factors have the most significant effect on attitude towards internet/mobile banking(Yu *et al.*, 2005; Hsu and Chiu, 2004; Pavlou, 2006; To *et al.*, 2008) the more a person thinks that the technology is easy to use and beneficial for him, the more positive his attitude becomes towards it which increases the chances of its usage/adoption. Our study result regarding PUF and ATT is consistent with past studies that are usefulness has a significant positive influence on attitude. However result regarding PEU and ATT is insignificant which is contradictory to most past studies. However (Koenig-Lewis et al. (2010), Pikkarainen et al. (2004) found similar result in their study. Easy to use technology should have positive influence on its adoption however this factor is more important at initial usage of technology. Customer's previous experience with technological devices might also reduce significance of PEU.PEU has however a very significant effect on PUF as confirmed by previous research. This way PEU indirectly effects attitude towards internet/mobile banking.

Attitude is directly linked with the behavior. Positive or negative attitude influence a person to behave in either direction. Our result showed strong relationship between these variables which is also consistent with past literature (Hsu and Chiu, 2004; Pavlou, 2006) also Davis *et al.* (1989), suggests that at early stages of new technology, attitude have greater influence o behavior. But once the person start using that technology then its usage continuity depends mainly on the ease of use or usefulness of technology. This argument supports the strong relationship between usefulness and intention to use internet/mobile baking resulted from our study.

The effects of trust and compatibility with life style were both found insignificant in our study; these results oppose previous researches who claimed a significant effect of these variables on attitude. Argument for such difference can be the change in cultural background of the past and our current study. Past studies were conducted in technological advance courtiers with high frequency of internet users. Whereas despite awareness the average internet usage was found less than 1 hour for our respondents. Also people might trust their banks but they might have security reservations about the telecommunication companies regarding mobile banking services.

7. Managerial Implications:

SSTs especially internet / mobile baking services in today's highly competitive environment provides a very attractive avenue to gain sharp edge competitive advantage for the financial institutions especially retail banking sector. Therefore it is important for managers and banks to understand the factors that shape the consumer attitude positively or negatively towards internet /mobile banking as to use them to their advantage by focusing on them and providing value added services to the customers.

an important benefits of using this study is overall cost reduction for the institutions as manual banking is more costly compared to internet / mobile banking in terms of raising labor cost, fixed overhead cost, maintenance cost and all such cost associated with running a brick and motor infrastructure. Also internet/mobile baking offers flexibility, ease and time savings to the customers which lead to high levels of satisfaction which in turns guarantee a long term beneficial relationship between the client and the institution, contributing towards institutions profitability .By successful marketing efforts institutions can create awareness regarding these facilities and hence ripe its benefits.

We have seen that security is one of the significant factors that affect attitude; hence managers should focus resources towards making internet access secure and free of bugs and embezzlements. Similarly strategic alliances with mobile communication providers can help achieve reliable services .communicating their efforts and convincing customers of the security features of ICT technologies is another very important point that managers should give attention to.

It has been observed during study that customers trust level towards their chosen bank is high where as their attitude towards its services varies. They trust their banks integrity but at the same time are reluctant to try internet/mobile banking. Managers should also focus on trust

building tools to gradually shift their customers towards internet / mobile baking. The role of state bank is very important In this regard. With proper rules and laws governing internet/mobile baking, customers will be more comfortable with adoption of these banking channels. Another way to enhance trust is by allowing customers the facility of self customization of security features of internet / mobile baking.

8. Limitations and Future Research:

A limitation of this study is the small number of sample size selected which consisted of only 150 respondents from only three private banks. This small size of sample enhances the chances of sampling error thus hindering the effectiveness of the results. Also, the spectrum of this research is prejudiced by the skewness of sample's demographic profile towards male population. This may be due to the cultural norms of the population under study where banking related activates are carried out by the males of the families. Also the male to female ratio of the bank account holders in Pakistan are of similar pattern. Thirdly time constraint was another major limitation of this study which consisted of less than 4 months. Geographic area of study imposed another limitation. Most of the respondents belonged from rural areas surrounding Bahawalpur; though their awareness level of mobile/internet baking was high still their trust on virtual transaction mode was pretty low. Their behavior cannot be accounted for those living in urban areas and big cities.

This study used cross-sectional research approach where data is collected from various areas at a single moment in time. We suggest longitudinal research approach that will allow analysis of changes in response and response continuity of respondents over time. This will help to study the factors more deeply that affect the attitude and behavior towards adoption of internet/mobile banking. For future research we recommend the addition of many other factors that affect attitude towards adoption of ICTs especially internet/ mobile banking like demographics, cultural and social factors. Also we encourage future researchers to find out the reasons for negative relationship between trust and attitude which oppose the previous studies in context of developing country like Pakistan.

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