

**AGE EFFECT ON ACCEPTANCE OF INTERNET BANKING IN TAMIL NADU, SOUTH INDIA**

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**Abstract**

The research investigates positive factors influencing adoption of internet banking services in Tamil Nadu, South India. A research framework was developed based on the Unified Theory of acceptance and Use of Technology (UTAUT). One percent increase in the adoption will bring down 18 percent of the cost for the banks (Bhattercherjee, 2001) but adoption will increase the profits of the banks. Therefore, this study is conducted to help banks to increase profit in internet banking industry by recommending effective strategies to help banks retain existing internet banking customers and attract more new customers. Two hundred respondents in Tamil Nadu, South India had participated in a survey on their perceptions toward internet banking. Results show that although young respondents have behavioural intention to use internet banking services than others. Customers above the age group of 46-55 years are not influenced by trust for acceptance of technology. Recommendations were given to promote a safe, efficient and conducive environment for acceptance of internet banking.

**Keywords: Unified Theory of Acceptance and Use of Technology (UTAUT), technology acceptance, internet banking, trust and age.**

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**INTRODUCTION**

Internet banking is the facilitation of banking transactions through internet. As it is gaining popularity in India and the Indian customers have increasingly started adopting this technology, the study was being undertaken to understand the factors influencing the adoption of internet banking.

**BENEFITS OF INTERNET BANKING**

There are numerous benefits for the banks and the customers through offering banking services online. For instance, it was estimated that branch banking costs about Rs.1 per transaction, Automated Teller Machines (ATMs) cost only 45 paise whereas internet banking at 10 paise per transaction. This results show not only the cost savings but also efficient and effective service quality. Customers can perform most of the banking transactions online without visiting the physical bank branch, at any time and in any place.

**NEW AGE PRIVATE SECTOR BANKS IN INDIA**

There are 29 private sector banks functioning in India, of them 22 are old generation banks and 7 are new generation banks. The banks which are given license by Reserve Bank of India after 1991 are called as New Age private sector banks. Consumer Voice survey on Internet Banking in India, 2011, said that private sector banks have brought the technology to the country and are trusted by their customers for

technology and quick transactions. ICICI was the first bank to introduce internet banking under the name 'infinity' in 1997 and HDFC followed the suit.

### STATEMENT OF THE PROBLEM

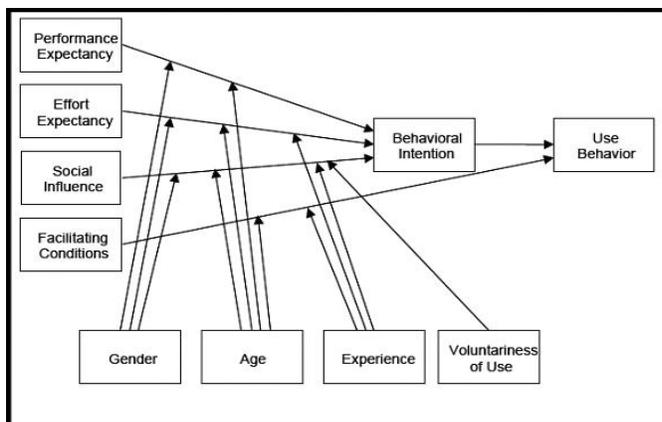
Users' acceptance of information technology has always been an important challenge for practitioners and academicians. As there is a dearth in the extant literature regarding studies on banking technology, a study of this nature on which age group is adopting internet banking in the country may provide useful insights as to what factors are critical to customers to determine success of internet banking. Although all new age private sector banks have been offering banking services online, not all the age groups of bank customers in Tamil Nadu are using this technology-based service channel completely.

The penetration of the internet is steadily growing in the last few years in India, but it was reported that only 7% of the bank customers are using Internet banking for performing their banking transactions (McKinsey & Company, 2011) i.e., still 93 % of the banking customers not using internet banking in India. Banks are the back bone of the economy for the flow of money throughout and to get the benefits of banks to all the people, internet banking is the effective tool for India.

### NEED TO USE UTAUT MODEL IN THE STUDY

Unified Theory of Acceptance and Use of Technology (UTAUT) is framed based on the most important factors from the previous eight models that were studied before 2003. It was found that the ability of the previous eight models was between 17 percent and 42 percent. But UTAUT is found to explain 70 percent of users' intention to use technology. The model is noted to be a parsimonious and robust model in studying user intentions (Al-Qeisi, 2009 and Gruzdet *al.*, 2012).

#### UTAUT Model



Source: Venkateshet *al.*, (2003)

The UTAUT model has four factors called performance expectancy, effort expectancy, social influence and facilitating conditions and are moderated by gender, age, experience and voluntariness of use. Performance expectancy, effort expectancy and social influence affect the behavioural intention of the

customers whereas facilitating conditions affect usage of the technology. Only age is taken as a moderating variable for all the four factors and voluntariness to use is moderating the social influence.

## TRUST

Online trust is defined as a belief or expectation about the website, the web vendor and the internet as the trusted party or object of trust or as a BI or willingness to depend or rely on internet as a medium for economic transactions (McKnight and Chervany, 1996 and McKnight and Chervany, 2002). In the context of internet banking, the trustor is a customer who has to decide whether to adopt internet banking or stay with more traditional ways to undertake his financial transactions. Hence it is proposed to include trust in the study.

Liu *et.al.*,(2005) proposed and tested a theoretical model to show that an individual's perceptions of privacy and its relates to behavioural intention to make an online transaction. The results showed that 65 percent of the BI was explained by trust and 74 percent of trust was explained by privacy. The results indicated that privacy perception strongly influenced trust and trust, in turn, strongly influenced behavioural intention.

A trust is shown to have a strong positive influence on BI to adopt new technology, but not included in the original UTAUT model found by Lee, Kim and Song in 2010. Private sector banks brought technology to the banking sector and the customers trust these banks for technology for their banking transactions as found from pilot study it is included in the study. Then it is necessary to find out which age group has more influence on the adoption and which factor in the UTAUT model along with trust influence the customers to adopt internet banking. Trust is an important factor in ecommerce and technology is trusted by the customers for banking transactions, it is included in the study.

## REVIEW OF LITERATURE

There are variety of theoretical perspectives that have been applied to understand the determinants of IT adoption and its usage. These research frameworks use behavioural intention of individuals to predict their actual use of technology. Scholars such as Sathye (1999) mentioned that, in Australia, young, educated and wealthy groups of customers needed to be targeted first. Polasik and Wisniewski (2009) found in Poland that age had an impact on customers' adoption decisions on internet banking. In a US study, Lasseret *al.*, (2005) found that demographic characteristics such as age and education did not affect the e-banking adoption processes.

AsmaMobarek (2007) and Ganet *al.*, (2006) also said age plays an important role in adoption process. It is observed from the above literature that youngsters in the age group of 26-35 years adopt the technology more than others. Most of these studies have been conducted in the countries where innovation adoption rate is much higher than the developing country like India in the past two decades. Very less research is found using UTAUT model on age and acceptance of technology in India.

## RESEARCH OBJECTIVE

The major objective of the study is to find out the usage pattern of internet banking and to estimate the influence of age of the customers on behavioural intention to adopt internet banking.

## RESEARCH MODEL

As discussed earlier, this study considered the factors that would be more relevant for the Indian context, in addition to factors in UTAUT model. The new proposed model has five factors namely, performance expectancy, effort expectancy, social influence and trust. It is assumed that all these five factors are moderated by the variable age. These factors are assumed to influence the behavioural intention of private sector bank customers' in India, for adopting the internet banking services.

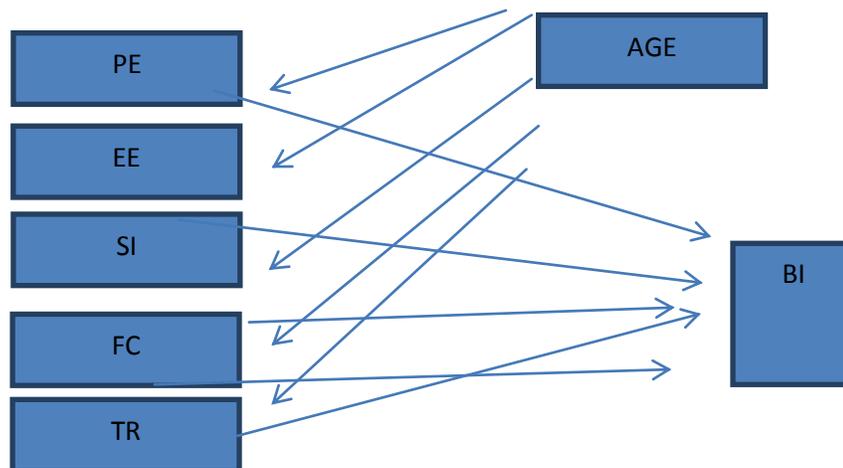


Fig 2. Research Model

In this study, the private sector bank customers' acceptance of internet banking is measured by their behavioural intention to use this technology. Behavioural intention to use a technology was verified to be a valid and reliable measure of actual usage according to Sun (2003). Therefore, this study measures customers' adoption of internet banking through their behavioural intention to use it.

## RESEARCH METHOD

The survey method was used for collecting the data to test the hypotheses in this study. A questionnaire was developed based on the theoretical framework, tested in a pilot study, and finally distributed to a sample of 200 internet banking users from major cities in Tamil Nadu, South India. The data was collected from internet banking users in South India either through face-to-face meeting, postal mail or e-mail. Each respondent was requested to distribute the survey questionnaire to other Internet banking

users such as friends, colleagues, and relatives. Snow ball technique was adopted to collect data. The survey was conducted in May-July 2015. Out of 200 self-administered questionnaires distributed, only 160 questionnaires were considered to be useful, which represents a response rate of 80%.

**Table 1 Age of the customers**

Age	No. of respondents (n=160)	Percentage (%)
18-25 years	28	17.5
26-35 years	112	70.0
36-45 years	12	7.5
46-55 years	5	3.1
55 years and above	3	1.9
Total	160	100.0

Table 1 summarizes the age group of the respondents. The customers above the age group of 18 years only are allowed to open the account with the banks. Hence the customers chosen for the study are above the age group of 18 years. Of the 160 respondents, the majority (70 percent) were between 26 and 35 years of age. The customers above 55 years are found to accept internet banking less than others. The reason is they find technology as difficult to understand, not confident with internet banking, fear of losing money, prefer face to face communication and did not have interest to learn the technology. The same reasons are cited by the customers in the age group of 46-55 years. The tech savvy generation accepts banking technology more than others. It is followed by the customers between 18-25 years as they are confident with the technology.

The reason for accepting the technology is convenient, accessible, privacy and the trust in the banks and technology. Actually, there are two types of trust found from the customers through interviews. One is trust in the banks and another one is trust in the technology. Here the customers trust the technology more, and they accept the internet banking. The customers in the age group of 26-35 years hold savings account as their salary is credited with the private banks. They use internet banking for their monthly transactions such as payment of bills, fund transfer, ticket booking, etc. from their place of work as it is convenient for them because of internet connection.

### REGRESSION ANALYSIS

For testing hypothesis a series of linear analysis was performed on the variables. Independent variables like age with behavioural intention as dependent variable were regressed with UTAUT factors to test  $H_{01}$ . The research model suggested in the study is tested by using multiple linear regression analysis.

$R^2$  is the amount of variance accounted for the dependent variable. In order to find out which demographic variable is influencing more to adopt internet banking based on UTAUT factors, the following hypotheses are framed. Hypothesis is considered to be supported when path coefficient ( $\beta$ ) is significant when the p-value is less than 0.05 level.

*H0: There is no significant influence of age on behavioural intention to adopt internet banking*

The following analysis is made to find out the influence of demographic variables on PE. Regression analysis is done to find out which factor is influencing the customers in different age groups to adopt internet banking. To start with the analysis, the age group of the customers is divided into five categories. A simple linear regression analysis is done in SPSS 17.0 to investigate the hypotheses of this study.

#### Regression Analysis for age on behavioural intention

##### Model Summary

Model			R Square	Adjusted R Square	Std. Error
	Age	R			
1	18-25 years	.834 <sup>a</sup>	.695	.658	.27374

The R square is .695 and adjusted R square is .658 which means that 70% of the variance in salary can be “accounted for” and remaining 30 % cannot be explained.

#### ANOVACalculations for Behavioural Intention

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.165	5	1.433	19.125	.000 <sup>a</sup>
Residual	3.147	42	.075		
Total	10.313	47			

The ANOVA table shows that F ratio is 19.125 and p value is <.005. This means that the regression model containing these variables is acceptable. There is a significant influence of 18-25 years of age of customers on behavioural intention of the customers.

**Beta Weight Calculations for the Behavioural intention**

Model	Unstandardized Coefficients	Standardized Coefficients	Beta	t.	Sig.
	B	Std. Error			
(Constant)	1.063	1.826		.82	.564
PE	.121	.038	.288	3.203	.003
EE	.123	.040	.286	3.101	.003
SI	.089	.037	.222	2.433	.019
FC	.231	.033	.626	6.952	.000
Trust	.183	.055	.295	3.361	.002

It is noted from the above analysis that the most influential factor for the age group of 18-25 years is facilitating conditions as its Beta value is .626 and the t value is 6.952.

**Model Summary**

Model	R	R	Adjusted R	Std. Error of the
	26-35 years	Square	Square	Estimate
1	.836 <sup>a</sup>	.699	.696	.26594

The R square is .699 and adjusted R square is .696 which means that 70% of the variance in behavioural intention can be "accounted for" and remaining 30 percent remain unexplained.

**ANOVAsCalculations for Behavioural intention**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	67.599	5	13.520	191.159	.000 <sup>a</sup>
Residual	29.068	411	.071		
Total	96.667	416			

The ANOVA table also shows that F ratio is 191.159 and p value is <.005 suggests that there is a significant influence of age of customers and behavioural intention.

#### Beta Weight Calculations for the Behavioural intention

Model	Unstandardized Coefficients	Standardized Coefficients	Beta	T	Sig.
	B	Std. Error			
(Constant)	.214	.525		.408	.684
PE	.140	.013	.286	10.446	.000
EE	.166	.011	.398	14.576	.000
SI	.167	.011	.417	15.184	.000
FC	.165	.011	.392	14.360	.000
Trust	.162	.017	.262	9.643	.000

It is noted from the above analysis that the most influential factor for the age group of 26-35 years is social influence as its Beta value is .417 and the t value is 15.184.

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	36-45 years			
1	.871 <sup>a</sup>	.759	.732	.24852

The R square is .759 and adjusted R square is .732 which means that 76% of the variance in behavioural intention can be "accounted for" by information about PE, EE, SI, FC and TR. Remaining 24 percent remain unexplained.

#### ANOVA Calculations for behavioural intention

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	8.928	5	1.786	28.913	.000 <sup>a</sup>
Residual	2.841	46	.062		
Total	11.769	51			

The ANOVA table also shows that F ratio is 28.913 and p value is <.005 suggests that there is a significant influence of 36-45 years of age on behavioural intention of the customers.

#### Beta Weight Calculations for the behavioural intention

Model	Unstandardized Coefficients	Standardized Coefficients	Beta	t.	Sig.
	B	Std. Error			
(Constant)	-1.952	1.437		-1.359	.181
PE	.230	.033	.516	7.045	.000
EE	.125	.028	.329	4.441	.000
SI	.164	.032	.372	5.055	.000
FC	.189	.037	.372	5.085	.000
Trust	.194	.042	.339	4.580	.000

It is noted from the above analysis that the most influential factor for the age group of 36-45 years is performance expectancy as Beta value is .516 and the t value is 7.045.

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	46-55 years			
1	.941 <sup>a</sup>	.885	.827	.18609

The R square is .885 and adjusted R square is .827 which means that 89% of the variance in behavior intention can be “accounted for” by information about PE, EE, SI, FC and TR. Remaining 17 percent remain unexplained.

#### ANOVA Calculations for behavioural intention

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2.654	5	.531	15.326	.000
Residual	.346	10	.035		
Total	3.000	15			

The ANOVA table also shows that F ratio is 15.326 and p value is <.005 suggests that there is a significant influence of age of customers and behavioural intention.

#### Beta Weight Calculations for the Behavioural intention

Model	Unstandardized Coefficients	Standardized Coefficients	Beta	t.	Sig.
	B	Std. Error			
(Constant)	3.836	2.248		1.706	.119
PE	.105	.039	.303	2.679	.023
EE	.176	.059	.403	2.991	.014
SI	.155	.048	.356	3.224	.009
FC	.171	.042	.519	4.125	.002
Trust	.014	.105	.016	0.129	.900

It is noted from the above analysis that the most influential factor for the customers in the age group of 46-55 years is the facilitating conditions as its Beta value is .519 and the t value is 4.125.

**Model summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	Above 55 years			
1	.844 <sup>a</sup>	.712	.670	.28956

The R square is .712 and adjusted R square is .670 which means that 71% of the variance in behavioural intention can be “accounted for” by information about PE, EE, SI, FC and TR. Remaining 29 percent remain unexplained.

**ANOVA Calculations for Behavioural Intention**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.049	5	1.410	16.815	.000 <sup>a</sup>
Residual	2.851	34	.084		
Total	9.900	39			

The ANOVA table also shows that F ratio is 16.815 and p value is <.005 that there is a significant influence of age of customers and behavioural intention.

**Beta Weight Calculations for the Behavioural intention**

Model	Unstandardized Coefficients	Standardized coefficients	Beta	t.	Sig.
	B	Std. Error			
(Constant)	-2.661	2.215		-1.201	.238
PE	.198	.069	.291	2.883	.007
EE	.240	.041	.586	5.860	.000
SI	.186	.042	.428	4.400	.000
FC	.160	.039	.394	4.118	.000
Trust	.181	.059	.294	3.083	.004

It is noted from the above analysis that the most influential factor for the age group of above 55 years is effort expectancy as its Beta value is .586 and the t value is 5.860.

From the above analysis it is clear that there is a significant influence of age of customers on their behavioural intention and hence the hypothesis is rejected. It shows that irrespective of the age the customers use internet banking in the Tamil Nadu. The analysis also showed that the factor trust did not have any influence on the customers between 46-55 years of age towards the adoption of internet banking.

### **SUGGESTIONS AND CONCLUSION**

Young adults in the India have more positive attitude towards using Internet banking services compared to other age groups. They are more curious and encouraged to learn and explore more on how to complete banking transaction online. Thus, they are more interested in learning how to use Internet banking services compared to other age groups.

It is from the above analysis that the customers in the age group of 18-25 years find that facilitating conditions encourage them to use internet banking; whereas the customers in the age group of 26 to 35 feel that social influence has the influence on the adoption of internet banking. The customers in the age group of 36 to 45 years accepted that performance expectancy has the influence on the adoption of internet banking. Similarly the customers in the age group of 46-55 years accepted that they adopt internet banking because of performance expectancy but not influenced by trust. The customers above 55 years said that they adopt internet banking because of effort expectancy.

Banks should to use plan their strategies taking this into consideration. Proper marketing communication would increase the awareness which can result in better acceptance of the technology. Performance expectancy is moderated by age hence banks have to implement strategies like conducting workshops apart from providing hands-on training to develop their confidence. Banks may create a permanent Help Desk exclusively for internet banking usage in the Bank premises. It will create awareness among the banking customers about internet banking. Thus, the banks should make internet banking more useful and usable.

From the literature it is noted that private banks are trusted for technology for the banking transactions in the country, but in the study it is revealed that it is not the only factor. Hence it can be suggested that the banks can make other factors easy to influence the adoption and help customer to build trust on the banks. This will enhance the acceptance more by the customers and banks can serve them better.

Customer adoption of technology has been good, so far, in the country. Indian customers have shown their readiness to accept internet banking as an alternative channel for banking. Hence, the findings of the study will be useful to banks in planning and promoting their internet banking services in the country.

#### **SCOPE FOR FURTHER RESEARCH**

Every study makes a way for future research and to test any new model, further investigation is necessary. The internet banking helps to redefine business relationship with the customers. The study focuses on internet banking adoption among private sector bank customers. In this current scenario, it is very evident that internet banking can be expanded for further research to explore its multidimensionality.

Multiple regression analysis showed significant influence of age on behavioural intention to use internet banking but it is found that the customers in the age group 46-55 years are not influenced by trust. Also the customers above the age group of 46 years accept the technology less than other customers. Therefore, future studies can look into these variables and come up with an alternate model which could help the banks more to improve their product. Hence the reason for this can be studied in detail.

#### **References:**

7% of account holders use Net for banking: McKinsey report (2011). Money life. Retrieved July 10, 2013, from <http://www.moneylife.in/article/7-of-account-holders-use-net-for-banking-mckinsey-report/18260.html>

Al-Somali, S. A., Gholami, R., and B.Clegg (2009). An investigation into acceptance of online banking in Saudi Arabia, *Technovation*, 29, pp.130–141.

Al-Qeisi, K. and Ibrahim (2009). Analysing the use of UTAUT model in explaining an online behavioural: Internet banking adoption. Retrieved on May 15, 2012 from <http://bura.brunel.ac.uk>.

Bhattacharjee, A ( 2001). Understanding Information Systems Continuance: An Expectation–Confirmation Model, *MIS Quarterly*, Vol.25, No.3, pp. 351-370.

Davis, F. D., Bagozzi, R. P. and P.R. Warshaw (1992). Extrinsic and Intrinsic Motivation to use computers in the workplace, *Journal of Applied Social Psychology*, Vol.22, No.14, 1111-1132.

Gruzd, A., K. Staves and A. Wilk (2012). Connected scholars: examining the role of social media in research practices of faculty using the UTAUT model, *Computers in Human Behavior*, Vol.28, No.6, pp.2340-2350. Retrieved on 11-2013 from <http://dl.acm.org/>

Mohammed Sadique Khan, S.S. Mahapatra and Sreekumar. (2009). Service quality evaluation in internet banking: an empirical study in India, *International Journal of Indian Culture and Business Management*, Vol.2, No.1, pp.30-46.

Pikkarainen, T. T, K. Pikkarainen, H. Karjaluoto and S. Pahnla (2004). Consumer acceptance of online banking: an extension of the Technology Acceptance Model, *Internet Research*, Vol.14, No.3, pp.224-235.

Venkatesh, V., Morris, M. G., Davis, G. B., and F.D. Davis (2003). User Acceptance of Information Technology: Toward a Unified View, *MIS Quarterly*, Vol.27, No.3, pp.425-478.