

Impact of Demographic Variables on the Factors Influencing Internet Banking Services Adoption in Punjab

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ABSTRACT

Electronic banking has experienced fiery growth and has altered traditional practices in banking. Now it has become synonym for wide variety of automated services of which one of the significant types of service is Internet banking. Various researchers have been organized to identify the factors affecting adoption of internet banking but the effectiveness of these factors may have reduced with time. So, it is indispensable to check the effectiveness of these factors. Enormous research studies on factors affecting customer adoption of e-banking have been done in foreign and other states of India. But only a few studies have been conducted in Punjab. However, only few studies have been conducted to address the security and privacy issues. Moreover, these studies primarily focused on prevailing security and privacy practices of banks regarding E-Banking channel rather than customer's perceptions. From the available sources, a very few studies have been found which have been conducted in India to understand the factors affecting e-banking, status of internet banking, satisfaction regarding use of E-Banking services. Thus, such gaps have been found based on available literature and present study attempts to fill the gaps. A sample of more than 417 was found to be the most sufficient for the study. The study was conducted in Punjab state of India. The data was collected from three districts viz. Amritsar, Jalandhar, and Patiala. In the present study various standardized scale items were used. The overall extent of usage of internet banking is mediocre.

Keywords: *Banking, Services, Internet, Adopt, Public and Private etc.*

1. INTRODUCTION

A bank is a financial institution which accepts the deposits and advances the loans. It acts as an intermediary between depositors and borrowers. Banking system has always played an important role in every country's economy. It is essential for any nation as it fulfil the needs of credit of every section of the society. India is the world's largest independent democracy as well as an emerging economic giant. The financial growth of India is based on its strong banking system. Today, India has a well-developed banking system with different classes of banks – public sector banks, private sector banks (old and new private sector banks), foreign banks, regional rural banks, co-operative banks with the Reserve Bank of India as the head of the system. In the present era technology has an impact on every individual's life quantitatively as well as qualitatively. Technology has succeeded in making various aspects of life easier for the societies of today (Oliver, 1994) [1]. It has become a fundamental element in improving the quality of services in general and e-banking services (Joseph and Stone, 2003) [2]. The trend of information technology has revolutionized the business and economic atmosphere as well as the financial system with the introduction of internet banking. Electronic banking has experienced explosive growth and has transformed traditional practices in banking (Gonzalez et al, 2008) [3]. Electronic banking is the application of telecommunication devices to perform banking transactions (Okoro 2014) [4]. Internet banking uses the internet as the delivery channel by which to conduct banking activity such as transferring funds, paying bills, viewing and checking account balances, paying mortgage and purchasing financial instruments and certificates of deposit (Haque et al, 2009) [5]. E-banking has become an important channel to sell the products and services and perceived to be necessity in order to stay profitable and successful (Christopher et al, 2006) [6]. To survive in the competitive globalized world, banks had to adopt this change. The banking industry assumes that by adopting new technology, the banks will be able to improve customer service level and tie their customer closer to bank (Onyeukwu and Osuagwu, 2016) [7]. Technology and innovation followed by a number of changes. Introduction of smart cards, beginning of Electronic Clearing Service (ECS), introduction of Electronic Funds Transfer and concept of online banking and mobile banking are the various innovations which took place in banking sector. There are various benefits of online banking. it is convenient, it is not bound by operational timings, there are no geographical barriers and services can be offered at low cost (IAMAI'S 2006) [8]. Internet banks enable transfer

of information more swiftly online (Salawu et al, 2007) [9]. Now all the banks are offering the services through multi- channels, like ATMs, credit cards, debit cards, telephone/mobile banking, internet banking, etc. The role of banking has now transformed from a solely financial intermediary to service provider of different financial services under one roof acting like a financial supermarket. With extreme competition among the bank's, entire banking system is undergoing a change. Today, modern banking not only looks for new ways to attract but also to retain the existing customers and gain competitive advantage over their competitors.

2. LITERATURE REVIEW

Herath, H.M.M.N. & Aruppala, W. (2024) The variables that influence the widespread use of internet banking in Sri Lanka are the focus of this research. Online banking's obvious benefits have not translated into widespread use in the nation. This study uses Davis's 1989 Technology Acceptance Model (TAM) to investigate this matter, specifically looking at the factors that have the most impact on people's decision to use internet banking. Using a questionnaire sent out to people who use internet banking in Sri Lanka, this research looks at what factors affect the successful rollout of such services. Using Smart PLS software, we ran demographic and correlation analyses, as well as reliability tests and path analysis to determine the effect of independent factors on the adoption of online banking. The results show that the desire to use online banking services in the nation is greatly affected by variables including perceived advantage, simplicity of use, and consumer attitudes. In addition, the report emphasizes the benefits of online banking for both customers and financial institutions, such as the ease, efficiency, and savings in time and money. According to the study, in order to boost adoption rates and service quality, banks should let their clients know about these advantages. If policymakers and banks in Sri Lanka want to increase financial inclusion and the use of internet banking, the results provide valuable information.

Pallegama, P & Herath, H.M.A.K. (2024) Examining what drives customers to use online banking is the primary goal of this study. Several factors affect how widespread the use of internet banking becomes. Customers in Sri Lanka aren't making full use of the available internet banking facilities. Kurunegala District, a prominent Sri Lankan public sector commercial bank, is the subject of this research, which aims to advise its responsible management on matters pertaining to the identification of elements impacting the adoption of online banking. Procedures and Materials: The pertinent information was gathered using a quantitative approach, namely, a survey questionnaire. The adoption of online banking was taken into consideration as the dependent variable, with the following parameters chosen as predictors: perceived utility, perceived ease of use, perceived security, and perceived concern for the environment. To better understand what influences people to use online banking, the researcher hypothesized each component. Three hundred eighty-four clients of the specific bank in the Kurunegala area served as the study's sample. Multiple linear regression, descriptive statistics, reliability, validity, and normalcy tests were run by the researcher. Findings: Cronbach's alpha confirmed the reliability of all study variables. There was a very substantial positive correlation between the chosen criteria and the use of online banking, according to the correlation analysis. Internet banking adoption was characterized by the strong influence of chosen characteristics according to multiple regression analysis. Perceived usefulness, perceived security, perceived ease of use, and green concern accounted for more than 71.5% of the variation in the dependent variable (online banking adoption) according to the regression model. Internet banking adoption is significantly impacted by each of the study variables. Consequently, all of the hypotheses were accepted by the researcher ($p < 0.05$). In the end, the study's authors concluded that the chosen context's Internet banking adoption was significantly affected by consumers' perceived utility, security, simplicity of use, and environmental concern.

Othman, Abdul & Abas, Mohd Khalid (2023) Due to its ease, online banking has become more prevalent in recent years. Almost all of a bank's services, such as depositing funds, transferring funds, and paying bills, are accessible via online banking. Various forms of online banking are available from almost all banks and may be accessed via mobile applications. Their customers like the ease this offers. This paper's overarching goal is to analyze how banks customers' experiences with online banking have affected their overall happiness. A company's ability to keep its customers happy over the long run depends on their level of customer satisfaction. Research shows that when customers are happy, businesses make more money. Since past research has failed to reach a definitive conclusion on the topic, further investigation into the factors that lead to satisfaction is required. Research on online banking has mostly focused on a number of areas, such as security, dependability, transaction

efficiency, customer service, usability, performance, and content. The three categories of services that will be considered in this research are service functionality, service dependability, and service security; customer satisfaction will serve as the dependent variable. According to the results, these three criteria are critical for ensuring that customers are happy with their online banking experience.

Gupta, Anish & Varma, Siddharth & Gupta, Ruchika (2022) Over the years, technological advancements, and increased competition because of financial liberalisation have revolutionised Indian banks' operating processes and service delivery. Investment in technology enables banks to achieve operational excellence and customer satisfaction, which directly or indirectly increases profitability. As a result, banks must monitor customer satisfaction and the demographic elements that influence it on a constant basis. This study looks at the influence of demographic variables on several indices of consumer satisfaction with online banking services in India. This is empirical research in which data was gathered from customers of numerous banks in the Delhi-NCR region using a survey instrument. The validity and reliability of the research model were evaluated using Structured Equation Modelling (SEM) with SPSS AMOS 24. According to the statistics, demographic characteristics such as age, education, and wealth have minimal effect on customer satisfaction levels in online banking.

Rahi, Samar & Ghani, Mazuri & Ngah, Abdul (2020) In recent years, the adoption of technology has arisen as a key and distinct topic in e-commerce research. This study looked at how website design, customer service, and brand image affect consumers' intentions to use online banking, considering the barriers to technology adoption in the banking business. Furthermore, consumer satisfaction is included into the theoretical framework as a mediating variable. Data for this study was collected from online banking consumers. The hypothesised relationships were assessed using structural equation modelling (SEM). The outcomes of this research show that various factors influence the adoption of online banking, such as website design, e-customer service, customer satisfaction, and brand image. These results will help regulators understand the key factors that influence consumers' inclinations to utilise internet banking. Finally, the limitations and potential possibilities for further research have been addressed.

Varma, Siddharth & Gupta, Ruchika (2019) The development of technology, along with competitive pressures from financial liberalisation, is causing dramatic modifications in Indian banks' operating and service delivery processes. Financial organisations are rapidly adopting technologically sophisticated banking practices in order to improve operational efficiency and consumer pleasure. The use of technology in banking services involves both financial and time investments, making it critical to determine if technological advancements really increase consumer satisfaction. This article aims to assess the impact of demographics on a variety of criteria influencing consumer satisfaction in the Indian banking industry, including security, reliability, and privacy. To examine the measurement model's validity and reliability, Confirmatory Factor Analysis (CFA) was performed using AMOS 18. The study is based on a survey of banking customers in the National Capital Region of Delhi. The study focusses on two banking breakthroughs: credit/debit cards and internet banking.

Ameme, B.K. (2015) This article tries to discover demographic factors that influence the adoption of online banking services to improve the existing situation. Due to limitations in contacting people in impoverished nations, a sample from a single bank in Ghana was utilised. Ghana was chosen strategically due of its high internet penetration rate. Only 32,337 of the chosen bank's 506,203 consumers who registered in online banking services were considered for data analysis. Of the 31,886 online banking users, 98.61% were Ghana citizens, with 451, or 1.39%, being non-residents. This suggests that the research mostly represents Ghanaians' conduct as residents of emerging countries; yet, the concentration on a single bank may limit the generalisability of the findings. The analysis employed chi-square methodologies to analyse historical data spanning more than eight years. The study's findings showed that demographic parameters such as gender had no substantial effect on customers' adoption and use of online banking services. The study found a substantial link between work position, educational achievement, and the adoption and usage of internet banking services in Ghana. These findings may help banks develop successful strategies for attracting and retaining customers by targeting marketing efforts at certain kinds of internet banking users who are likely to accept and utilise online banking services.

Bhalla, Rajni & Singh, Inderpal (2014) This study looks at online banking activities and how they affect the quality of service provided by Punjab banks. The research primarily utilises a qualitative approach, but a

quantitative technique is also employed to support facts and figures in the paper. The findings are both descriptive and explanatory. The sample size was calculated using a non-probability method. The primary data gathering tool is a structured questionnaire that documents the replies of a varied group of participants. Secondary data were acquired from the banks' annual reports and other public publications. To assess the impact of internet banking on bank service quality, a model with seven service quality criteria is utilised. The study is conducted using a seven-dimensional model of service quality, which includes dependability, assurance, responsiveness, empathy, tangibility, security, and communication. These seven dimensions include 37 variables. Data are analysed using the statistical application SPSS 20. Descriptive statistics are used to analyse data. The study shows that all of the characteristics examined had a beneficial impact on the service quality of banks that provide online banking services to Punjab residents. The recommendations for improving service quality and customer satisfaction are also considered.

Alafeef, Mohammad & Singh, Dalbir (2012) This study aims to collect and assess previous research on the influence of demographic variables and user interfaces on the adoption of financial solutions, namely Internet Banking and Mobile Banking. This study has also identified current conditions in rising countries, notably Jordan. The fundamental goal of this study is to identify the flaws of previous adoption studies, especially in poor countries. The second goal is to properly understand the differences between the various types of financial services. This study explained numerous factors that influence the adoption of mobile and Internet banking.

3. OBJECTIVES OF THE STUDY

- To check the status of internet banking in Punjab
- To study the impact of demographic variables on the adoption of internet banking services in Punjab.
- To recommend various suggestions to the banks regarding internet banking services.

4. METHODOLOGY

The study will be confined to Punjab. The public and private sector banks will comprise of the universe of the present study. The customers using internet banking for more than two years only will be selected in the study. A sample of 417 customers selected by using the convenience sampling technique in Punjab. The data was collected through structured questionnaire covering main objectives of the research. The data pertaining to the internet banking services being offered by public and private sector banks and the growth of internet banking will be collected from the available secondary sources for the study.

5. DATA ANALYSIS

In the first objective of the study, the extent of internet banking used by the residents in Punjab has been examined. To evaluate the extent of internet banking usage, an exhaustive list of internet banking services was presented to the respondents and were asked to rate the usage of these services on a five-point likert scale from "Always" (=5) to "Never" (=1). Frequency and descriptive statistics have been used to interpret the results. In the descriptive statistics, mean and standard deviation have been used. Mean represents the average usage of a service by the respondents and standard deviation describes the average variation around the mean value. Table 1 lists the internet banking services and their extent of usage. Higher mean score suggested comparatively extensive usage of service. As account balance checking is the most widely used internet banking service with a mean of 3.95 and SD = 1.03. The standard deviation describes that there was significant variation in the responses or significant variation in the usage of a service.

More than 50% of the respondents use internet banking to check their statement of account always or most of the times but the overall extent of usage of internet banking for this purpose was mediocre (3.66, SD = 1.08). Internet banking is widely used for online transferring money. Majority of the respondents sometimes use online banking for funds transfer through NEFT/RTGS. But the overall use of internet banking for funds transfer is poor (2.71, 1.27). IMPS is another online fund transfer facility which is used by few customers regularly and the overall extent of usage is poor (2.80, SD = 1.38). The Public use internet banking for payment of utility bills like electricity bill, water and sewerage bill etc. From the data it has been observed that this service is used by sometimes majority of the customers an overall extent of usage is average (2.97, SD = 1.35). Internet banking is widely used by customers

to start a fixed deposit but a significant proportion hesitate to use it and overall usage is average (3.11, SD = 1.20). The way online banking can be used to open a deposit, it can also be used to close the deposit. Majority of the customers use it sometimes and overall usage is poor (2.76, SD = 1.35).

Although online buying is gaining trend but it is yet to gain the potential the country has. Majority of the customers use internet banking for making merchandise payment sometimes or most of the times but also there is a significant proportion of population who have not used it and its overall use is average (3.03, SD = 1.39). Internet banking for the purpose of issuance of cheque book is also used by majority of the respondents to certain extent but its overall usage is poor (2.74, SD = 1.25). These days all investment apps are on phone and can easily be operated from there. Those who are investing their money generally use it but those having no or low investments generally do not use it. Therefore, the overall use of this facility is not very high or far from its potential (2.88, SD=1.29).

Majority of the respondents either don't use and sometimes use internet banking for buying general insurance and its overall utility is poor (2.59, SD=1.26). Internet banking is very widely used for recharging their mobile prepaid services and its penetration is good (3.67, SD = 1.26) although there is still potential to grow. Everyone in the society does not have mortgage loan and so the same is with the respondents in the study. Majority of the respondents either check mortgage loan sometimes or they don't owe it and therefore its usage is poor (2.50, SD = 1.24). Majority of the respondents use internet banking for setup automatic payment or cancel the payment but its overall use is just below average (2.90, SD = 1.23). Account details are widely managed by customers using internet banking but it is yet to grow and the extent of usage is just average so far (3.07, SD = 1.26). Internet banking is widely used for booking online tickets and its penetration is good although but yet the overall usage is above average (3.28, SD = 1.29) and not high.

Table 1 Descriptive Statistics of Extent of Different Internet Banking Services Used by the Respondents

Banking Services	Never		Rarely		Sometimes		Most of times		Always		Descriptive	
	Count	N%	Count	N%	Count	N%	Count	N%	Count	N%	Mean	SD
Account Balance Check	14	3.4%	14	3.4%	105	25.2%	130	31.2%	154	36.9%	3.95	1.03
View Bank Statements	21	5.0%	28	6.7%	129	30.9%	133	31.9%	106	25.4%	3.66	1.08
NEFT & RTGS Fund Transfer	102	24.5%	68	16.3%	133	31.9%	75	18.0%	39	9.4%	2.71	1.27
IMPS Fund Transfer	114	27.3%	45	10.8%	126	30.2%	74	17.7%	58	13.9%	2.80	1.38
Utility Bill Payment	95	22.8%	34	8.2%	140	33.6%	84	20.1%	64	15.3%	2.97	1.35
Start a Deposit	66	15.8%	35	8.4%	151	36.2%	119	28.5%	46	11.0%	3.11	1.20
Open/Close a Fixed Deposit	114	27.3%	55	13.2%	113	27.1%	88	21.1%	47	11.3%	2.76	1.35

Make Merchant Payments	95	22.8%	39	9.4%	114	27.3%	96	23.0%	73	17.5%	3.03	1.39
Issuance of Cheque Book	98	23.5%	63	15.1%	138	33.1%	84	20.1%	34	8.2%	2.74	1.25
Investing	94	22.5%	47	11.3%	137	32.9%	93	22.3%	46	11.0%	2.88	1.29
Buy General Insurance	124	29.7%	52	12.5%	136	32.6%	80	19.2%	25	6.0%	2.59	1.26
Recharge Prepaid Mobile/DTH	29	7.0%	40	9.6%	126	30.2%	65	15.6%	157	37.6%	3.67	1.26
Check Mortgages, Loans	131	31.4%	58	13.9%	145	34.8%	56	13.4%	27	6.5%	2.50	1.24
Set-up/Cancel Automatic Payments	84	20.1%	47	11.3%	151	36.2%	96	23.0%	39	9.4%	2.90	1.23
Manage Account Details	67	16.1%	50	12.0%	153	36.7%	81	19.4%	66	15.8%	3.07	1.26
Book Online Tickets	61	14.6%	35	8.4%	130	31.2%	107	25.7%	84	20.1%	3.28	1.29

5.1 ANALYSIS OF EXTENT OF INTERNET BANKING USAGE

The extent of usage of internet banking depends upon various personal factors which include the demographic, socioeconomic and banking related factors. In this section of the study, the extent of internet banking being used in Punjab has been extensively analyzed with respect to different demographic, socioeconomic, and banking profile of respondents. To analyze the extent of internet banking usage T-test and ANOVA Test have been used. Before applying these parametric tests, the assumptions of these tests were evaluated. The two assumptions of parametric tests are – (a) Normality and (b) Homogeneity of variance. The assumption of normality has been examined through computing standardized values of skewness (Z_{skew}) and kurtosis (Z_{kurt}) which is perhaps the most reliable method of testing the normality of data (Hair, Jr, Black, Babin, & Anderson, 2010). In this method Z_{skew} & Z_{kurt} of variable are computed and if these values are less than critical value of 1.96, then the assumption of normality are said to be met. In case if any of the value is above 1.96, the assumption of normality is not met.

From the table 2 it can be seen that $Z_{skew} = 0.542$ & $Z_{kurt} = 1.89$ which are less than the critical value of 1.96 suggesting that the assumption of normality has successfully met. The homogeneity of variance is the second assumption of parametric tests which is evaluated using Levene's test (F statistics). If Levene's test is insignificant ($p > .05$), the assumption is said to be met.

The extent of internet banking in Punjab is average with an average score of 3.01 and standard deviation of 0.966 suggesting that there is tremendous opportunity available for banks to expand in this space.

Table 2 Descriptive Statistics of Extent of Internet Banking Usage

	Mean	SD	Skewness	SE of Skewness	Z _{skew}	Kurtosis	SE of Kurtosis	Z _{kurt}
Extent of adoption of Internet banking	3.01	.966	-.065	.120	.542	-.449	.238	1.89

In this section of the study, the significance of difference in the usage of internet banking with respect to customers' profile has been discussed.

5.1.1 Variation in the extent of adoption of internet banking with respect to type of bank.

The extent of internet banking usage or adoption may vary with respect to type of bank. It is sometimes believed that private banks are more efficient in offering internet banking services as compared to public sector banks. But within the public sector banking space, SBI is offering best of internet banking services perhaps better than private sector banks even. PNB and BOB are also offering good internet banking services. Therefore, assuming no sector superior to other, the differences in the adoption of internet banking with respect to "bank type" has been examined. The following hypothesis has been tested -

H1(a): There is significant difference in the Internet Banking Adoption among the Customers of Public and Private Sector Banks.

To study the significance of difference in the internet banking adoption among public and private sector banks' customers, independent design T-test has used. As we have already tested the assumption of normality and its being met successfully, here the assumption of homogeneity of variance across two groups has been tested. As it can be seen from the table 3 that the Levene's test F stat = 0.482 which is highly insignificant ($p=0.488$) suggesting that the variance across two groups is same and the assumption of homogeneity of variance is met.

The average internet banking adoption among private bank customers is 3.20 with a SD of 0.93 which is significantly higher than the average internet banking adoption among public sector banks customers (2.91, SD = 0.97) as result of T-test was found to be highly significant ($t=3.03$, $p < 0.01$) suggesting that private sector banks' customers had significantly higher internet banking adoption as compared to public sector banks' customers (refer table 3). H1(a) has been supported.

Table 3 T-test evaluating the Significance of Difference in Internet Banking Adoption among Customers of Public and Private Sector Banks.

Variable	Groups	N	Mean	SD	F	T
Extent of adoption of Internet banking	Private sector bank	145	3.20	0.93	.482	3.03**
	Public Sector bank	272	2.91	0.97	($p=.488$)	

** Significant @.01 level; * Significant @.05 level.

5.1.2 Variation in the extent of Internet Banking Adoption with respect to Gender

The extent of internet banking usage or adoption may vary with respect to gender of the customers. Literature have two type of evidences - adoption of internet banking among male have been found to be more than female and second no such difference existed. Therefore, assuming no difference in the adoption of internet banking among male and female customers, the following hypothesis has been tested -

H1(b): There is a significant difference in the Internet Banking Adoption among male and female customers.

To study the significance of difference in the internet banking adoption among male and female customers, 2 sample independent design T-test has used. Levene's test of homogeneity of variance has been found to be

insignificant (F = 1.162, p=0.282) which is insignificant suggesting that the variance across two groups is same and the assumption of homogeneity of variance is met.

The average internet banking adoption among male customers was 3.15 with a SD of 0.94 which was significantly higher than the average internet banking adoption among female customers (2.80, SD = 0.96). The t-test was found to be highly significant (t= 3.70, p < 0.01) suggesting that male customers had significantly higher internet banking adoption as compared to female customers (refer table 4.7). H1(b) has been supported.

Table 4 T-test for significance of difference in Adoption of Internet Banking among Male and Female customers.

Variable	Groups	N	Mean	SD	F	t
Extent of adoption of Internet banking	Male	246	3.15	0.94	1.162 (p=0.282)	3.70**
	Female	171	2.80	0.96		

** Significant @.01 level; * Significant @.05 level.

5.1.3 Variation in the extent of Internet Banking Adoption with respect to area

For any technology-based product or service diffusion first starts from urban areas and once well accepted and trusted by the urban customers it slowly it penetrates among the rural customers. The extent of internet banking usage/adoption is expected to high among urban customers as compared to rural customers. Therefore, assuming the fact the following hypothesis has been tested -

H1(c): The Internet Banking Adoption among Urban customers is significantly higher that Rural customers ($\mu_{urban} > \mu_{rural}$)

To study the significance of difference in the internet banking adoption among rural and urban customers, independent design (directional) T-test has used. Levene’s test of homogeneity of variance has been found to be insignificant (F = 1.449, p = 0.22) which is insignificant suggesting that the variance across two groups is same and the assumption of homogeneity of variance is met(refer table 5).

The average internet banking adoption among rural customers was 2.80 with a SD of 0.97 which is significantly less than the average internet banking adoption among urban customers (3.15, SD = 0.94). The directional T-test was found to be highly significant (t= (-) 3.67, p < 0.01) suggesting that urban customers had a significantly higher internet banking adoption as compared to rural customers (refer table 5). H1(c) has been fully supported.

Table 5 T-test for significance of different in Internet Banking Adoption among Rural and Urban customers.

Variable	Groups	N	Mean	SD	F	T
Extent of adoption of Internet banking	Rural	170	2.80	0.97	1.449 (p=0.22)	(-)3.67**
	Urban	247	3.15	0.94		

** Significant @.01 level; * Significant @.05 level.

5.1.4 Variation in the extent of Internet Banking Adoption with respect to education

Education is perhaps the most important factor in determination of technology adoption. For any technology based product or service educated people adopts it first and then from there it start penetrating into other. The extent of internet banking usage/adoption is expected to be high among high education group as compared to low education group. Therefore, assuming the following hypothesis has been tested -

H1(d): The internet banking adoption is not same among customers with different education levels and as education level increased, the internet adoption also increased.

In the study, the respondents were found to have five education levels – metric or equivalent, +2/diploma/UG group, graduates/university students, post-graduates, and professionals. To study the significance of difference in the internet banking adoption among five educational groups, one-way Anova has been used. As a basic assumption of Anova, normality has been found to be intact and Levene's test of homogeneity of variance has been found to be insignificant ($F = 2.26, p = 0.062$) which is insignificant supporting that the assumption of homogeneity of variance (refer table 6).

The average internet banking adoption among lowest education group i.e. metric or equivalent was 2.71 with a SD of 0.80. It increased to an average of 2.97 (SD = 1.03) among +2/diploma/UG group which further increased to 3.10 (SD = 1.00) among the graduates. After that there was sudden dip in this and it decreased to 3.01 level among post-graduates and then again increased and reached to highest level among professionals (3.49, SD = 0.64). The F test was found to be insignificant ($F = 2.086, p > .05$) suggesting that education level did not affect the internet adoption among customers (refer table 6). REGWF post hoc test placed all educational groups into one group supporting the same. H1(d) was not supported. The results are in line with Harma and Dubay (2009) and Ahmed Singh and Mohamed (2011) but not in consistence with Dobdinga (2013), Robinson and Moore (2010).

Table 6 ANOVA for Significance of Different in Adoption of Internet Banking among Customers with Different Educational Levels.

Education level	Levene Statistic	Mean	SD	F	REGWF Post Hoc
Metric or equivalent	2.26 (p=.062)	2.71	0.80	2.086	G1
+2/diploma/Undergraduate or equivalent		2.97	1.03		G1
Graduates/University		3.10	1.00		G1
Post Graduates		3.01	0.85		G1
Professional		3.49	0.64		G1

** Significant @.01 level; * Significant @.05 level.

5.1.5 Variation in the Internet Banking Adoption with respect to Occupation

Occupation may also affect the adoption of internet banking. Different occupations demand different levels of usage of internet banking. The following hypothesis has been tested -

H1(e): The Internet Banking Adoption is not same across different Occupations.

The respondents were found to have four occupations– employees of public and private companies, farmers, housewife, and students. To study the significance of difference in the internet banking adoption among different occupations, one-way ANOVA Test has been used. As shown in table 7 Levene's test of homogeneity of variance was insignificant ($F = 1.879, p = 0.133$) supporting the assumption of homogeneity of variance.

The average internet banking adoption among farmers was lowest (2.71, SD =1.10). Among housewives and students internet adoption was average 3.02 and 3.03 respectively. The internet adoption was highest among employees (3.19, SD = 0.82). The F test was found to be significant ($F = 4.18, p < .01$) suggesting that internet adoption was not same across different occupational groups. REGWF post-hoc test classified four occupational groups into 3 groups as shown in table 7. In the first group only farmers were placed, in the second group housewives and students were placed and in the third group employees were placed. H1(e) has been fully supported.

Table 7 ANOVA test for Significance of Difference in Adoption of Internet Banking among Different Occupational Groups.

Occupation	Levene Statistic	Mean	SD	F	REGWF Post Hoc
Employee	1.879 (p=0.133)	3.19	0.82	4.18**	G3
Farmer		2.32	1.10		G1
Housewife		3.02	1.21		G2
Student		3.03	0.95		G2

** Significant @.01 level; * Significant @.05 level.

5.1.6 Variation in the Internet Banking Adoption with respect to Income

Income is also one of the determinants of banking and internet adoption of internet based banking. As the income level increases, the requirement of banking also increases. Therefore, it is expected that people in different income groups had different level of internet banking adoption. The following hypothesis has been tested-

H1(f): The Internet Banking Adoption is not same across different Income Groups.

The respondents in the study have 6 income levels—upto 25k, 25k to 50k, 50k to 75k, 75k to 100k, more than 100k, and none/others group. To study the significance of difference in the internet banking adoption among different income groups, one-way ANOVA Test has been used. As shown in table 4.11 Levene's test of homogeneity of variance is not significant (F = 1.36, p = 0.24) supporting the assumption of homogeneity of variance.

The average use of internet banking among respondents with no income or other types of income was 2.47 (SD = 0.95) and was lowest among all groups. As income increased to upto 25k, the average use of internet banking increased to 2.98 (SD = 0.89). As income further increased to next level of 25k to 50k, the average use of internet banking increased to 3.75 (SD = 0.77). But after that with increase in income to 50k to 75k, the use of internet banking decreased to 3.59 (SD = 0.70) and continued to decrease further with increasing income. The highest income group i.e. more than 100k had the average internet banking use of 3.31 (SD = 0.98). The F test was found to be highly significant (F = 13.19, p<.01) suggesting that internet adoption was not same across different income groups. Further REGWF post-hoc test revealed that six income groups can be clustered into three groups. The first group contained respondents with no income or other income sources, group2 consisted of the respondent having income up to 25k and above 100k. The third group consisted of respondents having income between 25k to 50k; 50k to 75k, 75k to 100k and above 100k.

H1(e) has been fully supported. Thus it may be concluded that as one move from one income level to another income level, the use of internet banking is also expected to change.

Table 8 ANOVA Test for significance of difference in Adoption of Internet banking among different Income Groups.

Income group	Levene Statistic	Mean	SD	F	REGWF Post Hoc
None/others	1.36 (p=.24)	2.47	0.95	13.19**	G1
Upto 25k		2.98	0.89		G2
25k to 50k		3.75	0.77		G3
50k to 75k		3.59	0.70		G3
75k to 100k		3.38	0.88		G3

Above 100k		3.31	0.98		G2 & G3
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** Significant @.01 level; * Significant @.05 level.

5.1.7 Variation in the Internet Banking Adoption with respect to Duration of Maintaining Bank Account

When someone has a bank account, slowly and steadily one learns to use internet banking. As the duration of maintaining bank account increases, the probability of using internet banking also increases. To confirm the fact, the following hypothesis has been tested -

H1(f): The Internet Banking Adoption increased as Duration of Maintaining Bank Account increased.

The duration of maintaining bank account has been divided into 4 class intervals i.e. less than 1 years, 1 to 2 years, 2 to 3 years, and more than 3 years. This is due to fact that the internet banking has got big boost in last three years only. To study the significance of difference in the internet banking adoption with duration of maintaining bank account, one-way ANOVA has been used. As shown in table 4.11 Levene’s test of homogeneity of variance is significant (F = 8.94, p = 0.00) which means the assumption of homogeneity of variance has not met. Therefore, the alterative test results i.e. Welch test and Brown Forsythe test results will be used for interpretation.

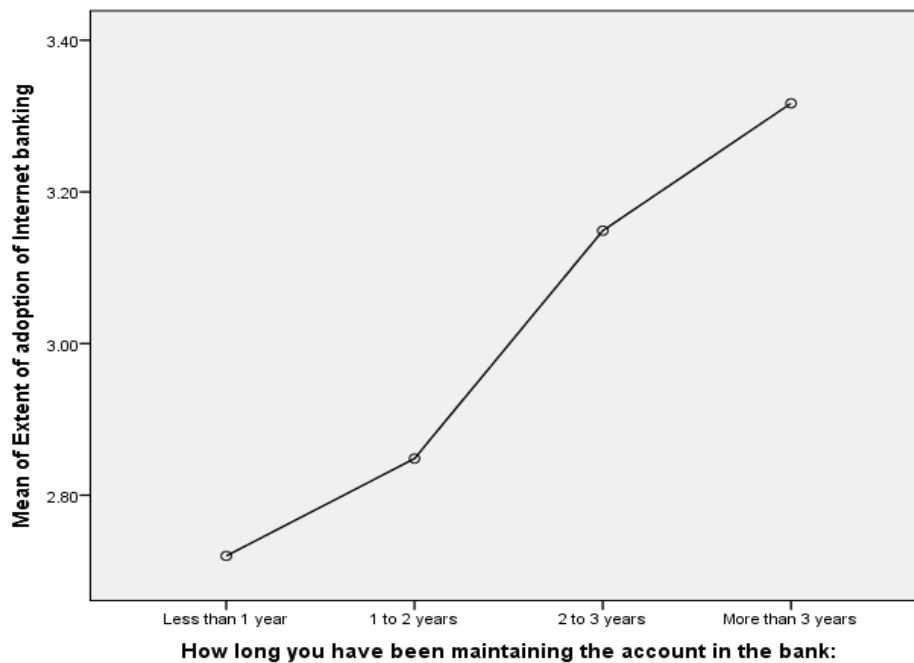
The average use of internet banking among respondents maintaining bank account for last one year was lowest (2.72, SD = 0.98). As the duration of maintaining bank account increased to 1 to 2 years, the average internet banking use increased to 2.85 (SD = 0.76). It further increased to 3.15 (SD = 0.59) as duration of maintaining bank account increased to 2 to 3 years and for those maintaining bank account for more than 3 years, the average internet banking use was highest (3.32, SD = 1.06). The Welch test statistics = 10.34, p <.01 and Brown Forsythe test statistics =13.51, p<.01 were highly significant suggesting that as duration increased the average use of internet banking also increase significantly.

H1(f) has been fully supported. Therefore, it may be concluded that as duration of maintaining bank account increases the use of internet banking is also expected to increase.

Table 9 ANOVA Test for Significance of Difference in Adoption of Internet Banking with Duration of Maintaining Bank Account.

Duration of maintaining bank account	Levene Statistic	Mean	Std. Deviation	Welch & Brown-Forsythe	REGWF Post Hoc
Less than 1 year	8.94 (p=0.00)	2.72	0.98	10.34 (p=.000) & 13.51 (p=.00)	G1
1 to 2 years		2.85	0.76		G1 & G2
2 to 3 years		3.15	0.59		G2 & G3
More than 3 years		3.32	1.06		G3

** Significant @.01 level; * Significant @.05 level.



Source: Author’s calculations

Figure 1: Line graph finding the relationship between Duration of Maintaining Bank Account and Internet Banking Adoption

Figure 1 shows the line graph presenting the relationship between duration of maintaining bank account and average use of internet banking. There is a linear increase in the internet usage with increasing duration of maintaining bank account. There is very significant relationship between two.

Also, a very similar result and relationship have been observed between internet banking adoption and the duration of using internet banking. As the duration of internet banking adoption increased, the extent of using internet banking also increased. Initially, one uses one or two services and, with time, more and more confidence builds and they start using other services as well. This increases the adoption of internet banking for multiple uses and makes it habitual.

5.1.8 Variation in the Internet Banking Adoption with respect to Marital Status.

The marital status of a customer may effect to internet adoption. To confirm the fact, the following hypothesis has been tested -

H1(g): The Internet Banking Adoption is not same between Married and Unmarried customers.

The relationship between marital status and internet adoption was not significant. The mean score of married and unmarried customer was 2.97 and 3.04 respectively. Hence, H1(g) was not supported.

Table 10 T-test for significance of difference in Adoption of Internet Banking among Married and Unmarried Customers.

Marital Status		N	Mean	Levene Statistic	t
Extent of adoption of Internet banking	Married	52	2.9735	4.11	-1.78
	Unmarried/Single	365	3.0426		

5.1.9 Variation in the Internet Banking Adoption with respect to Districts.

To check variation in the internet banking adoption with respect to districts. The following hypothesis has been tested -

H1(h): The Internet Banking Adoption is not same among the different Districts.

The use of internet banking was comparatively higher in Jalandhar (M = 3.15) and Amritsar (M =3.14) districts as compared to Patiala districts (M = 3.10). But the differences were not significant. The use of internet banking among customers in Jalandhar, Amritsar and Patiala was almost same. Hence, H1 (h) was not supported.

Table 11 ANOVA Test for significance of difference in Adoption of Internet Banking among different Cities.

Districts	N	Mean	Std. Deviation	Levene Statistic	F
Amritsar	44	3.1591	.79625	2.374	2.77
Jalandhar	221	3.1478	.96618		
Patiala	152	3.1039	.96800		

6. SUGGESTIONS

Strategies that may be used to enhance the adoption of online banking among customers include:

1. Making it easier for users to register and begin using the platform by streamlining the onboarding process with user-friendly interfaces and step-by-step tutorials.
2. Simplifying and enhancing security measures, such as biometric login and two-factor authentication, to reassure users and foster confidence in online purchases.
3. Providing financial incentives, such as rebates, price reductions on online purchases, or waived fees, to encourage the use of internet banking services.
4. Making customer support resources, such as 24/7 helplines, live chat, and in-app assistance, easily accessible and understandable so that concerns can be addressed quickly.
5. Spreading the word about the advantages and security of online banking via seminars, social media, and email.
6. Making online banking available via desktop computers, tablets, and cellphones by guaranteeing compatibility with various operating systems.
7. Making steady enhancements to the app's or website's functionality to guarantee dependable, quick, and painless transactions.
8. Making the experience more personalized by providing customers with personalized financial advice, reminders, and insights that are derived from their use habits

7. CONCLUSION

- The overall extent of usage of internet banking was mediocre. The results indicated that among all the services the extent was more than average on following internet services viz. account balance checking, view bank statements, start a deposit, make merchants payments, recharge prepaid mobile/DTH and mange account details. For the rest of services the response of the respondents was low.
- The private sector banks’ customers had significantly higher internet banking adoption as compared to public sector banks’ customers.

- The average internet banking adoption among male customers was significantly higher than the average internet banking adoption among female customers.
- The average internet banking adoption among rural customers was significantly less than the average internet banking adoption among urban customers.
- The average internet banking adoption among farmers was lowest. Among housewives and student's internet adoption was average. The internet adoption was highest among employees. Overall average internet banking adoption was different significantly across occupation groups.
- The results if duration of maintaining bank account increase the use of internet banking.

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