Factors influencing financial inclusion through banking services

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ABSTRACT

This article aims to investigate the factors that affect the usage of banking services in increasing financial inclusion in Pondicherry region. Purpose of opening bank account, easiness in accessing a bank's products, convenience, frequency of usage of banking services and physical distance of bank branch were examined to analyse whether these factors have an influence on usage of banking services. Analysis of primary data using factor analysis and multiple regression analysis was undertaken to understand the relationship between dependent variable (Usage frequency of banking services) and other independent variables. The results indicate that easiness in accessing bank products and purpose of opening bank account have significant influence on usage frequency of banking services. Physical distance of bank branch and convenience were not found to have significant impact on usage of banking services in this study. The methodology adopted in this study can be used for further empirical investigation in other regions in India.

Introduction

The banking industry has shown tremendous growth in branch penetration and ATMs penetration during the last few decades. It has achieved significant improvements in all the areas relating to financial feasibility, profitability and competitiveness. Despite these improvements, there are concerns that banks have not been able to include vast segment of the population, especially the underprivileged sections of the society, into the fold of basic banking services. Efforts are being made to study the causes of financial exclusion and design strategies to ensure financial inclusion of the poor and disadvantaged at the global level. The reasons may vary from country to country and hence the strategy could also vary but all efforts are being made as financial inclusion can truly lift the financial condition and standards of life of the poor and the disadvantaged (Leeladhar, 2005). The concept of financial inclusion has emerged as an important topic on the global agenda for sustainable long-term economic growth and is considered as a growing area of research interest for academicians, policy makers, financial institutions and governments in developing countries (Allen et al, 2012; Amidzic et al, 2014; Beck & Torre, 2006; Camara & Tuesta, 2014;).

Efforts are being made to enhance access to wide range of financial services at international

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levels. The World Bank's declared objective of achieving universal access by 2020 is another testimony to the fact that financial inclusion has been accepted as fundamental for the process of economic growth. As an evidence of support for increasing financial inclusion at the national level, recently the Government of India (GOI) has started 'Pradhan Mantri Jan Dhan-Yojana (PMDJY). PMJDY is a national level financial inclusion programme with an objective that every household should hold an account in a formal financial institution.

In India the focus of the financial inclusion at present is restricted to ensuring certain measures for undertaking to provide minimum access to a savings bank account with no-frills. But having only ownership of bank account is not considered as exact indicator of financial inclusion. There are other factors that should be considered to accomplish financial inclusion. There could be other multiple levels of financial inclusion indicators which exhibit a significant impact on building the concept of financial inclusion completely (Leeladhar, 2005).

The other extreme of financial inclusion is financial exclusion. The nature of certain causes which create financial exclusion must be addressed. Kempson and Whyley (1998) & Bhanot et al., (2012) examined the extremes where people face barriers to accessibility and usage of banking services. The authors have summarised the various reasons for financial exclusion as follows:

- Self-exclusion/Voluntary exclusion : people face barriers that encourage self-exclusion
- Price of financial products exclusion: based on unaffordable cost or premium, which means high cost of insurance policies and high cost of credit.
- Condition exclusion: households are deterred by the conditions attached to financial products-which are restricted usefulness. These include being offered insurance policies which contains certain exclusions and bank account where certain amount of minimum balance has to be maintained.
- Marketing of financial products exclusion: households with no financial products have had no sales approaches
- Psychological barrier: lack of financial services, the feeling that financial services are not for households on very low incomes was similarly very widespread.

Additionally, lack of awareness, low income, poverty and illiteracy are the factors that lead to low demand for banking services and consequently are the main reasons for financial exclusion (Chattopadhyay, 2011; Crisil Inclusix, 2015).

However, financial exclusion consists of a complicated set of adjacent obstacles and therefore the policy makers and financial institutions have to take successful financial inclusion initiatives. These initiatives must be aimed at reducing the barriers of financial inclusion and promote universalisation of financial services.

Literature Review

There are a few recent studies that investigated the financial inclusion indicators at national and international level. Demirguc-Kunt and Klapper (2013) examined the global financial inclusion and identified a new set of indicators that measure how adults use financial services in 148 countries. They identified a set of indicators which focus on ownership of formal account, savings behaviour, source of borrowings and use of credit cards. The findings reveal that there are significant differences across regions, income groups and individual characteristics. Similarly, Allen et al (2012) studied the individual and country characteristics that are connected with the

ownership and use of formal accounts in 123 countries. It was found that greater financial inclusion is associated with lower banking costs, greater proximity to branches and fewer documentation requirements to open an account.

Research by Fungacova and Weill (2015) examined the financial inclusion in China based on Global Findex data base during 2011. A comparative study of China with the other BRICS nations (Brazil, Russia, India and South Africa) revealed that high level of financial inclusion in China is indicated by greater use of formal account and formal savings in comparison to Brazil, Russia and India. Additionally, certain other factors like higher income, better education and gender influence are associated with greater use of formal accounts and formal credit in China. In the context of India, Bhanot et al (2012) indentified that level of financial inclusion is also influenced by income, financial information, distance to financial institutions, awareness about services and education.

Beck et al (2007) examined the access to and use of banking services across various countries. It was found that banking sector outreach is a main indicator, to decide specially to measure the banking services accessibility and usage of deposit money and lending financial services. Nandru and Byram (2014) explored that factors that determine the financial inclusion in the Indian state of Andhra Pradesh. It was found that population size, gender ratio, branch penetration, literacy rate and deposit to credit penetration ratio show significant impact on financial inclusion in Andhra Pradesh

In Indian context some of the studies focused on construction of The Index of Financial Inclusion (IFI) by considering macro level indictors for determinants of financial inclusion. Sharma (2008) attempted to develop an "index of financial inclusion" and considered three basic dimensions of Index of financial inclusion for an inclusive financial system. The three dimensions considered were bank penetration (indicated by people having number of bank accounts), availability of banking services (indicated by the number of bank employees per customer) and usage of banking system (indicated by volume of credit and deposit proportion).

Chandran (2010) highlighted the challenges for India in moving towards financial inclusion. An analysis of the development of various strategies for proving basic banking services to vast segment of population in India has been presented. The study concludes that there are different schemes for enhancing financial inclusion outreach in India. These include no frills accounts, know your customer initiatives (KYC), self help groups (SHGs) etc.

Gupte et al (2012) in their study on "Computation of financial inclusion index for India" considered financial inclusion as a geometric mean of four different dimensions. First dimension is the outreach dimension (measured by Branch penetration, ATM penetration, and number of accounts). Second dimension is the usage dimension (indicated by the volume of Deposits and loans as a percentage of GDP). Third dimension is the ease of transactions (measured by the number of locations to open Deposit or loan accounts and affordability of deposit or loan accounts) and fourth dimension is the cost of transactions dimension (indicated by annual fees charged to customers for ATM usage or cost of money transfer and other remittances are involved).

Arora (2012), in a study on "measuring financial access", has considered three variables. Physical access or outreach dimension (measured by branch penetration and ATM penetration), transaction dimension (measured by location to open bank account, the number of documents required to open bank account) and cost of

transaction dimension (measured by bank charges to customer for access banking services) were included as measures of financial inclusion.

In another study, Kumar (2013) examined the status of financial inclusion and provides the evidence of its determinants. It was reconginsed that branch net penetration is an important dimension which has a significant impact on financial inclusion. Proportion of factories and employee base factors were also found to be important key determinants of penetration financial inclusion index. It was found that a region's socio-economic and environmental association has a significant impact in shaping banking practices of masses in India. It has been also identified that expanding branch net work influences financial inclusion to a great extent.

Prior research studies on the status of financial inclusion in Indian states were confined to very few states. Among the prominent studies in Indian context, Bhanot et al., (2012) reported the status of financial inclusion in two north-eastern states (Assam and Meghalaya) in India. Arora and Meenu (2012) investigated the impact of microfinance as a tool for financial inclusion in the state of Punjab. However, earlier research work has not focused on micro level indicators to measure the status of financial inclusion in Pondicherry region. The main objective of this study is to fill this gap by examining some of the micro level indicators which influence usage of banking services as determinants of financial inclusion in Pondicherry region. It is important to note that Pondicherry region is considered to be India's best financially included state for three consecutive years in 2012, 2013 and 2014 (CRISIL Inclusix Report, 2015). The results of this research can serve as a guide to understand the factors which had an influence on usage banking services in Pondicherry region.

Determinants of Banking Services

Determinants of Financial inclusion were examined through various indicators by earlier researchers as shown in Table 1. Table 1 gives an account of various variables that were used to explore the determinants of financial inclusion.

Table 1: Variables used as determinants of banking services by various researchers

S.No	Author(s)	Variables used
1.	Efobi et al (2014)	1. Use of bank services 2. Use of the account to save and 3. Frequency of bank withdrawals
2.	Allen et al (2012)	1. Ownership of an account 2. Use of the account to save 3. Frequent use of the account (defined as three or more withdrawals per month)
3.	Bendig et al (2009)	1. Savings 2. Loans 3. Insurance
4.	Fungacova and Weill (2014)	1. Formal account 2. Formal savings and 3. Formal credit
5.	Kendall et al (2010)	1. Numbers and volume of deposits accounts 2. Loans3. Banking infrastructure (branches and ATMs) and financial services usage4.Per capita income
6.	Demirguc-Kunt and Klapper, (2013)	1. Account ownership 2. Saving behavior 3. Borrowings 4. Use of credit cards

Source: Authors' compilation

Proposed Research Frame Work and Hypotheses Development

The following factors were considered to determine the usage of banking services in this study.

Purpose of Opening Bank Account

In the process of financial inclusion, a bank account serves as an entry point into the formal financial sector. It makes it easy to transfer money, wages, remittances, government payments and receipts. It also encourages the concept of saving money and access to bank credit. (Demirguc-Kunt & Klapper, 2012). For this factor it can be observed that the variance per cent = 17.576. It can be inferred that the four items included in this factor – a) holding bank account helps me to enjoy lot of government benefits (Item Load= 0.849), b) holding bank account is useful for saving purpose (Item Load= 0.830), c) holding bank account is helpful to safeguard my money (Item Load=0.622) and d) bank account facility helps in availing bank loan (Item Load=0.571) - have items load values of more than 0.5 indicating that these items can be considered for analysis.

H1: Purpose of bank account has a significant positive effect on usage of banking services.

Convenience

Easy availability of banking services is essential to all potential users which is a measure by the number of access points, such as banks branches and convenient to use ATM's in a given area (Rahman, 2013). For this factor it can be observed that variance per cent = 12.624. It can be inferred that the three items included in this factor - a) opening of bank account is very easy (Item Load=0.836), b) bank working hours are very convenient to access (Item Load=0.779) and c) the physical distance of AMTs is very comfortable (Item Load=0.503) – have item loads of more than 0.5 indicating that these items can be considered for analysis.

H2: Convenience has a significant positive effect on usage of banking services

Ease of using Banking Products

For this factor it can observed that the variance per cent = 11.291. It can be inferred that three items included in this factor – a) availing education loan through banks with low interest (Item Load=0.736), b) getting bank loan against property document is very easy (Item Load=0.688) and c) availing government insurance schemes through banks is very easy (Item Load=0.608) – have item loads of more than 0.5 indicating that these items can be included for analysis.

H3: Ease of using banking products has a significant positive effect on usage of banking service

Physical Accessibility of Bank Branch

Distance from nearest banking services is an important determinant of accessing financial services (Topoworski, 1987). Residents of remote and hilly areas are more likely to be financially excluded population (Kempson & Whyley, 1998).

Another study on financial inclusion in north-east India reveals that financial services through post office emerges to be far significant than distance form bank. With increasing distance from post office and bank branch the chances of inclusion also decline (Bhanot et al, 2012).

For this factor the variance per cent = 10.283. It can be inferred that one item in this factory - location of bank branch is very near to my residence for accessibility – has an item load of more than 0.5 indicating that this items can be included in analysis (Item Load= 0.756).

H4: Physical accessibility of bank branch has a positive effect on usage of banking services

Figure 1 : depicts the proposed research model for this study.

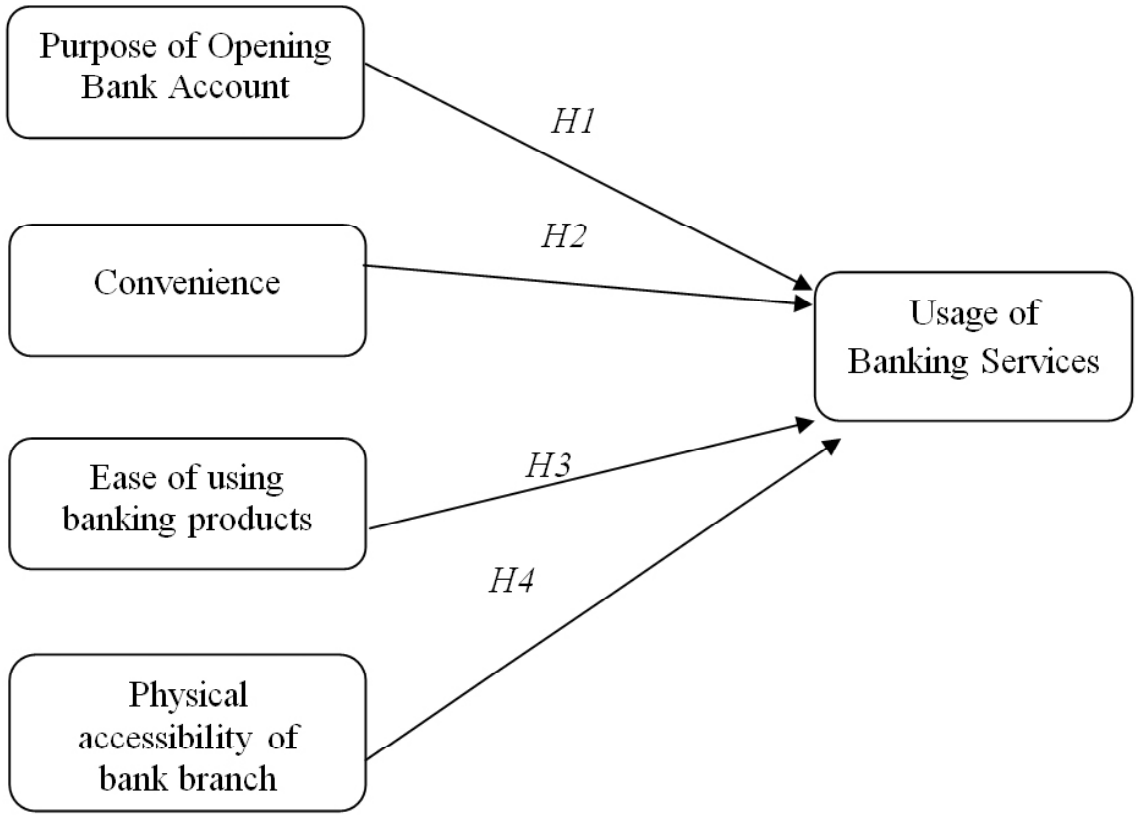

Figure 1 : Proposed Research Model

Data source and research methodology

Sampling and data collection

The data for this research is based on individual level survey which has been collected through structured questionnaire from individuals with respect to the usage of and access to banking services. The study collected responses from 200 people based on convenience sampling method in Pondicherry region. In this survey the gender distribution of the selected respondents is 59.0 per cent males and 41.0 per cent females. The socio-demographic profile of the respondents is shown in Table 2.

Table 2: Demographic characteristics of the respondents

Demographic Variables	Characteristics	Percentage
Gender	Male Female	59.0 41.0
Age	18-25 Yrs 26-35 Yrs 36-45 Yrs 46-55 Yrs Above 55 Yrs	46.5 28.5 18.5 5.5 1.0
Income group	<INR 10,000 Between INR10001 and 30,000 Between INR 30,001 and INR50,000 Between INR 50,000 and 100,000> INR100,000	49.5 28.0 13.0 7.0 2.5
Educational Qualification	No formal education 10+/Diploma Bachelor's Degree Master's Degree Others	5.5 16.5 37.0 40.0 1.0
Occupation	Student Self-employed Employed Unemployed Others	34.5 18.0 41.5 2.5 3.5

Source: Primary Data

Variable Measurement

A structured questionnaire was designed to collect data and measure the financial inclusion by considering micro level indicators with the help of multiple item measures using a 5-point Likert scale with Strongly Disagree representing (1) and Strongly Agree representing (5). A total of 16 items were developed to capture five factors. Each item was measured by the five-point Likert scale. 1= strongly disagree, 2= disagree, 3= neutral, 4=agree and 5= strongly agree. Finally five factors are used to measure the financial inclusion at micro level.

Independent variables: After running factor analysis, fourteen items were considered and grouped into five factors. Among these, purpose opening bank account, convenience, ease to using banking products and physical accessibility of bank branch were considered as independents variables

Dependent variable: Frequency of usage of banking services was considered as dependent variable in this study.

Results of Factor Analysis and Scale Reliability

Factor analysis represents a set of observed variables X_1, X_2 ….X_3 in items of a number of 'common' factors plus a factor which is unique to each variable. These underlying dimensions are known as factors. By reducing data set from a group of interrelated variables to a smallest set of factors, factor analysis achieves parsimony by explaining the maximum amount of common variance in a correlation matrix using the smallest number of explanatory constructs. Factor loading is considered to be very significant if there are > 0.50 (Hair et al., 2010). In this study items which are loaded under each factor all items are > 0.50 and hence were accepted. It is generally accepted that each item value of 0.7 to 0.8 is an acceptable value for Cronbach's Alpha to test reliability. Values lower than 0.5 indicate an unreliable scale. Kline (1999) noted that although the generally accepted value of 0.8 is appropriate for cognitive tests such as intelligence tests, for ability tests a cut-off point of 0.7 is more suitable. In this study the scale value is 0.778 which exceeds that acceptance level.

Appropriateness of factor analysis is tested using two important measures. The first measure is Kaiser-Meyer–Olkin (KMO) measure which gives the overall sampling adequacy. KMO can be calculated for individual and multiple variables and represents the ratio of the squared correlation between variable to the squared partial correlation between variables. The KMO statistic varies between 0 and 1. In this study the scales are within the acceptable range i.e 0.691 and fall within the acceptable limit. The composite reliability of all latent constructs exceed the proposed value of 0.5. This implies that the measurement is good. The other measurement is Bartlett's test of sphericity and its value was 771.155 and at 1 per cent level of significance as $p<0.001$. This measure indicates that a highly significant correlation among the items of the constructs in the survey. Table 3 shows the results of the KMO-Bartlett's test. KMO measure indicates that the sample size is adequate. The sample adequacy of 0.69 is considered good. Bartlett's test shows that the variables have a significant correlation between them and hence can be grouped.

Table.3 Results of KMO and Bartlett's test for overall sampling adequacy

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.691
Bartlett's Test of Sphericity	Approx. Chi-Square	771.155
	Df	91
	Sig.	.000

In analysis part, two items were removed since the extracted values of 0.430 and 0.456 are below the minimum accepted value of 0.5. Hence those two items are removed in the final analysis. All other extraction values in the communalities test range between 0.797 and 0.555 which are greater than

the minimum accepted value of 0.5 and hence were considered in final analysis. After Varamix rotation, all the fourteen items grouped into 5 factors all together gave 66.404 of total variance loading. These factors were named as purpose of opening bank account, frequency of usage, convenience, ease of using banking products and physical accessibility of bank branch each with initial Eigen values of 26.71%, 11.93%, 10.37 %, 9.59% and 7.78 % respectively. The results of the total variance explained by different items are shown in Table 4 and Table 5.

Table 4: The statements identified and a communalities test is run on these statements

Statements/items	Initial	Extraction
Location of bank branch is very near to my residence for accessibility	1.000	0.651
Opening bank account is easy very easy	1.000	0.754
Bank account facility helps in availing bank loan	1.000	0.725
Holding Bank account is useful for saving purpose	1.000	0.712
Holding bank account avail me to enjoy lot of government benefits	1.000	0.797
Holding bank account is helpful to safeguard my money	1.000	0.512
The bank working hours are very convenient to access	1.000	0.657
Getting loan against property document is very easy	1.000	0.555
Comfortable to use ATM's for withdrawing cash 24/7 everywhere	1.000	0.751
Availing education loan through banks with low interest	1.000	0.548
Availing government insurance schemes through banks is very easy	1.000	0.627
Visiting bank branch is very frequently for saving my money	1.000	0.731
Visiting bank branch is very frequently for withdrawal money	1.000	0.699
The physical distance of AMTs is very comfortable	1.000	0.579

Note: Extraction Method: Principal Component Analysis.

Table.5 : Total variance explained by different factors

No	Initial Eigen values			Extraction of Squared Loading			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.740	26.715	26.715	3.740	26.715	26.715	2.461	17.576	17.576
2	1.670	11.932	38.647	1.670	11.932	38.647	2.048	14.630	32.206
3	1.452	10.373	49.019	1.452	10.373	49.019	1.767	12.624	44.830
4	1.344	9.598	58.617	1.344	9.598	58.617	1.581	11.291	56.121
5	1.090	7.786	66.404	1.090	7.786	66.404	1.440	10.283	66.404
6	.874	6.244	72.647						
7	.748	5.339	77.987						
8	.728	5.197	83.184						
9	.588	4.197	87.380						
10	.460	3.287	90.668						
11	.423	3.019	93.687						
12	.376	2.688	96.375						
13	.266	1.899	98.274						
14	.242	1.726	100.000						

Note: Extraction Method: Principal Component Analysis.

Multiple Regression Analysis

Multiple regression analysis is used to analyze the relationship between a single dependent variable (frequency of use banking services) and several multiple independent variables (purpose of opening bank account, ease to use bank products, convenience and physical accessibility of bank branch). Therefore, multiple regression analysis is used to examine the relationship between dependent variable and a set of independent variables, to find out the factors which are highly associated with the frequency use of banking services in Pondicherry region. Table 6 presents the regression analysis output.

The regression equation is shown below.

$$Usage\_banking = \alpha + \beta_1 ease\_accessing + \beta_2\ physical\_access + \beta_4 convenience + \beta_5 purpose\_account + \varepsilon$$

Table 6 : Regression analysis for determinants of banking services

Construct	B	SE	â	t-values	Sig	Collinearity Statistics	
						Tolerance	VIF
Constant	1.561	.391		3.990	.000		
Ease of using banking products	.404	.074	.379	5.466	.000**	.831	1.204
Physical accessibility of bank branch	.067	.053	.081	1.257	.210	.963	1.038
Convenience	.023	.068	.023	.337	.737	.872	1.147
Purpose of opening bank account	.126	.063	.136	2.007	.046*	.863	1.159
R	0.471						
R^2	0.222						
Adj. R^2	0.206						
F-statistic	13.896						
P	<0.01						
Durbin-Watson	1.947						
N	200						

Note: ** denotes p value at 1% significant level and * denotes p value at 5% significant level

Dependent variable: Frequency usage of banking services

Results and Discussion

Four independent variables namely purpose of opening bank account, easiness in accessing bank products, convenience, physical accessibility of bank branch and dependent variable (frequency use of banking services) were tested to find the relationship using exploratory factor analysis. The details of regression output were shown in Table 6. The coefficient of determination (R^2) was found to be 0.222, representing that 22.22 per cent of variance can be explained by the four independent variables for use of banking services. The F-value =13.986 for proposed model was suitable at (p-value=0.000), significant at the 1 per cent level (p<0.01). Hence, it is implies that the overall model was reasonably fit and there was a statistically significant association between dependent and independent variables.

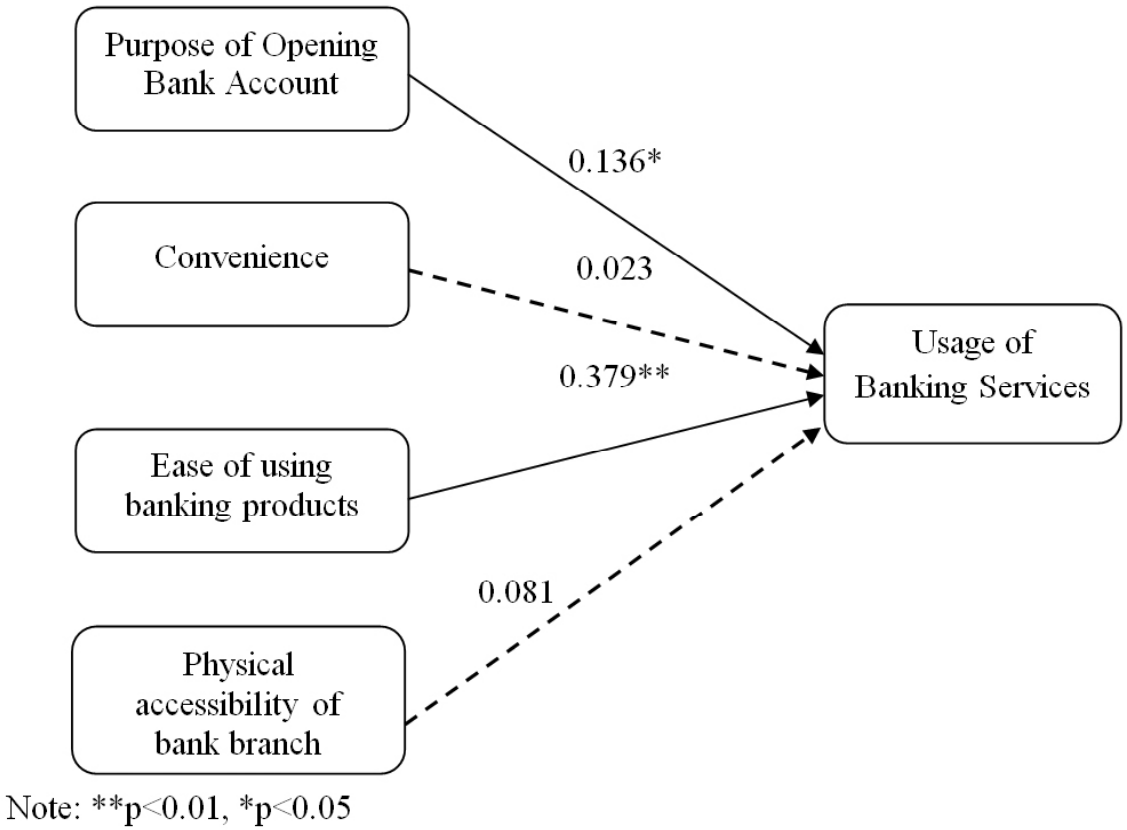

Figure 2 : Results of Proposed Research Model

The regression results reveal that the easiness in accessing bank products (â=0.379, P<0.01), the purpose of opening bank account (â=0.136, P<0.05) were found to have a significant and positive effect on frequency use of banking services. Therefore, the hypothesis H1 and H3 were accepted. Meanwhile the physical accessibility of bank branch (â=0.081, P>0.05) and Convenience (â=0.023, P>0.05) had no significant association with frequency use of banking services. Hence the hypothesis H2 and H4 are not accepted.

This paper has empirically studied the proposed research model. The hypothesis are developed and tested by using reliability test and multiple regression analysis. The results reveals that hypothesis H1 and H3 is accepted i.e purpose of opening bank account and ease to accessing bank products have significant effect on frequency use of bank services. Other two factors the physical accessibility of bank branch and convenience were not influencing on frequency of use banking services. Therefore, H2 and H4 were not accepted. These results of the proposed research model are shown in figure.2

Conclusion

This research focused on the factors that influence the usage of banking services in Pondicherry region. Convenience sampling method was used to collect the data. Factor analysis and regression analysis were employed and observed that the purpose of opening bank account and ease of accessing bank products exhibits a significant influence on frequency use of banking services. The study also found that customers visit bank branch very frequently to deposit money. The findings of the study also reveal that most of the respondents showed interest regarding the usage of a few banking products namely education loan and mortgage loan facility through bank which were found to be convenient to use.

Further, the study found that all respondents use their bank account very frequently for saving money and withdrawal of money. Information and communication technology (ICT) is also seems to have a significant impact on financial inclusion. The use of ICT measured by use of ATM/debit card seems to facilitate the bank customers largely to have easy access to money through withdrawal from ATM/debit card than the personal visit to bank branch. Further, banks are requested to conduct credit counselling and literacy programme to create customer awareness about loan facilities and usage of banking services in effective way.

The methodology used in this study can be empirically tested in other Indian states by future researchers. The findings of the future studies may highlight the relative importance of various determinants of financial inclusion using banking services in various regions. Banks can use the findings of such studies to devise appropriate strategies to increase financial inclusion status in various states.

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