

Financial Inclusion in Pondicherry Region: Evidence from Accessibility and Usage of Banking Services

Prabhakar Nandru, Byram Anand and Satyanarayana Rentala

Abstract

The concept of "financial inclusion" is commonly defined as people having easy access to a wide range of formal banking services which are provided at an affordable cost. These services include ownership of bank accounts, savings, availability of credit, remittance, transfers and insurance. The concept of financial inclusion has attracted significant attention in recent times. Various initiatives have been undertaken by Government of India and Reserve Bank of India to promote financial inclusion at ground level. A declaration by World Bank to achieve universal financial access by 2020 is another evidence of financial inclusion being recognized at the global level. The purpose of this paper is to identify the demographic factors which influence the extent of financial inclusion in Pondicherry region. Results of this study indicate that frequency of usage, ease of using banking products and physical accessibility of bank branch show significant impact on level of financial inclusion in Pondicherry. It is also found that higher income, better education, gender and occupation have a significant influence on frequency of usage, ease of using banking products and physical accessibility of bank branch are highly associated with the level of financial inclusion in Pondicherry region.

Keywords: Bank account, Banking services, Financial inclusion, Insurance, Savings

1. Introduction

Financial inclusion is the process of ensuring easy access to a wide range of formal banking services that meet the economic needs of people at an affordable cost. This concept becomes particularly significant in case of low income and marginalised groups in the society. The financial services include having a bank account, savings, availability of credit, remittance, payments etc. (Leeladhar, 2005; Rangarajan, 2008; Chakrabarty, 2011). The rise of financial inclusion as an important policy goal is due to mounting evidence that access to financial products can make a positive difference in the lives of the

Prabhakar Nandru, Doctoral Research Scholar, Department of Management, Pondicherry University, Karaikal - 609 605; Email: prabhakarphd897@gmail.com; Mobile: +91 90925 27553 (Corresponding Author)

Byram Anand, Assistant Professor, Department of Management, Pondicherry University, Karaikal - 609 605; Email: byramanand_1999@yahoo.co.in

Satyanarayana Rentala, Doctoral Research Scholar, Department of Management, Pondicherry University, Karaikal - 609 605; Email: rentsatya@gmail.com; Mobile: +91 90428 76423

poor (Kendall et al, 2010). Financial inclusion provides individuals with the possibility of having a safe place to save for the future and so can foster financial stability. A high level of use of bank deposits contributes to a more stable deposit base for banks in troubled times (Han & Melecky, 2013).

A well-functioning financial system serves a vital purpose of offering savings, payment, availability of credit and risk management products to people with a wide range of needs. It also allows access to appropriate financial services that are likely to benefit poor people and other disadvantage groups (Demirguc-Kunt & Klapper, 2013). The depth of the financial system (measured by supply of wide range of financial services like savings, credit and stock market capitalization) mechanisms may facilitate investment in productive activities such as entrepreneurship and can contribute to reduce income inequalities and foster economic development (Claessens, 2005 & Demirguc-Kunt & Klapper, 2013). The well-being of population depends on many attributes such as income, health, education and housing. Access to a wide range of financial services can as well be regarded as a basic ingredient leading to human well-being the society. As banking services are in the nature of public good, it is essential that availability of basic banking and payment services to the entire population without discrimination be the primary objective of the public policy.

The banking industry has shown tremendous growth in branch penetration and ATMs penetration during the last few decades (Leeladhar, 2005). Indian banking industry 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).

2. 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.

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 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 2014, 2013 and 2012 (CRISIL Inclusix Report, 2015). The results of this research can serve as a guide to understand the impact of demographic characteristics towards the accessibility and usage banking services.

3. Measuring financial inclusion

Financial inclusion has been measured by various financial inclusion indicators by earlier researchers. Table 1 gives an account of various variables that have been used to understand the status of financial inclusion.

Table 1: Various variables used in determinants of financial inclusion 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.	Das (2009)	1. Access to bank accounts 2. Access to savings Schemes 3. Access to credit 4. Taking loan
3.	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)
4.	Bendig et al (2009)	1. Savings 2. Loans 3. Insurance
5.	Fungacova and Weill (2014)	1. Formal account 2. Formal savings and 3. Formal credit
6.	Kendall et al (2010)	1. Numbers and volume of deposits accounts 2. Loans 3. Banking infrastructure (branches and ATMs) and financial services usage 4. Per capita income
7.	Demirguc-Kunt and Klapper, (2013)	1. Account ownership 2. Saving behavior 3. Borrowings 4. Use of credit cards
8.	Nino-Zarazua and Copestake, (2008)	1. Having a bank account 2. Savings 3. Credit services
9.	Kuri and Laha	1. Number of bank accounts 2. Number of branches 3. Number of ATMs 4. Amount of bank credit 5. Amount of bank deposit and Socio-economic factors
10.	Gitaharie et al, (2014)	1. Households characteristics 2. Social economic factors 3. Access to technology and information

Source: Authors' compilation

4. Data source and research methodology

4.1 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 with a sample of 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	59.0
	Female	41.0
Age	18-25 Yrs	46.5
	26-35 Yrs	28.5
	36-45 Yrs	18.5
	46-55 Yrs	5.5
	Above 55 Yrs	1.0
Income group	<INR 10,000	49.5
	Between INR10001 and 30,000	28.0
	Between INR 30,001 and INR50,000	13.0
	Between INR 50,000 and 100,000	7.0
	>INR100,000	2.5
Educational Qualification	No formal education	5.5
	10+/Diploma	16.5
	Bachelor's Degree	37.5
	Master's Degree	40.0
	Others	1.0
Occupation	Student	34.5
	Self-employed	18.0
	Employed	41.5
	Unemployed	2.5
	Others	3.5

4.2 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.

5. Results of factor analysis and scale reliability

Factor analysis represents a set of observed variables $X_1, X_2 \dots X_3$ in terms 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 (Kaiser, 1970). The 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. Kaiser (1974) recommends accepting values greater than 0.5 as barely acceptable. In this study the scales are within the acceptable range i.e 0.691 which falls within the acceptable limit and 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. While the Bartlett's test shows that the variables have a significant correlation between them and hence can be grouped.

Table 3: KMO and Bartlett's Test

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 communities range between 0.797 and 0.555 which are greater than the minimum accepted value of 0.5 were considered in final analysis. But after Varamix rotation all the fourteen items grouped in to 5 factors which 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 have been shown in Table 4 and Table 5.

Table 4: The statements identified and a communalities test is run on these 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 saving my money	1.000	0.699
The physical distance of AMTs is very comfortable	1.000	0.579

Note: Extraction Method: Principal Component Analysis

The following hypotheses were framed and tested as follows.

- H1: There is no significant difference in the perception of respondents towards various micro indicators of financial inclusion between male and female
- H2: There is no significant difference between micro indicators of financial inclusion and across various income groups
- H3: There is no significant difference between micro level indicators of financial inclusion and across different education groups

- H4: There is no significant difference between various micro level indicators of financial inclusion and across various occupational groups
- H5: There is no significant mean difference between various micro level indicators of financial inclusion and across different age groups

Table 5: Total variance explained by different items

No	Initial Eigenvalues			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						

5.1 Data analysis and interpretation

The following indicators are considered for measuring financial inclusion

5.1.1 Purpose of opening bank account

In the process of financial inclusion having a bank account serves as an entry point into the formal financial sector. It makes easy to transfer money, wages, remittances and government payments and receipts and also encourage saving money and access to bank credit. (Demirguc-Kunt and Klapper, 2012). In this study the purpose of opening bank account with male population of mean score is 4.16 which are higher than female mean value is 3.89. This shows that men are more associated with the greater use of banking services. This result is also supported by the findings of (Fungacova and Weill, 2015). The results reveal that the p-value (0.029) is less than 0.05. Hence null hypothesis is not accepted at 5% level of significance. We study the impact of age on purpose of bank account, but results show that the p-value (0.792) is higher than 0.05. Hence null hypothesis is accepted at 5% level of significance. The income perspective the p-value (0.019) is less than 0.05, so null hypothesis is not accepted at 5% level of significance and education, occupation perspective the p-value (0.323 and 0.083) are higher than 0.05, so null hypothesis is accepted at 5% level of significance.

5.1.2 Frequency of usage

Ownership of bank account is one side coin of determine the financial inclusion. The other side is to know the “usage” which is the frequency of account use. In our estimation, we focused on frequency of withdrawals and frequency of savings is the actions are actively initiated by the both male and female account holders. In case of gender differences the p-value (0.000) is less than 0.01, so null hypothesis is not accepted at 1% level of significance. The age factor is also show significant impact on frequency of use banking services in this case the p-value (0.002) is less than 0.01, so null hypothesis is not accepted at 1% level of significance. Income, education and occupation level are also show significant impact on frequent usage of banking services, so null hypothesis is not accepted at 1% level of significant and p-value (0.002, 0.000 and 0.000) respectively.

5.1.3 Convenience

Easily available of banking services are essential to all potential user which is measure by the number of access point, such as banks branches and convenient to use ATM’s in a given area (Rahman,2013). In case of gender, income and education qualification levels are not showing significant impact on convenience of banking services, the p-value (0.368, 0.054 and 0.246 respectively). But age and occupation point of view show significant impact on convenience of banking services where p-values (0.014 and 0.001) are less than 5% and 1% significant level.

5.1.4 Ease of using banking products

This factor relates to whether it is easy or difficult for people to afford to get loans and also include easy to use mobile banking service. In this all demographic factors show significant impact on easiness in accessing bank products where the p-value (0.004, 0.011, 0.023, 0.018 and 0.005) are less than 0.05 and 0.01, so null hypothesis is not accepted at 5% and 1 % level of significant.

5.1.5 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). In this study the results show that the gender and age do not show significant which means distance of bank does not matter for access but income, education and occupation show significant impact on distance of bank branch for availing services. The results of variance are shown Table 6. And results of independent samples t-test is shown Table 7 and Table 8.

Table 6: Results of analysis of variance (ANOVA)

Factors	Statement of Hypothesis	Results (p<0.05/0.01)	Accept /Reject
Purpose of opening bank account	There is no significant difference between purpose of opening bank account and various age groups	0.792	Accept
	There is no significant difference between purpose of opening bank account and various income groups	0.019*	Reject
	There is no significant difference between purpose of opening bank account and various education groups	0.320	Accept
	There is no significant difference between purpose of opening bank account and various occupation groups	0.83	Accept
Frequency of Usage	There is no significant difference between Frequency of Usage and various age groups	0.002**	Reject
	There is no significant difference between Frequency of Usage and various income groups	0.002**	Reject
	There is no significant difference between Frequency of Usage and various education groups	0.000**	Reject
	There is no significant difference between Frequency of Usage and various occupation groups	0.000**	Reject
Convenience	There is no significant difference between Convenience and various age groups	0.014*	Reject
	There is no significant difference between Convenience and various income groups	0.054	Accept
	There is no significant difference between Convenience and various education groups	0.246	Accept
	There is no significant difference between Convenience and various occupation groups	0.001**	Reject
Ease of using bank products	There is no significant difference between Ease of using bank products and various age groups	0.011*	Reject
	There is no significant difference between Ease of using bank products and various income groups	0.023*	Reject
	There is no significant difference between Ease of using bank products and various education groups	0.018*	Reject

	There is no significant difference between Ease of using bank products and various occupation groups	0.005**	Reject
Physical accessibility of bank branch	There is no significant difference between Physical accessibility of bank branch and various age groups	0.080	Accept
	There is no significant difference between Physical accessibility of bank and various income groups	0.023*	Reject
	There is no significant difference between Physical accessibility of bank e and various education groups	0.002**	Reject
	There is no significant difference between Physical accessibility of bank and various occupation groups	0.000**	Reject

Note: * Denotes significance at 5% level and ** denotes significant at 1 % level

Table 7: Results of independent samples t-test (Gender Perspective)

Factors	Statement of Hypothesis	Results (p<0.05/0.01)	Accept /Reject
Purpose of opening bank account	There is no significant difference between Purpose of opening bank account and male and female	0.029*	Reject
Frequency of Usage	There is no significant difference between Frequency of Usage and male and female	0.000**	Reject
Convenience	There is no significant difference between Convenience and male and female	0.368	Accept
Ease of using banking products	There is no significant difference between Easiness in accessing bank and male and female	0.004**	Reject
Physical accessibility of bank branch	There is no significant difference between Distance of bank branch and male and female	0.836	Accept

Note: * Denotes significance at 5% level and ** denotes significant at 1 % level

6. Conclusion

Well structure of financial system serve a key role in offering various kind of financial services which include savings, payments, availability of credit and insurance products to people with an affordable cost. This inclusive financial system allow broad access to appropriate financial services to the benefit of public specifically economic development of the poor people and other disadvantaged groups in society.

This study mainly focused on user-side data set of financial inclusion indicators that are measured by accessibility and usage of banking services. This paper also studied on how adults save, borrow and ease of banking products with relation to how the demographic factors influence on banking services as determines the level of financial inclusion in Pondicherry region.

Table 8: Independent samples test for the perception of respondents towards various micro indicators of financial inclusion between male and female

Factors	F	T-value
Purpose of opening bank account	12.272	2.194*
Frequency of Usage	19.510	3.861**
Convenience	1.474	-.903
Ease of using banking products	28.963	2.940**
Physically accessibility of bank branch	.244	-.208

* Denotes significance at 5% level and ** denotes significant at 1 % level

Note: consider equal variances assumed

There is a strong association among house hold location, income, better education, ICT inclination and gender with greater use of banking services (Beck & Brown, 2011; Efobi, 2014 Fungacova & Well, 2015). This study reveals that the higher income, better education, gender and various occupation groups are influenced on frequency of usage, ease of accessing banking products and physical distance of bank branch. These are greatly associated with the accessibility and use of banking services as determination of financial inclusion in Pondicherry region.

References

- Allen, F., Demirguc-Kunt, A., Klapper, L., & Peria Martinez, S.M. (2012). The foundations of financial inclusion understanding ownership and use of formal Accounts. *Policy Research Working Paper 6290, World Bank, Washington, DC.*
- Arora, S., & Meenu. (2012). The banking sector intervention in the microfinance world: a study of bankers' perception and outreach to rural microfinance in India with special reference to the state of Punjab. *Development in Practice, 22(7), 991-1005.*
- Beck, T., and Brown, M. (2011). Use of banking services in emerging markets - household-level evidence. *The DNB-EBC conference on "Banking and the Globalization of Finance" at EBRD, KfW, Gallen.*
- Beck, T., Demirguc-Kunt, A., and Peria Martinez, S.M. (2007). Reaching out: access to and use of banking services across countries. *Journal of Financial Economics 85, 234-266.*

- Bhanot, D., Bapat, V., and Bera, S. (2012). Studying financial inclusion in north-east India. *International Journal of Bank Marketing*, 30(6), 465-484.
- Chattopadhyay, S.K. (2011). Financial inclusion in India: A case –study of West Bengal. *RBI Working Paper Series (WPS-DEPR)*: 8/2011.
- Claessens, S. (2005). Access to financial services: A review of the issues and public policy objectives. *World Bank Policy Research Working Paper 3589*
- Das, K.Ch. (2009). Access to finance and its association with development in rural India. MPRA.
- Demirguc-Kunt, A., and Klapper, L. (2012). Measuring financial inclusion: The Global Findex Database. *Policy Research Working Paper 6025, World Bank, Washington, DC*.
- Demirguc-Kunt, A., and Klapper, L. (2013). Measuring financial inclusion: explaining variation in use of financial services across and within countries. *Paper Economic Activity, Spring*.
- Efobi, U., Beecroft, I and Osabuohien, E. (2014). Access to and use of bank services in Nigeria: Micro-econometric evidence. *Review of Development Finance*, 4, 104-114.
- Fungacova, Z., and Weill, L. (2015). Understanding financial inclusion in china. *China Economic Review*.
- Gitaharie, B.Y., Soelistianingsih, L., and Djutaharta, T. (2014). Financial inclusion: household access to credit in Indonesia. *Working paper in Economics and Business Management*, IV (01).
- Kendall, J., Mylenko, N., and Ponce, A. (2010). Measuring financial access around the world. *Policy research working paper, World Bank, Washington, DC*.5253.
- Leeladhar, V. (2005). Taking banking services to the common man – financial inclusion, *Commemorative Lecture at the Fedbank Hormis Memorial Foundation at Ernakulum*.
- Nandru, P., and Anand, B. (2015). Determinants of financial inclusion-Evidence from Andhra Pradesh. *Jamal Academic Research Journal, Special Issue-0973-0303*, 172-179.
- Rahman, Z.A. (2013). Financial inclusion in malaysia. *Asian Institute of Finance*, 12, 7-11.
- Rangarajan, C. (2008). Report of the committee on financial inclusion, *Government of India, New Delhi*.