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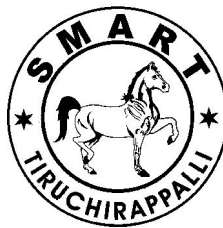
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MEASURING FINANCIAL INCLUSION: THE ACCESS AND USAGE DIMENSION

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Abstract

Universal access to formal financial services, has been the priority among the policy makers, across all the countries. Financial Inclusion ensures that poor and vulnerable sections of the society, get an opportunity, to participate in the formal financial system, which reduces economic inequality and promotes economic growth. Financial inclusion is a key enabler, in the fight towards poverty eradication and fostering the economic growth. While there is an increasing focus on financial inclusion policies and initiatives, across all countries, there is also an increasing focus on the standards of measuring progress. Measuring the progress of financial inclusion is important not only to check the progress but also to keep it as a base, to fix up ambitious financial inclusion targets for the future. It is in this context that measuring financial inclusion becomes critical. The present study focuses on measuring the financial access and usage dimensions of financial services.

Keywords: Financial Inclusion, Inclusive Growth, Economic Growth, Eradication of Poverty

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1. Introduction

The population is being deprived of the basic banking services consistently and it results in social exclusion, which would have various long term repercussions. In the absence of formal source of deposit and credit products, the deprived would be compelled to depend on the informal source like the local moneylender. Given this background, financial inclusion is one indisputable strategy, which ensures inclusive growth, by ensuring access to formal financial services to all. Financial inclusion ensures inclusive growth because it is not just limited to the affluent section of the society but it extends to all sections of the society, irrespective of their social status, caste or creed. Financial inclusion refers to the delivery of financial services, including banking services and credit, at an affordable cost, to the vast section of disadvantaged and low income groups. Both the Government of India and the Reserve Bank of India have initiated concerted efforts, to promote financial inclusion, as the most important policy objective of the country. As a result of this concerted effort, various initiatives have been introduced which include nationalization of banks, directed credit, differential loan system, expansion of commercial bank branches, regional rural banks, co-operatives across the country, priority sector banking, lead bank scheme, micro finance institutions, the business correspondent/ business facilitator model of financial inclusion, introduction of KCC, GCC, no frill accounts, and the very recent Pradhan Mantri Jan Dhan Yojana and so on and so forth. But with all these directed efforts, the path towards total inclusion has been very challenging.

Universal access to formal financial services, has been the priority among the policy circles, which plays a very prominent role not only in facilitation of economic growth but also in reducing the income inequality. Inclusive financial system ensures that poor and vulnerable sections of the society, get an opportunity, to

participate in the formal financial system, insulate them against the economic vulnerabilities they face in normal life like illness, accidents, theft to unemployment. Gradually, they empower themselves by saving for future, borrowing to build their asset level and go on to make investments, for a better tomorrow, by improving their livelihood. It is for these reasons that financial inclusion has gained significance in recent years. With the financial inclusion efforts being stepped up, across all the countries, there is a need that there be some measure using which one can measure the successfulness of the efforts. This is where measuring financial inclusion, using certain universally accepted measures, becomes important. Using these indicators, one can not only diagnose the state of financial inclusion in the country but also agree on the targets, which give them clarity for future growth, identify the barriers which are coming in the way of their performance, craft appropriate policies and thereby monitor and measure the policy impact.

2. Review of Literature

According to **Mohan and Rakesh (2006)**, the financial depth of the country, when compared to other Asian countries, is comparatively less. **Srinivasan (2007)** opined that the financially underserved or unserved are not the potential clients who could be served by the banks. They are the ones who need much attention from government, banks and community organizations. As per the definition given by the **Rangarajan Committee (2008)**, financial inclusion is the process of ensuring access to financial services and timely and adequate credit, where needed, by vulnerable groups such as weaker sections and low income groups, at an affordable cost. According to **Sarma et al., (2008a)**, financial exclusion is a reflection of social exclusion as countries having low GDP per capita, higher level of income inequality, low rates of literacy, low urbanization and poor connectivity are supposedly less

financially inclusive. **Sarma and Mandira (2008b)** have proposed a multi-dimensional index of FI, which has resemblance to development indices like HDI, HPI etc., and this index could be used to compare the extent of financial inclusion, across different countries, at different time horizons. **Pandey and Tushar (2010)** argue that FI efforts in the country should go beyond ensuring access to the basic or no frill accounts to all sections of the society and ensure that the access enhances the capability and convenience, for the unbanked, and under banked, specifically the small and marginal farmers. **Swamy and Vijayalakshmi (2010)** suggest that financial inclusion does have far reaching consequences and that it could help people come out of their poverty. **Maurya and Ramu (2011)** concluded the study by saying that FI needs to be holistically and comprehensively approached as basic no-frill account would ensure access to affordable credit. **Bagli and Supravat (2012)** constructed a composite index of FI, by using multiple indicators. They concluded their study by stating that the implementation of FI is not satisfactory in certain States. Majority of the marginalized groups of population are financially excluded and they are deprived of the benefits of FI. **Jain and Mamta (2012)** suggested that for economic development to happen, FI is a prerequisite. They go on to say that FE could be addressed only if it is holistically approached, by creating awareness, about financial services, by spreading financial education and other such things. **Khan and Harun (2012)** suggested that bankability of poor people, holds a major business opportunity, for the banks in developing a stable, retail deposit base. **Kumar and Nitin (2012)** observed that in an emerging economy like India, FI agenda has gained momentum of late. And the problem of FE is more prevalent in rural and less populated regions when compared to urban and developed areas. Based on the study, it has been found that there has been a high growth of

branches in regions which had less density of branches initially. Economic development and its role in the development of the country, is bought out by **Pal et al., (2012)**, who proposed that larger proportion of poor households do not use formal financial services when compared to that of rich households. The study reveals that the banking service is positively associated with a household inclination to use formal financial services. **Ravikumar (2012)** reported that access to affordable financial services, especially the credit and insurance, enlarges the livelihood opportunities and empowers the people to take charge of their lives. **Singh et al., (2012)** highlighted the efforts towards FI and indicated that the banks have to restructure their business policies, towards FI of low income groups and treat the entire process of FI as both a business opportunity and a social obligation. **Beck and Thorsten (2016)** observed that for measuring financial inclusion, one has to rely on the survey data, which allows for an indepth analysis of different dimensions and the barriers to financial inclusion. But he also emphasizes the need for updating the methodology as one drives deep into the economics and the psychology of FI.

The literature reviews, presented above, not only emphasize the need for financial inclusion but also bring out the need for measuring financial inclusion and also have made an attempt to measure the status of financial inclusion.

3. Statement of the Problem

Measuring the financial inclusion is important not only to check the progress but also to keep it as a base, to fix up ambitious financial inclusion targets, for the future. The real challenge is with reference to what to measure and how to measure as the reliable financial inclusion data, which covers major components of sustainable financial inclusion development, are critical. It is in this context of measuring the progress, made in financial inclusion, that this study was conducted.

4. Need for the Study

India, of late, has been growing at an impressive rate. However, the growth, which is happening, is not successful in percolating to the level wherein it reaches the economically poor and underprivileged sections of the society. With this type of un-equitable growth, the country will not be able to achieve growth, in the real sense, as it is also being observed that only about 54% (NSSO Report, 2011) of the total population have access to the formal financial sector. There is a need for a study to be made, with reference to knowing the progress made in terms of providing banking services, which not only gives a view on the status of financial inclusion in the country but also gives a base on which the future objectives would be made. This is where the importance of measuring the progress made, as a result of all the policy initiatives and efforts, gained prominence.

5. Objectives of the Study

The main objective of the research was to identify the standards, to measure financial inclusion and to measure the progress made, under the access indicators and usage dimension of financial inclusion, in the country.

6. Hypotheses of the Study

The following were the hypotheses, which were tested for the study.

NH-1: There is no significant relationship between the growth in the number of commercial bank branches and the demographical distribution of commercial bank branches in terms of 1,00,000 adults.

NH-2: There is no significant relationship between the growth in the number of commercial bank branches and the geographical distribution of commercial bank branches in terms of 1,000km².

NH-3: There is no significant relationship between the growth in the number of ATMs and the growth in the number of commercial bank branches.

NH-4: There is no significant relationship between the growth in the number of ATMs and the growth in the geographical distribution of ATMs in terms of number of ATMs per 1,000km².

NH-5: There is no significant relationship between the growth in the number of ATMs and the growth in the demographical distribution of ATMs in terms of number of ATMs per 1,00,000 adults.

7. Research Methodology

7.1 Sample Selection

The Indian banking sector was taken as the sample, for the study of financial inclusion, in India.

7.2 Sources of Data

The secondary data, for this study, were taken from the websites of IMF and the RBI.

7.3 Period of the Study

The study was conducted, for a decade, starting from 2004 to 2014.

7.4 Tools used in the Study

The hypotheses, developed in the study, were tested, using the Spearman's coefficient test. The growth rate, in various measures, was calculated, by using the CAGR.

8. Analysis of Data

Financial inclusion is a key enabler, for attaining both real inclusive economic development and for fighting against poverty. Hence the G20 leaders, at the Cannes Summit in the year 2011, agreed upon to form Global Partnership for Financial Inclusion (GPFI). One of the objectives of GPFI is to support, both global and national financial inclusion efforts, by measuring the parameters. The Summit endorsed a set of G20 basic set of financial inclusion indicators, at G20 Los Cabos Summit, in 2012. GPFI has developed a more comprehensive and holistic set of financial inclusion indicators. The indicators thus

developed are in three dimensions: i) Access to financial services, ii) Usage of financial services and iii) Quality of the products and the service delivery. The access indicator measures the depth of the reach of financial services, in terms of number of commercial bank branches and the number of ATMs. The usage indicator measures how exactly the available services are being used by the countrymen. This is measured by the number of accounts opened, number of transactions per account, number of e-payments being made and so on. The quality dimension measures whether the financial products and services match up to the clients' needs, the multiple options available to the customers, clients' awareness and their understanding about the financial products.

This parameter of access dimension attempts to measure, the year on year growth, in the number of commercial bank branches across the country. From 67,361 branches, across the country, in the year 2004, it has increased to about 117,567 branches, in 2014 (**Table-1**). The growth rate, in the number of bank branches, in the last one decade, has been 7.45% cumulatively. The growth in the number of branches was the maximum, in the year 2014, at 10.48%. A consistent growth in the number of branches has been registered from one year to another. Year on year, there is an improvement in the number of commercial bank branches, per 1,000 sq km and per 100,000 adults. From about nine bank branches, per 100,000 adults, in 2004, to about 13 in the year 2014, there is an increase, by about 4.28%, in the access to banking services. With about 39.5932 branches, per 1,000sqkm, the growth rate is impressive (**Table-2**).

The Spearman's Correlation Test was run, to infer the relationship between the two variable numbers of commercial banks and the demographic distribution, per one lakh adults. It was found that the strength of association, between variables, was very high ($r=0.963$) and

that the correlation coefficient was also very high and significantly different from zero ($P<0.00$) (**Table-7**). Thus the null hypothesis (**NH-1**) is rejected. It was found that the strength of association, between the two variable number of commercial bank branches and the number of commercial bank branches per 1,000sq km, was very high ($r=0.997$) and that the correlation coefficient was very high and significantly differed from zero ($P<0.001$) (**Table-7**). Hence the null hypothesis (**NH-2**) is rejected.

Another important indicator of access to financial services is the availability of ATMs. In the year 2005, there were about 17,642 ATMs and the same had increased to 163,230, in the year 2014 (**Table-3**). The increase has been over 28%, over the last nine years. With only 12.83 bank branches, per 100,000 adults (**Table-2**), the pressure on the banking system could be reduced with the expansion of the ATM network. The growth in the number of ATMs has been maximum in the year 2014. An attempt was made, to find out the relationship between the growth in the number of commercial bank branches and the growth in the number of ATMs. It was found that there was a strong positive correlation between the two and that it was statistically significant ($r_s = 1$, $n=10$, $p<0.001$) (**Table-7**). Therefore, the null hypothesis (**NH-3**) is rejected.

An important key indicator of access to financial services is the number of ATMs per 1,000 sq km. From about 5.93 ATMs, per 1,000 sq km, in the year 2005, to 54.9 ATMs, in the year 2014, there has been a significant increase in accessibility by about 91.76% (**Table-4**). From about 2.29 ATMs, in the year 2005, to about 17.80 ATMs, in the year 2014, there has been an improvement in the ATMs per 1,00,000 adults and the growth has been by 75.25%. Maximum expansion, in the demographic as well as geographic expansion of the ATMs, was in the year 2014. In spite of the improvement in the

expansion of ATMs, it could still be said that the number of ATMs, for a country like India, is still very inadequate. Through this hypothesis, an attempt was made to find out the relationship between the growth in the number of commercial bank branches and the growth in the number of ATMs per 1,000 sq km. According to the Table, the strength of association, between variables, was very high ($r=1.000$, $N=10$, $p<0.001$). The correlation coefficient was very high and significantly different from zero ($P<0.001$) (**Table-7**). Thus the null hypothesis (**NH-4**) is rejected.

The two variables, whose degree of relationship was being tested, through this hypothesis, were the growth in the number of ATMs and the growth in the number of ATMs per 1,00,000 adults. With the increase in the number of ATMs, there was increase in the number of ATMs per one lakh adults ($r=0.997$, $N=10$, $p<0.001$) (**Table-7**). Thus it was statistically proved that there was strong association between the two variables and the null hypothesis (**NH-5**) is rejected.

Table-5 presents the usage dimension of financial inclusion. This Table presents the details about the number of loan accounts, maintained with the commercial banks and also the number of loan accounts, per 1,000 adults. According to the year on year growth rate, in both the number of loan accounts and the number of loan accounts, per 1,000 adults, there were about 66,390,290 loan accounts in the year 2004 and it went up to about 138,750,882 accounts in the year 2014, with an increase by about 8% in the number of loan accounts. From about 88.2 loan accounts, per 1,000 adults, in the year 2004 to about 151.3 loan accounts in the year 2014, there was an increase by about 6% in the usage of loan services, from the commercial bank branches. The number of people, who were using the loan products from the banks, was still very less when compared to those accessing the savings products. It could be improved by

bringing awareness about the different kinds of banking products to the people, particularly the rural population who lacked financial literacy.

Table-6 shows that 457,158,054 deposit accounts, in the year 2004, increased to 1,226,710,171 deposit accounts in the year 2014, and this significant improvement, in terms of usage of financial services and improvement, was by 16.833%. One more key indicator of usage of financial services is the number of deposit accounts, per 1,000 adults. In the year 2004, the number of loan accounts was 607.46, per 1,000 adults and the same had increased to 1337.88, in the year 2014, with the increase being incredible at about 12.024%.

9. Findings of the Study

There was an increase, in the number of bank branches, at a CAGR of 7.45%, from 2004 to 2014. With the increased efforts of both the RBI and the Government, to speed up financial inclusion and ensure access to financial services to all, various initiatives were taken and they clearly started to show the results. There was strong correlation between the increase in the number of bank branches and demographic and geographic distribution of bank branches. With the increased bank branches, with increased demographic and geographic penetration of bank branches, the services reached all. The study revealed that the ATMs in the country had increased, at a CAGR of 28% from 2004 to 2014. Upon testing the hypothesis, it was proved that there was very strong positive relationship between the growth in the number of ATMs and both demographic and geographic distribution of the ATMs. There has been an increase, in the number of loan accounts, from 2004 to 2014, by about 8% and increase in the demographic distribution of loan accounts, by 6%, from 2004 to 2014. The growth was not highly satisfactory as there were only about 151 loan accounts per thousand adults. There has been an increase in the number of savings deposit accounts, by about 10%, from 2004 to 2014 and a growth of about

8% in the demographic distribution of savings account during the same period. For every one thousand adults, the number of savings account were about 1337, which was satisfactory but real inclusion would be realized only when people started to use the services very actively rather than just opening the savings bank account.

10. Conclusion

Finally, one could conclude that no doubt there has been an improvement in the number of people, who were availing banking services, but there is still scope for further improvement, in terms of demographic as well as geographic distribution of both ATMs and bank branches. Also people need to be educated, about the availability of loan services, from the commercial banks as the number of households availing these services was less. Banks, both private and public sector, should take up the task of ensuring financial inclusion even more seriously and with the recent thrust by the Central Government and the Bankers, the results could be much more encouraging.

11. Suggestions

The study examined only the two dimensions of financial inclusion. Over the last few decades, the financial inclusion efforts and initiatives in the country have been stepped up. Still there is a lot, which is yet to be done, with reference to financial inclusion. While the growth rate in the number of accounts opened has been high, at about 168.33%, the actual usage of the same still remains less. The actual financial inclusion would be realized only when the utility of the availed financial services happens to the fullest. Even with the progress, that has been in terms of financial services penetration, there has to be a deeper penetration. This would ensure that the services would reach as many as possible.

12. Limitations of the Study

The study was limited to the data, available in various websites. Depending only on the available data, the study was made.

13. Scope for Further Research

The measurement of financial inclusion does not have universally accepted parameters. However, the same could be found, based on the three dimensions, Access, Usage and Quality of the Services. One of the major challenges, however, is the availability of data, for different regions, under various required dimensions. The scope for further research is abundant in the area as the study could be expanded, at different levels, like district wise, state wise, or country wise for a given period, as and when the data were available.

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Table-1: Number of Commercial Bank Branches

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of Bank branches	67,361	68,590	69,632	71,995	75,975	79,913	85,205	90,946	98,571	106,411	117,567
YoY Growth rate in %		1.82	1.52	3.39	5.53	5.18	6.62	6.74	8.38	7.95	10.48

Source: RBI (2015)

Table-2: Number of Commercial Bank Branches per 1,000sq km and per 100,000 Adults

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of Bank branches	67,361	68,590	69,632	71,995	75,975	79,913	85,205	90,946	98,571	106,411	117,567
Branches of commercial banks per 1,000 km ²	22.7557	23.16805	23.496	24.2766	25.6132	26.9354	28.7146	30.6455	33.2115	35.843	39.5932
YoY Growth rate in %		1.81	1.42	3.32	5.51	5.16	6.61	6.72	8.37	7.92	10.46
Branches of commercial banks per 100,000 adults	8.99012	8.955621	8.89616	9.00597	9.3127	9.6009	10.036	10.5098	11.1769	11.8389	12.8387
YoY Growth rate in %		-0.38	-0.66	1.23	3.41	3.09	4.53	4.72	6.35	5.92	8.44

Source: Financial Access Survey, IMF (2015)

Table-3: Number of ATMs

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
No. of ATMs	17,642	21,523	27,088	35,075	44,310	61,833	76,741	97,121	115,849	163,230
No. of Commercial Bank Branches	68,590	69,632	71,995	75,975	79,913	85,205	90,946	98,571	106,411	117,567

Source: Financial Access Survey, IMF (2015)

Table-4: Number of ATMs, ATMs per 1000 sq km and ATMs per One lakh Adults

Year	ATMs	ATMs per 1,000 km ²	YoY growth rate in %	ATMs per 100,000 adults	YoY growth rate in %
2005	17,642	5.933694		2.293673	
2006	21,523	7.239026	22.00	2.740876	19.50
2007	27,088	9.110753	25.86	3.379844	23.31
2008	35,075	11.79709	29.49	4.289297	26.91
2009	44,310	14.90318	26.33	5.312121	23.85
2010	61,833	20.79685	39.55	7.268651	36.83
2011	76,741	25.811	24.11	8.851797	21.78
2012	97,121	32.66559	26.56	10.99323	24.19
2013	115,849	38.96455	19.28	12.86995	17.07
2014	163,230	54.90063	40.90	17.80236	38.33

Source: Financial Access Survey, IMF (2015)

Table-5: Number of Loan Accounts and Number of Loan Accounts per 1,000 Adults

Year	Loan accounts with commercial banks	YoY growth rate in %	Loan accounts with commercial banks per 1,000 adults	YoY growth rate in %
2004	66,390,290		88.21806266	
2005	77,150,794	16.21	100.3053415	13.70
2006	85,435,381	10.74	108.798858	8.47
2007	99,442,027	16.39	124.0765373	14.04
2008	106,990,180	7.59	130.8375226	5.45
2009	110,056,177	2.87	131.9412644	0.84
2010	118,647,882	7.81	139.474073	5.71
2011	120,724,095	1.75	139.2508822	-0.16
2012	130,881,297	8.41	148.1460042	6.39
2013	128,286,291	-1.98	142.5163424	-3.80
2014	138,750,882	8.16	151.3259707	6.18

Source: Financial Access Survey, IMF (2015)

Table-6: Number of Deposit Accounts and Deposit Accounts per 1,000 Adults

Year	Deposit accounts with commercial banks	YoY growth rate in %	Deposit accounts with commercial banks per 1,000 adults	YoY growth rate in %
2004	457,158,054		607.4622939	
2005	466,792,531	2.11	606.8866154	-0.095
2006	485,097,771	3.92	617.7544114	1.791
2007	519,199,207	7.03	647.8190533	4.867
2008	581,658,012	12.03	711.3054046	9.800
2009	662,302,403	13.86	794.0037427	11.626
2010	734,869,141	10.96	863.8602773	8.798
2011	810,129,353	10.24	934.4549414	8.172
2012	903,200,257	11.49	1022.342475	9.405
2013	1,045,104,595	15.71	1161.031964	13.566
2014	1,226,710,171	17.38	1337.887765	15.233

Source: Financial Access Survey, IMF (2015)

Table-7: Spearman's Correlation Test

Bank Branches/ATMs	Mean \pm STD deviation Median Range(Min-Max)	Spearman's Rho
Commercial bank branches(sample size N=10)	86480.50 \pm 16662.04 82559.00 (68590-117567)	r=0.963 P<0.001
Commercial bank branches per 100,000 adults	10.30 \pm 1.41 10.00 (9-13)	
Commercial bank branches(sample size N=10)	86480.50 \pm 16662.04 82559.00 (68590-117567)	r=0.997 P<0.001
Commercial bank branches per 1000km ²	29.30 \pm 5.65 28.00 (23-40)	
ATMs(sample size N=10)	66041.20 \pm 47489.74 53071.50 (17642-163230)	r=1.000 P <0.001
Branches of commercial banks	86480.50 \pm 16662.04 82559.00 (68590-117567)	
ATMs(sample size N=10)	66041.20 \pm 47489.74 53071.50 (17642-163230)	r=1.000 P<0.001
ATMS per 1000km ²	22.30 \pm 16.03 18.00 (6-55)	
ATMs(sample size N=10)	66041.20 \pm 47489.74 53071.50 (17642-163230)	r=0.997 P<0.001
ATMS per 100,000 adults	7.50 \pm 5.21 6.00 (2-18)	

Source: Computed using SPSS 20.0