International Journal on Emerging Technologies 14(2): 64-68(2023)

ISSN No. (Print): 0975-8364
ISSN No. (Online): 2249-3255

Financial Inclusion Status in India

Anupama Rajput[1*] and Bhawna Rajput[2]
[1]Professor, Janki Devi Memorial College, University of Delhi, India.
[2]Professor, Aditi Mahavidyalaya, University of Delhi, India.

(Corresponding author: Anupama Rajput)*
(Received 14 August 2023, Revised 17 September 2023, Accepted 25 October 2023)
(Published by Research Trend, Website: www.researchtrend.net)

ABSTRACT: The paper attempts to measure the financial inclusion across 32 states of India for the period 2005-2020 using Index of Financial Inclusion (IFI). The measurement of IFI applies multidimensional approach based on three dimensions *viz.* banking penetration (BP), availability of the banking services (BS) and usage of the banking system (BU). The study provides an updated comprehensive index of financial inclusion and tries to fulfill the research gap of lack of efficient measure of financial inclusion for each state of India for the period under study. The states such as Goa, Chandigarh and NCT of Delhi showed impressive results with respect to financial inclusiveness. The states that fall under low financial inclusion category belong to north-eastern region of the country. The social backwardness and slow economic progress seem to be the important cause of low financial inclusion in the states of Bihar, Chhattisgarh and Rajasthan. The region-wise analysis of financial inclusion status showed that Northern region has performed better over other regions while the North-Eastern Region has performed poorly during the sample period.

Keywords: Financial inclusion, measurement, access indicators, usage indicators, quality indicators.
JEL Classification: G2, G20, F63, G51, O10

INTRODUCTION

There has been an increasing focus on the financial inclusion policies and initiatives as part of overall developmental plan of the country. The formulation and monitoring of effective financial inclusion policy essentially requires reliable financial inclusion data based on the major components of sustainable financial inclusion. Financial inclusion allows the provision of wide range of financial products and services at a reasonable cost mainly to the weaker section and low income group of the population. Financial inclusion enables to bring the large section of society under the ambit of formal financial network that enables the mobilization of financial savings into productive investments of the country. It helps to develop the culture of savings among large segment of rural population that enables the broadening of the resource base and thus plays an important role in the process of economic development. The United Nations' "declaration of achieving universal financial access by 2020" is a clear recognition that financial inclusion is a fundamental prerequisite for economic growth and poverty alleviation**.** The traditional indicators of financial inclusion such as such as bank's branch penetration, percentage of population with bank's account ownership, loans availed or ATM penetration fails to provide comprehensive view of the growth of financial inclusion of the country. In fact, the concept of financial inclusion goes beyond single indicators. The multidimensional and comprehensive measurement of financial inclusion is significant in several ways: Firstly, measurement of financial inclusion which is the single composite index of several indicators helps to evaluate the complex nature of financial inclusion and helps to better monitor its evolution. Secondly, a "comprehensive measure of financial inclusion" can allow the study of the link between financial inclusion and other macroeconomic developmental variables such as economic growth and financial stability. Thirdly, a better understanding of the challenges of financial inclusion can be created through the information by different dimensions. It can be a useful tool for policy making and policy evaluation. The present paper attempts to estimate the level of financial inclusion across 32 states of India during the years 2005 to 2020 using multidimensional Index of Financial Inclusion (IFI).

REVIEW OF LITERATURE

Financial inclusion has become the buzzword and has gained significance in developmental studies conducted by research scholars, policy makers and economists. Attempts have been made in the past to provide a comprehensive measure of the financial inclusion in order to incorporate information of its several dimensions in a single measure.
Sarma (2008) suggested a multidimensional index for calculating financial inclusion and constructed index of financial inclusion using three dimensions namely banking penetration (BP), availability of the banking services (BS) and usage of the banking system (BU).
C-GAP (2009) used four variables namely volume of savings and payments, credit offered and delivery of financial services to measure financial inclusion level across different regions of the world. It was found that

there is a significant variation in the availability of financial access delivery channels across high income and low-income countries and a wide urban-rural divide is visible in most of the developing countries of the world.

Arora (2010) measured financial inclusion using dimensions of physical access, ease of use and cost of transactions. The study showed that the comprehensive and broader index of financial inclusion is important to get a better picture of country's development.

CRISIL inclusix (2015) considered Branch Penetration (BP), Credit Penetration (CP) and Deposit Penetration (DP) as indicators of financial inclusion measurement in India. The study found that the states with high level of urbanization are better performers as far as financial inclusion in India is concerned. The smaller states outperformed the bigger states of India.

Camara and Tuesta (2017) estimated multidimensional financial inclusion index for 137 developed and less-developed countries and found that access is an important dimension for explaining the degree of financial inclusion.

Ravikumar (2018) has attempted to provide empirical estimates of financial inclusion in India using dimensions of accessibility, usage and quality indicators of financial inclusion.

Sethy & Goyari (2022a) conducted the comparative evaluation of financial inclusion amongst the South Asian countries. Overall evidence showed an increase in the level of financial inclusion as measured by Financial Inclusion Index from 2004 to 2018. Amongst seven South Asian countries, India showcased the highest value of FII during the period of 2013 to 2017. During the year 2018, all South Asian countries were classified under the high financial inclusion category.

MEASURING FINANCIAL INCLUSION – INDEX OF FINANCIAL INCLUSION (IFI)

The present study estimates IFI by using multidimensional approach so that the degree of inclusiveness in the financial system can be judged yearly on several dimensions and perspectives for each of the states in India during the sample period. The present study uses the UNDP's approach of computation of some well-known development indeces such as the "Human Development Index" (HDI), "Human poverty index" (HPI), and the "Gender Development Index" (GDI). "IFI is computed by first calculating a dimension index for each of the dimension of financial inclusion. The dimension index for the ith dimension, di, is computed by the following formula:

$$d_i = \frac{A_{i-} m_i}{M_i - m_i} \qquad (1)$$

where

Ai = Actual value of dimension i

mi = minimum value of dimension i

Mi = maximum value of dimension I"

If each dimension d_i is depicted by two or more indicators then in that case, d_i is the average of each of indicator. If d_i is captured by say n indicators then symbolically, d_{i1}, di2…….d_{in} will be n indicators. Each d_{in} th indicator will be estimated by using equation 1 as above and average of each will be taken as follows to estimate d_i to be used to estimate IFI in equation 2:

$$d_i = \frac{d_{i1} + d_{i2} + \ldots\ldots + d_{in}}{n} \qquad (2)$$

Formula (1) ensures that 0 ≤ di ≤ 1. "Higher the value of di, higher the state's achievement in dimension i. If n dimensions of financial inclusion are considered, then, a state i will be represented by a point Di = (d1, d2, d3 ….dn) on the n dimensional Cartesian space" (UNDP Human Development Reports). "In the n-dimensional space, the point O = (0, 0, 0…0) represents the point indicating the worst situation while the point I = (1, 1, 1… 1) represents the highest achievement in all dimensions. The index of financial inclusion, IFI for the ith state, then, is measured by the normalized inverse Euclidean distance of the point di from the ideal point I = (1, 1, 1….1)" (UNDP Human Development Report). The formula for estimating IFI is

$$IFI = 1 - \frac{\sqrt{(1-d_1)^2 + (1-d_2)^2 + \ldots + (1-d_n)^2}}{\sqrt{n}} \qquad (3)$$

It may be noted that IFI is based on a measure of the distance from the ideal. Also, the present study uses the empirically observed value (i.e. actual value) for each dimension rather than pre-fixed values for the minimum and maximum of each dimension used in the UNDP methodology to compute the dimensional index. It has two distinct advantages firstly, since fixing the minimum/maximum is difficult for a particular dimension of financial inclusion, so empirical maximum and minimum value is the best measure. Secondly, with the use of this empirical scheme, prevailing actual situation can be depicted by financial Inclusion Index. It may be noted that the actual minimum and maximum values for any dimension of the index may change over time and with different cross-sectional units (states in this case). IFI computed in this way can incorporate the element of relativity which is significant for the comparison purpose.

VARIABLES USED

The index of financial inclusion in this study is estimated using three basic dimensions of an inclusive financial system as used by Sarma (2008): "banking penetration (BP), availability of the banking services (BS) and usage of the banking system (BU)". The number of deposit and credit accounts per 1000 people of the total population (d_{11} & d_{12}) are used as indicators of banking penetration. The number of bank branches per 1000 population and number of bank branches per sq.km of area (d_{21} &d_{22}) are used to measure the availability dimension. The volume of credit and deposit as proportion of the State's Gross Domestic Product (SGDP) (d_{31} & d_{32}) have been used to measure of usage of banking services dimension.

Following the classification used by Sarma (2008), "depending on the value of IFI, each state has been classified into three categories, namely, high financial inclusion, medium financial inclusion and low financial inclusion.

i. 0.5 ≤ IFI ≤ 1 high financial inclusion.

ii. 0.3 ≤ IFI ≤ 0.5 medium financial inclusion.

iii. 0.0 ≤ IFI ≤ 0.3 low financial inclusion".

DATA USED

IFI is estimated using state-wise panel data of 32 Indian states spanning over a period from 2005 to 2020. The information on state-wise deposit and credit accounts has been obtained from Basic Statistical Return Relating to Commercial Banks in India.

The state-wise annual population data is derived from the projected population estimates given by office of census of India, Government of India. The data on Gross State Domestic Product (GSDP) has been collected from "Handbook of Statistics on Indian Economy published by Reserve Bank of India". The IFI is estimated for each state for each year of the period of study. The descriptive statistics as minimum (Min), maximum (Max), mean, standard deviation of the indicators used in the study are reported in Table 1.

Table 1: Summary Statistics of Indicators of different Dimensions of Financial Inclusion.

Variables	Mean	Std. Dev	Min	Max
Deposit to SGDP (d_{11})	**0.609424**	**0.39868**	**0.106013**	**2.30903**
Credit to SGDP (d_{12})	**0.362942**	**0.443086**	**0.032922**	**2.856231**
Branches per 1000 persons (d_{21})	**0.09688**	**0.053947**	**0.032149**	**0.343062**
Branches per square Km (d_{22})	**0.169101**	**0.544972**	**0.0008**	**3.850877**
Deposit Accounts per 1000 Persons (d_{31})	**734.6724**	**489.7878**	**112.2808**	**2775.558**
Credit Accounts per 1000 persons (d_{31})	**83.90705**	**59.59196**	**12.97337**	**425.3905**

Source: Author's own Calculation

EMPIRICAL RESULTS

The simple distribution of states in terms of their achievements of financial inclusion index (using 16 years average of IFI) in terms of high, medium and low category on the basis of taking a "cut-off value of the index below 0.3 as low, above 0.3 and below 0.5 as medium and above 0.5 as highest" (Sarma, 2008) shows that 29 states in India fall in the lowest category (Table 2). One state (Goa) and two states (Chandigarh and NCT of Delhi) are in the medium and high categories respectively.

The state-wise IFI for the latest year of the period under study (i.e. 2020) is provided in Table 3. The result shows that in 2020, Chandigarh attained first rank with the value of 0.674 followed by Delhi with the value of 0.579. Nagaland had the lowest value of 0.015 and gained 32nd rank. Manipur has 31^{st} rank with the value of 0.024. The year-wise distribution of states in terms of IFI is provided in Table 4. The results depict that most of the Indian States falls in the category of low financial inclusion. Chandigarh and NCT Delhi fall under high financial inclusion category with Goa in medium financial inclusion. The impressive results are depicted by the states viz. Goa, Chandigarh and NCT of Delhi with respect to financial inclusion during the sample period. It is observed that the states having high GDP per capita are found to have high financial inclusion. The low financial inclusion category includes mostly the north-eastern states. The states of Bihar, Chhattisgarh and Rajasthan are classified as states under low financial inclusion category mainly due to the social backwardness and slow economic progress witnessed in these states.

Table 2: Summary Statistics of Financial Inclusion Index (IFI) By State (2005-2020).

Sr. No.	State	Mean	Standard Deviation	Maximum	Minimum	Observations
High Financial Inclusion						
1.	Chandigarh	**0.823536**	**0.097583**	**0.968194**	**0.67404**	**16**
2.	NCT of Delhi	**0.589215**	**0.027224**	**0.641469**	**0.549515**	**16**
Medium Financial Inclusion						
3.	Goa	**0.465036**	**0.029003**	**0.517119**	**0.42134**	**16**
Low Financial Inclusion						
4.	Haryana	**0.158307**	**0.022171**	**0.212499**	**0.132193**	**16**
5.	Himachal Pradesh	**0.207745**	**0.011301**	**0.230713**	**0.195216**	**16**
6.	Jammu & Kashmir	**0.150051**	**0.018473**	**0.190594**	**0.126765**	**16**
7.	Punjab	**0.248339**	**0.020913**	**0.300407**	**0.226911**	**16**
8.	Rajasthan	**0.083794**	**0.009757**	**0.105302**	**0.067907**	**16**
9.	Arunachal Pradesh	**0.075879**	**0.00792**	**0.085465**	**0.060049**	**16**
10.	Assam	**0.058425**	**0.010326**	**0.089908**	**0.049736**	**16**
11.	Manipur	**0.005838**	**0.007173**	**0.024567**	**0.000152**	**16**
12.	Meghalaya	**0.09391**	**0.011439**	**0.119188**	**0.075688**	**16**
13.	Mizoram	**0.09605**	**0.017585**	**0.135875**	**0.068269**	**16**
14.	Nagaland	**0.019378**	**0.005909**	**0.029502**	**0.010141**	**16**
15.	Tripura	**0.121859**	**0.027322**	**0.178124**	**0.095737**	**16**
16.	Andaman & Nicobar Islands	**0.116511**	**0.011209**	**0.13769**	**0.097077**	**16**
17.	Bihar	**0.061416**	**0.011386**	**0.082611**	**0.045736**	**16**
18.	Jharkhand	**0.087935**	**0.013209**	**0.117929**	**0.07431**	**16**
19.	Orissa	**0.118487**	**0.014567**	**0.148608**	**0.098047**	**16**
20.	Sikkim	**0.140472**	**0.019712**	**0.175367**	**0.096473**	**16**
21.	West Bengal	**0.128037**	**0.01277**	**0.154659**	**0.114007**	**16**

22.	Chhattisgarh	**0.059982**	**0.013312**	**0.095401**	**0.045273**	**16**
23.	Madhya Pradesh	**0.088638**	**0.011244**	**0.114016**	**0.075132**	**16**
24.	Uttar Pradesh	**0.095794**	**0.0108**	**0.115305**	**0.083404**	**16**
25.	Uttaranchal	**0.185141**	**0.015496**	**0.218321**	**0.164564**	**16**
26.	Gujarat	**0.13326**	**0.01162**	**0.156127**	**0.119712**	**16**
27.	Maharashtra	**0.280165**	**0.051253**	**0.356143**	**0.16887**	**16**
28.	Andhra Pradesh	**0.239346**	**0.05904**	**0.312529**	**0.104159**	**16**
29.	Karnataka	**0.236796**	**0.017405**	**0.264868**	**0.184819**	**16**
30.	Kerala	**0.277426**	**0.016092**	**0.303994**	**0.248515**	**16**
31.	Pondicherry	**0.234102**	**0.016376**	**0.256861**	**0.202424**	**16**
32.	Tamil Nadu	**0.275182**	**0.032031**	**0.319352**	**0.185314**	**16**
Source: Author's Own Calculation						

Table 3: State-Wise Index of Financial Inclusion (IFI) (2020).

Sr. No.	State	IFI	Rank
1.	**Chandigarh**	0.67404039	**1**
2.	**Haryana**	0.212499004	**11**
3.	**Himachal Pradesh**	0.230713159	**10**
4.	**Jammu & Kashmir**	0.190593785	**13**
5.	**NCT of Delhi**	0.579535944	**2**
6.	**Punjab**	0.300407023	**6**
7.	**Rajasthan**	0.095649326	**26**
8.	**Arunachal Pradesh**	0.082468763	**30**
9.	**Assam**	0.089907517	**28**
10.	**Manipur**	0.024567432	**31**
11.	**Meghalaya**	0.119188152	**21**
12.	**Mizoram**	0.135875006	**19**
13.	**Nagaland**	0.015897597	**32**
14.	**Tripura**	0.178124305	**14**
15.	**Andaman & Nicobar Islands**	0.11937795	**20**
16.	**Bihar**	0.082611303	**29**
17.	**Jharkhand**	0.117929276	**22**
18.	**Odisha**	0.148607898	**18**
19.	**Sikkim**	0.16456645	**15**
20.	**West Bengal**	0.152197147	**17**
21.	**Chhattisgarh**	0.095400895	**27**
22.	**Madhya Pradesh**	0.114015879	**23**
23.	**Uttar Pradesh**	0.112208398	**24**
24.	**Uttarakhand**	0.205901376	**12**
25.	**Goa**	0.454555796	**3**
26.	**Gujarat**	0.156127024	**16**
27.	**Maharashtra**	0.3075844	**5**
28.	**Andhra Pradesh**	0.1041589	**25**
29.	**Karnataka**	0.264867625	**8**
30.	**Kerala**	0.298319288	**7**
31.	**Puducherry**	0.254079746	**9**
32.	**Tamil Nadu**	0.319351693	**4**
Source: Author's Own Calculation			

Table 4: Year-wise Distribution of States by Financial Inclusion Index (IFI).

Year	High	Medium	Low	Total
2005	**2**	**1**	**29**	**32**
2006	**3**	**0**	**29**	**32**
2007	**3**	**1**	**28**	**32**
2008	**2**	**1**	**29**	**32**
2009	**2**	**1**	**29**	**32**
2010	**2**	**1**	**29**	**32**
2011	**2**	**1**	**29**	**32**
2012	**2**	**2**	**28**	**32**
2013	**2**	**2**	**28**	**32**
2014	**2**	**2**	**28**	**32**
2015	**2**	**2**	**28**	**32**
2016	**2**	**2**	**28**	**32**
2017	**2**	**1**	**29**	**32**
2018	**2**	**3**	**27**	**32**
2019	**2**	**2**	**28**	**32**
2020	**2**	**4**	**26**	**32**
Source: Author's Own Calculation. Note: Figures show number of states in each year				

The region-wise analysis of expansion of financial inclusion process shows that the Northern Region of the country has depicted the highest level of financial inclusion while poor performance is noted in the North-Eastern Regions of the country (Table 5). The existence of problems of mountainous terrain and low economic development in the North-Eastern parts of India are important causes for poor performance in these regions. Also, the Eastern Region and the Central Region come under low financial inclusion category which can be related to the low levels of growth and various socio-economic problems faced by these regions.

Table 5: Region-Wise Index of Financial Inclusion.

Sr. No.	Average IFI	Region
1.	**0.322998**	**Northern Region**
2.	**0.067334**	**North-East Region**
3.	**0.10881**	**Eastern**
4.	**0.107389**	**Central**
5.	**0.292821**	**Western**
6.	**0.25257**	**Southern**
Source: Author's Own Calculation		

CONCLUSION

Financial Inclusion is the roadmap to bring the population from the unbanked and unreached segments in the society into the ambit of formal financial system. The Government of India has initiated diverse steps to improve the status of financial inclusion in our society. However, empirical results suggest a very low level of financial inclusion for most of the states in India. The impressive results with respect to financial inclusiveness are depicted by the states such as Goa, Chandigarh and NCT of Delhi. It can be observed that the states having high SDP (State Domestic Product) per capita have shown high value of index of financial inclusion. Most of the states that fall under low financial inclusion category belong to north-eastern region of the country. The social backwardness and slow economic progress seem to be the important cause of low financial inclusion in the states of Bihar, Chhattisgarh and Rajasthan. The analysis of region-wise financial inclusion status revealed that the highest level of financial inclusion is shown by Northern Region while the North-Eastern Region has performed poorly. Therefore, the Government policy framework should target the states with low degree of financial inclusion and accelerate financial services for the rural poor and ensure improved access of cost-effective banking products and services.

REFERENCES

Arora, R. (2010). Measuring Financial Access, Griffith University, Discussion Paper Economics 7.

Camara, Noelia, and David Tuesta (2017). Measuring financial inclusion: a multidimensional index, Bank of Morocco – CEMLA – IFC Satellite Seminar at the ISI World Statistics Congress on "Financial Inclusion" Marrakech, Morocco.

CRISIL (2015). CRISIL inclusix: An index to measure India's progress on financial inclusion" Mumbai, India: CRISIL Ltd, Vol-III.

C-GAP. Financial Access (2009). Measuring financial access to financial services around the world. Washington, DC: CGAP.

Ravikumar, T. (2018). Measurement of Financial Inclusion Status of India. *International Journal of Mechanical Engineering and Technology, 9*(7), 354–364.

Sarma, M. (2008). Index of financial inclusion, Working paper number: 215, Indian council for research on international economic relations, (ICRIER), New Delhi. Available online: http://hdl.handle.net/10419/176233 June, 2008.

Sethy, S. K., & Goyari, P(2022a). Measuring financial inclusion and its present status in South Asian countries: Evidence from a multidimensional financial inclusion index. *Theoretical and Applied Economics, 29*, 131–150.

How to cite this article: Anupama Rajput and Bhawna Rajput (2023). Financial Inclusion Status in India. *International Journal on Emerging Technologies, 14*(2): 64–68.