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A STUDY OF IMPACT OF DIGITALIZATIONON JAN DHAN YOJNA WITH SPECIAL REFERENCE DAMOH DISTRICT

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Abstract- The study uses a methodology similar to the one used by UNDP to create the Human Development Index to create a financial inclusion index (FII) across districts in 27 Indian states. The FII is designed for the years 2011 to 2018. The impact of government programmes, particularly the PMJDY, in promoting financial inclusion from the beginning is also investigated in this study. The study's key finding demonstrates that a larger portion of the Indian region falls into the category of low financial inclusion. In terms of financial inclusion, southern regions score better than central, eastern, and northeastern regions. Additionally, there is a strong correlation between FII and HDI. Furthermore, the PMJDY framework has not promoted a high level of financial inclusion in the economy.

Keywords— *Impact of Digitalizationon, Jan Dhan Yojna, UNDP, Special Reference Damoh District.*

INTRODUCTION

In the late 20th century, the question of what factors affect growth occupied a central theme among economists. Schumpeter (1911) recognized the chief role of finance in the contribution of development. The same was confirmed by the empirical study done by Singh and Mishra (2014; 2015). In opposition Robinson (1952) holds the opposite view, "where enterprise leads finance follows," meaning growth in finance itself results from economic growth. Lucas (1988) refuted altogether the role of finance in the growth equation of a nation. Financial inclusion means provisioning of financial services to the marginalized section of society, which should be both affordable and equitable. Rangarajan (2008) defines financial inclusion as "the process of ensuring access to financial services and timely andadequate credit where needed by vulnerable groups such as weaker sections and low-income groups at an affordable cost." Financial inclusion seeks to open a bank account and provides citizens with financial awareness and the purchasing strength that can stimulate demand for financial services. Further, a society needs vital financial institutions that should be affordable, reachable with less red-tapism. Financial inclusion is often linked with the growth & development of an economy, and every nation strives for the financial inclusion of all its citizens. In developing countries like India, access to finance is a significant hurdle for the poor and marginalized, especially in rural areas. They have to depend on the informal moneylenders that charge them higher interest rates that they often fail to repay, and hence indebtedness rises, creating a vicious cycle of indebtedness. A lack of concentration of rural financial institutions and financial literacy and awareness are barriers to access finance. A robust financial structure will promote people's well-being and lead to channel funds for investment, thereby increasing credit availability in the economy, hence increasing capital assets and economic growth. In 2014, the Indian government launched Pradhan Mantri Jan Dhan Yojna (PMJDY) under the National Mission for Financial Inclusion, which envisages universal access to banking facilities for every Indian citizen. PMJDY accounts provide a Basic Savings Bank Deposit (BSBD) account, Life, and Accident insurance cover. These accounts are connected to Aadhar, which serves as a conduit for the direct transfer of benefits (DBT) for various government schemes. Many studies were conducted to assess the financial inclusion status at pan India. Our research goes one step further by developing a financial

inclusion index (FII) among districts of 27 states of India and proposed new dimension measurements for FII, namely the number of commercial bank branches per 1,000 sq. km., the number of agricultural credit accounts per 1,000 population and the number of non-agricultural credit accounts per 1,000 population. The analysis key results suggest that the FII indicator's level reflects a slight increase in financial inclusion during 2011–2018. Most locales in the central, eastern, and north-east have indicated low financial inclusion. Besides, PMJDY has done little to push districts from low to medium financial inclusion.

LITERATURE REVIEW

So far, several studies have been conducted with a substantial variation in time and parameters used in the development of the financial inclusion index at sub-national, national, and international levels. The first part of the survey deals with Indian states' studies, the second part of the survey deals with studies on the Indian level, and the third part deals with studies on the International level. The most notable study on Indian states done by Kainth (2011) utilizing UNDP methodology, constructed a district-level financial inclusion index for Punjab state. The FII involved three banking indicators, namely, penetration, availability, and usage. The
studies' significant finding is that six districts fall under high and very high financial inclusion categories, with Jalandhar bagging the top position. Three districts fall under medium financial inclusion, and the remaining districts fall under the low financial inclusion category. Further, (Chattopadhyay, 2011; Kuri and Laha, 2011) utilized Sarma's (2008) methodology in constructing an FII for Indian states. The studies employed three banking indicators: penetration, availability, and usage in constructing the FII. The study's significant finding is that Maharashtra & Chandigarh, respectively, bagged top positions and fell under the studies' high financial inclusion category. Manipur bagged the last position in both studies and fell under the low financial inclusion category. Bagli and Dutta (2012) utilized principal component analysis and constructed a comprehensive FII with ten banking sector indicators for 28 Indian states. Similarly, Gupta et al. (2014), utilizing Sarma's (2012) methodology, constructed an IFI for 28 Indian states. The study's significant finding is that Goa bagged the highest IFI while Manipur bagged the least IFI. Laha and Kuri (2014), utilizing Sarma (2008) methodology, developed an FII using demand and supply-side indicators, separately. The study's significant finding is that the southern and western states perform better in financial inclusion. Similarly, Ambarkhane et al. (2016), using three indicators, namely demand, supply, and infrastructure, constructed a financial inclusion index utilizing Sarma (2008) methodology combined with population growth, corruption as drag factors for 21 Indian states. The study's significant finding is that Kerala recorded the highest rank among the 21 states, and Chhattisgarh recorded the last rank. Further, (Poonam and Chaudhry, 2016; Sethy and Goyari, 2018), utilizing UNDP's methodology, constructed an FII using three banking indicators for Indian states. The studies' significant finding is that most Indian states fall under the low financial inclusion category. Similarly, Kaur and Abrol (2018) followed Sarma (2008) methodology to construct an IFI for the Indian state of Jammu & Kashmir using three banking sector indicators: penetration, availability, and usage. The study's significant finding is that Jammu district recorded the highest rank, followed by the Srinagar district, while Kishtwar recorded the last rank in terms of IFI value. Crisil (2018), using four penetration indicators, namely, branch, credit, deposit, and insurance, constructed a district-wise FII of India. The study's significant finding is that North-Eastern states fall under the low financial inclusion category. Southern states are performing better than other states, with Kerala scoring the top position. Singh and Sarkar (2020) followed Sarma (2008) methodology to construct an IFI for Jharkhand state using three banking sector indicators: penetration, availability, and usage. The study's significant finding is that Ranchi and Purbi Singhbhum district fall under the high financial inclusion category. Garhwa district recorded the lowest IFI value (0.055). Further, Yadav et al. (2020), utilizing UNDP methodology, developed an FII using demand and supply-side indicators, separately. The study found that Southern and Western

states are performing better compared to other states. Similarly, several studies have been conducted so far on the National level. Gupte et al. (2012), utilizing UNDP methodology,
constructed a national level FII for 2008 and 2009. The study found that financial inclusion increased from 2008 to 2009 for India. Further, (Goel and Sharma, 2017; Sethy, 2016) utilized UNDP's methodology to develop an FII for India. Similarly, Deepti and Vaidhyasubramaniam (2018), utilizing Sarma's (2012) methodology, constructed an IFI for India using three banking sector indicators: penetration, availability, and usage. The study's significant finding is that India falls under the low financial inclusion category from 2011-12 till 2014-15. In 2015-16, India attained medium financial inclusion due to an increase in indicators' value. On the other hand, there are various studies conducted on the international level. The most notable study done by Sarma (2008), utilizing UNDP methodology, constructed an IFI for 55 countries using three banking sector indicators: penetration, availability, and usage. The study's significant finding is that Spain recorded the top position in terms of IFI value and fall under the high financial inclusion category. India ranked 31st, thus falling under the low financial inclusion category. Similarly, utilizing UNDP methodology, Sarma (2012) constructed an IFI using three banking sector indicators: penetration, availability, and usage for developed and developing countries. Chakravarty and Pal (2013), utilizing Sarma's (2008) methodology developed an IFI for 21 countries, including India using eight banking sector indicators. The study's significant finding is that India ranked 13th among the 21 nations with equal contribution attributed by each indicator in achieving higher inclusion. Further, Yorulmaz (2013), utilizing UNDP methodology, constructed an IFI for Turkey using three banking sector indicators: penetration, availability, and usage. The IFI was constructed for 12 regions and 80 cities falling under 12 regions from 2004-10 using the indicators mentioned above. The study's significant finding is that the Istanbul region bagged top rank with the highest IFI value throughout the period. The Mid – East Anatolia region bagged the last rank with the lowest IFI value. Similarly, (Camara and David, 2014; Datta and Singh, 2019; Nwidobie, 2019; Pineyro, 2013), utilizing principal component analysis, developed a financial inclusion index for developed and developing nations. Further, (Ali and Khan, 2020; Pham et al., 2019) utilized Sarma's (2008) methodology to develop an IFI using cross-country data. Similarly, utilizing HDI methodology, Sha'ban et al. (2020) constructed an FII with cross-country data, using three banking sector indicators: use, access, and depth. The study's significant finding is that Spain bagged the top position while The Democratic Republic of Congo bagged the last FII values among the 95 countries. India bagged the 54th rank with an FII value of 0.135.

APPROACHES FOR MEASURING FINANCIAL INCLUSION

The necessity of an inclusive financial system has gained widespread recognition in the policy community, and financial inclusion has become a policy goal in many nations. An inclusive financial system allows for a more efficient allocation of productive resources and thus lowers capital costs (Sarma, 2015, Kempson et al., 2004). CRISIL Inclusix, NABARD FINDEX, and recently RBI have launched the financial inclusion index. Each index used a list of different parameters. Few independent researchers also measured the IFI by using other parameters. This section presents all the scholarly work done by the financial institution, researchers, and scholars in preparing the IFI. Firstly, the description of all the indexes (CRISIL Inclusix, NABFINDEX and RBI IFI) prepared by the financial institutions is given; afterwards, independent researchers' work is presented. NCFE conducts National Financial Literacy and Inclusion Survey (NFLIS) in a tenure of five years to understand the performance of states on financial literacy and financial inclusion. First survey was conducted in the year of 2013-14 and second survey in 2019. This survey includes various components of financial literacy and financial inclusion such as, access, usage, and knowledge of banking and non-banking products. NLFIS (2019) found that overall financial inclusion in India is 15%. Survey highlighted that out of 35 States/ UTs, Madhya Pradesh scored second position after Chandigarh with a score of 30%. Madhya Pradesh (MP) is also one of the largest states, rich in

natural resources and having more than 8 crore population in the State. MP has a banking network of 34 Scheduled Commercial Banks, 2 Regional Rural Banks, 1 State Cooperative Bank, 8 Small Finance Banks, and 3 Payment Banks. Banking services in the state is covered through a network of 8,023 branches, of which 34% are working in rural areas and 66% in semi-urban and urban areas. Public Sector Banks (PSB) constitute 50% of banking network, followed by Private sector banks (17%), RRBs (16%), Cooperative banks (11%), and SFBs (5%) (SLBC Report, 2021 and 2022). PMJDY has brought the unbanked into the banking system, expanded the financial architecture of India and brought almost everybody into the ambit of financial inclusion. Financial inclusion is not only restricted to accessibility of financial services, barriers in availing financial services along with usage, quality are equally important (RBI, 2021). Some figures on banking parameters in this regard are noteworthy.

(i) CRISIL Inclusix (2013, 2014, 2015, 2018)- CRISIL Inclusix was India's first Financial Inclusion Index launched in 2013 and further updated in year 2014, 2015, and 2018. CRISIL Inclusix methodology is based on approach used by United Nations Development Programme (UNDP) in tabulating Human Development Index (HDI). CRISIL focused on branch, credit, deposit, and insurance penetration and allows districts, states, and regions to track the progress made in their jurisdiction in terms of financial inclusion. As a result,

CRISIL Inclusix evaluates financial inclusion at the national, regional, state, and district levels.

(ii) NAFINDEX: NABARD Financial Inclusion Index- NABARD Index of financial inclusion is based on NABARD All India Rural Financial Inclusion Survey (NAFIS) 2016-17 data. The survey covered aspects of financial inclusion from a household perspective, viz., savings, borrowing, investment, remittances & payments, and insurance. Besides, the survey also covered financial literacy and the experience of households with payment mechanisms. The index is calculated at the national and state levels using data obtained from homes at the field level. NABARD considered three dimensions" traditional banking products (T), modern banking services (M), and payment mechanisms (P) for creating NAFINDEX. As per NABFINDEX, 2020, the overall score of India was 0.337

RESEARCH MODELS

Financial inclusion is a nebulous term which is difficult to quantify in a straightforward manner. However, the interaction of several causative variables is thought to determine this variable. We postulate that behind a group of correlated variables, such as financial inclusion, an underlying latent structure may be detected using a latent variable. In estimating any latent variable, two significant concerns arise: identifying relevant variables and estimating parameters (weights). The literature has two common approaches for measuring the financial inclusion index: parametric and non-parametric techniques. Non-parametric methods do not provide any scientific way to identify the weights. It is evident in the studies of Camara and Teusta (2014) and Nguyen (2020) that this index is sensitive to weight assignment and using weightages without any scientific method will change the study results. Therefore, after consultation with experts, it was decided to calculate the index using Principal Component Analysis (PCA) Method. PCA method provides a scientific way to calculate the weights. Index based on UNDP method (Sarma, 2008, 2010, 2011, 2012) follows a non-parametric method of assigning weight. No explanation for assigning of weightages was provided in the studies, either (Deepti et al., 2018; Sarma, 2008 and 2015; Goel et al., 2017; Bagli et al., 2012). The weights assigned to the indicators or, sub-indices are crucial to get the most information out of a data set included in an index. A good composite index should consist of relevant information from all indicators while not being heavily weighted favoring one or more of them. As an indexing technique, both the attempts used a two-stage principal components analysis to measure the degree of financial inclusion. An effort is made to include all causative factors that summarize financial inclusion information. As discussed in the preceding section, each causative variable links to multiple dimensions that characterize financial inclusion. The division of the broad set of indicators

into three sub-indices serves two purposes. On the one hand, the three sub-indices have meaning and receive more disaggregated information that can be used in policymaking. On the other hand, the sub-indices comprise strongly inter-correlated variables; both the attempts estimated the sub-indices first rather than the overall index directly by picking all the indicators simultaneously for methodological reasons. This is the preferred technique since empirical evidence suggests that PCA is biased towards the weights of strongly linked indicators (Mishra, 2007). By using a two-stage PCA, we can reduce the severity of the problem (Nagar and Basu, 2004). In the first stage, calculation of the three sub-indices that constitute financial inclusion: access, usage and quality were prepared. At second stage estimation of the dimension weights and the overall financial inclusion index using the dimensions as explanatory variables were calculated. Before using PCA, all variables under each dimension have been normalized to have values between zero and one to overcome the issue of scale. Where 1 indicates complete financial inclusion and zero indicates complete financial exclusion.

(i) FII 2019-20- In this attempt, the estimation of Financial Inclusion Index follows a parametric method (Cámara and Tuesta, 2014). A two-stage PCA firstly produces indices for three of its dimensions - usage, access, and barrier. In the next stage, the overall composite index is produced using the three component indices in the same way. The study found significant difference in the summary statistics of constituent variables which called for their standardization. In the first stage, eigenvalues, and eigenvector of the correlation matrix for all components and all dimensions were estimated along with the overall KMO measure of sampling adequacy.

(ii) FII 2020-21- In the second attempt for 2020-21, the study took 16 variables relating to usage, access, and quality dimensions to construct the Financial Inclusion Index. Some of the variables from the first method were dropped and some new variables were included in this method. In the stage study computes the weights for the causal variables for each sub-index and estimated the latent variables: access and usage, which represent the dimension of financial inclusion. It presents the descriptive statistics of variables used to prepare the two-dimensional financial inclusion index for 2021. Descriptive statistics shows the number of observations, mean value, and deviation from each variable's mean and maximum values. Under the access dimension, ten banks are available in each district with a variation of 3.879. If we compare with the previous year's data, the average number of banks increased by three in every district.

Developed Districts	Aspirational Districts	Developing Districts
Bhopal	Raisen	Panna
Indore	Dewas	Sheopur*
Burhanpur*	Balaghat*	Umariya*
Ratlam*	Seoni*	Shivpuri
Hoshangabad*	Mandsaur	Sidhi*
Neemuch	Shahdol*	Vidisha
Gwalior	Narsinghpur	Guna
Sagar	Jhabua*	Barwani*
Jabalpur	Morena	Agar Malwa
Ujjain	Alirajpur*	Anuppur*
Khargone*	Satna	Datia
Chhindwara*	Rajgarh	Tikamgarh
Khandwa*	Katni	Dindori*
Harda	Ashok Nagar	Rewa
Sehore	Dhar*	Singrauli
Shajapur	Mandla*	Bhind
Betul*	Damoh	Chhatarpur

Table 1- Grouping of district based on FII score

CONCLUSION

The state has a huge opportunity to promote the use of financial services in a variety of ways using IT-based solutions. Bhopal has participated in a nationwide pilot programme for the ambitious "Open Network for Digital Commerce" (ONDC), along with six other cities. This platform provides to handle the difficulty of tracking business transaction flow for even the tiniest organisation, in addition to facilitating equitable online business among MSMEs. His skills will make it possible for many MSMEs to significantly expand their access to financing for managing working capital. The state should take the lead in implementing this strategy and develop a thorough roadmap to take use of the new opportunities presented by the ONDC platform, thereby enhancing the utilisation element of financial inclusion. FinTech companies have demonstrated the dynamism to deliver services at scale and infuse transformational changes in the way financial services are provided and consumed. Fintech companies have aided in lowering the cost of services, increasing their accessibility, providing services that meet client needs, and improving user service. This component ought to be tailored to address particular problems facing the state. By sponsoring their solution in the state, the state may promote this section. The government might also develop plans to support the ecosystem needed for the launch of social enterprises and businesses with admirable and innovative plans to use technology to advance financial inclusion in the state.

REFERENCES

[1] Abdulmumin, B. A., Etudaiye-Muthar, O. F., Jimoh, A. T., & Sakariyahu, O. R. (2019). An investigation into the level of financial inclusion in Sub-Saharan Africa. Scientific Annals of Economics and Business, 66(1), 41-63

[2] Agarwal, A. (2019). Progress of Financial Inclusion in Uttarakhand with Reference to The Crisil Inclusix Index. Deliberative Research, 43(1), 73-77.

[3] Ahamed, M.M. and Mallick, S.K. (2019), "Is financial inclusion good for bank stability? International evidence", Journal of Economic Behavior and Organization, Vol. 157, pp. 403-427.

[4] AIGGPA (2022). Evaluation of Access to Finance for Microenterprises in Madhya Pradesh: Demand and Supply side. Available at institute website.

[5] AIGGPA (2022) Madhya Pradesh Sushasan Development Report 2022.

[6] Anarfo, E.B., Abor, J.Y., Osei, K.A. and Gyeke-Dako, A. (2019), "Monetary policy and financial inclusion in sub-Sahara Africa: a panel VAR approach", Journal of African Business, Vol. 20 No. 4, pp. 549-572.

[7] Anwar, S.R., Tanzo, T.T. and Mostafa, R. (2017), "Financial inclusion-A comparative study on South Asia", Business Excellence and Management, Vol. 7 No. 4, pp. 18-33.

[8] Beck, T., Demirguc-Kunt, A., & Martinez Peria, M. S. (2007). Reaching out: Access to and use of banking services across countries. Journal of Financial Economics, 85(1), 234–266.

[9] Bagli, S., & Dutta, P. (2012). A study of Financial Inclusion in India. Radix international journal of economics & business management, 1(8), 1-18.

[10] Bihari, S. C. (2011). Growth through financial inclusion in India. Journal of International Business Ethics, 4(1), 28.

[11] Cámara, N., & Tuesta, D. (2014). Measuring financial inclusion: A muldimensional index. BBVA Research Paper, (14/26).

[12] Chakravarty, S. R., & Pal, R. (2010). Measuring Financial Inclusion: An Axiomatic Approach. Indira Gandhi Institute of Development Research, Mumbai, WP-2010-003.

[13] Abdulmumin, B. A., Etudaiye-Muthar, O. F., Jimoh, A. T., & Sakariyahu, O. R. (2019). An investigation into the level of financial inclusion in Sub-Saharan Africa. Scientific Annals of Chattopadhyay, S. K. (2011). Financial inclusion in India: A case-study of West Bengal.

[14] Chithra, N., & Selvam, M. (2013). Determinants of financial inclusion: An empirical study on the inter-state variations in India. Available at SSRN 2296096.

[15] CRISIL Inclusix. (2018). Financial inclusion surges, driven by Jan-Dhan Yojana. 4. https://www.crisil.com/content/dam/crisil/our-analysis/ reports/Research/documents/2018/-march/crisil-inclusix-financial-inclusion-surges-driven-by-Jan-Dhan-yojana.pdf
[16] Datta, S. K., & Singh, K. (2019). Variation and determinants of financial inclusion and their association with human development: A cross-country analysis. IIMB Management Review,31(4), 336-349.
[17] Deepti, N. S., & Vaidhya Subramaniam, S. (2018). Measure of Index on Financial Inclusion in India. International Journal of Pure and Applied Mathematics, 119(10), 1447-1454
[18] Dev, S. M. (2006). Financial Inclusion: Issues and Challenges. Economic and Political Weekly, 41(41), 4310–4313.
[19] Elsherif, M. (2019), "The relationship between financial inclusion and monetary policy transmission: the case of Egypt", Proceedings of International Academic Conferences (No. 9010737), International Institute of Social and Economic Sciences, pp. 91-128.
[20] Goel, S., & Sharma, R. (2017). Developing a financial inclusion index for India. Procedia computer science, 122, 949-956.
[21] Huang, Y. and Zhang, Y. (2020), "Financial inclusion and urban–rural income inequality: long-run and short-run relationships", Emerging Markets Finance and Trade, Vol. 56 No. 2, pp. 457-471.