



Munich Personal RePEc Archive

Does PMJDY Scheme Augment Financial Inclusion in India? Evidence from Indian States

Singh, Bhanu Pratap and Kumari, Annu and Sharma, Tanya
and Malhotra, Abhishek

Banaras Hindu University, Banaras Hindu University, Lalit Narayan
Mithla University, University of Hyderabad

30 November 2020

Online at <https://mpra.ub.uni-muenchen.de/104733/>
MPRA Paper No. 104733, posted 16 Dec 2020 08:04 UTC

Does PMJDY Scheme Augment Financial Inclusion in India? Evidence from Indian States

Bhanu Pratap Singh†, Annu Kumari†, Tanya Sharma£ & Abhishek Malhotra*

†Economics Section
Mahila Mahavidyalaya
Banaras Hindu University
Varanasi (U.P.) -221005
Email: bpsingheco@bhu.ac.in

£ Department of Economics
L.N. Mithla University
Darbhanga (Bihar)-846004

&

*School of Economics
University of Hyderabad
Hyderabad (Telangana) -500046

Abstract

The study attempts to examine the impact of financial inclusion, promoted through Pradhan Mantri Jan Dhan Yojna (PMJDY) scheme, on the economic performance across the Indian states. Using the index of financial inclusion developed in Sarma (2008), the current study develops a 3-dimensional FII for 25 major Indian states for the year 2011 and 2016 to assess the status of financial inclusion. Cross-sectional and pooled Ordinary Least Square regression techniques are applied to examine the impact of financial inclusion on the economic performance of the Indian states. The slope and interaction dummies are used to incorporate the effect of PMJDY scheme, which takes value 1 for structural change and 0 for the control period. The major findings of the study suggest the PMJDY scheme failed to augment financial inclusion in India in the short-run. Lack of physical infrastructure, human development and effective governance are the major reasons behind the failure of the PMJDY scheme. Hence, structural reforms are warranted in the regulatory framework for better economic outcomes.

Key Words: Financial inclusion, Economic growth, PMJDY scheme, Pooled OLS regression

1. Introduction

Financial inclusion refers to accessibility, usage and availability of financial services to all at low or no cost. Empirical evidences have confirmed that a well-developed financial system will help in achieving a higher economic growth along with other development goals (Singh

and Mishra, 2014, 2015). A wide range of financial inclusion programmes are used as a major policy tool for economic development across poor and middle-income countries. Developing countries such as India and China have implemented a series of financial inclusion programmes. Policymakers in the developing countries believe that financial inclusion helps in boosting economic development in many ways such as economic growth, financial efficiency, financial stability and social welfare (Huang & Zhang, 2019). The Indian government announced the PMJDY scheme on August 15, 2014, with a motive to augment financial inclusion and help larger masses to come out of the poverty trap. Like other poor and middle-income countries, India also lacks in both infrastructure and human development. However, the positive outcome of the programme also depends on its effective implementation and other governance issues (Singh, 2019; Singh and Pradhan, 2020).

PMJDY scheme was launched to boost financial inclusion in India but no major study has been done so far to analyse the impact of financial inclusion through PMJDY on the economic growth of India. The current study will fill this gap by proposing a 3-dimensional financial inclusion index for 25 Indian states and examine the impact of financial inclusion augmented through PMJDY scheme on economic development. The major findings of the study suggest the PMJDY scheme failed to augment financial inclusion in India.

The study is organized as follows: Section 2 covers the review of the literature. The analytical framework is discussed in Section 3. Data and methodology are covered in Section 4. Section 5 deals with empirical findings. The study concludes with Section 6.

2. Survey of Literature

The determinants of financial inclusion and its policy measures are a much-discussed subject in the field of academics and research. There is no dearth of literature on the subject and also on the construction of FII of India and other nations. Another relevant study is to analyse the

impact of financial inclusion on the economic growth of India. The survey has thus been bifurcated into three parts. The first part of the survey deals with the studies on financial inclusion and its progress in India along with the policy measures adopted so far. The second part deals with the studies on the construction of financial inclusion index at the state and national level of India and across the globe with major differences in the selection of indicators and the period. The last part of the survey deals with studies on the impact of financial inclusion index on the economic performance of the states and the nation at large.

2.1. Financial Inclusion Issues and Policy Measures

In prior studies, the access to financial services is affected by various factors including age, legal identity, limited literacy, place of living, psychology and cultural barriers, bank charges and the level of income. The level of financial inclusion varied among different categories in the factors. For e.g. the level of financial inclusion varies between male and female and/or between a literate and an illiterate person. Dangi and Kumar (2013) stated that loans given to self-help group by the banks declined between 2009 and 2011 in rural areas, while the savings with the banks increased. Similarly, the key issues in microfinance include low outreach, loan default, high-interest rate, frauds, etc. which were discussed by Nasir (2013). Another important study by Bhushan and Medury (2013) was done by taking different parameters of financial literacy like gender, education, income, etc. The study revealed that the working class in urban areas is more financially literate as compared to those working in rural areas. A similar study by Divya (2013) stated that the majority of daily wages earners were aware of hardly two schemes that promoted financial inclusion out of the total eight schemes.

On the other hand, Khuntia (2014) suggested various measures to improve financial inclusion among those living in the underprivileged and unbiased areas. Another study by Srivastava

(2015) analysed and stated that compared to other countries, India is at a moderate level of financial inclusion in terms of a number of branches, ATMs, bank credit and bank deposit.

2.2. Financial Inclusion Index

One of the initial attempts to develop an index was made by Sarma (2008), who formulated a comprehensive multidimensional financial inclusion index for India as well as 54 other countries using UNDP methodology with 3 principal indicators i.e. banking penetration, availability and usage. Working on similar lines, many research studies were done using the methodologies of UNDP and Sarma (2008) and the model was empirically tested in different districts and states. Bagli and Dutta (2012) developed an FII of 28 Indian states using principal component analysis. The results showed that Goa had the highest FII and Manipur had the lowest. Another attempt to develop an index was made by Manoharan and Shanmugam (2016) who worked on a district-level financial inclusion index of Tamil Nadu and found that two districts had a higher level of financial inclusion with a score of 64.74 and 55.7 and three districts Sivagangai, Nagapattinam and Pudukkottai fell under medium financial inclusion category while the rest of the districts fell under low level of Financial inclusion category. Goel and Sharma (2017) attempted to develop a comprehensive index by including all the indicators which had earlier been excluded due to one or the other reason. The index gives a general overview of India in terms of financial inclusion. The latest development in construction of a multidimensional financial inclusion index was by Yadav et al. (2020), who proposed an index based on HDI methodology developed by UNDP to construct the index for 27 Indian states.

On the other hand, many studies have been completed with regard to the construction of FII at international level. Honohan (2005) was the first to construct FII for cross country study with various variables like payments, savings mobilization, monitoring of users of funds and transforming risk to measure financial inclusion. Another attempt at creating an index for the

international level was made in line with Sarma (2008) by Yorulmaz (2013) for Turkey using three indicators i.e. access, availability and usage. The result showed that high-income regions had higher financial inclusion and vice-versa. Similarly, Rahman (2013) developed FII for Malaysia using convenient accessibility, take-up rate, responsibility usages and satisfaction level as its dimensions. The result showed that low-income respondents corresponded to a lower score of FII as compared to the others. Another index was developed by Camara and David (2014) for 82 developed and less developed countries using the principal component analysis.

2.3. Financial Inclusion and Growth

In continuation of the above, several impact assessment studies have been done to examine the effect of financial inclusion on economic development at national and international level with the major difference being the indicators and econometric methodology used in the study.

One of the initial studies on this topic was by Swamy (2010) who examined the impact of financial inclusion on the economic growth of India utilizing multiple linear regression model and found that there is a positive impact of financial inclusion at economic growth. The relation between financial inclusion and economic growth in India using VAR Analysis and Granger causality test was analysed by Sharma (2016). The analysis proved that there existed a positive relationship between the two. A similar study conducted by Lenka and Sharma (2017) examined the relation using ARDL and error correction model and found a positive impact of financial inclusion, both in short-run as well as in the long run. Further, another impact assessment study was conducted to analyse the impact of financial inclusion by Sethi and Sethy (2018) by utilizing ARDL approach of cointegration and nonlinear ARDL approach for the analysis and it concluded that there is a long-run relationship between the two.

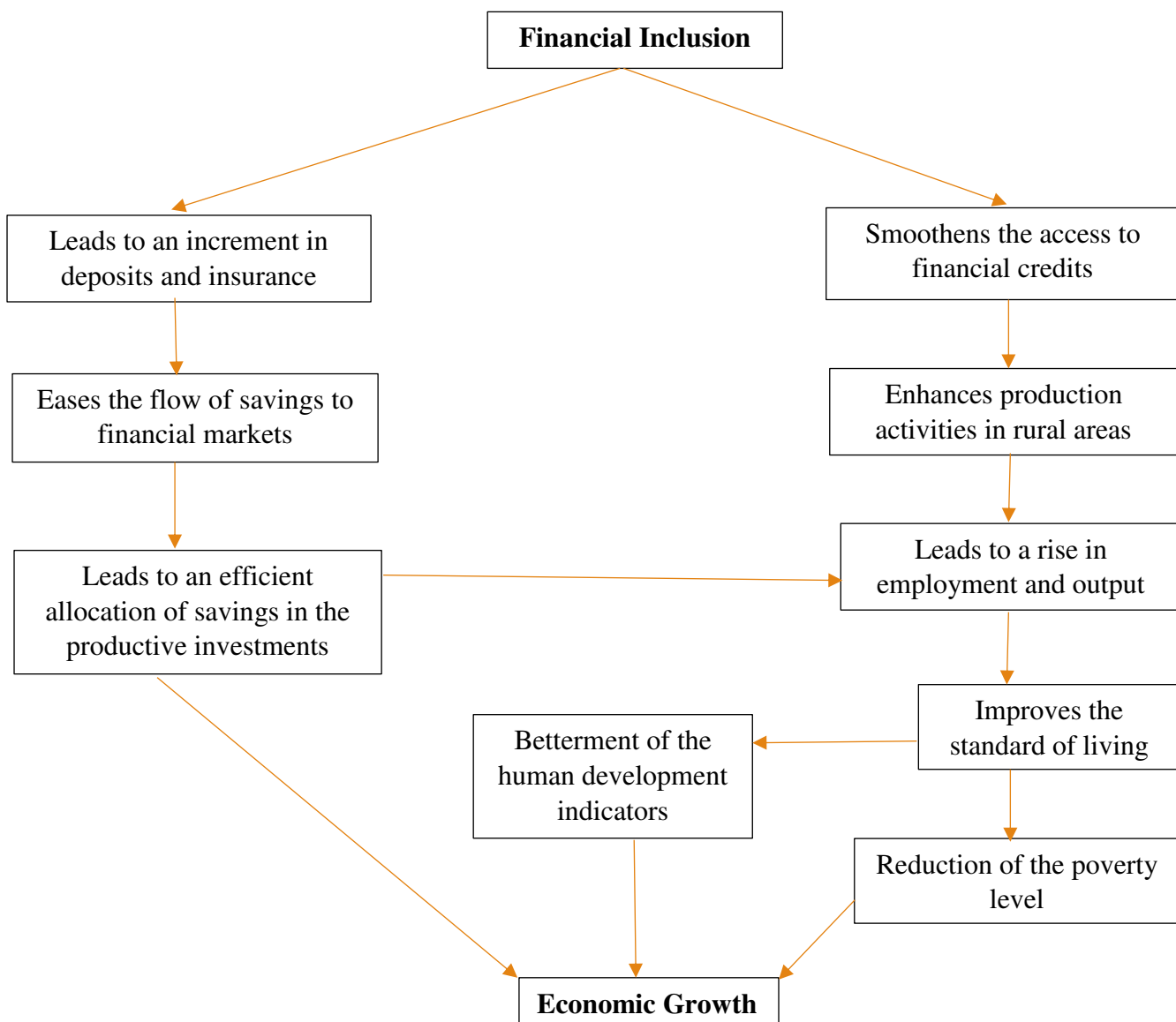
On the other hand, there are several studies on cross-country and country-specific analysis at the international level. Starting with a cross country study that examined the impact of financial inclusion with the data of 49 countries, Sarma and Pais (2011) showed that the countries which have a higher level of income inequality, low rate of literacy, low urbanization and poor connectivity will have less financial inclusion compared to the others. Micheal and Sharon (2014) analyzed the impact of financial inclusion on economic growth in Nigeria using correlation and regression techniques and found that there is a positive relationship between the two and the country should focus more on rural areas. Another study by Kim et al (2017) showed a positive relation of financial inclusion on economic growth in OIC countries. Similarly, Sethi and Acharya (2018) examined the impact of financial inclusion in 31 developed and developing countries utilizing panel cointegration with panel causality test for the analysis and revealed that there is a long-run relationship and also bidirectional causality between financial inclusion and economic growth. Van et al. (2019), in an interesting study, first developed a multidimensional index to measure financial inclusion at international level and then used panel econometric techniques to establish a positive relationship between financial inclusion and economic growth of the country. Nizam et al (2020) conducted a similar study on selected 63 countries including developed and developing nations. Initially, an FII was constructed which was then used to estimate the impact of financial inclusion on economic growth using a cross-sectional threshold regression technique. It was established that financial inclusiveness exhibits a non-monotonic positive relation with economic growth.

PMJDY scheme has been launched to boost financial inclusion in India, especially to include the people living in rural areas. However, no major study has been done so far to analyze the impact of financial inclusion through PMJDY on the economic growth of India. In light of the above, the present study would try to fill that gap by constructing a 3-dimensional financial inclusion index and examining its impact on economic development.

3. Analytical Framework

Finance and financial inclusion have played a very significant role in contributing to economic growth. This relationship has been established and proved via economic analysis by various studies and the construction of different models. This linkage can be analysed by studying two theoretical channels which have connected financial inclusion to the economic performance of the economies. This theoretical link between the two has been explained using Figure 1. The firms as well as the households get better access to various banking services using both the channels, i.e. affordable financial credit and attractive deposit options. Along with this, it leads to a reduction in transaction and information cost in the economy and spurs economic growth.

Figure 1. Financial inclusion and economic performance



Source: Author's analysis

4. Data and Methodology

4.1 Data

The current study uses three dimensions of financial inclusion such as availability, penetration and usage to calculate FII for the year 2011 and 2016 across 25 major Indian states. The FII uses financial variables such as the number of bank accounts with commercial bank per 1000 adults, number of commercial bank branches per 100000 adults and the volume of credit and deposit as a proportion of the state's Net State Domestic Product, which is also a measure of penetration, availability and usage of the banking system respectively. All the data are collected from the publication of Economics and Politics Weekly Research Foundation (EPWRF). Real per capita gross state domestic product (LPERSDP) data is taken as a proxy for economic performance and gross fixed capital formation (LGFC) is taken proxy for capital stock. Both the variables are sourced from RBI Handbook of the Statistics on the Indian Economy 2019. Finally, human development index (LHDI) data is taken from the Global Data Lab.

The descriptive statistics of the variables used in the study in the natural logarithm for the year 2011, 2016 and overall period are reported in Table 1. The mean value of LPERSDP, LFII (natural logarithm of FII), LHDI and LGFC for the year 2011 are 4.873, -0.824, -0.209 and 10.556 respectively. On the other side, the mean value of LPERSDP, LFII, LHDI and LGFC for the year 2016 are 4.982, -0.686, -0.183 and 10.655 respectively. For the overall period, the mean value of LPERSDP, LFII, LHDI and LGFC are found to be 4.928, -0.755, -0.196 and 10.606 respectively.

	2011			2016			Overall		
Variables	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min
LPERSDP	4.873	5.461	4.372	4.982	5.531	4.454	4.928	5.531	4.372
LFII	-0.824	-0.135	-3.000	-0.686	-0.108	-1.562	-0.755	-0.108	-3.000
LHDI	-0.209	-0.126	-0.281	-0.183	-0.115	-0.246	-0.196	-0.115	-0.281
LGFC	10.556	11.717	7.140	10.655	11.971	7.763	10.606	11.971	7.140
Observation	25.000	25.000	25.000	25.000	25.000	25.000	50.000	50.000	50.000

Source: Author's calculation

Table 2 reports the correlation matrix of the considered variables for the year 2011, 2016 and overall period. From Table 2, there is a positive significant linear association of LFII with LPERSDP, LHDI and LGCF which is also consistent with the past empirical literature on financial inclusion and economic development. The descriptive statistics and correlation matrix give enough evidence to examine the association between financial inclusion and economic growth.

	FII		
Variables	2011	2016	Overall
LGCF	0.641	0.192	0.286
P-value	0.001	0.000	0.000
LHDI	0.080	0.004	0.004
P-value	0.703	0.038	0.111
LPERSDP	0.564	0.049	0.062
P-value	0.003	0.000	0.000

Source: Author's calculation

4.2 Methodology

4.2.1 Construction of Financial Inclusion Index

The paper uses the methodology provided by Sarma (2008) for the construction of the 3-dimensional financial inclusion index (FII) which has been used in this study for the analysis. The three dimensions of financial inclusion that have been taken into account for the construction of the current FII are penetration, availability and usage. To start with, a dimension index is computed for all the three-dimension using the formula mentioned in Eq. (1) which is also a point in the 3-dimensional Cartesian space.

$$d_i = w_i[(A_i - m_i)/(M_i - m_i)] \quad (1)$$

where,

w_i is the weight attached to the dimension i , $0 \leq w_i \leq 1$;

A_i is the actual value of dimension i ;

m_i is the minimum value of dimension i ;

M_i is the maximum value of dimension i ; and

d_i is the dimension of financial inclusion i .

Eq. (1) asserts that M_i and m_i are determined by empirical observations. The weight w_i attached to each dimension will always lie between 0 and 1 i.e. $0 \leq w_i \leq 1$. Higher the value of d_i , higher is the achievement in dimension i .

In the current scenario, there are three dimensions of financial inclusion which means that a state is represented by a point $X = (d_1, d_2, d_3)$ in the 3-dimensional Cartesian space. In this 3-dimensional space, the point $O = (0, 0, 0)$ refers the point which signifies the worst situation while the point $W = (1, 1, 1)$ indicates the highest achievement in all the dimensions.

To measure the financial inclusion index, it is important to analyse the location of achievement point X with respect to the ideal (W) and worst (O) point. A higher financial inclusion level is attained if the distance of X from O is larger and that from W is smaller. In the calculation of the current index, a simple average of the Euclidian distance between X and O and the inverse Euclidean distance between X and W is used for measurement. Both these distances are then normalized by the distance between O and W , to make them fall between 0 and 1. For the construction of FII, we first compute the values of $X1$ (distance between X and O) and $X2$ (inverse distance between X and W). FII is then calculated by taking a simple average of $X1$ and $X2$. The exact formulae are given below:

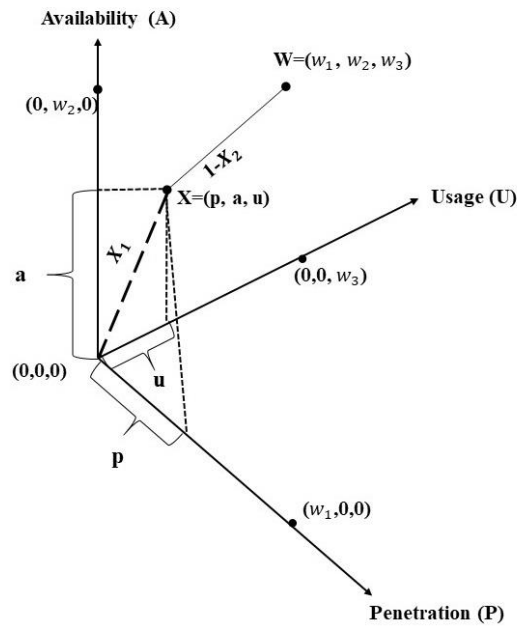
$$X_1 = \frac{\sqrt{d_1^2 + d_2^2 + d_3^2}}{\sqrt{w_1^2 + w_2^2 + w_3^2}} \quad (2)$$

$$X_2 = 1 - \frac{\sqrt{(w_1-d_1)^2 + (w_2-d_2)^2 + (w_3-d_3)^2}}{\sqrt{w_1^2 + w_2^2 + w_3^2}} \quad (3)$$

$$FII = (X_1 + X_2)/2 \quad (4)$$

Eq. (2) measures the distance between X and O while the distance between X and W is measured by Eq. (3). After calculating the values of X_1 and X_2 , the FII index for different states can then be calculated by using Eq. (4). The 3-dimensional FII mentioned above can be understood using Figure 2.

Figure 2 Graphical explanation of 3-dimensional FII



Source: Sarma (2012) and author's analysis

The three different dimensions of the financial inclusion, which are penetration, availability and usage are measured using three different axis originating from point $O = (0,0,0)$ signifying

the worst situation. The financial inclusion position of the state in a 3-dimensional plane is represented by point X in the above diagram. It is important to note that the present index satisfies mathematical properties of boundless, homogeneity and monotonicity. Moreover, the index is a unit free measure.

4.2.2 Pooled Ordinary Least Square and Econometric Specification

OLS technique is the most widely used method to estimate the intercept and slope coefficients in a regression model. The OLS method tries to minimise the sum of the squares of the error to compute the values. However, the pooled OLS model pools all the observations and estimate a “grand” regression. This part of the study discusses the econometric specification of the models used to examine the impact of financial inclusion augmented through PMJDY on economic growth in India. Following are the econometric specification for the empirical models used in the study:

Model 1:

$$LPERSDP_{i2011} = \alpha_0 + \alpha_1 LFII_{i2011} + \alpha_2 LHDI_{i2011} + \alpha_3 LGCF_{i2011} + U_{i2011} \quad (5)$$

Model 2:

$$LPERSDP_{i2016} = \beta_0 + \beta_1 LFII_{i2016} + \beta_2 LHDI_{i2016} + \beta_3 LGCF_{i2016} + \varepsilon_{i2016} \quad (6)$$

Model 3:

$$LPERSDP_{it} = \gamma_0 + \gamma_1 LFII_{it} + \gamma_2 LHDI_{it} + \gamma_3 LGCF_{it} + \xi_{it} \quad (7)$$

Model 4:

$$LPERSDP_{it} = \delta_0 + \delta_1 LFII_{it} + \delta_2 LHDI_{it} + \delta_3 LGCF_{it} + \delta_4 LFII_{it} * D1 + \delta_5 * D1 + v_{it} \quad (8)$$

The subscript i in the Eq (5, 6, 7 and 8) represents the different cross-sectional units and t represents the different periods. Here, LPERSDP is the natural logarithm of per capita Net State

Domestic Product, LFII is the natural logarithm of financial inclusion index, LGCF is the natural logarithm gross capital formation and D1 is the dummy variable which takes value 0 for the year 2011 (control) and 1 for the year 2016 (reconstruction period). Finally, α 's, β 's, γ 's and δ 's are the coefficients of respective models.

5. Empirical Findings

5.1 Status of financial inclusion across the Indian States

The financial inclusion index (FII) is calculated for 25 major Indian states for the year 2011 and 2016. A higher value of the index indicates a higher level of financial inclusion and financial development. Based on the past empirical studies on the financial inclusion, the states are categorized into low, medium and high financial inclusion states (Sarma 2008; Yadav, Singh & Velan 2020). If FII ranges $0 \leq \text{FII} < 0.3$, it shows low financial inclusion; $0.3 \leq \text{FII} < 0.5$ indicates medium financial inclusion and $0.5 \leq \text{FII} \leq 1$ represents high financial inclusion.

The status of financial inclusion across Indian states for the year 2011 and 2016 are reported in Table 3. In the year 2011, Goa is the only Indian state which is found under high financial inclusion category with FII value 0.734. Out of 25 Indian states, six states (Maharashtra, Punjab, Kerala, Karnataka, Tamil Nadu and Himanchal Pradesh) are found under medium financial inclusion. However, rest of the eighteen Indian states (Andhra Pradesh, Uttarakhand, Haryana, Sikkim, Jammu and Kashmir, West Bengal, Gujrat, Uttar Pradesh, Odisha, Meghalaya, Madhya Pradesh, Jharkhand, Rajasthan, Chhattisgarh, Assam, Bihar, Nagaland and Manipur) lie in the low financial inclusion category.

Similarly, in the year 2016, Goa is the only Indian state which is found under high financial inclusion (Table 3). Out of 25 Indian states, seven states (Maharashtra, Punjab, Kerala, Tamil Nadu, Karnataka, Himanchal and Haryana) lie in the medium financial inclusion category and rest of the seventeen states (Andhra Pradesh, Uttarakhand, West Bengal, Jammu and Kashmir,

Sikkim, Gujrat, Odisha, Jharkhand, Uttar Pradesh, Madhya Pradesh, Meghalaya, Chhattisgarh, Bihar, Rajasthan, Assam, Nagaland and Manipur) are found under low financial inclusion. The empirical result shows that there is no significant improvement in the status of financial inclusion across Indian states between the period of 2011 and 2016. During this period, only the states under the medium financial inclusion category increased from six in the year 2011 to seven in 2016. Overall, the status of financial inclusion across Indian states for this period remained the same.

2011			2016		
State	FII Index	Category	State	FII Index	Category
Goa	0.734	High	Goa	0.780	High
Maharashtra	0.486	Medium	Maharashtra	0.486	Medium
Punjab	0.362		Punjab	0.426	
Kerala	0.355		Kerala	0.370	
Karnataka	0.349		Tamil Nadu	0.337	
Tamil Nadu	0.314		Karnataka	0.336	
Himachal Pradesh	0.306		Himachal Pradesh	0.314	
Andhra Pradesh	0.263		Haryana	0.302	
Uttarakhand	0.247	Andhra Pradesh	0.296	Low	
Haryana	0.233	Uttarakhand	0.283		
Sikkim	0.205	West Bengal	0.252		
Jammu & Kashmir	0.200	Jammu & Kashmir	0.252		
West Bengal	0.194	Sikkim	0.233		
Gujarat	0.179	Gujarat	0.219		
Uttar Pradesh	0.141	Odisha	0.192		
Odisha	0.139	Jharkhand	0.190		
Meghalaya	0.125	Uttar Pradesh	0.179		
Madhya Pradesh	0.119	Madhya Pradesh	0.164		
Jharkhand	0.115	Meghalaya	0.157		
Rajasthan	0.106	Chhattisgarh	0.143		
Chhattisgarh	0.090	Bihar	0.127		
Assam	0.087	Rajasthan	0.127		
Bihar	0.070	Assam	0.105		
Nagaland	0.039	Nagaland	0.036		
Manipur	0.001	Low	Manipur	0.027	Low

Source: Author's estimation

5.2 PMJDY, Financial Inclusion and Economic Performance of the Indian states

The impact of financial inclusion augmented through PMJDY scheme on economic performance is examined using Model 1, 2, 3 and 4 in Eq. 5, 6, 7 and 8 respectively.

The cross-sectional regression result for the year 2011 is estimated using Model 1 in Eq. 5 and the results are reported in Panel 1 of Table 4. Financial inclusion (LFII) and human development (LHDI) positively and significantly contribute to economic development (LPERSDP). On the other hand, capital stock (LGFC) positively but insignificantly contributes to economic growth.

Further, the cross-sectional regression result for the year 2016 is estimated using Model 2 in Eq. 6 and the results are reported in Panel 2 of Table 4. Human development (LHDI) positively and significantly contributes to economic development (LPERSDP) whereas, financial inclusion (LFII) and capital stock (LGCF) positively but insignificantly contribute to economic development.

Table 4: Regression Results									
Dependent variable LPERSDP									
	Model 1		Model 2		Model 3		Model 4		
Variables	Coefficients	p-value	Coefficients	p-value	Coefficients	p-value	Coefficients	p-value	
LFII	0.184	0.015	0.171	0.258	0.177	0.005	0.171	0.008	
LHDI	4.107	0.000	5.128	0.000	4.424	0.000	4.492	0.000	
LGCF	0.027	0.460	0.048	0.299	0.037	0.160	0.036	0.211	
LFII*D1							0.055	0.579	
D1							0.003	0.975	
Constant	5.593	0.000	5.523	0.000	5.532	0.000	5.576	0.000	
R^2	0.767		0.775		0.772		0.779		
\bar{R}^2	0.734		0.743		0.757		0.754		
F-stat	23.041	0.000	24.079	0.000	51.791	0.000	30.993	0.000	
DW-Stat	1.821		1.788		1.193		1.810		

Source: Author's estimation

Finally, the pooled regression results of both the years are estimated using Model 3 in Eq. 7 and the results are reported in Panel 3 of Table 4. Financial inclusion (LFII) and human development (LHDI) positively and significantly contribute to economic development

(LPERSDP) whereas capital stock (LGCF) positively but insignificantly contributes to economic development (LPERSDP).

Similarly, pooled regression results of both the years with slope and interaction dummies for financial inclusion are estimated using Model 4 in Eq. 8 and the results are reported in Panel 4 of Table 4. The empirical results show financial inclusion (LFII) and human development (LHDI) positively and significantly contribute to economic development (LPERSDP) whereas capital stock (LGCF), slope (D1) and interaction (LFII*D1) dummies positively but insignificantly contribute to economic development (LPERSDP).

The empirical evidence confirms that the PMJDY scheme failed to augment financial inclusion and economic development across the Indian states. The major reasons behind the failure of PMJDY scheme are lack of human development, physical infrastructure and effective governance.

6. Conclusion

The current study examined the status of financial inclusion across 25 major Indian states for the year 2011 and 2016. Further, the study also examined the impact of PMJDY scheme on the status of financial inclusion and economic development across Indian states. Sarma (2008) methodology is adopted in the construction of 3-dimension FII for major Indian states. Cross-sectional and pooled OLS techniques were employed to examine the impact of financial inclusion augmented through PMJDY scheme on economic development.

The major finding of the study suggests that the majority of the Indian states falls under the low or medium level of financial inclusion for the year 2011 and 2016. In the year 2011, only (Goa) was under a high level of financial inclusion, six states were under the medium level of financial inclusion and the remaining 18 states were under low level of financial inclusion. After the launch of PMJDY scheme in the year 2014, there has been a marginal improvement

in the financial inclusion status of the states. In 2016, Goa remained under high financial inclusion, medium financial inclusion states increased from 6 in the year 2011 to 7 in 2016. The cross-sectional regression results show a positive and significant impact of financial inclusion on economic development for the year 2011 whereas a positive but insignificant impact of financial inclusion on economic growth was found for the year 2016. The pooled OLS regression result for the overall period shows positive and significant impact of financial inclusion on economic growth. Other determinants of growth such as human development also positively and significantly contribute to economic development. Further, there is an insignificant impact of both slope and interaction dummies on economic development. The empirical evidence confirms that the PMJDY scheme failed to augment financial inclusion and economic development across the Indian states. The major reasons behind the failure of PMJDY scheme are lack of human development, physical infrastructure and effective governance. Hence, structural reforms are warranted in the regulatory framework for better economic outcomes.

References:

- Bagli, S., & Dutta, P. (2012). A Study of Financial Inclusion in India, *Radix International Journal of Economics and Business Management*, 1(8), pp. 1-18.
- Bhushan, P., & Medury, Y. (2013). Financial literacy and its determinants. *International journal of engineering and business management*, 4(2), pp.155-160.
- Camara, N. and David, T. (2014). Measuring Financial Inclusion: A Multidimensional Index. *BBVA Working Paper 14/26*.
- Dangi, N., & Kumar, P. (2013). Current Situation of Financial Inclusion in India and Its Future Vision. *International Journal of Management and Social Science Research*, 2(8), pp. 155-166.

- Divya, K.H. (2013). A Study On Impact Of Financial Inclusion With Reference To Daily Wage Earners. *Journal of Business Management and Social Science Research* 2(6),85-92.
- Goel, S. and Sharma, R. (2017). Developing a Financial Inclusion Index for India. *Procedia Computer Science*. Volume 112, pp. 949-956
- Honohan, P. (2005). Measuring micro finance access: building cross country data. World Bank Policy Paper No. 3606, Washington, DC.
- Huang, Y., & Zhang, Y. (2020). Financial inclusion and urban–rural income inequality: Long-run and short-run relationships. *Emerging Markets Finance and Trade*, 56(2), 457-471.
- Khuntia, R. (2014). Pradhan Mantri Jan Dhan Yojana (PMJDY): A new drive towards financial inclusion in India: *ZENITH International Journal of Business Economics and Management Research*, 4(1), pp. 10-20.
- Kim, D.W., Yu, J.S. and Hassan, M.K. (2017). Financial inclusion and economic growth in OIC countries. *Research in International Business and Finance*, 43, pp. 1-14.
- Lenka, K.S. and Sharma, R. (2017). Does financial inclusion spur economic growth in India? *The Journal of Developing Area*, 51(3), pp. 215-228.
- Manoharan, B., & Shanmugam, V. (2016). Dimension for Measuring Financial Inclusion in the rural areas of Tamil Nadu. *Indian Journal of Science and Technology*, 9(32).
- Micheal, O.B., & Sharon, O.O. (2014). Financial System, Financial Inclusion and Economic development in Nigeria. *International Journal of Management Sciences*, 2(3), pp. 139-148.
- Nasir, S. (2013). Microfinance in India: Contemporary issues and challenges. DOI: 10.5829/idosi.mejsr.2013.15.2.2306.

- Nizam, R. Karim, Z.A., Rahman, A.A and Sarmidi, T. (2020). Financial Inclusiveness and Economic Growth: New Evidence using a Threshold Regression Analysis. *Economic Research- Ekonomska Istrazivanja*, 33:1, 1465-1484
- Rahman, Z. A. (2013). Developing a financial inclusion index. Central Bank. Retrieved from www.centralbanking.com/digital_assets/6715/CB23.4_May2013_Financial_inclusion_Rahman_New.pdf (accessed on 10 June 2014).
- Sarma M. (2008). Index of financial inclusion. ICRIER Working Paper No 215, New Delhi.
- Sarma, M. and Pais, J. (2011). Financial inclusion and development. *Journal of International Development*, 23, pp. 613-628.
- Sethi, D., & Acharya, D. (2018). Financial inclusion and economic growth linkage: some cross country evidence. *Journal of Financial Economic Policy*, 10 (3), pp.369-385.
- Sethi, D., & Sethy, S.K. (2018). Financial inclusion matters for economic growth in India: Some evidence from cointegration analysis. *International Journal of Social Economics*, 46 (1), 132-151.
- Sharma, D. (2016). Nexus between financial inclusion and economic growth: evidence from the emerging Indian economy. *Journal of Financial Economic Policy*, 8(1), pp. 13-36.
- Singh, B. P., & Mishra, A. K. (2014). Nexus of financial development and economic growth in India: revisiting Schumpeter. *Indian Journal of Economics and Development*, 10(3), 246–255.
- Singh, B. P., & Mishra, A. K. (2015). Researching the relationship between Financial and Real sectors in India. *Indian Journal of Economics and Development*, 11(4), 861–868.

- Srivastava, P. (2015). Financial Inclusion: Efforts by RBI and Government. Tactful management research journal.
- Singh, B. P. (2019). Does governance matter? Evidence from BRICS. Global Business Review. <https://doi.org/10.1177/0972150919861222>
- Singh, B. P., & Pradhan, K. C. (2020). Institutional quality and economic performance in South Asia. Journal of Public Affairs. <https://doi.org/10.1002/pa.2401>
- Swamy, V. (2010). Bank-based financial intermediation for financial inclusion and inclusive growth. Banks and Bank Systems, 5(4), pp. 63-73.
- Van, L., Vo, A.T., Nguyen, N.T. and Vo, D.H. (2019), Financial Inclusion and Economic Growth: An International Evidence, Emerging Market Finance and Trade. DOI: 10.1080/1540496X.2019.1697672
- Yadav, V., Singh, B.P and Velan, N. (2020). Multidimensional financial inclusion index for Indian states. Journal of Public Affairs, DOI: 10.1002/pa.2238
- Yorulmaz, R. (2013). Construction of regional financial inclusion index in Turkey. Journal of BRSA Banking and Financial Markets, 7(1), 79-101.