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**TRIGGERS AND BARRIERS FOR 'EXCLUSION'  
TO 'INCLUSION' IN THE FINANCIAL SECTOR:  
A COUNTRY-WISE SCRUTINY**

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# Triggers and Barriers for 'Exclusion' To 'Inclusion' in the Financial Sector: A Country-Wise Scrutiny

Keshav Sood and Shrabani Mukherjee

## Abstract

*There have been very few works focusing on the determinants and barriers of financial inclusion. The objective of this study is two folded. Firstly, to measure a efficient composite multi-dimensional index for financial inclusion with both supply and demand-side factors using two stage Principal Component Analysis for 91 countries using the World Bank Findex database for two benchmark years, 2011 and 2014. Secondly, to track the binding determinants of financial inclusion using a panel fixed effects model. The middle and low income countries can reach up to their potential if sources of barriers have been tracked efficiently as this is the main constraint for inclusive financial system.*

**Keywords:** *Financial Inclusion, multidimensional, Principal Component Analysis, Fixed effects model*

**JEL Codes:** *G21, G23, C23, C38*

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**Keshav Sood**  
**Shrabani Mukherjee**

## **INTRODUCTION**

According to the World Bank estimates the number of people worldwide having an account grew by 700 million between 2011 and 2014. Further, around 62 percent of the world's adult population has an account in 2014; up from 51 percent in 2011. However even today, 2 billion adults remain without an account.

There have been few studies that have tried to measure Financial Inclusion through a multidimensional index, the literature is scarce and incomplete till date. Literature that tracks the causes and effects of financial inclusion is truly inadequate. In broader sense, beyond the measurement of Financial Index has not been explored so far. There have been very few works on pinpointing the determinants of financial inclusion and its impact on economic growth and development which is necessary to justify the urgent policy need and to explore the constraints of financial inclusion as well. Our study is aimed at filling all these gaps.

The main objective of this paper is, firstly, to construct an efficient multi-dimensional Financial Index using two-stage Principal Component Analysis for 91 countries for two benchmark years, viz., 2011 and 2014. The practice of giving exogenous weights as followed by many studies is flawed as weights to certain dimensions can vary across countries. There is evidence that indices are sensitive to subjective weight assignment, since a slight change in weights can alter the results dramatically (Lockwood, 2004), Sarma (2008, 2012) and Chakravarty and Pal (2010) are examples of financial inclusion indices that apply this methodology to usage and access indicators from supply-side country level data sets. Our study is based on both demand and supply side factors and from the perspective of both banked and unbanked population as opposed to many studies that only takes supply side factors. Such a comprehensive measure of Financial Inclusion that takes into account various dimensions is important as it can be used to

understand the problems of financial inclusion and hence for policy making in different countries. Moreover, we use the two year Financial Inclusion Indices that we obtained and observe how Financial Inclusion is associated with select macroeconomic variables like value added in the various sectors, employment etc. and variables that reflect banking efficiency and stability. Thus we see how these variables affect Financial Inclusion which can have important policy considerations.

## **LITERATURE REVIEW**

The recognition that financial inclusion is a powerful tool to not just alleviate poverty but also fuel economic growth has brought this concept to the limelight since early 2000 and is seen as a policy priority in many countries. Beck et. al.(2009) observed that a well-developed and accessible financial system, reduces information and transaction costs, influences savings rates, investment decisions, technological innovations and long run growth rates i.e. promotes economic development. The importance of Banking services are being viewed increasingly as a public good that needs to be made available to the entire population without discrimination hence termed as a 'quasi-public good' (Mehtrotra et.al 2009). This recognition has made financial inclusion a policy objective for policy makers and others engaged in developmental activities.

Many countries have tried to solve the problem of financial inclusion given their resources. In South Africa the banking markets were extremely expensive. So to overcome this, the South African Banking Association launched an 'Mzansi account' a 'No Frill' bank account which facilitated five free transactions in a month. The Banking Correspondent/Banking Facilitator (BC/BF) model was used in Brazil. It was basically a partnership between the banks and third party agents. Agents called Banking Correspondents were used to spread access to banking. Kenya demonstrated the best use of technology as a step towards increase Inclusion. They used a mobile phone company as a

conduit for keeping and transacting money. M-PESA, an e-money transfer service was launched by Safari.com-Vodafone with a cap of \$500 on a transaction followed by M-KESHO which provided deposit facility too. Micro Finance Institutions led a supper efficient lending mission in Mexico. Philippines launched the first successful mobile payment service in a developing country in 2004. Indonesia proved how public-owned financial institutions may become the driving force behind economic development in the rural areas. Bank Rakyat Indonesia (BRI), a government owned development bank, is the biggest provider of rural financial services within Indonesia. Even when the Indonesian banking system collapsed during the financial crisis in 2008, BRI's micro-banking division remained relatively profitable. Thereby these achievements in developing countries around the world serve us as an inspiration to adopt new techniques to serve the poor.<sup>1</sup>

Sarma (2008, 2012) has considered three dimensions to measure the extent of financial inclusion, namely, (a) depth of access (b) availability to measure proximity of access and (c) usage to measure the extent and frequency of use by the customers. She has adopted the concept used in the calculation of Human Development Index (HDI) and named the index as Index of Financial Inclusion (IFI). However, Sarma has attached equal weights to the three dimensions. Mehrotra (2009) also built an index for financial inclusion using similar kind of aggregate indicators like number of rural offices, number of rural deposit accounts, volume of rural deposit and credit from banking data for sixteen major states of India. Chakrabarty and Pal (2010) use the axiomatic measurement approach for the measurement of financial inclusion. It improves upon IFI such that the index can be utilized to determine the percentage contributions by the various factors. Arora (2010), in her study, has calculated the IFI for two major groups of countries- advanced

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<sup>1</sup> Address by H.R. Khan, at BANCON, 2011 organised by Indian Bankers Association and IOB, Chennai.



economies and the developing countries, adopting the IMF classification as the basis. Past studies have been seen to omit dimensions during the construction of the index, missed out usage. Gupte (2012) has attempted to compute the IFI for 98 countries for the years 2009 and 2010 as a geometric mean of 4 critical dimensions- outreach (penetration and accessibility), usage, and ease of transactions and cost of transactions, following the methodology used by UNDP in computing the HDI in 2010. Bagli (2012) where by applying the methodology of Rotated Principal Component Analysis this study has computed a comprehensive measure of financial inclusion for each state of India in 2009. The levels of financial inclusion of the states in India showed low mean and high disparity. However there are extremely few studies that go beyond the measurement of Financial Inclusion and analyze how Financial Inclusion is related to certain macroeconomic variables. However no such work has been done to find the causal relationship between Financial Inclusion and other such variables or to determine the relationship between these. Our study will try to capture this aspect which is essential to review the performance of policy initiative.

## **DATA SOURCES AND FINANCIAL INCLUSION DIMENSIONS**

The extent of Inclusion of a financial system depends on the usage and accessibility of formal financial services. High usage and accessibility does not mean higher Financial Inclusion per se. Usage of financial services can be conditioned by other factors like per capita GDP, habits or the development status which shapes an individual's usage of a particular financial service. Also when we talk about accessibility in terms of the number of ATM's and branches, we don't have information about the geographical distribution and concentration of these services. Therefore, a large number of these indicators stress a more inclusive system which is methodologically correct. We postulate that the degree of Financial Inclusion is determined by Usage, Access and Barriers to financial services. Data for Usage and Barriers have been determined by several

demand side individual level indicators. For usage, we have taken indicators that represent the actual use of services by the banked population. For Barriers, we use information on the unbanked population highlighting the obstacles perceived by individuals that prevent them from using financial services. For Access we use supply-side country level indicators taking into account both the demographic and geographic aspects.

We have taken the demand side indicators from the World Bank's Global Findex. The Global Financial Inclusion ("Global Findex") database provides individual level data for 172 countries around the world for two years: 2011 and 2014. The indicators are constructed using survey data from interviews with more than 150,000 nationally representative and randomly selected adults over the calendar year. It is the largest demand-side harmonized dataset ever collected. The supply side data has been collected from the International Monetary Fund's Financial Access Survey (2015). It contains data on 47 key indicators for 152 countries for the period 2004-2015. Finally, data on the macroeconomic variables and Banking Efficiency variables have been taken from the World Bank's World Development Indicators. It presents the most current and accurate global development data available and includes national, regional and global estimates.

## **Usage**

To construct this dimension we consider the utility of the individuals in the following five indicators: having account at a financial institution, keeping savings, having non-zero withdrawals and deposits. There are people who hold an account but do not use it. Hence we consider people who have made at least one transaction viz. both withdrawal or deposit in a month. The savings and loans indicators show the proportion of population who saves and borrows from a formal financial institution respectively.

## **Barriers**

The barriers to Financial Inclusion give us an idea of the obstacles to the use of formal financial inclusion from the perspective of unbanked population. This perspective is very important for Financial Inclusion as it tells us the extent and reason as to why some individuals are excluded from the formal financial system. Now there are two types of Financial Exclusion: Self-Exclusion and Involuntary Exclusion. We have taken six barriers Distance, Affordability, lack of trust, lack of necessary documentation, Religion and lack of money in negative form so that fewer people reporting implies greater the value of financial inclusion.

## **Access**

Accessibility to financial services leads to greater inclusion if the services meet the needs on the people. We use four indicators to represent Access namely no. of ATM's (per 100,000 adults), ATM's (per 1000 km<sup>2</sup>), Commercial bank branches (per 100,000 adults), Commercial bank branches (per 100 km<sup>2</sup>). They account for the physical point of services offered by commercial banks, credit unions, saving and credit cooperatives, deposit-taking microfinance and other deposit takers. These supply-side indicators have been collected by the finance service providers from the International Monetary Fund's Financial Access Survey FAS (2015). However these are just one aspect of accessibility. Mobile banking has been included in the usage dimension.

## **Select Macroeconomic Variables**

In order to determine the relationship between Financial Inclusion and select macroeconomic variables, we use variables taken from the World Bank's World Development Indicators. Due to data unavailability for all the 91 countries, finally we have data for 59 countries for the two years viz. 2011 and 2014. We include macroeconomic variables such as agricultural value added, industrial value added, service value added, per capita GDP growth rate and household consumption expenditure. We

also include bank capital asset ratio that represents banking efficiency and bank non-performing loans representative of banking stability.

## **INDEXING STRATEGY AND METHODOLOGY**

Financial inclusion is supposed to be determined by the interaction of a number of causal variables. We assume that behind a set of correlated variables we can find an underlying latent structure that can be identified with a latent variable as is the case of financial inclusion. Two important issues arise in the estimate of any latent variable: the selection of relevant variables and the estimation of parameters (weights). Standard regression techniques cannot be used to measure the estimates as Financial Inclusion is unobserved. A good composite index should comprise important information from all the indicators, but not be strongly biased towards one or more of these indicators. We apply a two-stage principal components methodology to estimate the degree of financial inclusion. Each causal variable relates to different dimensions that define financial inclusion. Since the sub-indices contain highly inter-correlated indicators, we estimate the sub-indices first, rather than estimating the overall index directly by applying PCA on all the indicators together. Empirical evidence supports that PCA is biased towards the weights of indicators which are highly correlated with each other (Mishra, 2007). We minimize this problem by applying two-stage PCA (Nagar and Base, 2004).

In the first stage, we estimate the three sub-indices: usage, barriers and access, which defined financial inclusion. In the second stage, we estimate the overall financial inclusion index using the dimensions as explanatory variables.

Let us postulate that the latent variable financial inclusion is linearly determined as follows:

$$FI_i = w_1 Y_i^u + w_2 Y_i^b + w_3 Y_i^a + e_i \quad (1)$$

Where  $i$  denotes the country and  $(Y_i^u, Y_i^b, Y_i^a)$  denote the dimensions usage, barrier and accessibility respectively. Here the variation in financial index can be due to the variation in the causal variables or variation in the error term.

### First Stage PCA

First we estimate each of the dimensions, that is  $(Y_i^u, Y_i^b, Y_i^a)$ , using the indicators specified in section 3 and the parameters in the following equations.

$$Y_i^u = \beta_1 \text{account}_i + \beta_2 \text{savings}_i + \beta_3 \text{loan}_i + \beta_4 \text{nonzero withdrawal}_i + \beta_5 \text{nonzero deposits}_i \quad (2)$$

$$Y_i^b = \alpha_1 \text{distance}_i + \alpha_2 \text{affordability}_i + \alpha_3 \text{documentation}_i + \alpha_4 \text{trust}_i + \alpha_5 \text{religion}_i + \alpha_6 \text{lack of money}_i + u_i \quad (3)$$

$$Y_i^a = \gamma_1 \text{ATM}_{popi} + \gamma_2 \text{branch}_{popi} + \gamma_3 \text{ATM}_{sq.kmi} + \gamma_4 \text{branch}_{sq.kmi} + v_i \quad (4)$$

Hence, these three dimensions are also indices that we estimate using PCA. Both the endogenous variables  $(Y_i^u, Y_i^b, Y_i^a)$  and the parameters  $\beta, \alpha, \gamma$  have to be jointly estimated.

Let  $R_p(p \times p)$  define the correlation matrix of the  $p$  standardize indicators for each dimension. We denote  $\lambda_j$  ( $j = 1, \dots, p$ ) as the  $j$ -th eigenvalue, subscript  $j$  refers to the number of principal components that also is less than or equal to the number of indicators or sub-indices,  $p$ .  $\phi_j(p \times 1)$  is the eigenvector of the correlation matrix. We assume that  $\lambda_1 > \lambda_2 > \dots > \lambda_p$  and denote  $P_k(k = 1, \dots, p)$  as the  $k$ -th principal component. We get the corresponding estimator of each dimension according to the following weighted averages.

$$Y_i^u = \frac{\sum_{j=1}^p \lambda_j^u P_{ki}^u}{\sum_{j=1}^p \lambda_j^u} \quad (5)$$

$$Y_i^b = \frac{\sum_{j,k=1}^p \lambda_j^b P_{ki}^b}{\sum_{j=1}^p \lambda_j^b} \quad (6)$$

$$Y_i^a = \frac{\sum_{j,k=1}^p \lambda_j^a P_{ki}^a}{\sum_{j=1}^p \lambda_j^a} \quad (7)$$

where  $P_k = \lambda \lambda_j$  .  $\lambda_j$  represents the variance of the  $k^{th}$  principal component (weights) and X is the indicators matrix. The weights given to each component are decreasing, so that the larger proportion of the variation in each dimension is explained by the first principal component and so on. Following this order, the  $p^{th}$  principal component is a linear combination of the indicators that accounts for the smallest variance. One issue using principal component analysis is to decide how many components to retain. Following common practice, we replace the whole set of causal variables by only the first few principal components, which account for a substantial proportion of the total variation (85-90 percent) in all the sample variables.

## Second Stage PCA

In the second stage of the principal component analysis we replace  $(Y_i^u, Y_i^b, Y_i^a)$  in Eq. (1) and apply a similar procedure to that described in the first stage to compute the overall Financial Inclusion Index. This produces the following estimator of the financial inclusion index:

$$FI_i = \frac{\sum_{j=1}^p \lambda_j P_{ki}}{\sum_{j=1}^p \lambda_j} \quad (8)$$

The highest weight,  $\lambda_1$ , is attached to the first principal component because it accounts for the largest proportion of the total variation in all causal variables. Similarly, the second highest weight,  $\lambda_2$ , is attached to the second principal component and so on. After some algebra, we can write each component,  $P_{ki}$  of Eq. (8) as a linear combination of the three sub-indices ( $p = 3$ ) and the eigenvectors of the

respective correlation matrices represented by  $\Phi$ :

$$P_{1i} = \phi_{11}Y_i^u + \phi_{12}Y_i^b + \phi_{13}Y_i^a \quad (9)$$

$$P_{2i} = \phi_{21}Y_i^u + \phi_{22}Y_i^b + \phi_{23}Y_i^a \quad (10)$$

$$P_{3i} = \phi_{31}Y_i^u + \phi_{32}Y_i^b + \phi_{33}Y_i^a \quad (11)$$

Thus the financial inclusion index can be expressed as:

$$FI_i = \frac{\sum_{j=1}^3 \lambda_j (\phi_{j1} Y_i^u + \phi_{j2} Y_i^b + \phi_{j3} Y_i^a)}{\sum_{j=1}^3 \lambda_j} \quad (12)$$

Rearranging the terms what we get is Eq. (1) where the overall Financial Inclusion Index is expressed as a weighted average of the three dimensions:

$$FI_i = w_1 Y_i^u + w_2 Y_i^b + w_3 Y_i^a + e_i$$

where the relative weights for each dimension i.e.  $w_k$  are given by:

$$w_k = \frac{\sum_{j=1}^3 \lambda_j \phi_{jk}}{\sum_{j=1}^3 \lambda_j}, k = 1, 2, 3. \quad (13)$$

## Panel Data Analysis

Having computed a comprehensive Index for financial inclusion for two benchmark years viz. 2011 and 2014, we now examine the relationship between financial inclusion and several other variables as specified in section 3.4 using the calculated index value for each country as a proxy for financial inclusion in that country. Due to data unavailability the no. of countries reduced to 59 and we have a balanced panel of 59 countries for the two years viz. 2011, 2014.

## Model I:

$$Fin_{it} = constant + \beta_1 AgrVal_{it} + \beta_2 IndVal_{it} + \beta_3 SerVal_{it} + \beta_4 Cons_{it} + \beta_5 NPL_{it} + \beta_6 Cap_{it} + \beta_7 GDPgrowth_{it} + u_i + v_{it} \quad (14)$$

$$Fin_{it} = constant + \alpha_1 AgrVal_{it} + \alpha_2 IndVal_{it} + \alpha_3 SerVal_{it} + \alpha_4 Cons_{it} + \alpha_5 NPl_{it} + \alpha_6 Cap_{it} + e_i + z_{it} \quad (15)$$

### **Model II:**

$$Cap_{it} = constant + \gamma_1 Fin_{it} + \gamma_2 AgrVal_{it} + \gamma_3 IndVal_{it} + \gamma_4 SerVal_{it} + \gamma_5 Cons_{it} + \gamma_6 NPl_{it} + \mu_i + \varepsilon_{it} \quad (16)$$

where  $i = 1, 2, \dots, 59$  and  $t = 1, 2$ . Here  $u_i$  and  $e_i$  are the cross-country time-invariant fixed-effects (FE), which enable us capturing unobserved time-invariant heterogeneity that might significantly bias our estimates.

In model I, we take the financial inclusion index as the dependent variable and check its relationship with variables such as the sectoral value added ( $AgrVal_{it}, IndVal_{it}, SerVal_{it}$ ), GDP per capita growth rate ( $GDPgrowth_{it}$ ), household consumption expenditure ( $Cons_{it}$ ), bank non-performing loans ( $NPl_{it}$ ), bank capital to asset ratio ( $Cap_{it}$ ). We take two specifications in Model A. In model II, we take bank capital to asset ratio as the dependent variable and check for reverse causality with our financial inclusion index and other explanatory variables. We estimate the model using both fixed as well as random effects. We compute Hausman test (Hausman, 1978) and it always rejects the null hypothesis that individual effects are uncorrelated with the independent variables, hence the FE model is preferred over the RE.

## **RESULTS**

We now present the financial inclusion index for 91 countries and for the two benchmark years viz. 2011 and 2014. We first show how the countries have been ranked according to each dimension and then according to the overall index.



## **First Stage PCA results**

We have the first component explaining around 75 percent of the variation in the dimension which is a good amount. By and large, we have taken components that explain around 85-90 percent variation. Also we see that almost all components are evenly distributed among the components for all three dimensions which clearly indicate that our index is a good one as it is not biased towards a single indicator. Then there are certain indicators that contribute to the subsequent components after the first component which shows that the variable also adds information in a structure different from the first component. We can see the ranks of the countries according to their degree of usage, barriers and access. These sub-indices can be of importance to the policymakers and government for designing financial inclusion strategies as they would know on which dimensions to focus to foster greater inclusion.

## **Second Stage PCA**

Using the three dimension sub-indices we use PCA to obtain our final Financial Inclusion Index. Table 1 gives us the rankings of the countries according to their respective financial inclusion index for the year 2011. Table 2 gives us the rankings of the countries according to their respective financial inclusion for the year 2014. Thus we get a snapshot of the change in the financial inclusion rankings of the countries over the two years.

Overall we see that the upper quartile of rankings is mostly dominated by the high income and developed countries except for Mongolia and Thailand who have been doing quite well. These Asian countries have performed better than some high income and other upper middle income countries. For Mongolia, the high level of financial inclusion may be due in large part to universal cash hand-outs from the government's Human Development Fund as well as pensions, health insurance and student tuition payments. In the case of Thailand, its high

position in the ranking is mainly due to the large number of bank accounts and the insurance schemes, particularly for healthcare, offered by the Government (Camara and Tuesta, 2014). The next quartile is mainly dominated by the upper-middle and some lower-middle income countries. However the exceptions here are some Latin American countries like Brazil and Costa Rica. In Brazil the success of the BC model and recognizing that financial inclusion is much more than access to credit has been the mainstay of their uprising financial inclusion status. Brazil exhibits the best performance, in terms of financial inclusion, among Latin American countries. Its success can be seen in the existence of social support programs sponsored by the government through the formal financial system and the Financial Citizen Program which combines the three Financial Inclusion, Financial Education and Financial Protection.

The lower sets of countries mainly include the countries from Asia, Africa, some Latin American and some European countries. These are predominantly the low income and less developed countries that are still in the initial stages of financial inclusion. Though India hasn't been a good performer in financial inclusion initially, but of late there is a lot that has been done in this field.

Over the two benchmark years there have been significant changes in the ranks of the some of the countries. Though the upper half is still being dominated by the developed and high income countries we see some middle income countries performing really well such as Latvia, Lebanon and Brazil. In Latvia, greater emphasis on financial literacy as the main obstruction to financial inclusion in the National Financial Literacy strategy has helped a lot. In Lebanon, the government has created a sound institutional framework and the Central Bank has given greater support to finance startups, venture capital firms, incubators and accelerators working in the knowledge economy. Though African countries have low ranks however we see as in Sub-Saharan Africa,

mobile money accounts can drive financial inclusion. While just 1 percent of adults globally say they use a mobile money account and nothing else, in Sub-Saharan Africa, 12 percent of adults (64 million adults) have mobile money accounts (compared to just 2 percent worldwide), 45 percent of them have only a mobile money account.

## **Regression Results**

For the first specification in Model A (Table 3), we see that all the explanatory variables except per capita GDP growth rate are significant with their expected signs. The agricultural, industrial and service value added all are positive and significant showing that as value added in each of these sectors increases means growth in the economy which in turns implies a greater push for financial inclusion. However consumption expenditure is negatively significant with our given proxy for financial inclusion. Additional consumption expenditure brings out dissaving in the same period and eventually, financial inclusion doesn't occur in same pace. Also both bank non-performing loans and bank capital to asset ratio are negatively significant. Bank non-performing loans are basically the ones who are either in default or close to being in default. The greater the number of such loans the lesser the banks willingness and capacity to give more loans and hence the lesser will be the financial inclusion. This variable reflects banks efficiency. Also bank capital to asset ratio is used to protect depositors and promote the stability and efficiency of financial systems. The reason why minimum capital adequacy ratios are critical is to make sure that banks have enough cushion to absorb a reasonable amount of losses before they become insolvent and consequently lose depositors' funds. Capital adequacy ratios ensure the efficiency and stability of a nation's financial system by lowering the risk of banks becoming insolvent.<sup>2</sup> Actually banks see financial inclusion as a cost and they have to be persuaded to take a part in financial inclusion. More the financial inclusion lesser the capital available with the bank to give for more loans and hence we have a

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<sup>2</sup> [www.investopedia.com](http://www.investopedia.com)

negative relationship between the two. The negative relationship is mainly based on the rationale that banks perceive financial inclusion as a burden upon them and have to be motivated or forced to participate in financial inclusion. For the second specification of Model I (Table 3), herein we remove per capita GDP growth rate from the explanatory variable and we see that all the explanatory variables and the constant term are significant with their expected signs.

For model II (Table 4), here we examine the reverse causality between bank capital to asset ratio and financial inclusion. We again find that there exists a negative and significant relationship between bank capital asset ratio and the financial inclusion index value as found earlier. Thus we conclude that there is reverse causality too. Also industrial, agricultural, service value added is positively related to bank capital asset ratio. Greater the value added in each sector greater the banking capital. Also banks capital asset ratio is positively related to the bank non-performing loans too.

## **CONCLUSION**

This study as opposed to the exogenous weights assigning system in measuring Financial Inclusion Indices has used two-stage Principal Component Analysis to measure the degree of financial inclusion in a country disaggregating financial inclusion into three dimensions viz. Usage, Access and Barriers. The study pointed out that the high-income and developed countries occupy the best ranks amongst others in financial inclusion. They show the highest degrees of financial inclusion. However there are some middle income and low income countries that are also doing very well in terms of financial inclusion like Mongolia and Thailand. The lower income and less developed countries are the ones that occupy the lower rungs of the financial inclusion ladder mostly the sub-Saharan African countries and the Asian countries. On the other hand, from our second analysis, we have seen that GDP growth and

sectoral share have positive significant contribution in causing financial inclusion for the country. Whereas, consumption expenditure and capital output ratio have negative significant influence on it. Banking efficiency has also been a major determinant of efficiency of financial inclusion of an economy. Non performing loans counted in formal financial institution bring down the pace of growth of financial inclusion for the country.

The emerging countries like India can adopt the best practices of the developed countries as well as countries like Brazil in their endeavor towards a greater financial inclusion. The dimension-wise ranks of the countries provide important policy considerations. We also see that banks efficiency is lowered by their pursuit of financial inclusion and not many banks wants to pursue it. Therefore, it is utmost important to identify the factors that are coming as demand side as well as supply side constraints and fix it through proper policy prescription. Government has to take into account emerging banking inefficiency in current period to pursue priority sector lending for better financial inclusion and thus bring out some kind of incentive based technology so that banks also cooperate and participate effectively in making the transformation from financial sector to the integrated financial sector. Augmenting financial literacy in targeted population and structural reforms in banking sector are the two main driving factors in the way of complete financial inclusion for an economy.

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**Table 1: Ranks of Financial Inclusion Index for Countries in 2011**

Country Name	Rank	Country Name (cont.)	Rank (cont.)	Country Name (cont.)	Rank (cont.)
Australia	1	Serbia	31	Vietnam	61
Luxembourg	2	Slovak Republic	32	Romania	62
Singapore	3	Bosnia and Herzegovina	33	Peru	63
Belgium	4	United Arab Emirates	34	Indonesia	64
Canada	5	Russian Federation	35	Botswana	65
Netherlands	6	Poland	36	Albania	66
Portugal	7	Bulgaria	37	Nigeria	67
Cyprus	8	Brazil	38	Jamaica	68
France	9	Turkey	39	Rwanda	69
Austria	10	Malaysia	40	Angola	70
New Zealand	11	Venezuela, RB	41	Ghana	71
Denmark	12	Georgia	42	Sri Lanka	72
Malta	13	Uzbekistan	43	Armenia	73
Italy	14	Kazakhstan	44	Chile	74
Japan	15	Macedonia, FYR	45	Malawi	75
Spain	16	Saudi Arabia	46	Colombia	76
Sweden	17	Azerbaijan	47	Dominican Republic	77
Finland	18	Hungary	48	Panama	78
Mongolia	19	South Africa	49	Argentina	79
Slovenia	20	Nepal	50	Kenya	80
Croatia	21	Guatemala	51	India	81
Israel	22	Ukraine	52	Jordan	82
Ireland	23	Honduras	53	Uganda	83
Estonia	24	El Salvador	54	Moldova	84
Thailand	25	Lebanon	55	Mexico	85
Montenegro	26	Costa Rica	56	Philippines	86
Greece	27	Zimbabwe	57	Bangladesh	87
Latvia	28	Algeria	58	Tanzania	88
Mauritius	29	Kosovo	59	Uruguay	89
Czech Republic	30	West Bank and Gaza	60	Nicaragua	90
				Cameroon	91

**Source:** Author's Calculation.



**Table 2: Ranks of Financial Inclusion Index for Countries in 2014**

Country Name	Rank	Country Name (cont.)	Rank (cont.)	Country Name (cont.)	Rank (cont.)
Singapore	1	Italy	31	South Africa	61
Luxembourg	2	Hungary	32	Algeria	62
Japan	3	Slovak Republic	33	Slovenia	63
France	4	Estonia	34	Nigeria	64
Croatia	5	Costa Rica	35	Moldova	65
Australia	6	Greece	36	Zimbabwe	66
Belgium	7	New Zealand	37	El Salvador	67
Denmark	8	Czech Republic	38	Saudi Arabia	68
Mongolia	9	Romania	39	Bangladesh	69
Austria	10	Georgia	40	Uzbekistan	70
Sweden	11	Venezuela, RB	41	Malaysia	71
Netherlands	12	Vietnam	42	Ghana	72
Canada	13	Kazakhstan	43	Albania	73
Ireland	14	Macedonia, FYR	44	West Bank and Gaza	74
Israel	15	Jordan	45	India	75
Russian Federation	16	Colombia	46	Guatemala	76
Spain	17	Dominican Republic	47	Nepal	77
Latvia	18	Ukraine	48	Finland	78
Poland	19	Uruguay	49	Honduras	79
Brazil	20	Chile	50	Kenya	80
Thailand	21	Argentina	51	Botswana	81
Lebanon	22	Rwanda	52	Uganda	82
Malta	23	Sri Lanka	53	Nicaragua	83
Bosnia and Herzegovina	24	United Arab Emirates	54	Malawi	84
Mauritius	25	Armenia	55	Jamaica	85
Serbia	26	Peru	56	Angola	86
Montenegro	27	Panama	57	Tanzania	87
Bulgaria	28	Kosovo	58	Cameroon	88
Portugal	29	Mexico	59	Turkey	89
Cyprus	30	Azerbaijan	60	Philippines	90
				Indonesia	91

**Source:** Author's Calculation.

**Table 3: Model A Panel Fixed Effects**

<b>Variables</b>	<b>Fixed Effects (1)</b>	<b>Fixed Effects (2)</b>
Value added in Primary Sector	1.971** (0.887)	1.949** (0.870)
Value added in Industrial Sector	1.825** (0.874)	1.803** (0.856)
Value added in Service Sector	1.956** (0.883)	1.935** (0.866)
Consumption Expenditure	-0.0791*** (0.0293)	-0.0801** (0.0309)
Non-performing Loans	-0.0229*** (0.00839)	-0.0230*** (0.00819)
Capital to asset ratio	-0.130*** (0.0398)	-0.132*** (0.0394)
GDP growth	-0.00546 (0.0323)	
Constant	-185.3** (87.83)	-183.1** (86.09)
Observations	118	118
R-squared	0.322	0.321
Number of Country	59	59

**Source:** Author's Calculation.

**Note:** Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4: Model B Panel Fixed Effects**

<b>Variables</b>	<b>Fixed Effects (1)</b>
Financial Index	-0.853*** (0.300)
Value added in Primary Sector	1.665** (0.823)
Value added in Industrial Sector	1.478** (0.735)
Value added in Service Sector	1.721** (0.845)
Consumption Expenditure	-0.160 (0.134)
Non-performing Loans	0.0895*** (0.0236)
Constant	-144.8* (78.67)
Observations	118
Number of Country	59
R-squared	0.279

**Source:** Author's Calculation

**Note:** Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

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