

TO STUDY THE EXTENT OF THE PHENOMENON OF FINANCIAL INCLUSION IN INDIA: SHIFTING THE BASE TOWARDS CROWNING GLORY

Aashita Jain & Manisha Raj

Received: February 18, 2019

Accepted: March 25, 2019

ABSTRACT: *An economy's development is highly dependent on the pattern of inclusive growth. Financial stability can be made possible in an economy only when the citizens of a nation are financially sound and secure. Achieving financial inclusion is the first step towards achieving the objective of financial stability and inclusive growth. Financial Inclusion refers to the phenomenon where a nation aims at including all the sections of a society within the purview of the availability of financial credit system and the other facilities extended by the system. The study aims at statistically identifying the factors that significantly impact financial inclusion in India. Moreover the paper also tries to assess if the role of formal literacy is as high as that of financial literacy for India to be called a financially inclusive country with the help of an exhaustive study of the existing literature. Apart from literacy, this study also focuses on discussing the extent to which digitization in the recent times has supported the phenomenon of financial inclusion to escalate.*

Key Words: *Development, Inclusive Growth, Financial Inclusion, Financial Literacy*

1. Introduction

A nation is said to be only as strong as its financial system because it is the financial system of any economy that influences its pattern of production, consumption, distribution, investment and savings and thereby impacting the level and growth of economic activities. For a nation to develop and simultaneously sustain those developments, it demands a strong and stable financial base so as to mobilize savings and allocate it in the productive investments. India, being a diverse nation has multiple aspects to deal with when it comes to including all the people in the financial system. Dealing with such an issue firstly requires the people to know where exactly the focus should be, i.e. the aspects of the nation which majorly contributes to the phenomenon financial inclusion. This paper talks about the identification of those aspects and their significance both qualitatively and quantitatively.

2. Objectives

- 2.1 The study aims at statistically identifying the factors that significantly impact financial inclusion in India.
- 2.2 The study also tries to find out if financial inclusion leads to growth in the economy.
- 2.3 The study tries to assess if the role of formal literacy is as high as that of financial literacy for India to be called a financially inclusive country with the help of an exhaustive study of the existing literature.
- 2.4 This study also focuses on discussing the extent to which digitization in the recent times has supported the phenomenon of financial inclusion to escalate.

3. Research Methodology

- 3.1 For the purpose of the study, time series data has been gathered for a time period of 11 years, i.e. Mar 2007- Mar 2017. The study is based on the analysis of secondary information and data, which was collected through various online sources – economic journals, RBI official website, Ministry of Finance and World Bank Open Data.
- 3.2 The techniques used for the analysis of the data are Multiple Linear Regression and Pairwise Correlation. The variables considered for the multiple regression along with their explanations have been detailed in the next section, while the pairwise correlation and simultaneous t- test was performed between GDP and Financial Inclusion (Number of deposit bank accounts). For statistical analysis, STATA has been used in the study.
- 3.3 Variable Analysis

For the purpose of the study, the number of deposit bank accounts is taken as the dependent variable because the presence of the bank accounts determines the extent of financial inclusion in the country. An individual owning a bank account has the eligibility for availing from the large

pool of the financial services provided by the financial system. Hence, having a bank account is the foundational step for an individual to be financially included and thereby targeting the entire nation.

There are 3 major factors that have been identified to be impacting the number of bank accounts.

These are discussed below-

3.3.1 Literacy Rate (Secondary Enrolment Ratio)

There exists a positive relationship between secondary enrolment ratio and the number of bank accounts. UNICEF defines the secondary enrolment ratio as- “The number of children enrolled in a level (secondary), regardless of age, divided by the population of the age group that officially corresponds to the same level.” This signifies that apart from financial literacy, presence of general aptitude and knowledge and the know-how of reading and writing is also considerable while studying the extent of financial inclusion. The reason behind this might be that in order to possess the skills of a financially literate individual who has the knowledge to make informed and effective decisions about his financial resources, it is also indispensable to possess a basic level of aptitude about self and the surroundings.

3.3.2 Unemployment Rate

There is a negative relationship between the number of bank accounts and unemployment rate, i.e. as the unemployment rate increases, the number of bank account falls. This is a justified relationship because when an individual is not employed, it means that he has no source of income. In that case, he might reduce his usage of the bank account or even close it. This is what the scatterplot depicts.

3.3.3 Inflation Rate

There is a negative relationship between the number of bank accounts and inflation rate, i.e. with an increase in the average inflation rate, the number of bank accounts tend to fall. The above statement can be backed by the rational explanation- Whenever inflation prevails in the economy, an individual is demanded to spend more on the purchase of his daily requirements, given his real income remains unchanged, so he will be left with lesser liquidity to store in the bank accounts. This might reduce the usage of his bank account and lead to its closure.

4. DATA ANALYSIS

This section has its main focus on discussing and analyzing the factors that make people eligible to avail their respective benefits through the presentation of the relevant qualitative and quantitative data.

4.1 Hypothesis

For the multiple linear regression analysis, the following hypothesis was considered:

H₀- Literacy, Unemployment and Inflation does not significantly impact financial inclusion.

H_A- Literacy, Unemployment and Inflation significantly impacts financial inclusion.

4.2 Regression Model

The equation for the regression model for this study can be derived after inferring the results of the regression given below:

Table 1

logBNKAC	Coefficients	Standard Error	t- stat	p- value
LITERACY RATE(LR)	0.0827686	0.0287626	2.88	0.02
AVERAGE INFLATION(AVGINF)	-0.0483161	0.0179667	-2.69	0.03
UNEMPLOYMENT RATE(UR)	-0.1982996	0.3967691	-0.50	0.63
CONSTANT	1.918309	3.591597	-0.53	0.61

**Significance level- 5%

Table 2

Number of observation	11
F-stat	50.14
p-value	0.000
R ²	0.965
Adjusted R ²	0.937

Looking at Table 1, it was found that the p- value for the overall model was 0.000 which is less than the significance level of 0.05. Given that, we have enough evidence to reject the null hypothesis. We can infer that Literacy, Unemployment and Inflation significantly impacts financial inclusion. Further observing Table 1, R² equals 0.965 signifies that the three variables that are considered in the model impact the number of

bank accounts by 96.5%. When the R² is adjusted to the number of variables in the model, we get the adjusted R² which is 93.7%.

On assessing the variables individually in Table 2, it was found that the beta coefficient of literacy rate was 0.0827686, which means that there is a positive relationship between the two and one percent rise in the literacy rate raises the number of bank accounts by 0.082 million. This result is statistically significant because the p value for the same is 0.02 when tested at 5% significance level. The beta coefficient of inflation was -0.0483161, which signifies that there is a negative relationship between the two and one percent fall in the average inflation rate decreases the number of bank accounts by 0.04831 million. The p-value for inflation was 0.03 which again proves that the coefficient is significant. The unemployment rate had a beta coefficient of -0.1982996, which depicts that a percentage fall in the unemployment rate leads to a rise in the number of bank accounts by 0.1982 million. On a careful observation, the Table 2 showed that the p- value for unemployment is 0.63, which is greater than the level of significance. So we can infer that the negative relationship between the unemployment rate and number of bank accounts depicted by the data might not be applied to the population.

$$\text{LogBNKAC} = 1.918309 + 0.0827686(\text{LR}) - 0.0483161(\text{AVGINF}) - 0.1982996(\text{UR}) + \epsilon_i$$

The final regression equation that we can derive from the above analysis is given by: where, ϵ_i represents the combined influence on the dependent variable of a large number of independent variables that are not included in the model explicitly.

4.3 Diagnostic Testing

The diagnostic analysis includes 4 basic tests that verifies if the current model abides to the basic assumptions of the classical linear regression model. This includes the test for normality of the residuals, homoscedasticity, multicollinearity and autocorrelation.

4.3.1 Test for Normality of the Residuals:

The classical linear regression model assumes that each ϵ_i , is distributed normally with mean and covariance as 0 and variance as σ^2 . This can be compactly stated as- $\epsilon_i \sim N(0, \sigma^2)$ ---- (a)

where '~' represents distributed as and N stands for the normal distribution.

The reason for complying the normality assumption can be traced to a concept of statistics- Central Limit Theorem (CLT). CLT provides a theoretical justification for the normality of ϵ_i assumption, stating that "if there are a large number of independent and identically distributed random variables, then, with a few exceptions, the distribution of their sum tends to a normal distribution as the number of variables increase indefinitely".

The following hypothesis was formed for checking the normality of the residuals-

H₀- Residuals are normally distributed

H_A- Residuals are not normally distributed

This study resorts to the Shapiro- Wilk test for normal data and Jarque Bera normality test. The former was published by Samuel Stanford Shapiro and Martin Wilk in 1965 while the latter is the test for checking the goodness of fit of the model, whether it has a skewness and kurtosis matching a normal distribution. It was named after Carlos Jarque and Anil K. Bera. The results are shown and interpreted as-

Shapiro- Wilk Test for Normal Data					
Variable	Obs	W	V	Z	Prob>z
p (residuals)	11	0.92511	1.213	0.349	0.36348

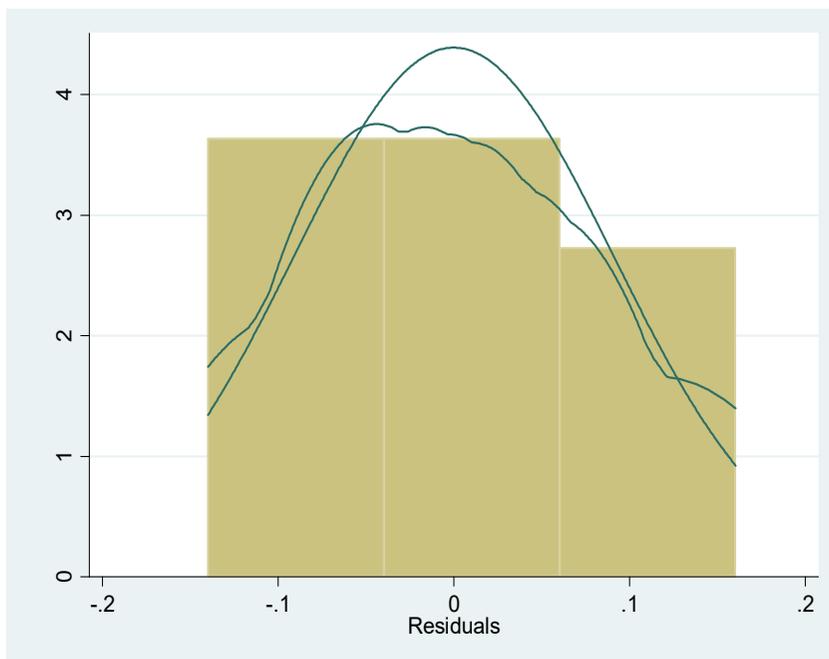
Table 3

Observing Table 3, we can see that the p-value is 0.36348, which is greater than the significance level of 5%. Hence we have enough evidence to not reject the null hypothesis, implying that the residuals in the data satisfy the assumption of normality.

Jarque- Bera Normality test	
Chi(2)	0.831

Table 4

Similarly, the Table 4 shows another test for normality of residuals- Jarque Bera test. The chi value in this case is 0.831, which is also greater than the significance level of 5%, i.e. we have enough evidence to not reject the null hypothesis. This confirms that the residuals are normally distributed. To check the normality of the residuals graphically, a histogram was plotted-



Graph 1

Graph 1 depicts the histogram of the residuals against the density. The histogram explains that to a large extent, the residuals are normally distributed.

4.3.2 **Test for Homoscedasticity**

The assumption of homoscedasticity in the classical linear regression model states that the variance of error term or disturbance term is the same regardless of the value of X. This can be compactly depicted as-

$Var(\hat{\epsilon}_i) = \sigma^2$ ----- (b)

Technically, equation (b) represents homoscedasticity, or equal (homo) spread (scedasticity) or equal variances.

Following is the hypothesis for checking the homoscedasticity in the data:

H_0 - Residuals are homoscedastic.

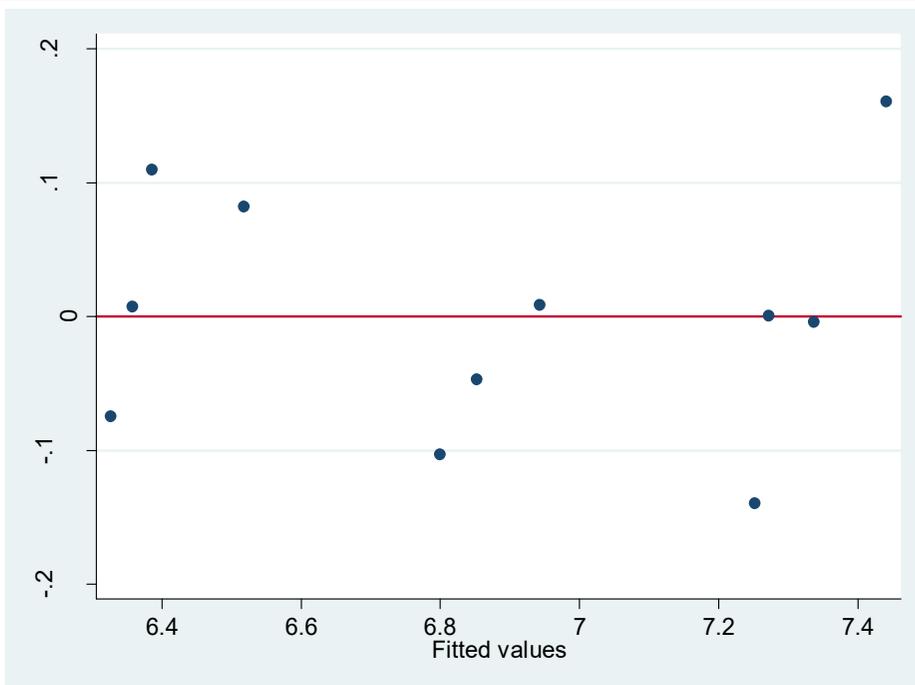
H_A - Residuals are not homoscedastic.

For this purpose, the formal Breusch- Pagan test was run through the data and the results are presented below-

Chi ² (1)	0.58
Prob > chi ²	0.4474

Table 5

It was noted that the p-value of the chi test is 0.4474, which is greater than the significance level of 5% in the present study. Therefore, we have enough evidence to not reject the null hypothesis of homoscedasticity of residuals. To graphically represent the satisfaction of the assumption of homoscedasticity, we have a scatterplot as



Graph 2

Observing Graph 2, we see that there is no pattern that is being formed with the residuals. There is no clustering in the graph. So, we conclude that the residuals are homoscedastic.

4.3.3 Test for Multicollinearity

The assumption of multicollinearity in the classical linear regression model originally means that there is an existence of a “perfect” or exact linear relationship among some of the explanatory variables of the model. The study has used the pairwise correlation to check whether there is a chance of presence of linear relationship between independent variables. The results are shown and explained below-

	LR	UR	AVGINF
LR	1.000		
UR	-0.8691	1.000	
AVGINF	-0.4306	0.0675	1.000

Table 6

On observing Table 6, we note that pairwise correlation for the variables is less than 0.9, which shows that there are less chances of detecting multicollinearity in the model.

Now checking the variance inflation factor (vif) for the model, we get the following results-

Variable	VIF	1/VIF
LR	9.46	0.105
UR	7.74	0.129
AVGINF	2.32	0.4301
MEAN VIF	6.51	

Table 7

We say that there exist multicollinearity if the VIF of an explanatory variable is greater than or equal to 10. Since the values of VIF in the table 7 are all below 10, we conclude that there exists no multicollinearity problem in the model. The VIF in the case of literacy rate and unemployment rate seems to have a large and medium variation, whereas in case of average inflation, the VIF is 2.32, which is close to 1, and hence shows low variation.

4.3.4 Test for Autocorrelation

The following hypothesis is formed for the purpose of testing autocorrelation-

H_0 - There is no serial correlation between the residuals.

H_A - Serial correlation present between the variables.

The formal Breusch- Godfrey test for autocorrelation was run through the model and the results are presented below-

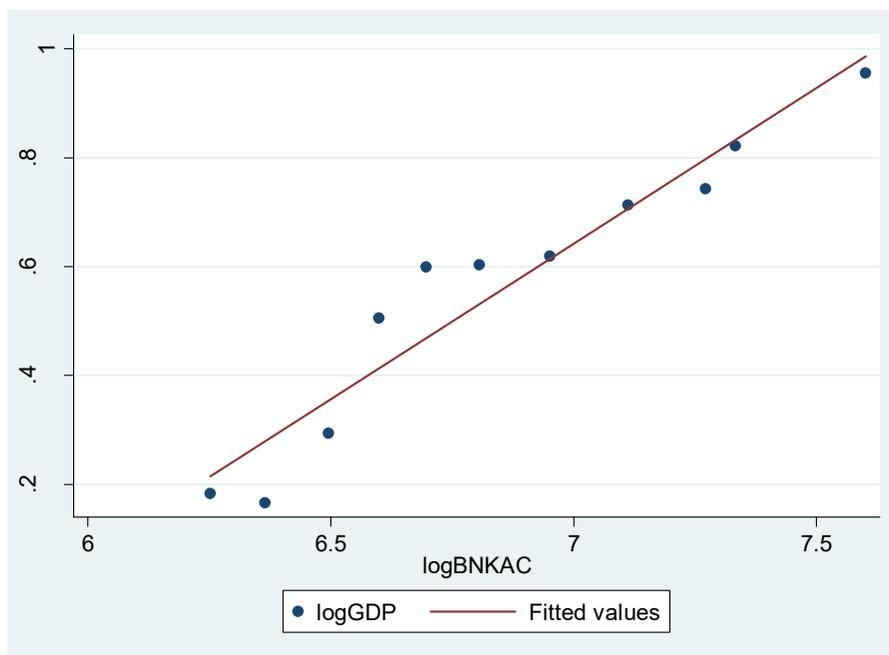
Lags (p)	Chi2	Df	Prob > chi2
1	0.072	1	0.7889

Table 8

On observing the table 8, since the p- value of the Breusch Godfrey test is 0.7889, which is coming out to be more than the significance level of 5%. Hence, we do not have enough evidence to reject the null hypothesis. Hence, we say that there is no serial autocorrelation in the model, i.e. there is no serial correlation between the residuals in the model.

4.4 **Financial Inclusion and Growth**

Another objective of the present study aims to deal with the correlation of financial inclusion (number of deposit bank accounts) with the growth of India (GDP). The graphical representation of the relation between financial inclusion and GDP is shown below-



GRAPH 3

The above graph indicates that over the period of 9 years, it has been observed that with an increase in the no. of bank accounts in India, which is a proxy of financial inclusion, the GDP per capita also rises.

The study applies the formal test of pairwise correlation in order to determine the association between financial inclusion and growth. The results for the same has been shown below-

	logGDP	logBNKAC
LogGDP	1.000	
LogBNKAC	0.9599	1.000

Table-9

Table 9 shows that the correlation between number of bank deposit accounts and the GDP i.e. 0.9599, which depicts a high positive correlation.

In order to check the significance of the correlation coefficient, testing for rho was done with the following hypothesis-

H_0 - There is no significant linear relationship between GDP and Financial Inclusion, i.e. $\rho=0$.

H_A - There is a significant linear relationship between GDP and Financial Inclusion, i.e. $\rho \neq 0$.

The test was applied with 95% significance level and it was a two tailed test.

Test for correlation coefficient	
Correlation coefficient	0.9599
p- value	0.0000

Table 10

On observing Table 10, it was noted that the p value is less than 0.05, we can conclude that we reject the null hypothesis in favor of the alternate. Hence there is a significant linear relationship between GDP and Financial Inclusion.

5. QUALITATIVE DISCUSSION

Financial inclusion as a concept has come a long way since the time it was not even recognized as a measure for development. It is now attributed as one of the most important contributor to the growth of the economy. It also keeps the policymakers quick-witted in taking any action for the stability of this sector as any mis-management here can lead to a halt in the growth.

The government in the recent past has come up with several policies and schemes to extend the financial services in the regions and to the people who still are unbanked. The fact that the policymakers have to be on their toes to design schemes that are in favor of the beneficiaries, evidently proves that the issue of financial exclusion is real and widespread throughout the country. One of the reasons for this exclusion from the financial system is the lack of supply of financial services to the certain regions. These regions do demand for the financial services so as to live a financially sound life but the lack of availability of the services becomes a major obstacle in the path of accessing the financial services. As a result to this the people residing in the unbanked regions had to resort to the informal banking activities, mostly moneylenders, who would charge extremely high rates of interest. This pulls them into a vicious cycle of poverty. This way the poor remained poor and in cases, it becomes even worse. Another reason that prevails for the financial exclusion is the barrier that does not let the people become a part of financial system and avail financial services because of lack of documentation. Often people are unable to produce their self-identification documents at the time of opening a bank account or while applying for a loan, this might lead to the withdrawal of the individuals from the banking system or lead to less usage of the services. Lack of literacy has also been a major contributor to the lack of participation in the financial system in the sense that often, not having an aptitude for dealing with financial resources leads to mis-management of the available resources. This means that people with low or no knowledge about the financial system often lands themselves in a situation where they are unable to figure out how to utilize the funds that they have. For instance, when a farmer resorts to the informal banking for loans, he is often in the dilemma as to how the borrowed money should be spent to get the maximum returns. This leads us to the discussion of whether the role of literacy as crucial as of the financial literacy. With financial literacy gaining huge importance in the process of financial inclusion, the role of formal literacy is being neglected. There is no doubt that financial literacy is the key to financial inclusion, but it cannot be denied that formal literacy acts as a catalyst in this process. Formal literacy escalates and enhances an individual's ability to gain financial literacy. Taking reference of the results depicted in the previous section, the literacy rate i.e. the secondary enrolment ratio has shown a significant positive impact on the no. of deposit accounts in India, which evidently shows that formal literacy does have a role to play when it comes to inclusive policy making. A person who is formally literate has a better chance of getting employed or being a job maker, which means that these will be the people who will be earning and getting a regular income. Having an income makes the people more inclined towards availing the banking services. Moreover they also have a skill to allocate the funds effectively. There also lies another aspect of the role of formally literate people, that is, the section of people who are highly formally literate gain the ability to make a change for those who are not included in this system. Taking initiatives for the unbanked to make them pursue formal education along with financial knowledge, designing policies that are uplift the backward section of the society in terms of skill enhancement and literacy.

Talking about the policies designed to promote financial inclusion, one of the most important is the Pradhan Mantri Jan Dhan Yojana (PMJDY) which is an integrated approach to bring about an all-inclusive financial inclusion in the country. It is a scheme which provides an individual with the universal access to banking facilities with at least one basic bank account for every household, access to credit, insurance and pension facilities and financial literacy. This scheme also comprises of delivering the RuPay cards to all the beneficiaries with an in-built insurance cover of 1 lakh. This scheme is also a driving force for the Direct Benefit Transfer Scheme.

According to the World Bank Findex database released in April 2018, India's adult-population holding a bank account has been more than doubled rising to 80% since 2011. A major contributor to this has been the PMJDY launched in 2014 and its input can be ascertained by the fact that the account holders population rose from 34% in 2011 to 54% in 2014, but reaching from 54% to 80% has been made possible after the launch of the PMJDY as the process gained pace only after 2014. On comparing India's numbers to the global numbers, the Findex database revealed that China stood its bank account holders population at 64% in 2011 and 79% in 2018, Indonesia had 20% of its population to be account holders in 2011 rising to only 48% in 2018. In fact India's account holder's percentage has been noted as higher than the global average of 69% in 2018. But there exists another side to this situation in which it can be said that it is because of the large size of India that despite of having a relatively higher account holders, it holds the largest share of the unbanked population. The World Bank database revealed that half of the bank accounts remained non-functioning in the past year. Moreover, a sizeable percentage of about 24% in 2016 are zero balance accounts (ZBA), even if they are operated at some point, the amount deposited is not an encouraging one. Here comes the importance of formal literacy and employment. This evidently supports the results shown in this study that literacy rate and employment do impact the bank holders.

6. CONCLUSION

Financial Inclusion, as discussed in the previous sections is a multidimensional issue, not restricted to inclusion just through one aspect and especially in case of a country like ours which has a huge population which is distributed into various strata or levels, whether it is in regard of income or the demography, who have different ways and needs to avail the financial services. And reaching all the levels and regions of the society to meet their respective needs is a daunting task and requires systematic planning and a continuous effort. As a first step to include all and spread a trickle- down effect in the society, it is important to identify the basic factors that lead people to avail the financial services on a regular basis and being a part of the financial system. These factors were identified as- increasing literacy, reducing unemployment and reducing inflation.

It was also seen that the correlation between financial inclusion and growth was a high positive value- 0.9995, which gives an evidence that financial inclusion and focus on inclusive growth policies are the key drivers of the GDP of India.

Conclusively, it can be said that basic literacy, reduction in unemployment and controlled inflation are the enablers of financial inclusion. Along with this, digitization, application of up to date technology, formal literacy and financial literacy are the factors that escalate the growth of financial inclusion in a country.

BIBLIOGRAPHY

1. Anjum Ubaid Siddiqui(2018), Financial Inclusion in India- "A Catalyst for Sustainable Economic Growth", International Journal of Management and Applied Science, Volume-4, Issue-2, Feb.-2018, ISSN: 2394-7926
2. Anurag Singh, Priyanka Tondon (2012), Financial Inclusion in India: An Analysis, International Journal of Marketing, Financial Services & Management Research Vol.1 No. 6, Jan 2012, ISSN 2277 3622.
3. Cairo Paul Mwaitete & Ley Albert George (2018), Financial Inclusion and Economic Growth: A Regression Analysis, Imperial Journal of Interdisciplinary Research (IJIR) Peer Reviewed - International Journal Vol-4, Issue-1, April 2018 (IJIR) ISSN: 2454.