

Antecedents of Financial Inclusion: Evidence from Tripura, India

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Abstract

The present research assesses the determinants of financial inclusion of members of Self Help Groups (SHGs). The research work is done with primary data collection from around 380 members who are beneficiaries of 95 SHGs in Tripura, India. After performing factor analysis, six major factors named Physical Infrastructure, Financial Awareness, IT Infrastructure, Suitability of Financial Products, Ease of Banking and Economic Status of members of SHGs were identified as major factors that play a pivotal role in bringing financial inclusion of the members of SHG. In these 6 factors, some other factors were also added such as age, income, education, landholding, the regularity of income, earning members count, gender, caste, location, religion, etc. Fitting ordinal logistic regression model, it was found that, the important factors that have an impact on financial inclusion on the members of the SHGs are financial awareness, ease of banking and economic status of the members, the relevance of financial products, physical infrastructure, monthly income, landholding, education, age and their status with respect to the BPL category. The decision-makers in power should collaborate with financial institutions should consider and apply this finding during the disbursement of loans.

Keywords: Financial Inclusion, Credit, Financial Institutions, Self Help Group (SHG).

JEL Classification Code: G2, G28, I3.

I. Introduction

Exclusive financing concern is a grave issue that has a repercussion on a huge segment of the world populace. Financial inclusion deals with providing necessary ingress to relevant products and services relating to finance which is required by almost every section in the populace. But the more needy and vulnerable groups are the weaker section of the society whose income is low. They are the recipients who should be targeted by financial institutions and get the loans at a rate which they can afford (Nair & Tankha, 2015). Financial inclusion is also meant by increasing the reach of these financial services by mitigating the barriers faced by them resulting in their inability to have access to formal financial arrangements (Camara, Pena, & Tuesta, 2014). It is even discussed to include financial inclusion in the list of next Millennium Development Goals (MDGs) (Sinclair & Gamser, 2013) and in the 2030 agenda for sustainable development (Fu, Queralt, & Romano, 2017). In the Indian subcontinent, there is a system of low intensity of banking accounts because only 35% have accounts as per the 2011 census but the household savings add to the national savings in a significant manner (Kant, 2014). The families who don't have access to the conventional insurance and credit system can be beneficiaries as the formal savings as it "enables the building of safety nets to smooth shocks" (Karlan & Morduch, 2009). After demonetization in India in 2016, there is a tremendous push for digital payments but there needs to be a readiness for digital transactions and requisite infrastructure for adapting it (Sinha, Pandey, & Madan, 2018).

The institutions having administrative roles and regulatory authorities with the support of financial institutions and Non-Government Organizations (NGOs), Self-help Groups along with organizations of microfinance nature are in tandem in strategizing objectives for the underprivileged lot. To attain inclusive financing, certain programs by banks like linkage programs were initiated to give financial services targeting the poor to alleviate their economic situation rather than their dependence on informal systems of credit (Abiad, Cuevas, & Graham, 1988). The scenario in Bangladesh regarding financial inclusion is that the extreme underprivileged populaces have the least reach to services related to finances. Few financial institutions in the African continent are present to serve the poorest by the program named Village Savings and Loans Associations (VSLAs) which focuses on reducing debt and increasing savings (Hendricks & Chidiac, 2011). So, the organizations have to accordingly understand the factors which have a role in the inclusive financing for the members of SHGs. The better individuals and groups in society have the better fortune to make use of the financial services instruments like insurance, online banking and credit system, etc. It helps to improve the chances of usage of products and services by reducing the risk of immediate emergency financial (en, Demirguc-Kunt, Klapper, & Peria, 2012). In the Indian scenario, the financial institutions are willing to help these SHGs in mitigating their poor economic condition and improve their livelihood (Harper, 1996) and with the advent of SHG Bank Linkage Programme as retail marketing channel development programs, financial inclusion can be attained (Harper, 2002). The current study explores and identifies the antecedents that impact the financial inclusiveness of SHG members in the formal banking sector. Therefore, the objectives of the present study are given as follows:

- To assess the level of inclusive financing of SHG members;
- To categorize the antecedents of inclusive financing having an impact on the usage of financial products and services by SHG members And thus, this research work tries to answer the below research questions:
 - What is the present condition of inclusive financing for SHG members?
 - What are the antecedents of inclusive financing having an impact on the usage of financial products and services by SHG members

The present study is significant in exploring the antecedents of the financial inclusion of the members of the SHGs. These SHGs are created to empower women especially in the economically backward class which who don't have the reach to conventional financial products and services and remain in destitution (Raheem, 2012). The study of antecedents affecting access to inclusive financing has attained a momentum across the globe as the worldwide regulatory bodies are aiming and struggling to include more and more populace under the ambit of formal financial structure. So, the people working in various SHGs, considered to be coming from poor households, are mostly in need of banking and financial services but dependent on informal sources (Kumar & Mishra, 2011). The study becomes significant because it is based on empirical evidence.

2. Literature Review

A thorough and nearly comprehensive literature review in the field of inclusive financing was done to understand the underlying antecedents which have a role in its impact on the populace. The various underlying antecedents were identified and studied to have an understanding of the scenario in this sector. Nation Sample Survey Organization (NSSO) in its report reported that around 76% of the rural populace has a credit requirement which is satiated by moneylenders. The process of financial exclusion can take place only when individuals or groups don't use or have a meager use of financial services (Ford & Rowlingson, 1966; Kempson & Whyley, 1998). The very perception of financial exclusion is the inability to have an access to required financial products and services the reason for which is price, marketing, non-access, various conditions or self-exclusion (Beck, Asli, & Soledad, 2008).

The usage of conventional financial services and products such as insurance, online banking, savings schemes help to improve the chances of consumption and reduce the risk of emergency requirements (en *et al.*, 2012; Choudhury & Singh, 2015). The underlying socio-economic circumstances of the rural populace are huge restrictions and blockage for them is motivating them to seek out the formal financial services (Demirguc-Kunt & Klapper, 2013). But, there is a huge scope for using Information and Communication Technology (ICT) to bring the banking services to the house of the consumers that too at a lesser cost (Gupta, 2011; Brynjolfsson & Hitt, 2000; Das, 2010; Gangopadhyay, 2009).

Moreover, the probability of inclusion of financial needs in the official banking system is high and it leads to saving capacity (Beck, Demirguc-Kunt, & Martines Peria, 2006). However, the economic status of the people such as possession of landed property or possession of a house increases the chances of usage of the available products and services in banking (Collins & Daryl, 2009; Bhattacharyay, 2016; Sahoo, Pradhan, & Sahu, 2017). Asset endowment is also one of the essential factors of reducing poverty (Donovan & Poole, 2013).

Despite the above factors, it is seen that many people are still not using banking services due to the reason that they do not consider it convenient to use and afraid of going to any bank and therefore, some farmers in the rural areas are using mobile devices to do book-keeping, making payment as well as receiving money (Rogers, 2003). However, Nwuke (1997) found that there is a positive effect of bank density and urbanization on the mobilization of savings. Thus, banking services can be provided to the poor's using ICT and other latest technology (Hishigsuren, 2006) with proposed IT governance framework to improve service quality (Singh, Pandiya, Upadhyay, & Singh, 2020). It needs to be monitored as the ability to access and usage sufficiency is not always the signs of success (Porteous & Zollmann, 2016).

Fernandes, Lynch Jr., and Netemeyer (2014) and Clarke, Xu, and Zou (2006) have identified that being financially educated is a good sign of inclusive financing. Those people who are financially literate are in a better position to manage their personal budgeting and finance and making financial decisions (Moore, 2003; Campbell, 2006; Perry & Morris, 2005; Lusardi & Olivia, 2011). In addition to the above, physical infrastructure comprising road conditions to bank branches, distance of individuals' house from the branches of banks/ATMs, or the present post offices. Linking market to SHG products, and accessing information about various financial products has a noteworthy role in enabling an individual to access various banking and financial products (Kumar, 2013; Fungáčová & Weill, 2013; Tuesta, Sorensen, Haring, & Camara, 2015; Kedir, 2003).

Various variables of demography and also socio-economic nature also affect the level of inclusion financing. The traditional microfinance schemes are of advantage to 'the economically active poor individuals' and they are not the 'poorest of the poor' if the basic definition is considered (Premchander & Harper, 2018). These are age and education (Johnson & Nino-Zarazua, 2007; Sahoo, Pradhan, & Sahu, 2017), income (Aslan, Delchet, & Monique, 2012; Kumar, 2013), number of adult family members (Roy, Singh, & Singh, 2017; Sinclair, 2013), economic status (Wangwe, 2004; Harris, Loundes, & Webster, 1999), location, gender and religion (Akpanjar, Quartey, & Abor, 2013; Yadav & Sharma, 2016; Demirgüç-Kunt, Klapper, & Randall, 2013; Bhattacharyay, 2016). Regarding age, it is the aim to develop the generation which is upcoming having economic knack and educating the youth regarding its usefulness (Billimoria, Penner, & Knoote, 2013).

From the literature discussed above, it is observed that most of the empirical research works relevant to the topic are done in the various parts of India and other countries. Though many studies have been done in respect of microfinance, limited studies are conducted to understand and categorize the antecedents of financial inclusion of the members of SHGs in a state like Tripura of India which is one of the smallest states of Indian Union. It is a landlocked state having very limited connectivity from the rest of the India and world. Hence, to bridge the above research gaps, it is therefore needed to conduct a study identifying the antecedents of inclusive financing for SHG members.

3. Methodology of the Study

The present research work is confined to the boundary of Tripura state of India. One member from one household who is also a member of any SHG operating in Tripura consisted of the sampling unit. The responses were conducted from October 2018 to December 2018. There are more than 150 numbers of SHGs in the state of Tripura. From all these SHGs, there are approximately 37123 members in all these SHGs which constitute the universe of the study. Using simple random sampling, at a 5% level of significance and 5% confidence interval sample size is determined to be 384. The data was collected using a structured interview schedule administered to the members of SHGs. A structured interview schedule was prepared to measure the level of financial inclusion of the members of SHG. Based on study made by Sahoo, Pradhan, and Sahu (2017); Zins and Weill (2016) and Roy, Singh, and Singh (2017), a pilot study done by the researcher, opinion of the experts and observation during the study, 25 items, as given in table 2 of the paper, were identified. The respondents were asked to provide their responses by way of rating on a five-point scale where 5 indicates the highest order of agreement with the stated item and 1 indicates the least order of agreement with the stated item. Besides, information about gender, age, education, caste, family income, land-holding, status about BPL category, religion, etc. was also sought. Statistical tools such as mean, standard deviation, principal component analysis, and ordinal logistic regression were used. The factors are reduced using the principal component analysis (Tabachnik & Fidell, 2007; Harman, 1976). The reliability of the items in the interview schedule was assessed by computing Cronbach's Alpha. Regression analysis was also done to fit in the regression model. The profile of the respondents is given in table I.

Table I. Demographic profiling of the respondents

Gender of the respondents		
Gender	Frequency	Percentage
Male	50	13.0
Female	334	87.0
Total	384	100.0
Age of the respondents		
Age	Frequency	Percentage
15 to 20 years	002	00.50
21 to 30 years	051	13.30
31 to 40 years	158	41.10
41 to 50 years	159	41.40
51 to 60 years	014	03.60
Total	384	100.0
Education of the respondents		
Non-Matriculate	179	46.6
Matriculate	065	16.9

12th	092	24.0
Graduate	048	12.5
Total	384	100.0
Category of the respondents		
ST	055	14.3
SC	075	19.5
OBC	073	19.0
General	181	47.1
Total	384	100.0
Monthly income of the respondents (In USD)		
< USD 60	037	9.6
USD 60 to USD 100	164	42.7
USD 100 to USD 150	087	22.7
USD 150 to USD 200	061	15.9
USD 200 to USD 300	024	6.3
More than USD 300	011	2.9
Total	384	100.0
Monthly expenditure of the respondents (In USD)		
< USD 30	041	10.7
USD 30 to USD 60	196	51.0
USD 60 to USD 90	100	26.0
USD 90 to USD 115	033	8.6
USD 115 to USD 150	010	2.6
More than USD 150	004	1.0
Total	384	100.0

Source: Compiled from the questionnaire

4. Analysis and Findings

The further analysis of the underlying factors which have a role in inclusive financing of SHG members is discussed in this section. For the measurement of the level of the inclusive financing level, a scale was developed. There were 25 items on the scale. The reliability of the scale was done by using Cronbach's Alpha. Cronbach's Alpha has a value of 0.797. In the existing norms of reliability, if a Cronbach's Alpha has a value of more than 0.70 then it is considered as an acceptable measure of reliability (Nunnally, 1978; George & Mallery, 2003). This is proof of reliability for the used scale with the underlying fact that the items in it are highly correlated and aiming towards the measurement of the latent variable.

4.1 Measuring Inclusive Financing of SHG Members

For the measurement of inclusive financing of the SHG members, mean value and standard deviation of the 25 items chosen for constructing the scale in the measurement of inclusive financing as portrayed in Table 2:

Table 2. Item Statistics

Items	Mean Value	Standard Deviation
Awareness about banking and other financial products	2.1667	1.45904
Satisfied with the features of insurance product	2.2734	1.39215
Condition of the road reaching to a bank branch	2.3646	1.50799
Terms and conditions attached to loan products are stiff	2.4115	1.37584
SHG having linkage to market	2.4349	1.4988
Monthly household expenditure	2.5312	1.59767
Financial counseling by banks	2.638	1.58706
Access to information through newspaper	2.6589	1.57519
Monthly household income	2.6875	1.49717
The distance of Branch/ATMs from their house	2.776	1.61159
Insufficient collateral security for availing bank loan	2.849	1.64089

Non-availability of business correspondents	2.9219	1.34383
Satisfied with the features of credit products	2.974	1.48424
The documentation process for availing banking services are lengthy	3.0729	1.33829
The distance of post-office from their house	3.125	1.75079
Time taken in getting a service is lengthy	3.1432	1.36835
Fear of rejection by banks/financial institutions	3.2812	1.30836
Non availability of the internet for online banking	3.3177	1.04374
Satisfied with the features of savings bank product	3.3307	1.12066
Prefer taking a loan from informal sources than banks	3.4531	1.5858
Non-availability of smartphone for mobile banking	3.5234	1.49306
Land-holding of the members of the SHGs	3.9089	0.82679
The economic status of the members of the SHGs	3.9792	0.83624
Regularity of income for paying EMI	4.1589	0.97663
Satisfied with the services rendered by bank staffs	4.4375	0.86791
Total of mean values of all the considered items	76.4193	34.08808

Source: Compiled from the questionnaire

As shown in above Table 2, it is evident that awareness about banking and other financial products features of insurance products and conditions of the road reaching the bank branches are the least contributing factors in overall inclusive financing of the SHG members. On the other hand, the economic status of the SHG members, the regularity of income for paying EMI, satisfied with the services rendered by bank staffs are the highest contributing factors in bringing inclusive financing among the SHG members.

There were 25 antecedents in the scale considered for the study. The questionnaire was distributed to the respondents asking them to rate the statements in the Likert scale having 5 points. The scale had the scores of 5,4,3,2 and 1 which commensurate the response of the individuals as strongly agree, agree, neutral, disagree and strongly disagree respectively. Further, this total score for inclusive financing would be attained by adding the overall scores of the antecedents. The maximum possible score of financial inclusion was 125 (25x5) and the minimum possible score was 25 (25x1). Logically, the differentiation between the maximum and minimum potential score was 100 (125-25). For ascertaining the level of inclusive financing at three levels, the discussed range was divided by 3. It was established to be 33.33. So, adding 33.33 to 25 (lowest probable score), the score range for the low level of inclusive financing was obtained which was 25 – 58.33. Similarly, adding 33.33 with succeeding values, the upcoming higher range could be calculated Singh and Bhowal (2011); Singh (2012) Singh and Bhattacharjee (2019) also used similar kinds of interpretation tables to interpret their result. The Table 3 below shows the interpretation for the inclusive financing score:

Table 3. Interpretation of financial inclusion score

Scale value	Interpretation of scale value
25 – 58.33	Low level of financial inclusion
58.33 – 91.66	Moderate level of financial inclusion
91.66 - 125	High level of financial inclusion

Source: Compiled from the questionnaire

On the basis of interpretation table given in Table 3, level of financial inclusion is calculated and presented in Table 4.

Table 4. Layers of Financial Inclusion based on the survey

Levels	Number of Members	Percent
Low Level of Financial Inclusion	250	65.1
Moderate Level of Financial Inclusion	84	21.9
High Level of Financial Inclusion	50	13
Total	384	100

Source: Compiled from the questionnaire

As per the analysis, the majority of respondents that is, 65.1% are in the low layer of inclusion.

The overall mean for all the 25 items considered in the scale is 76.4193 which fall in the range of moderate layer of inclusive financing according to Table 4. Thus, the overall level of inclusive financing of the SHG members falls in moderate level.

4.2 Identifying Factors Affecting Financial Inclusion through Factor Analysis

The prerequisite for performing factor analysis is the sample size adequacy. For testing the sample size adequacy, the KMO measurement of sample adequacy and Bartlett's test had to be performed. The value of KMO was 0.848. As per the norms, a KMO value which falls between 0.7 and 1 signifies sample adequacy (Cerny & Kaiser, 1977) and is sufficient for performing Exploratory Factor Analysis (Child, 2006). The Bartlett's test of Sphericity $\chi^2(300) = 3341.062$, $p < .001$ indicated that there existed a relationship pattern among the items.

The Table 5 below shows that the 6 factors, whose Eigenvalue is more than 1, extracted amidst the mentioned 25 variables explaining 63.94% of the possible variance in the dependent variable.

Table 5. Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.909	19.636	19.637	4.909	19.636	19.637	3.897	15.588	15.588
2	3.561	14.244	33.881	3.561	14.244	33.881	3.771	15.084	30.672
3	3.129	12.516	46.397	3.129	12.516	46.397	2.469	9.876	40.548
4	1.953	7.812	54.209	1.953	7.812	54.209	2.049	8.196	48.744
5	1.727	6.908	61.117	1.727	6.908	61.117	1.957	7.828	56.572
6	0.707	2.828	63.945	0.707	2.828	63.945	1.843	7.372	63.945
7	0.705	2.820	66.765						
8	0.701	2.804	69.569						
9	0.696	2.784	72.353						
10	0.685	2.740	75.093						
11	0.665	2.66	77.753						
12	0.587	2.348	80.101						
13	0.584	2.336	82.437						
14	0.576	2.304	84.741						
15	0.574	2.296	87.037						
16	0.561	2.244	89.281						
17	0.492	1.968	91.249						
18	0.452	1.808	93.057						
19	0.444	1.776	94.833						
20	0.435	1.740	96.573						
21	0.346	1.384	97.957						
22	0.187	0.748	98.705						
23	0.165	0.660	99.365						
24	0.097	0.388	99.753						
25	0.062	0.247	100.00						

Extraction Method: Principal Component Analysis, Source: Compiled from the questionnaire

The factors can explain the observed common covariance matrix between the 25 factors for dimensionality reduction is attained by applying the principal component analysis (Bartholomew & Child, 1980). It is shown in Table 6.

Table 6. Rotated Component Matrix

Factors	Component					
	I	2	3	4	5	6
Satisfied with the features of insurance product	.791	-	.184	-.209	.216	.218
Satisfied with the features of credit products	.682	-	.330	-.184	.194	.122
Satisfied with the features of savings bank product	.642	.157	.132	.309	.142	.163
Terms and conditions attached to loan products are stiff	.660	-	.293	-.150	-.207	.094
The documentation process for availing banking services are lengthy	-	.798	-	.444	.137	.044
Time taken in getting a service is lengthy	-	.745	.401	.209	.108	-.152
Prefer taking a loan from informal sources than banks	.309	.718	.136	-.184	.141	.211
Fear of rejection by banks/financial institutions	-	.610	-	.309	-.116	-.019
Non-availability of business correspondents	-	.654	-	.445	.061	.106
Insufficient collateral security for availing bank loan	.444	.704	.250	.178	.001	.084
Satisfied with the services rendered by bank staffs	.368	.636	-	.078	-.251	.218
Condition of the road reaching to the bank branch	.117	.444	.728	.058	.279	.122
The distance of Branch/ATMs from their house	.370	.368	.926	.347	.225	.432
SHG having linkage to market	-	.117	.914	.398	-.128	.079
The distance of post-office from their house	.120	.370	.892	.349	-.045	-.336
Access to information through newspaper	.115	.530	.865	.187	.271	.077
Monthly household expenditure	-	-	.309	.642	.208	-.138
Monthly household income	.375	.194	-	.673	-.357	.323
The economic status of the members of the SHGs	-	.342	.209	.684	.075	.004
Landholding of the members of the SHGs	.211	-	-	.555	-.093	.446
The regularity of income for paying EMI	-	-	.217	.658	.256	.070
Non-availability of the internet for online banking	.250	.137	-	.359	.687	.432
Non-availability of smartphone for mobile banking	-	.208	.285	.261	.669	.079
Level of awareness about banking and other financial products	.211	.141	.129	.321	.223	.519
Financial counseling by banks	.312	.241	.169	.235	.066	.612

Extraction Method: Principal Component Analysis

Source: Extraction Method: Principal Component Analysis, Note: Factor loadings over .50 appear in bold

Rotation Method: Varimax with Kaiser Normalization

The process of assigning names to the components was based on the literature review and expert feedback. It is presented in Table 7 below.

Table 7. Name of the Component

Sr. No	Variables/Factors	Mean of individual items	Factors obtained after PCA	Mean of the PCA factors
1	Features of insurance product	2.27	Suitability of Financial Products	2.7474
2	Features of credit products	2.97		
3	Features of savings bank product	3.3307		
4	Terms and conditions attached to loan products	2.4115	Ease of Banking	3.3084
5	The documentation process for availing banking services are lengthy	3.0729		
6	Time taken in getting a service is lengthy	3.1432		
7	Prefer taking a loan from informal sources than banks	3.4531		

8	Fear of rejection by banks/financial institutions	3.2812		
9	Non-availability of business correspondents	2.9219		
10	Insufficient collateral security for availing bank loan	2.849		
11	Satisfied with the services rendered by the bank staffs	4.4375		
12	Condition of the road reaching to a bank branch	2.3646	Physical Infrastructure	2.67188
13	The distance of Bank/ATMs	2.776		
14	SHG having linkage to market	2.4349		
15	The distance of post-office	3.125		
16	Access to information through newspaper	2.6589		
17	Monthly household expenditure	2.5312	Economic status of members of SHGs	3.45314
18	Monthly household income	2.6875		
19	The economic status of the members of the SHGs	3.9792		
20	Landholding of the members of the SHGs	3.9089		
21	The regularity of income for paying EMI	4.1589		
22	Availability of internet for online banking	3.3177	I.T. Infrastructure	3.42055
23	Availability of smartphone for mobile banking	3.5234		
24	Awareness about banking and other financial products	2.1667	Financial Awareness	2.40235
25	Enhancement of financial counseling of issues that span regulators	2.638		
Total of the mean value		76.4193		18.00372

Source: Renaming factors on the based on factor loading

The mean of the factors has been shown in Table 7 above. The factor 'Economic status of the members of SHGs' has the highest mean which truly depicts how the economic condition of the individual and family matters the most for bringing financial inclusion of people. The factor 'I.T. Infrastructure' ranks 2nd as it is the medium of transaction. With the growing usage of digital media such as mobile phones and the internet it is very obvious that more and more individuals will use it gradually. A user-friendly interface is very important to target and attract more rural customers. Ease of banking has the 3rd rank. The formalities required by the banks such as documentation process and the overall time taken for a transaction matters as should be quick and safe as much as possible. The services rendered by the bank should be congenial such that the customers don't face problems. Suitability of financial products ranks 4th as the features and characteristics of the financial product like loan etc also catches the eye of the consumer. Physical infrastructure matters in the least magnitude to the consumers. Financial awareness stands last with a mean score of 2.4.

4.3 Impact of These Factors on Financial Inclusion

After identification of the six factors which affect inclusive financing of SHG members, the next objective of the research was to find the impact of demographic and socio-economic factors along with the six factors identified after data reduction on the overall inclusive financing of SHG members. The demographic variables identified in this study are gender, age, education, caste and religion. The socio-economic variables considered in the study are income, landholding, family members, caste and their status regarding the BPL category. [Deb and Singh \(2018\)](#) adopted a similar way of identifying the antecedent factors.

The measure of Multicollinearity affects the parameter of the model of regression. The biasness in logistic regression is somewhat prone to collinearity hence it is mandatory to do collinearity test before performing a logistic regression analysis (Field, 2005). This condition can be crosschecked by Variance Inflation Factor (VIF) along with the Tolerance level using the outcome and predictor variables. The tolerance value if less than 0.1 points toward a severe collinearity problem with the multiple predictor variables ([Menard, 1995](#)). If the VIF value is greater than 10, then it is a matter of apprehension that resembles collinearity ([Myers, 1990](#)). The same acceptable level is recommended by other authors such as [Hair, Anderson, Tatham, and Black \(1995\)](#) and [Kennedy \(1992\)](#).

Table 8. Coefficient of VIF and Tolerance factor

Exploratory Variables	Collinearity Statistics	
	Tolerance	VIF
Suitability of financial products	.872	1.147

Ease of banking	.685	1.461
Physical infrastructure	.949	1.054
Economic status of the members	.721	1.386
IT infrastructure	.927	1.078
Financial awareness	.958	1.044
Monthly Income	.401	1.495
Land Holding	.786	1.273
Education	.588	1.701
Age	.828	1.207
Regularity of receiving income	.685	1.461
Earning family members count	.835	1.198
Gender	.884	1.132
Caste	.842	1.187
Location	.748	1.337
Religion	.869	1.151

a. Dependent Variable: Level of Financial Inclusion

The above table showing the multicollinearity statistics shows the VIF of each independent variable. As per the standard, the acceptable VIF is less than 5. In this analysis, all the VIF is near to one that suggests the absence of collinearity between the exploratory variables. Therefore, the assumption for performing logistic regression is met and the same can be used for the model.

To find out the impact, the model has used the financial inclusion index constructed using the interpretation table given in table 3 as an ordinal dependent variable. Ordinal logistic regression is used to predict the output with one or more independent variables (predictor variable) when the dependent variable is in the ordinal scale. Singh and Bhattacharjee (2010^a) and Singh and Bhattacharjee (2010^b) have used similar analysis to draw the analogy.

The model of the study is

$$\ln \theta_j = \alpha_j - \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots \dots \dots + \beta_{16} X_{16}$$

Where,

- X_1 = Ease of banking
- X_2 = Financial awareness
- X_3 = Economic status of the members
- X_4 = Suitability of financial products
- X_5 = Physical infrastructure
- X_6 = IT infrastructure
- X_7 = Monthly Income
- X_8 = Land Holding
- X_9 = Education
- X_{10} = Age
- X_{11} = Regularity of receiving income
- X_{12} = Adult family member count
- X_{13} = Gender
- X_{14} = BPL Category
- X_{15} = Location
- X_{16} = Religion

Before proceeding with the ordinal logistic regression model to discuss the impact of every explanatory antecedent existing in the model, it's suggested to check if the model adds improvement regarding the capacity to predict the result. A comparison between the final model (having explanatory variable) and the intercept only or the baseline model (without any explanatory variable) is done to check if whether the model improves the fit to the data in a significant manner.

Table 9. Model Fitting Information

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	373.783			
Final	163.668	310.116	16	.000

Link function: Logit.

Source: Compiled from data analysis

Table 9 shows the information regarding the model fitting gives the -2 log-likelihood value regarding the intercept only or the baseline model and the final model. Log of likelihood is a measure of error or variation. This likelihood ratio test follows the Chi-square distribution (Hosmer & Lemeshow, 1989). Further, the Chi-square value of 310.116 is statistically significant ($p\text{-value} < .05$) and it indicates that the nature of the final model. It shows that the final model provides a significant enhancement over the intercept only model. The significance indicates that the model provides a better prediction.

The logistic regression model shows the strength of association and is measured by Pseudo-R-square which is given in Table 10.

Table 10. Pseudo R-Square

Cox and Snell	.540
Nagelkerke	.670
McFadden	.346

Source: Compiled from Questionnaire

Here the pseudo-R-square, as given shown in table 10, (e.g. Nagelkerke = 67%) shows that the 16 variables explain 67 percent of the variation in the level of financial inclusion.

Table 11. Ordinal Logistic Regression result of financial inclusion

Explanatory Variables	Estimated Coefficients	Sig. Value
X_1 = Ease of banking	4.090	.000*
X_2 = Financial awareness	-4.031	.000*
X_3 = Economic status of the members	2.874	.000*
X_4 = Suitability of financial products	2.031	.000*
X_5 = Physical infrastructure	1.653	.000*
X_6 = IT infrastructure	1.125	.398
X_7 = Monthly Income	0.747	.000*
X_8 = Land Holding	0.553	.003*
X_9 = Education	-0.469	.002*
X_{10} = Age	-0.429	.001*
X_{11} = Regularity of receiving income	0.242	.467
X_{12} = Adult family member count	0.131	.495
X_{13} = Gender	0.123	.735
X_{14} = BPL Category	0.112	.004*

X_{15} = Location	-0.077	.579
X_{16} = Religion	0.039	.860

Dependent Variable: Level of financial inclusion, Link function: Logit.
*significant at 5% level of significance

Table II shows that ease of banking, financial awareness, economic status of the members, suitability of financial products, physical infrastructure, monthly income, landholding, education, age and their BPL status is affecting the degree of inclusive financing. Thus, these are the factors that should be finally studied deeper for inferences.

5. Conclusion and Policy Implications

The conclusion of the research work starts from an observation that the overall level of inclusive financing of the SHG members is of moderate level. The important issue for all the policy-makers starts from planning to provide the available banking services to the poor populace for their upliftment. The financial services need to be within reach of the underprivileged for their economic betterment. In the case of the Indian state of Tripura, it is even more important because the banking penetration is quite low. The research work has enumerated six factors found after factor analysis that have an effect on inclusive financing for SHG members. The factors found are “suitability of financial products, ease of banking, physical infrastructure, and economic status of the SHG members, I.T. infrastructure and financial awareness”. The findings are quite similar in nature with the conclusions reached by Allen, Demirgüç-Kunt, Klapper, Soledad, and Peria, (2012); Kumar (2013). Leyshon and Thrift (1995); Kempson and Whyley (1999); Clamara, Peña, and Tuesta (2014) also ended up with related findings in their research work. The identification of the factors has the potential to help the financial institutions and regulators to comprehend the rationale behind individual's likeness towards financial services which are informal in nature instead of conventional ones (Buera & Shin, 2013).

It was also seen in the research work that the ease of banking and financial awareness/education has the highest impact on overall inclusive financing for members of SHG. Thus, it can be inferred that if banking rules are simplified for the common and poor people, it will help them to avail the banking facilities to the best of their needs and benefits. The conventional financial services and products for example banking transactions, overdrafts, savings, insurance, etc should be user friendly. There is also a need for financial counseling for the SHG members which will help them to recognize and rate the formal financial services. The banking sector under the aegis of government should work in tandem to set their priorities in removing the barriers of communications and usage as discussed above. These efforts will make the financial services and products more accessible to the weaker section of the society. The scenario of success in the case of Pradhan Mantri Jan Dhan Scheme in India is a testimony in this regard. Similarly, spreading awareness about various financial products and services is expected to increase the level of inclusive financing (Feldstein & Horioka, 1980; Bhattacharjee & Singh, 2017; Singh & Bhowal, 2010; Bordoloi, Singh, Bhattacharjee, & Bezborah, 2020). It has been also reiterated that the present time is feasible for the government to leverage and protect the poor rural individuals socially by enabling them to save more and get financially included along with the rest (Zimmerman & Holmes, 2012). This can better be done by giving them the experience of banking and modern financial instrument so that they can feel the benefit of these products (Choudhury, Singh & Saikia, 2016). The use of these financial products will expose them to the current market scenario and consequently, they will learn the science and art of managing the modern financial products (Singh, 2011).

Age and education are seen as significant factors and are consistent with other studies where similar findings were derived (Singh & Bhattacharjee, 2010). Young and educated people are less likely to be excluded than older and less educated members (Johnson & Nino-Zarazua, 2007).

Ordinal logistic regression shows that IT infrastructure is not a significant factor for bringing financial inclusion among the members of the SHGs. Tiwari and Singh (2018) have got similar findings. It also reveals that regularity of receiving income, number of adult family members; gender, location and religion have no noteworthy impact on inclusive financing.

As discussed above, the collaboration and joint efforts of government and financial institutions must process this information and understand the patterns in it to simplify the process of banking and disbursement of credit to the underprivileged populace. The principles of cooperative development can also be thought of in this direction (Donovan, Blare, & Poole, 2017). The process of disbursing credits to the underprivileged section in the society should be in synchronization with the government policies. Governments and NGOs can think of the development of a value chain for improving economic growth leading to reduced poverty in rural areas (Donovan, Franzel, Cunha, Gyau, & Mithöfer, 2015). This will help in bringing inclusive financing to the section of that society which is excluded from it.

6. Scope of Future Research

The present research work has been conducted in the Indian state of Tripura; hence for a broader generalization of the findings to have an impact in the entire country, a comprehensive study should be done on a broader geographical area. Moreover, the impact of these determinants with their relative weight on financial inclusion can also be undertaken. More components can be extracted from the literature which might have a comparatively lesser impact on financial inclusion. A thorough ground survey and Focus Group Discussion (FGD) can be conducted to understand the problems and the current

situation in the areas. The FGD will provide the scope and atmosphere for unabated and open-ended answers which can depict the future areas of action.

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