The Vicious Circle of Financial Exclusion : An Empirical Study in West Bengal

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Abstract

Despite many efforts in the last twenty years, access to finance has remained scarce in rural India. Inadequate access to financial services is considered one of the main reasons behind inadequate economic opportunity and abject poverty in the developing countries. The present study is a research conducted among rural households in Howrah and Murshidabad districts of West Bengal. The main aim of this paper is to explore the various factors behind financial exclusion in West Bengal. The principal sources for financial exclusion are generated from the demand side and supply side factors. The study is essentially based on primary data captured through a structured questionnaire and was administered to a total of 150 respondents. In order to find out the causes behind the financial exclusion inside the demand and supply related factors, binary logistic regression method was considered to be appropriate. The results of the analysis suggess that from the demand side, income of the households, awareness, and education have a significant role on financial exclusion. From the supply side, cumbersome documentation process has a marginal effect on it. Thus, appropriate policies are required to solve these problems.

Keywords: **awareness, credit programme, financial exclusion, institutional credit, logistic regression**
JEL Classifications: E32, G21, O16

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Financial inclusion is the new buzzword. With the Reserve Bank of India charting the path to the unbanked hinterlands, private stakeholders, including technology-driven start-ups, are rolling out innovative programmes to reach out to rural India. The term "financial inclusion" is an important issue which arises from the problem of financial exclusion of almost 40% of the population in India, which is excluded from formal financial systems. Financial inclusion is intended to connect people with banks for easy and affordable credit and other financial services for poor and vulnerable groups. Access to the formal financial system creates enabling condition for accelerating growth and reducing inequality and poverty. Inadequate access to financial services is considered as one of the main reasons behind inadequate economic opportunities and poverty in developing countries. In most South Asian countries, the rural population comprises two third of the total population, where economic development is skewed towards urban areas, which drives inequality in income distribution. Rural societies in those countries have suffered continuous erosion in their standard of living. Poverty is the persistent and widespread problem with the majority of the poor people living in rural areas.

Rural financial services primarily include credit, saving, insurance, and remittance services. Rural credit is a small amount of credit tied in income generation activities, while saving and insurance are used to protect and stabilize the families and livelihood of the people. The three types of financial exclusion are: **(a)** inaccessibility of a regulated financial system; **(b)** marginal accessibility to banks and other financial services; and **(c)** availability of inappropriate financial products. In rural West Bengal, some people desire to access the financial services, but are denied access to the same. In India, a country with a large rural population, financial exclusion has a geographic dimension. The intensity of financial exclusion in India is very acute in nature, where we find that almost half the country is unbanked. According to an article "Financial inclusion imperative to reap demographic dividend" (2011) published in the Business Standard, in India, only 55% of the population have deposit accounts, and 9 % have credit accounts with banks, and there is only one bank branch per 14,000 people.

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The Essence of Financial Exclusion

In the past two decades of Indian economic reforms, the economy has been transformed into a higher growth plane, which indicates that the country has entered the global stage. Due to structural rigidities, strong growth failed to improve the economic development. A large section of the people were deprived of the benefits of economic growth. So, it was a situation of growth, but without development. Developing an inclusive financial system is one of the strategies for inclusive growth. Financial inclusion aims to ease economic transaction, improve standard of living, protect against vulnerability, and make productivity augmenting investments. The underlying principle for financial inclusion is taking banking services to the vulnerable sections and spreading financial knowledge. Since banking technology has been implemented in banks, so the role of technology is making affordable financial services available to the rural poor in India.

Review of Literature

Walras (1874) propounded the theory of demand, which explains the relationship between the demand for goods or services and prices. Price of a commodity is one of the determinants of demand, and there is an inverse relationship that exists with quantity demanded of the product. Keynes's (1936) consumption theory analyzed the relationships between income, consumption, and savings. In underdeveloped countries, the priority of the poor households is to meet their unfulfilled wants. So, poor households spend more on consumption as their income increases.

Evans, Adams, and Mohammed (1999) presented a comprehensive conceptual framework for analyzing factors that affect households' accessibility to microcredit in Bangladesh, in which both household-related factors and programme-related factors are taken into account. Diagne and Zeller (2001) expressed that a household's accessibility to credit can be defined as the ability to borrow from different sources of credit. Thorat (2007) observed that sparsely populated hilly areas with poor infrastructure, difficulty of access, lack of awareness among consumers, social exclusion, low income and illiteracy are some of the important reasons for financial exclusion in India. Hatchondo, Martines, and Sapriza (2007) revealed that a society with financial exclusion also suffers from unemployment, reduced production levels, and lack of productivity, resulting in a high debt to output ratio as evidenced in the emerging economies. Jerold (2008) stated that the urban poor and rural masses can come out from financial exclusion if Indian banks start viewing financial inclusion as a commercially profitable business. They must adopt the modern banking technology to provide banking access to the remote areas.

Messah and Wangai (2011) depicted that credit is an important commodity for enhancing the welfare of the poor in underdeveloped and developing countries. Demand for institutional credit by the small-scale entrepreneurs depends on a large number of factors. Their research on the Kenyan economy revealed that educational level, number of dependants, and household income have a significant impact on borrowing institutional credit. Xia, Christopher, and Baiding (2011) established a conceptual framework to investigate households' accessibility to microcredit in rural China by focusing on the microcredit programme implemented by the Rural Credit Cooperatives (RCCs). Jayasheela, Dinesha, and Basil Hans (2012) focused on the first survey of rural indebtedness that was conducted and documented by the Reserve Bank of India, which stated that more than 90% of the rural credit needs are fulfilled by the moneylenders and other informal lenders.

Research Objectives

i) To explore whether financial exclusion occurs due to dual factors, that is, demand side and supply side factors.

ii) To measure households' accessibility to credit by empirically examining the influence of demand and supply factors.

Methodology

➲ **Sampling Techniques :** For the present study, survey based research was adopted. Two districts of West Bengal, that is, Howrah and Murshidabad were covered. From two districts, few blocks, and under a block, few villages were

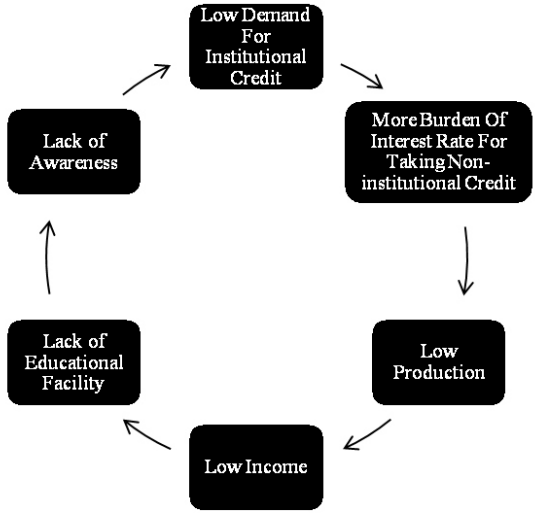
selected. From those villages, households were selected randomly and their credit accessibility was analyzed. Since the selection of units is based on factors which would be appropriate for the study, so, simple random sampling technique was used for this research work. Sample size for the study is 150 respondents (75 from each district). Individual respondents participated in the present study. Accessibility of the institutional credit of the rural households depends upon many households parameters. Similarly, supply of institutional credit also has some limitations. The study shows the impact of those parameters on credit accessibility.

➲ **Research Instrument:** In order to achieve the objectives of the research, a structured questionnaire was designed and supplied to the respondents for collecting the primary data. The time period of the research was from 2012-2013.

➲ **Statistical Tools and Techniques:** The data so collected were captured in SPSS 18 version for analysis and interpretation. Further, in order to address the objectives of the study, binary logistic regression technique was applied. Under that, forward method logistic regression was considered to be appropriate, because it starts with a single variable and adds a variable one by one, and tests the significance and removes insignificant variables from the model.

➲ **The Model :** The study observed that financial exclusion and poverty in rural India are non-mutually exclusive forces. The vicious circle of financial exclusion is a self-reinforcing force in which there are certain factors that are related in a circular way so as to result in continuation of poverty and underdevelopment in rural India. The study examines the demand and supply factors influencing the accessibility of financial services by rural households. Demand-related factors are income, occupation, interest rate charged on loans, age, education, number of dependents in a family, awareness and poverty that are hypothesized to affect households' demand for credit, which can directly influence households' accessibility to credit. This is because households' access to a certain type of credit can be conceptualized as a sequential decision making process that is initiated at the demand side (Zeller, 1994). The Figure 1 depicts the fact that due to low demand for institutional credit by the rural households, they are bearing the burden of exorbitant high rates of interest while accessing non-institutional credit. Therefore, production of goods and services has fallen and subsequently, disposable income of the borrowers goes down. This in turn creates a lack of educational opportunities and a dearth of awareness, which causes a barrier in accessing institutional credit. This is the trap from which it is difficult to come out, and it is named as the vicious circle of financial exclusion.

Figure 1. Vicious Circle of Financial Exclusion: Demand Side Factors

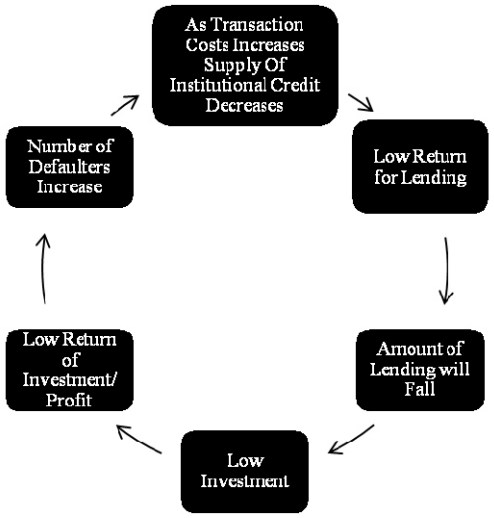


Source: Author's Research

Along with the demand-related factors, supply-related factors also influence the households' credit accessibility. For example, Umoh (2006) argued that the inaccessibility to credit is generally created by the lending policies of institutional agencies, which can be manifested by complicated application procedures, specified minimum loan

amounts, and prescribed loan purposes. The supply-side factors are related to the cost of credit, distance to the nearest bank branch, branch timings, cumbersome documentation and procedures, unsuitable products, languages, staff attitudes, and so forth. The Figure 2 depicts that the supply of institutional credit decreases as cost of transaction increases. Therefore, return for lending falls or the cost of borrowing increases. So, the amount of lending falls and the level of investment diminishes. The rate of return falls due to low investment. Hence, there is a high probability that the borrowers become defaulters of the credit and once again, the cost of transaction increases. This is the supply side trap of the vicious cycle of financial exclusion. Thus, a combination of demand and supply related factors have an impact on households' accessibility to credit.

Figure 2. Vicious Circle of Financial Exclusion: Supply Side Factors



Source: Author's Research

This research paper attempts to measure households' financial exclusion by empirically examining the influence of demand and supply factors. The study investigates the impact of household's characteristics on account of getting institutional credit. The characteristics of the households regarding the demand related factors are **(i)** gender, **(ii)** level of education, **(iii)** age, **(iv)** occupation, **(v)** preference of money lenders, and **(vi)** purpose of taking loan. The characteristics of the households regarding the supply related factors are **(i)** the household's distance from the bank branch, **(ii)** cumbersome documentation and procedures, **(iii)** unsuitable products, **(iv)** languages, and **(v)** staff attitudes.

The analysis was performed from the perspective of borrowers in the sense that it can help both formal and informal lenders for understanding the possible reasons of barriers for institutional credit on the basis of factors other than collateral alone.

➲ **Method of Analysis :** Probability of getting institutional rural credit in accordance with the demand and supply side factors were analyzed by applying the forward method binary logistic regression technique. The empirical model is specified as:

$$P_i\,(Y_i = 1) = \frac{1}{1 + e^{-(\alpha + \beta_j X_{ji})}} = \frac{1}{1 + e^{-z_{ji}}} \qquad (1)$$

Where,

$Z_{ji} = \alpha + \beta_j X_{ji}$

α is a constant term, β is a vector of coefficients for the independent variables X_i. P_i is the estimated probability of a household having access to formal credit,

$(1\text{-}P_i)$ is the estimated probability of a household not having access to formal credit.

$$(1 - P_i) = \frac{1}{1 + e^{z_i}} \qquad (2)$$

Eq. (1) represents the cumulative logistic distribution function in a non-linear form. For the purpose of interpretation, it is usual to write the model in terms of log-odds ratio (Maddala, 2001). With a logit transformation, the estimated model will become a linear function of the explanatory variables, which is expressed as follows:

$$\text{log}it\,[P_i\,(Y_i = 1)] = \log[\frac{P_i}{1\text{-}P_i}] = \alpha + \beta_j X_{ji} \quad (3)$$

$\frac{P_i}{1\text{-}P_i}$ is the odds ratio of a household having access to formal credit, that is, the ratio of the probability that a household will be having access to formal credit to the probability that a household does not have access to formal credit. The parameters of these models were estimated using SPSS 18.

Table 1. Categorical Variables Coding

Independent Variables	Parameter Coding	Frequency	Percentage
Interest rate charged on loans	High rate = 1	19	12.7%
	Moderate rate =2	64	42.7%
	Low rate =3	24	16%
	Very low rate =4	2	1.3%
	Don't know =5	41	27.3%
Education of borrowers	No education =0	69	46%
	Primary education =1	45	30%
	Secondary education =2	30	20%
	Higher secondary education =3	6	4%
Number of dependents in a family	Less than 2 =0	72	48%
	More than 2 =1	78	52%
Technical and vocational training	Otherwise =0	78	52%
	Formal training =1	72	48%
Occupation of borrower	Farm =0	49	32.7%
	Non-farm =1	101	67.3%
Household awareness	No =0	9	6%
	Yes =1	141	94%
Staff attitude	Not friendly =0	52	34.7%
	Friendly =1	98	65.3%
Cumbersome documentation and procedures	No =0	58	38.7%
	Yes =1	92	61.3%
Languages	Not difficult to understand =0	119	79.3%
	Difficult to understand =1	31	20.7%
Household's distance from the branch	Less than 1 Km =0	50	33.3%
	More than 1 Km =1	100	66.7%

Source: Author's Research

Results and Discussion

The questionnaire was administered to 150 respondents among the rural households in Howrah and Murshidabad districts of West Bengal. Dependent variable (getting institutional credit) and all the independent variables except age of the households and income are categorical variables. The categorical variables coding is presented in the Table 1. It

shows the demographics of the households regarding the demand and supply related factors. The responses of the individual respondents were considered to be the opinion of the entire household. It can be inferred from the Table 1 that 42.7% of the households believed that interest rate charged on loans is moderate, whereas 16% felt that it is low for them. Only 12.7% of the households expressed that interest rate is high, and 27.3% did not give any response. The educational level got a high level score of 46% for illiterates and 30% with primary education followed by least percentages for higher secondary education. 52% of the respondents had more than two dependents, and 48% had less than two dependents. 48% of the households had formal training experience, whereas 52% were untrained. A majority of the respondents (67.3%) were engaged in non-farm activities as compared to farm related activities like crop farming, raising livestock, fishery, and so forth.

It was found that the proportion of household awareness about the features of credit was 94% and only 6% respondents were unaware of the credit features. 65.3% households responded that the attitude of the banks' staff towards prospective borrowers was friendly, whereas 34.7% respondents felt that the nature of the staff was hostile. Cumbersome documentation and procedures was one of the important impediments for accessing institutional credit, and 61.3% respondents said that they faced this hurdle while approaching commercial banks for credit, but this did not happen with 38.7% of the respondents. 79.3% of the respondents said that they did not experience any language or communication problem with the staff, whereas 20.7% of the respondents experienced some problem. Distance of the

Table 2. Classification Table (Block 0: Beginning Block)

Observed		Predicted		
		Getting Institutional Credit		Percentage Correct
		No	Yes	
Getting Institutional Credit	No	88	0	100.0
	Yes	62	0	.0
				58.7

Source: Author's Research

Table 3. Variables in the Equation Under Demand Related Factors

			B	S.E.	Sig.	Odds Ratio [Exp(B)]	95% Confidence Interval for Odds Ratio	
							Lower	Upper
Demand Related Factors	Step 1	Income	.228	.037	.000	1.256	1.167	1.350
		Constant	-13.623	2.186	.000	.000		
	Step 2	Income	.252	.042	.000	1.286	1.184	1.397
		Awareness(1)	-2.689	1.326	.043	.068	.005	.915
		Constant	-12.398	2.060	.000	.000		
	Step 3	Income	.160	.048	.001	1.174	1.068	1.291
		Awareness(1)	-2.908	1.401	.038	.055	.004	.850
		Education			.060			
		Education(1)	2.403	.884	.007	11.060	1.955	62.562
		Education(2)	2.223	1.077	.039	9.237	1.119	76.222
		Education(3)	20.704	14746.774	.999	9.810	.000	.
		Constant	-8.629	2.263	.000	.000		

Step 1: Income Variable Entered.

Step 2: Awareness Variable Entered.

Step 3: Education Variable Entered.

Note: R^2 = 0.52 (Hosmer and Lemeshow), 0.50 (Cox and Snell), 0.68 (Nagelkerke)

Model Chi-square (3) = 105.10, $p < 0.01$

Source: Author's Research

Table 4. Variables in the Equation Under Supply Related Factors

			B	S.E.	Sig.	Odds Ratio [Exp(B)]	95% Confidence Interval for Odds Ratio	
							Lower	Upper
Supply Related Factors	Step 1	Documentation(1)	-2.399	.395	.000	.091	.042	.197
		Constant	1.053	.300	.000	2.867		

Step 1: documentation variable entered

Note: R^2 = 0.21 (Hosmer and Lemeshow), 0.25 (Cox and Snell), 0.34 (Nagelkerke).

Model Chi-square (1) = 43.40, $p < 0.01$

Source: Author's Research

bank branch from the respondents' residence was another important concern for accessing institutional credit. 66.7% of the respondents said that the distance of the bank branch was more than one kilometer and in case of 33.3% of the respondents, the bank branch was located at a distance of less than 1 kilometer from the respondents' residence.

In Table 2, block 0 means that no predictor variable is included in the model. The model includes only the intercept, that is, constant. Out of 150 respondents, 62 respondents were getting institutional credit, whereas 88 were not getting the same. Therefore, given the two situations, 58.7% of the respondents were not getting institutional credit. So, they were financially excluded households as far as the institutional credit was concerned. In order to identify the sources of financial exclusion through the demand and supply sides, the binary logistic regression technique was considered appropriate. The method was chosen because of the exploratory nature of the study and the advantage of the likelihood test.

The Table 3 shows the results of the variables in the equation under demand related factors. It is crucial because it depicts the estimates for the coefficients for the predictors included in the model. It shows the model parameters for three steps in the hierarchy. Now, the first step in the hierarchy was to include income only and the predictor contributed significantly (as $p < 0.05$) to the prediction whether they are getting institutional credit or not. In Step 2, income and awareness (1) have been included in the model. Awareness (1) means households are having awareness regarding the institutional credit. Along with income, awareness also contributed significantly to the prediction, since $p < 0.05$. The best model is usually the last model, that is, Step 3. It contains the variables - income, awareness, and education. It is noted that education of the borrowers contributed insignificantly to the prediction as $p > 0.05$. But primary education (education 1) and secondary education (education 2) are having significant explanatory power to the prediction as $p < 0.05$, whereas higher education (education 3) is insignificant to the prediction because $p > 0.05$. Similarly, in Table 4, the results of the variable in the equation under supply related factors shows that cumbersome documentation and procedures for getting institutional credit contributed significantly to the prediction as $p < 0.05$.

The *b*-value shows the relationship between demand for institutional credit and each predictor. It estimates the change in the predicted log odds of the dependent variable by one unit change in the predictor, keeping other predictors constant. The prediction equation through demand related factor is:

$$\text{Log}\,(p/1\text{-}p) = -8.629 + 0.160\ \text{Income} - 2.908\ \text{Awareness}\,(1) + 2.403\ \text{Education}\,(1) + 2.223\ \text{Education}\,(2) + 20.704\ \text{Education}\,(3) \quad (4)$$

➲ **Income (*b* = 0.160):** The value indicates that as the income of the household increases by one unit (measured in thousands), then we expect a 0.160 increase in the log-odds of getting institutional credit, holding all other independent variables constant.

➲ **Awareness (1) (*b* = - 2.908):** If the households' awareness increases by one unit, we expect a 2.908 decrease in the log-odds of getting institutional credit.

➲ **Educational Level of the Borrowers:** The overall variable - education - is statistically insignificant. Therefore, the education variable has not been reflected in the model. Instead of that, dummy variables for education have coefficients which are presented in the form of coding. From the Table 3, it is observed that coefficient for two dummies are statistically significant but the other one is not. The reference group is level 0, that is, no education. So, Education (1), Education (2), and Education (3) coefficients represent the difference between level 1 of education and

level 0, difference between level 2 of education and level 0, and difference between level 3 of education and level 0 respectively.

In the Table 4, *b*- value is -2.399, which indicates that as the documentation process for institutional credit becomes more complex, we expect a 2.399 decrease in the log-odds of getting institutional credit, holding all other independent variables constant.

The prediction equation through supply related factors is:

$$\text{Log}\,(p/1-p) = 1.053 - 2.399\,\text{Documentation}\,(1) \qquad (5)$$

Exp(B) are the odds ratios for the predictors. Odds ratio can be interpreted in terms of the change in odds. If the value exceeds 1, then the probability of the outcome occurring increases; if it is less than 1, the probability of outcome occurring decreases due to any increase in the predictor. In Table 3 of Step 3, odds ratio of education is not present because education has not been entered into the model.

The odds ratio for the variable *income* is 1.174. Hence, if income of the household is raised by one unit (in thousand rupees), then the probability of getting institutional credit increases by 1.174 times or 117.4 %, having allowed for awareness and education in the model. Similarly, odds ratio for *awareness* is 0.055. Hence, if awareness is raised, then the probability of getting institutional credit decreases by 0.055 times or 5.5% when income and education are given in the model. The odds ratio for the variable *education* (1) is 11.060, which indicates that as households are getting the opportunity of education, and it is increased from the primary to the secondary level, then the probability of getting institutional credit increases by 11.060 times. The odds ratio for *education* (2) is 9.237, which shows that the probability of getting institutional credit increases by 9.237 times, as households are getting the opportunity to promote themselves from secondary to higher secondary level of education. The odds ratio for *education* (3) is 9.810, which signifies that as households are able to advance their education from higher secondary to the graduate level, then the probability of getting institutional credit increases by 9.810 times. On the other hand, EXP(B) in Table 4 is 0.091, which specifies that the probability of getting institutional credit decreases by 0.091 times or 9.1% due to an increase in the exhaustive documentation process.

Hosmer and Lemeshow's R^2 is the proportional reduction in the absolute value of the log-likelihood measure and as such, it is a measure of how much the badness of fit improves as a result of the inclusion of the predictor variables (Field, 2009). Its range is $0 \uparrow R^2 \uparrow 1$. $R^2 = 0$, which indicates that the predictors are useless at predicting the outcome variable, whereas $R^2 = 1$ means that the predictors are perfect at predicting the outcome variable. In the study, Hosmer and Lemeshow's R^2 for demand related factor is 0.52, so the predictors like income, awareness, and education are good enough to predict the outcome variable.

The Cox and Snell pseudo R^2 statistic value 0.50 delineates that all the independent variables in the logistic regression model collectively account for 50% of the explanation for whether rural households will get institutional credit or not. Nagelkerke's R^2 will normally be higher than the Cox and Snell measure. In the present study, it is 0.68, which indicates a moderately strong relationship of 68% between the predictors and the prediction. The model chi-square value 105.10 is statistically significant at a 0.01 level, so the model is better to predict the outcome variable. Similarly, for the supply related factor, Hosmer and Lemeshow's R^2 value is 0.21. So, the cumbersome documentation and procedures predictor is not so good enough to explain the outcome variable. The Cox and Snell pseudo R^2 statistic value (0.25) signifies that the independent variable in the logistic regression model accounts for 25 % of the explanation for whether rural households will get institutional credit or not. Nagelkerke's R^2 value is 0.34, which indicates a weak relationship of 34% between the predictor and the prediction. The model chi-square value 43.40 is statistically significant at a 0.01 level, so the overall model is predicting whether a household will get institutional credit or not significantly better than it was with only the constant included.

Summary and Policy Implications

The present study observed that the vicious circle of financial exclusion of the rural households is due to the cause of both demand side and supply side factors. The paper suggests some important results on which institutional lenders such as commercial banks, cooperative banks, regional rural banks, and policy planners can design an appropriate credit programme. The results of the study indicate that as the income of the households increases, the probability of

getting institutional credit increases. So, in order to improve the financial inclusion programmme, implementation of employment generation policies may improve the per capita income of the rural households. Surprisingly, it has been found that as awareness of the households increases, the probability of getting institutional credit falls. One of the reasons could be that accessing non-institutional credit is much easier than getting access to institutional credit. Therefore, awareness programmes must be initiated by the government as well as by the bank unions or bank associations on a regular basis. Education of the households is another stimulating factor for enhancing institutional credit accessibility. As households progress to a higher level of education, their chances of accessing institutional credit increases. However, stringent documentation processes reduce the chances of getting institutional credit. So, it is recommended that the documentation process must be lenient, simple, and understandable. Due to lack of explanatory power of the documentation process, it is suggested that there must be some underlying factors which impact the supply of credit to the rural households.

Finally, it can be concluded from the analysis that financial exclusion and poverty in rural India is a non-mutually exclusive force and it falls in a vicious circle. To pull poor people out of this cycle, a big- push is required by the policy planners, bank associations, and the government. The study is limited by certain shortcomings in the data set, mainly due to lack of data from two districts of West Bengal only. Due to the limited scope of this study, there is room for improvement through future research.

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