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FINANCIAL LITERACY IN THE STATE OF WEST BENGAL: A STUDY INTO ITS DETERMINANTS WITH AN IMPACT ANALYSIS ON FINANCIAL INCLUSION AND INVESTMENT DECISION MAKING

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Abstract

In an attempt to assess financial literacy in the state of West Bengal, using the OECD questionnaire upon 600 respondents from eight selected districts, it has been found that the average financial literacy of the state is better than the all India average. Male financial literacy as well as inclusiveness is also higher than female. But, urban financial inclusion is not significantly higher than the rural areas anymore, however urban financial literacy is found to be significantly more than the rural. Higher education and income level could significantly affect financial literacy. However, work situation could affect financial inclusion only. Financial literacy along with education level, work situation and income band could have significant impact towards financial inclusiveness and choosing relatively riskier investments.

Key Words: *Financial Literacy, Financial Inclusion, Investment Decision Making*

Introduction

Over the recent years, financial literacy has become a major area of concern in almost all the countries in the world. Widespread deficiency in financial literacy has been observed among the people of any country in general and those of the developing countries in particular. Further, research studies all over the world have exposed a relatively lower financial literacy among women in the developed countries as well as the developing countries (Arrondel et al., 2013; Agarwal et al., 2015). The OECD International Network on Financial Education has developed a questionnaire on measuring financial literacy taking input from 35 member countries and a few other observer countries. It has defined financial literacy as 'a combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial well-being' (OECD, 2015).

In a country like India, with diverse social and economic profile, financial literacy is found low among the people in general and very low among the resource-poor class in particular. The

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G20/OECD INFE Report (2017)[1] on adult financial literacy has awarded a score of 11.9 to a lowly ranked India against a maximum possible score of 21 in a survey among the G20 countries, the average score having been found to be 12.7. Lower financial literacy for the poorer section of people coupled with their meagerness and uncertainty in income, results in a vicious circle leading these people to poor household decision-making to living under persistent financial pressure. Financial literacy enhancement could have helped this resource-poor population to access relevant information for becoming a part of the formal financial system and for improving their financial situation in due course. It is thus also observed that lack of financial literacy has also led these people to be always dependent upon the informal financial system as controlled by money-lenders. Financial literacy is required not only for the poorer class but also for the middle income and lower-middle income population, for whom it can be effective in understanding the wide range of available financial products and services with their benefits or limitations enhancing their understanding about the market. Financial literacy thus also helps in promoting financial inclusion and can be said to be working in the demand side of financial inclusion. The OECD/INFE has also defined financial inclusion in its toolkit as 'the process of promoting affordable, timely and adequate access to a wide range of regulated financial products and services and broadening their use by all segments of society through the implementation of tailored, existing and innovative approaches including financial awareness and education with a view to promote financial well-being as well as economic and social inclusion' (OECD, 2015).

One principal reason for choosing the study on financial literacy for a state like West Bengal is the recurrent financial frauds that have hit the state time and again. The state is situated geographically in the eastern part of India covering a total area of 88,752 square kilometers with a total of 23 districts. The state's economy is predominantly dependent upon agriculture and also upon medium-sized industry, although the role of service industry and heavy industries in generating state revenue has significantly increased over the years. According to the 2011 national census, West Bengal is the fourth-most-populous state in India with a population of 91,347,736 (which is 7.55% of the country's population). Population density of 1,029 inhabitants per square kilometer makes it the second-most densely populated Indian state. The literacy rate of West Bengal is 77.08%, higher than the national average of 74.04%. The notorious Sanchayita fraud which came to light in 1980 is considered to be the state's first chit fund debacle. Over Rs. 1 billion was collected from investors who were ultimately cheated of their hard earned money. Following this, Sanchayani and Verona, two residuary non-bank financial companies, ruined millions of small depositors. In 2013, the collapse of the Saradha Group (incorporated in 2008), exposed a financial scam with an estimated loss of Rs. 200-300 billion involving nearly 1.7 million depositors. This group had fraudulent ponzi schemes in

[1] *http://www.oecd.org/daf/fin/financial-education/G20-OECD-INFE-report-adult-financial-literacy-in-G20-countries.pdf*

disguise of chit funds which inevitably collapsed. With the unfolding of the Saradha group scam, the other financial scams also came into light in which various companies or groups like Rose Valley, MPS, i-Core, Prayag and many others.

2. Literature review

Several studies have been conducted from time to time on financial literacy in different countries of the world and also in India. Literature provides plenty of evidence that in most countries across the world, a large proportion of adults are not even familiar with the most basic financial concepts like inflation, risk and mortgages. *Hilgert et al. (2003)* have observed in an US based study that increase in knowledge and experience could lead to improvements in financial practices related to cash-flow management, credit management, savings and investment. *Campbell (2006)* argues that although many US households invest effectively, few households do make serious investment mistakes such as under diversification of risky portfolios, non-participation in risky asset markets and failure to exercise options to refinance mortgages. *Atkinson et al. (2007)* conceive financial capability to encompass four different domains-managing money, planning ahead, choosing products and staying informed and found that individuals in UK may be particularly capable in one or more areas, but may lack skills or experience in others. *Kotzé and Smit (2008)* studied the perception of business management students in South Africa and found a lack of confidence of respondents in their money management skills and also their desire for more financial knowledge. *Sekita (2011)* finds the overall financial literacy level in Japan to be low especially among respondents with lower income and lower education levels as well as female and young respondents. *Nash (2012)* observes inequalities in financial literacy across different sections of population in India. *Nidar and Bestari (2012)* study the levels of personal financial literacy of University students in Indonesia and find that the factors which had a significant impact on personal financial literacy included level of education, faculty, personal income, knowledge from parents, parents' income, and ownership of insurance. *Arrondel et al. (2013)* find a significant positive relationship between financial literacy and the ability of long term financial planning, including retirement planning in France. *Agarwalla et al. (2015)* find among the working young in urban India a few factors such as joint-family and consultative decision making process having a significant influence on financial literacy.

There are many papers on status of financial inclusion (or, exclusion) in India and also exploring the determinants of financial inclusion in the country which are mostly empirical in nature. However, empirical studies exposing the relationship between financial literacy and financial inclusion are few. There are however a few important policy papers of the top officials of the government which have logically argued in favour of such a relationship. In one such paper, *Chakraborty (2012)* analyses the barriers as (a) low literacy levels, lack of awareness and understanding of financial products, (b) irregular income, (c) frequent micro-transactions, (d)

lack of trust in formal banking institutions, and (e) cultural obstacles (*e.g.*, gender and cultural values) as the demand side factors for financial exclusion. *Ghatak (2013)* identifies the factors, accessibility, culture, assets, income and literacy as the key factors that influence the demand for financial inclusion and has observed accessibility with the highest correlation (0.650) followed by literacy (0.447), income (0.442), culture (0.303) and assets (0.054). *Biswas (Sinha) and Gupta (2016)* observe occupation, educational background and household income among the demographic factors and financial inclusion index (as measured by CRISIL) as having statistically significant relationship with financial literacy, however based on a very small respondent size of 90 from the Kolkata city and its two adjoining districts in the state of West Bengal. In a recent study among the Delhi slum dwellers in India, *Tulasi et al. (2017)* find econometric evidence that there are constraints in terms of income and work situation holding them back from using banking services, and in order to enable effective financial inclusion they need to be enabled customising financial products for identified work situations, improving financial literacy and being agnostic about gender.

A few studies in Indian context exposing the relationship between financial literacy and investment decision making could also be found. *Thilakam (2012)* has observed that rural masses in India are comfortable with conventional investment choices and are more risk averters than risk takers. *Bhushan (2014)* has found that respondents with higher levels of financial literacy demonstrating higher preference for investments like mutual funds, debentures, stock market investments, bonds and commodity market instruments, life insurance, public provident fund and pension fund as compared to those with lower levels of financial literacy.

Literature review of a number of foreign studies and a few Indian studies exposes lesser number of empirical studies establishing the theoretical validity of the impact of financial literacy on financial inclusion. This proposition exists most in logical arguments and theoretical discourses. Secondly, while empirically looking into the effect upon either financial literacy or financial inclusion, the demographic and socio-economic factors were mostly mixed. Thirdly, in case of the limited number of studies exposing the relationship between financial literacy and investment decision making in India, the methodology does not seem to be appropriate to tackle a qualitative variable like risk propensity of investment decision.

3. Objectives of the study

The overall objective of the study is to make a demographic and socio-economic analysis of financial literacy in the state of West Bengal and also to look into the impact of financial literacy upon financial inclusion and investment decision making.

Within this broad theme, the study has a number of specific objectives:

- To assess the status of financial literacy in the state of West Bengal with reference to the selected districts,

- To examine the impact of demographic and socio-economic factors like gender, age, domicile, work situation, education, household income, etc. upon financial literacy, and
- To examine the impact of demographic and socio-economic factors like gender, age, domicile, work situation, education and household income along with financial literacy upon financial inclusion.
- To look into the impact of selected demographic and socio-economic factors like age, work situation, education and household income along with financial literacy upon the risk taking ability of investment decision.

4. Methodology

4.1 Sample

As many as 600 sample respondents were considered for the final study which was selected from as many as eight districts of West Bengal including two from the northern part of the state popularly called North Bengal. These selected districts represent more than 50% population of the state. These include the state capital Kolkata (Calcutta) considered to be a cosmopolitan city and its two surrounding districts, North 24 Parganas and South 24 Parganas, which were worst hit by the Saradha Scam (2013) as per various newspaper reports. The other districts were also chosen purposively to represent various geographical and economic features of the state, thus to include Purba Medinipur district along the coastal belt with a comparatively better economic development than its neighbouring Paschim Medinipur district having forest areas and known traditional underdevelopment. The study included Barddhaman (before its division) being the geographically largest district of the state and having representation of both agricultural as well as industrial population. The sample number of respondents from each district was chosen in the ratio of the district population of the total sample size. A district-wise number of sample respondents and their calculated mean financial literacy scores are given in Table 1.

4.2 Questionnaire

Primary data from the respondents were collected by using a structured questionnaire. The OECD/INFE Toolkits (2011 and 2015) for measuring financial literacy and financial inclusion have been used in this study with permission from the OECD Secretariat. The OECD/INFE Toolkit (2015) is an updated version of the Toolkit (2011) as welcomed by G20 leaders in September, 2013. The Toolkit is made available to public authorities and other organisations in preparation for the 2015 OECD/INFE financial literacy and financial inclusion measurement exercise. Accordingly, a standard questionnaire like this was decided to be used for the purpose of the present study.

The questionnaire is also a comprehensive one designed to cover major aspects of financial literacy and its relation to household decision making. It includes questions to examine the individual's financial literacy in matters related to general awareness, savings, borrowings, insurance, investment and retirement planning. The respondents were asked questions on demographic issues, issues concerning general awareness on financial matters, personal finance and household finance.

4.3 Research hypotheses

Financial literacy assessment could neither be made against any arbitrary score nor against any sample average although the sample size is reasonably large exceeding the recommended size of all the rules of thumb[2] . Hence, assessment of financial literacy could be made keeping it limited to a comparison among the sample respondents with reference to the two most prominently found demographic factors like gender and domicile. Further, district-wise difference among the selected other districts is also seen so far as the mean differences are concerned with the district having the highest mean financial literacy score. Although the study has hypothesized three demographic variables like age, gender and domicile, and three socio-economic variables like education level, work situation and income band, for looking into their relationship with financial literacy and financial inclusion separately, two variables of them like gender and domicile were excluded to test their relationship with probability of riskier investment decision due to absence of theoretical relationship.

The following hypotheses were finally tested to conclude with statistical significance the findings of the study:

1. (a) There does not exist any significant inter-district difference in the financial literacy of individuals.

   (b) Financial literacy of individuals in the urban (including city) areas is higher than that in the rural areas.

   (c) Financial literacy of male respondents is more than that of the female respondents.

2. There is significant impact of the demographic and socio-economic factors like gender, domicile, age band, education level, work situation and income band on financial literacy.

3. There is significant impact of financial literacy and demographic and socio-economic factors like gender, domicile, age band, education level, work situation and income band upon financial inclusion.

[2] One such rule of thumb is Raosoft formula as per which the recommended sample size for an indefinite population size like this should be 377 reasonably with 95%confidence level

4. There is significant impact of financial literacy and demographic and socio-economic factors like age band, education level, work situation and income band upon probability of riskier investment decision making.

5. Data analysis

5.1 District-wise mean financial literacy score

Table 1 reveals a very high mean financial literacy score in the Kolkata district which basically constitutes of the large city, Kolkata, which is also the state capital. But interestingly, Dakshin Dinajpur, a North Bengal district tops among the others in respect of the same score. The other districts like North 24 Parganas, Barddhaman and Paschim Medinipur come very close in terms of the mean financial literacy score. The mean literacy score of all the respondents taken together is 14.51 or 69.095% of the maximum possible score, is higher than the OECD calculated all India average of 11.9 (2017). As the period of data collection is almost same, it may be inferred from here, that the average financial literacy of the state is better than the all India average and even than the G-20 country average of 12.70. The mean difference tests presented also in Table 1 expose significant mean difference in the literacy score of the other selected districts with that of the Kolkata city holding the highest mean literacy score.

Table-1: District-wise mean Financial Literacy score and Test results of mean difference

Domicile	**No. of respondents**	**Mean Financial Literacy (In a scale of 1 to 21)**	**t statistic (mean difference significance test with the highest score holding Kolkata district)**
Kolkata	59	18.25	-
Dakshin Dinajpur	22	14.94	5.620*
North 24 Parganas	130	14.84	8.267*
Barddhaman	101	14.82	10.801*
Paschim	77	14.41	11.043*
South 24 Parganas	106	13.59	10.623*
Purba Medinipur	66	12.95	13.161*
Uttar Dinajpur	39	12.09	15.000*
Total	**600**	**14.51**	

* indicates significance at 1% level

5.2 Mean financial literacy score according to gender

Table 2 gives the results of the t-test for equality of means, whereby the negative *t* value indicates the mean financial literacy score of the first group (female respondents) significantly lower than the mean for the second group (male respondents). This is in conformity with previous research findings.

Table-2 : Group Statistics and t-test for Equality of Means (Gender)

	Domicile	N	Mean	Std.	Std. Error Mean
Financial Literacy Score	Female	181	13.5287	4.09636	0.30448
	Male	419	14.9383	3.17783	0.15525

t-test						
t	df	Sig. (1-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Diff.	
					Upper	Lower
-4.124	277.675	0.000	-1.40955	0.34177	-2.08235	-0.73675

Source: Calculated by the author.

5.3 Mean financial literacy score according to domicile

Table 3 gives the results of the t-test for equality of means, whereby the negative *t* value indicates the mean financial literacy score of the first group (rural respondents) significantly lower than the mean for the second group (urban respondents).

Table-3 : Group Statistics and t-test for Equality of Means (Domicile)

	Domicile	N	Mean	Std. Deviation	Std. Error Mean
Financial Literacy Score	Rural	209	13.0528	3.06350	0.21191
	Urban	391	15.2936	3.52893	0.17847

t-test						
t	df	Sig. (1-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Diff.	
					Upper	Lower
-8.088	479.144	0.000	-2.24078	0.27705	-2.78516	-1.69641

Source: Calculated by the author.

5.4 Multiple regression analysis

Table 4 shows the multiple regression model with financial literacy as the dependent variable. From the values of R^2 and Adj. R^2 it can be said that the model is a good fit. As many as four demographic and socio-economic variables *viz.*, gender, domicile, educational level and income band are statistically significant at 1% level with the dependent variable financial literacy in their expected direction.

Table 5 shows the multiple regression model with financial inclusion as the dependent variable and financial literacy as the key independent variable with the demographic and socio-economic factors as used earlier as the control variables to find out the real impact of financial literacy upon financial inclusion. The values of R^2 and Adj. R^2 exhibit the model as a good fit. Financial literacy is found to be highly significant in the multiple regression model along with the demographic and socio-economic factors like gender, educational level, income band and work situation in their hypothesized direction.

Table-4 : Multiple regression output (Dependent Variable: Financial Literacy)

$R^2 = 0.41$				Number of observations = 600		
Adj. $R^2 = 0.406$						
F statistic = 69.329*						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.805	0.607		11.205	0.000*
	Gender	1.815	0.259	0.236	7.011	0.000*
	Domicile	0.584	0.142	0.157	4.100	0.000*
	Age Band	0.160	0.125	0.042	1.281	0.201
	Education Level	0.596	0.091	0.280	6.529	0.000*
	Work Situation	-0.199	0.340	-0.019	-0.585	0.559
	Income Band	0.772	0.120	0.288	6.448	0.000*

a. Dependent Variable: Financial Literacy
* indicates significance at 1% level

Table-5 : Multiple regression output (Dependent Variable: Financial Inclusion)

$R^2 = 0.424$				Number of observations = 600		
Adj. $R^2 = 0.418$						
F statistic = 62.371*						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.911	0.258		3.537	0.000*
	Gender	0.203	0.104	0.068	1.955	0.051**
	Domicile	0.070	0.056	0.049	1.263	0.207
	Age Band	-0.055	0.048	-0.037	- 1.131	0.259
	Education Level	0.175	0.036	0.211	4.790	0.000*
	Income Band	0.607	0.131	0.151	4.641	0.000*
	Work Situation	0.316	0.048	0.302	6.608	0.000*
	Financial Literacy	0.074	0.016	0.189	4.659	0.000*

a. Dependent Variable: Financial Inclusion
* indicates significance at 1% level, ** indicates significance at 5% level

5.5 Ordered logit analysis

Investment decision making is a qualitative variable which identifies whether the respondent currently holds any of the investment products among the choices given. According to the risk propensity of an investment decision, the variable has been valued in order of the probable riskiness of investment in possible places like 'savings account' (0), 'insurance product' (1), 'retirement product, bond, mutual fund' (2) and 'stocks and shares' (3). Ordered logit is an appropriate technique to explore the degree of dependence of such an ordered dependent variable upon a few dummy and real independent variables in a multivariate analysis. Table 6 exposes a statistically significant impact of financial literacy, education level, work situation

Table-6 : Ordered logistic regression (Dependent Variable: Investment decision making)

Ordered logistic regression			Number of observations = 585			
	LR $chi^2(5)$ = 253.87					
	Prob > chi^2 = 0.0000					
Log likelihood = - 615.51518				Pseudo R^2 = 0.1710		
Investment decision making	Coefficient	Std. Error	z	P>z	[95% confidence interval]	
Financial literacy	0.155586	0.029061	5.35	0*	0.098629	0.212544
Age band	0.094993	0.091300	1.04	0.298	-0.08395	0.273937
Education level	0.216547	0.068141	3.18	0.001*	0.082994	0.3501
Work situation	0.981766	0.248665	3.95	0*	0.494391	1.46914
Income band	0.589564	0.086251	6.84	0*	0.420515	0.758612
/cut1	4.245386	0.535211	3.196391	5.29438		
/cut2	7.124617	0.592526	5.963288	8.285946		
/cut3	8.517766	0.622306	7.298068	9.737464		

Source: Calculated by author

and income band in their expected direction upon the probability of risk taking ability of the investment decision.

6. Conclusion

It appears primarily from the calculated mean financial literacy score that average financial literacy of the state is better than the all India average (2017). However, the analysis into primary mean financial literacy score of the districts reveals that there is significant difference in such score among the other selected districts of the state with Kolkata, the state capital, holding the highest mean financial literacy score. An analysis of the multiple regression results reveals that male respondents are more financially included than the female respondents, nevertheless the average male financial literacy also being significantly higher than female financial literacy. However, urban areas expose a generally found more financial inclusion in comparison to the rural areas, not being a statistically significant one. This points out towards a possible selection of the selected places in the study among the rural (and semi-urban) areas which must be much better off than an average village in India in representing bank account ownership. After the Pradhan Mantri Jan Dhan Yojana, a landmark financial inclusion initiative of the government launched in August 2014, the urban rural divide in bank account ownership has significantly reduced too in the whole country. Effect of demographic factors like gender and domicile over financial literacy as observed in multiple regression results is also preceded with a confirmatory finding of significant mean difference test results between the mean financial literacy score between the rural and urban respondents, and also between the male and female respondents. The socio-economic variables like educational level and income band both however are found to be significantly related with more financial literacy as well as more financial inclusion, which indicate in simpler words that more wealthy and educated people

have greater financial literacy as well as inclusion. Interestingly, work situation is found to be significantly influencing financial inclusion for the employed category in general. In respect of risk taking ability of an investment decision, it is found that financial literacy along with education level, work situation and income band could have statistically significant impact.

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