

# Financial Literacy and Financial Inclusion: A Case Study of Punjab

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**Abstract:-** The successful inclusion of the financial services to the people of the country requires good level of financial literacy among them. By looking the strong relationship between financial literacy and financial inclusion, the present study aims to identify the main factors affecting the level of financial literacy in India with special reference to Punjab State. The study is based on the primary data collected from three main districts (Amritsar, Jalandhar, & Ludhiana), one each from all three regions of Punjab namely, Majha, Doaba, and Malwa. Data have been collected from both rural and urban areas of each districts and comparative analysis has been conducted to show the differences in level of financial literacy within the district and between the districts. Chi-square test has been utilized to check the association between respondents' characteristics and their existing level of financial knowledge. The whole analysis reveals that there exist differences in the level of financial literacy between male and female respondents and it is less in female respondents. These differences are also lies between urban and rural respondents. The level of financial literacy is higher in urban areas than in rural areas. Finally, the respondent's qualification and its parental qualification also affect the level of financial knowledge in Punjab. On the basis of results, the study recommends the adoption of policies related to the women empowerment in both urban and rural areas which may help in reducing the gap between financial literacy among two areas and improve the overall level of financial literacy. The improvement in the level of financial literacy will further enhance financial inclusion as per the linkage between two.

**Keywords:** *Financial Literacy, Financial Inclusion, Punjab, Rural, Urban*

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## 1. Introduction

As per the report of the committee on financial sector reforms (2009), "Financial inclusion is not only about credit, but providing a wide range of financial services, including saving accounts, insurance, and remittance products". The main aim of the financial inclusion is the assurance of financial services to all people of the country and especially when they are in need of those services. It is both for poor and rich people. It helps in creating the savings habits among all sections of the society, especially among the lower sections, and broadens the resource base of the country which further contributes in economic development. The easier credit availability to the weaker sections further helps in mitigating their exploitation from the hands of local moneylenders. In addition to the monetary benefits, it also contributes in improving their standard of living in the country which results in demand for more accountability in the provision of government services and improves efficiency of public services.

The successful inclusion of the financial services to the people of the country requires good level of financial literacy among them. Many factors are involved in financial literacy and most prominent are: attitude, behavior, knowledge and skill. In general notion, a person is financially literate if he/she has the knowledge of day to day financial matters, skills to apply that knowledge for his/her betterment and gained from them. These abilities help them to use the available financial services provided by the government for their betterment in their whole life time. The term financial literacy is mostly related to banking, investment and various governmental social schemes which are related to the money and finance. The level of awareness and involvement of the citizens at each step determines the level of financial literacy and hence financial inclusion. Therefore, one can interpret the improving level of financial literacy as a helping hand to increase the demand for financial services in a country which is provided by the government through financial inclusion.

UNDP (2012) in his report highlighted the role of financial literacy in financial inclusion in India through uplifting those disadvantaged people who continue to be innocent and unknowingly irresponsible due to lack of knowledge related to financial matters. The study also focused on the indirect role of improving financial literacy on consumer rights protection. Agarwalla, *et al.* (2013) studied the role of various socio-demographic factors in determining the level of financial literacy among the working young people in urban India. The study found very low level of financial knowledge among the urban youth among total sample of urban youth taken for the study purpose. The study also found the influence of gender, joint family system on the level of financial knowledge among urban youth. It also reveals that the level of high education does not lead to the high level of financial literacy. The study recommends the improvement of financial literacy which further helps in improving the financial behavior among them.

National Centre for Financial Education (NCFE) in 2014 provides the extent of financial literacy and financial inclusion in almost all states of India. As per the report, there exist vast differences in financial literacy rate between all states of India which is the main reason for differences in level of financial inclusion in various parts of the country. The report also highlights the differences in level of financial literacy between male & female; and rural & urban areas in mostly all parts of the country. State-wise reports of NCFE (2014) reveal that the overall level of financial literacy in Punjab is 13 percent which is lower than the all India average which is 20 percent. On the other hand, the level of overall financial inclusion in Punjab is greater (12 %) than the all India average level of financial inclusion of 11 percent. The difference is not much higher in case of level of financial inclusion in comparison to the differences in level of financial literacy.

The present study is an attempt to show the existing level of financial literacy in three different regions of Punjab state by collecting primary data from three main districts, one from each region. The study also identifies those factors which are responsible for the low level of financial literacy in the state and suggest some of the policy measures to improve the level of financial literacy in Punjab which further help in improving the financial inclusion. To pursue the objectives, the present study has been divided into four main sections including the present introductory one. In Section 2, sample design and data construction have been explained in detail. It also provides brief exposition of statistical tools used for the empirical analysis. Section 3 presents the empirical findings of the study with discussion. The final section concludes and provides some policy prescriptions on the basis of the empirical analysis.

## 2. Methods

### 2.1 Sample Design and Data Construction

The present study is based on the primary data collected from three main districts (Amritsar, Jalandhar, & Ludhiana) one each from all three regions of Punjab namely, Majha, Doaba, & Malwa. Socio, Economic and demographic factors are considered while preparing the questionnaire. Data have been collected from both rural and urban areas of each district and comparative analysis has been conducted to show the differences in level of financial literacy within the district and between districts. Further, within rural and urban setup, respondents are categorized into two age groups: 18 – 34 years old and 35 years old and above. To account for the gender issue, the whole sample contains the equal ratio of male and female respondents.

The questionnaire used for collecting the primary data includes mostly the closed ended questions. Data on social factors have been constructed from the questions related to the respondent's personal information such as religion, caste, marital status, educational qualification, parental education, and living conditions. Some open ended questions have also been used to know the earning and expenditure behavior of the respondents. Under earning behavior, questions on income received from various sources have been asked and under expenditure behavior, questions on respondent's common monthly expenditures have been asked for some theoretical insights. Further, to check their knowledge about financial activities and level of their involvement in those, mostly closed ended questions have been utilized. These questions are related to their awareness about existing financial schemes offered locally or at national level; their saving habits; their borrowing behavior; their knowledge about internet banking, insurance schemes, future plans among others. All the options of closed ended questions have been given appropriate code to get the required information for the study purpose.

### 2.2 Methodology Applied

The study has used the statistical ratios and Chi-square test to present the level of financial literacy in all three regions of Punjab state and calculate the factors affecting it. Chi-square test has been used to check the association between various characteristics of respondents and their level of financial literacy. Due to the categorical nature of the variables, the Chi-square test of independence has been utilized. Under this test, one can test the hypothesis whether two categorical variables are related. Like other test of hypothesis, null hypothesis has been defined as: the two variables are orthogonal meaning that they are not related. Against this hypothesis, the alternate becomes, both are associated. The research hypothesis for this study becomes:

**Null Hypothesis:** The two categorical variables are Independent

**Alternate Hypothesis:** The two categorical variables are dependent

### Assumptions of Chi-square test

As per this test, the data in hand should satisfy following two main assumptions:

- 1) Two variables should be categorical variables; and
- 2) The number of categories should be two or more than two.

My data satisfies the above two assumptions and suits to our analysis perfectly. This test provides a method for testing the association between the row and column variables. To analyze the data, two-way table needs to be constructed known as

contingency table<sup>1</sup>. The column variable in our case is financial knowledge and row variables in our case are the various characteristics which are taken individually with financial knowledge for the final results. The value of Chi-square can be calculated by using the following formula:

$$\chi^2 = \sum \frac{(Observed - Expected)^2}{Expected} \dots (1)$$

Where, *observed value* is the actual cell value in the contingency table and *expected value* can be calculated by using the following formula:

$$Expected\ Value = \frac{Row\ Total \times Column\ Total}{n}$$

Where n is the total number of observations included in the table.

The value of Chi-square calculated using the formula (1) is compared with its tabulated value at a given level of significance using respective degrees of freedom to get the final decision. The degrees of freedom can be calculated as:

$$Degrees\ of\ freedom = (r - 1)(c - 1)$$

Where, *r* stands for number of rows; and *c* stands for number of columns in the contingency table.

**Decision Rule:** If calculated value (from equation 1) is greater than the tabulated value then null hypothesis is rejected and one can say that two variables are associated significantly at a given level of significance. In case of P-value, if it is less than the given level of significance then null hypothesis will be rejected.

### 3. Results and Discussion

The present section is divided into following two sub-sections in which first section presents the descriptive statistics of the collected data used for the analysis purpose and the second section shows the application of Chi-square test to check the association between various factors and existing financial literacy among the respondents.

#### 3.1 Extent of Financial Literacy

As already explained, the analysis is based on the primary data collected from 150 respondents from all three regions of Punjab. After analyzing the whole data, the study found four such different respondents whose representation in the sample is not enough to get the required results. Two respondents from Doaba region have not been considered because they belong to the Christian religion which does not have appropriate representation in the total sample of 150 respondents. Further, two respondents from Majha region have not been considered due to their marital status (Widow). The reason behind its deletion is again the lack of appropriate representation in the total sample. Hence, the final sample size for the analysis purpose remains 146. Table 1 shows the region-wise level of financial literacy represented by the variable financial knowledge which is constructed using the data on eleven<sup>2</sup> main indicators.

**Table 1: Frequency Table of Financial Knowledge Scores**

Financial Knowledge Score	Frequency (Number of Respondents)		
	Majha	Doaba	Malwa
0	2	--	--
1	5	2	1
2	4	5	7
3	1	7	7
4	1	7	4
5	4	5	9
6	6	2	4
7	8	6	1
8	10	4	2
9	5	3	4
10	2	3	6
11	--	4	5
<b>Total Respondents (n)</b>	<b>48</b>	<b>48</b>	<b>50</b>

<sup>1</sup> Contingency tables can be supplied by the researcher on demand.

<sup>2</sup> See Appendix Table A2 for those eleven factors whose sum represents the financial knowledge variable for this study.

<b>Male</b>	<b>25</b>	<b>24</b>	<b>26</b>
<b>Female</b>	<b>23</b>	<b>24</b>	<b>24</b>
<b>Urban</b>	<b>24</b>	<b>24</b>	<b>25</b>
<b>Rural</b>	<b>24</b>	<b>24</b>	<b>25</b>
<b>Mean Score</b>	<b>5.77</b>	<b>5.69</b>	<b>5.90</b>
<b>Overall Mean = 5.79</b>		<b>Total Sample Size (N) = 146</b>	
<b>Source: Author's Calculations</b>			

The range of this variable (see column 1 in Table 1) is from 0 to 11 wherein high score represent the higher level of financial knowledge and vice versa. The frequency table shows that the average financial knowledge score in all three regions are approximately equal and shows the intermediate level of existing financial knowledge in all three regions of Punjab. In Majha region, the level of financial knowledge for more than 50 percent of respondents is higher than the average level of financial knowledge in the region. It shows that Majha region, particularly in Amritsar district, possess more financial literacy than other regions/districts taken in the study for the analysis purpose. Further, Table 2 shows the mean score of financial knowledge as per the respondents' characteristics.

<b>Table 2: Characteristic-Wise Mean Score of the Existing Financial Knowledge</b>			
<b>Characteristic</b>	<b>Majha</b>	<b>Doaba</b>	<b>Malwa</b>
	<b>Level of Financial Knowledge (Mean Score)</b>		
Male	6.52	6.08	6.81
Female	4.96	5.29	4.91
Urban	6.62	6.58	7.12
Rural	4.92	4.79	4.68
Urban Male	7.46	7.15	8.08
Rural Male	5.50	4.81	5.54
Urban Female	5.64	5.90	6.08
Rural Female	4.33	4.76	3.75
Age between 19-34Yrs.1	5.69	6.19	5.52
Age 35 Yrs. & above	5.84	5.09	6.28
Married	5.61	5.59	6.23
Un-Married	6.4	5.88	5.37
Hindu	6.11	5.71	6.19
Sikh	5.3	5.64	5.14
General	5.61	6.23	6.06
SC	6.29	5	5.57
OBC	6	4.28	5.56
<b>Source: Author's Calculations</b>			

The results in Table 2 show that mean score of male respondents are more than their female counterparts in all three regions. Also, the mean score is greater in urban areas in comparison to rural one. It shows that the level of financial literacy is higher in men and in urban areas. Further, in Majha region (Amritsar district), the level of financial literacy is approximately same in both types of age groups whereas this level is higher in respondents belonging to age group 19-34 years in Doaba region (Jalandhar district) and lower in Malwa region in respondents belonging to the same age group (19-34 yrs.).

Moreover, the level of financial knowledge is higher in unmarried persons in Amritsar district and lower in Ludhiana district belonging to Malwa region. For Malwa region, married persons are more financially literate. For Doaba region, the mean score are approximately same. Further, mean score is higher in case of Hindus in comparison to the mean score for Sikh respondents in all three regions of Punjab. Finally, in Majha region, particularly in Amritsar district, the knowledge about financial instruments are higher in SC and OBC communities but in other two regions, Doaba and Malwa, the extent of financial knowledge is greater in general class than the other counterparts.

### 3.2 Factors Affecting Financial Literacy

In addition, the application of Chi-square test has been used to check the association between various characteristics of respondents with their existing level of financial literacy. The results have been presented in the following four tables (3 to 6)

wherein first three tables show the region-wise results of Chi-square test with the value of correlation and the final table shows the value of Chi-square test and the value of correlation for the entire sample of 146 respondents.

**Table 3: Factors Affecting Financial Knowledge in Majha Region of Punjab**

S.N.	Characteristic	Chi-Square Value <sup>#</sup>	Correlation <sup>@</sup>
1.	Gender	11.271 (0.337)	-0.256** (0.028)
2.	Area	30.695*** (0.001)	-0.204* (0.099)
3.	Age	16.955* (0.075)	-0.003 (0.984)
4.	Caste	21.887 (0.347)	0.120 (0.369)
5.	MaritalStatus	9.953 (0.445)	0.091 (0.484)
6.	Religion	12.166 (0.274)	-0.071 (0.589)
7.	Qualification	42.604 (0.762)	0.332*** (0.001)
8.	Father'sQualification	47.542 (0.192)	0.394*** (0.000)
9.	Mother'sQualification	42.749 (0.354)	0.277*** (0.006)
10.	Type ofHouse	12.411 (0.258)	-0.105 (0.425)

**Notes:** #: Value of Likelihood Ratio due to violation of one of the assumption of Chi-Square test i.e. the percentage share of less than five expected counts are greater than 20 percent; @: Value of Kendall's tau-b due to categorical variables; Figures in parenthesis of type ( ) are the p-values; \*\*\*, \*\*, and \* represent the significance level at 1, 5, and 10 percent.

**Source:** Author's Calculations

Results in table 3 show that the type of locality is strongly associated with the level of financial literacy in Amritsar district. The corresponding negative correlation shows that the movement of urban to rural area leads to low level of financial knowledge which represents low financial literacy. Further, the results also show the evidence of weak association between age and level of financial literacy in the Amritsar district. All other characteristics are not significantly related to the level of financial knowledge in this district. The results in Table 4 show that in Doaba region of Punjab, there is no evidence of strong association between any characteristic of respondent and level of financial knowledge.

**Table 4: Factors Affecting Financial Knowledge in Doaba Region of Punjab**

S.N.	Characteristic	Chi-Square Value <sup>#</sup>	Correlation <sup>@</sup>
1.	Gender	10.733 (0.379)	-0.110 (0.371)
2.	Area	9.825 (0.456)	-0.240** (0.042)
3.	Age	10.400 (0.406)	-0.168 (0.164)
4.	Caste	18.847 (0.532)	-0.218** (0.038)
5.	MaritalStatus	4.388 (0.928)	0.040 (0.743)
6.	Religion	11.781 (0.300)	0.004 (0.971)
7.	Qualification	49.666	0.187*

		(0.487)	(0.095)
8.	Father'sQualification	36.510 (0.192)	0.130 (0.214)
9.	Mother'sQualification	42.175 (0.377)	0.333*** (0.001)
10.	Type ofHouse	15.593 (0.112)	0.057 (0.662)
<b>Notes:</b> #: Value of Likelihood Ratio due to violation of one of the assumption of Chi-Square test i.e. the percentage share of less than five expected counts are greater than 20 percent; @: Value of Kendall's tau-b due to categorical variables; Figures in parenthesis of type ( ) are the p-values; ***, **, and * represent the significance level at 1, 5, and 10 percent.			
<b>Source:</b> Author's Calculations			

In case of Malwa region of Punjab, many characteristics are associated with the existing level of financial literacy. Those are: gender, area, age, marital status, and father's qualification among others. The correlation values show the type of relationship corresponding to each association.

<b>Table 5: Factors Affecting Financial Knowledge in Malwa Region of Punjab</b>			
S.N.	Characteristic	Chi-Square Value <sup>#</sup>	Correlation <sup>@</sup>
1.	Gender	17.522* (0.064)	-0.250** (0.028)
2.	Area	17.061* (0.073)	-0.371*** (0.000)
3.	Age	18.420** (0.048)	0.060 (0.642)
4.	Caste	23.540 (0.263)	-0.034 (0.740)
5.	MaritalStatus	18.847** (0.042)	-0.071 (0.550)
6.	Religion	14.992 (0.132)	-0.121 (0.278)
7.	Qualification	48.202 (0.175)	0.176* (0.088)
8.	Father'sQualification	63.251* (0.099)	0.377*** (0.000)
9.	Mother'sQualification	57.150 (0.227)	0.409*** (0.000)
10.	Type ofHouse	5.997 (0.815)	-0.011 (0.927)
<b>Notes:</b> #: Value of Likelihood Ratio due to violation of one of the assumption of Chi-Square test i.e. the percentage share of less than five expected counts are greater than 20 percent; @: Value of Kendall's tau-b due to categorical variables; Figures in parenthesis of type ( ) are the p-values; ***, **, and * represent the significance level at 1, 5, and 10 percent.			
<b>Source:</b> Author's Calculations			

Finally, Table 6 shows that for overall sample, the main characteristics which are responsible for the differences in level of financial knowledge are the region, area, age, and qualification. Results show that the level of financial knowledge is significantly differs in each region of Punjab state. It also shows that the level of financial knowledge is strongly linked with the type of area and it is better in urban area than in rural area as shown by negative correlation value. The negative correlation value shows that movement from urban to rural area will lead to decline in financial knowledge. The level of financial knowledge is also associated with the respondents' age. It is more in young population than in the older population. Further, the results also show that the level of financial knowledge and the level of education are strongly and positively associated. Higher the level of education will lead to higher level of financial literacy. Parental education also matters and positively linked with the respondents' level of financial knowledge.

**Table 6: Factors Affecting Financial Knowledge in Punjab**

S.N.	Characteristic	Chi-Square Value <sup>#</sup>	Correlation <sup>@</sup>
1.	Region	46.995*** (0.001)	0.023 (0.738)
2.	Gender	15.419 (0.164)	-0.201*** (0.003)
3.	Area	24.883*** (0.009)	-0.280*** (0.000)
4.	Age	18.083* (0.080)	-0.008 (0.913)
5.	Caste	15.217 (0.853)	-0.070 (0.290)
6.	MaritalStatus	13.933 (0.237)	0.000 (0.995)
7.	Religion	9.794 (0.549)	-0.085 (0.222)
8.	Qualification	71.188* (0.070)	0.233*** (0.000)
9.	Father'sQualification	75.405** (0.035)	0.282*** (0.000)
10.	Mother'sQualification	89.156*** (0.002)	0.324*** (0.000)
11.	Type ofHouse	6.826 (0.813)	-0.004 (0.951)

**Notes:** #: Value of Likelihood Ratio due to violation of one of the assumption of Chi-Square test i.e. the percentage share of less than five expected counts are greater than 20 percent; @: Value of Kendall's tau-b due to categorical variables; Figures in parenthesis of type ( ) are the p-values; \*\*\*, \*\*, and \* represent the significance level at 1, 5, and 10 percent.

**Source:** Author's Calculations

#### 4. Conclusions

The present study tried to present the differences in level of financial literacy in three main areas of Punjab. It also aimed to identify the factor affecting the level of financial literacy in India with special reference to Punjab State. Primary data from 150 respondents has been collected for the study purpose. Chi-square test has been utilized to check the association between respondents' characteristics and their existing level of financial knowledge.

The overall conclusion emerges from the present analysis is that there exist differences in the level of financial literacy between male and female respondents. These differences are also lies between urban and rural respondents. The level of financial literacy is higher in urban areas than in rural areas. Finally, the respondent's qualification and its parental qualification also affect the level of financial knowledge in Punjab. On the basis of results, the study recommends the adoption of policies related to the women empowerment in both urban and rural areas which may help in reducing the gap between financial literacy among two areas and improve the overall level of financial literacy. The improvement in the level of financial literacy will further enhance financial inclusion as per the linkage between the two.

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*Appendix Tables*

**Table A1: Factors Description**

S.N.	Variable	Codes	
1.	Gender	Male = 0	Female = 1
2.	Area	Urban = 0	Rural = 1
3.	Age Dummy	For 19-34 yrs. = 1	Above 35 = 2
4.	Caste	General=1; SC=2	OBC=3
5.	Marital Status	Married=1	Un-Married=2
6.	Religion	Hindu=1	Sikh=2
7.	Qualification	Less than class 5 <sup>th</sup> =0; Matric =1; Senior Secondary =2;	Graduation=3; Post-Graduation (PG)=4; PG & Above=5
8.	Type of House	Rental=0	Owned=1
9.	Financial Knowledge (Larger score represents more knowledge)	Minimum Score = 0	Maximum Score = 11

**Source:** Author's Elaboration

**Table A2: Construction of Financial Knowledge Variable**

S.N.	Variable	Codes	
1.	Awareness of Financial Schemes(Question number 4.1)	No = 0	Yes = 1
2.	Bank A/C (Question number 4.11)	No = 0	Yes = 1
3.	Online Banking (Question number 4.16)	No = 0	Yes = 1
4.	ATM Holder (Question number 4.17)	No = 0	Yes = 1
5.	Difference b/t CC and DC (Question number 4.20)	No = 0	Yes = 1
6.	Pension scheme (Question number 4.22)	No = 0	Yes = 1
7.	Insurance policy (Question number 4.23)	No = 0	Yes = 1
8.	Difference b/t FD and RD (Question number 4.26)	No = 0	Yes = 1
9.	Knowledge of ROI on FD (Question number 4.27)	No = 0	Yes = 1
10.	D-Mat A/C holder (Question number 4.29)	No = 0	Yes = 1
11.	Knowledge of Budget (Question number 5.2).	No = 0	Yes = 1

**Source:** Author's Elaboration