

# Self Assessed Financial Knowledge: Evidence from Educated and Employed Urban Indian Population

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**Abstract** - The paper reports investigation of the various factors influencing financial literacy in the Indian context in light of the socio demographic and economic conditions prevailing in the Indian urban cities specifically in the Indian metro cities. Indian metro cities are synonymous to the apparitional middle class who are motivated to prefer education, employment in fulfilling their financial well beings. The study reports the measure of the financial literacy levels of this population through a set of questions as well obtained the response from the same respondents on their assessment of self on how they rate themselves on their own financial knowledge.

The paper referred to the OECD 2011 framework of a composite measure of financial literacy that combines individual scores of the three dimensions of financial literacy namely the Financial Knowledge [FK], Financial Behaviour [FB] and Financial Attitude [FA]. The scores of financial knowledge so obtained through the above framework were the compared to the self assessed financial knowledge scores of the respondents to analyze the association between measured levels of financial knowledge and respondent's self assessed financial knowledge to report that the respondents are generally correct in their assessment of their own financial knowledge level or skills.

**Keywords:** Financial Literacy, Financial Knowledge, Financial Behaviour, Financial Attitude, Self Assessed Financial Literacy, OECD, PISA.

**JEL Codes:** D10, D14, D91, G41

## I. INTRODUCTION

Financial Literacy is a multi-dimensional relative concept measured in terms of a person's understanding, behaviour, and attitude to management of money within the prevailing economic, financial and demographic environment. In the prevailing complex scenario around the global economy and financial markets, the challenges are multi dimensional arising out of the uncertainty of multiple alternatives of individual wealth management, savings, and market risks. Financial literacy and resulting competence could uniquely prepare and compliment life skills of the citizens who can handle opportunities and risks of financial decisions with relative efficiency. The increasingly complex financial scenario is exposing citizens to daily challenges while deciding on their money management alternatives and this makes financial literacy as a major key skill for all citizens.

Financial literacy around the world is found to be low as measured by various studies including the OECD (2013) survey study carried out across 14 countries. In India, the

levels of financial literacy are poor even by the low global standards, according to studies such as the VISA International Financial Literacy Barometer, 2012; Agarwalla, Barua , Jacob, Varma, 2013; MNYL-NCAER, 2007.

The financial incompetence is not only limited to people who are from lower strata of society but also prevalent in those social strata who are well off (High Income), educated. Further this well off strata has long been included in the mainstream of financial system (financially Included) through banking and other financial channels.

### Indian context

The Indian economy is growing from at steady pace bringing about a change in India's socio-economic profile by creating more jobs, higher disposable income, change in life style and leading consumers to spend more. Easy loans, popularity of credit cards, rising consumerism and compulsive life style needs are exposing good numbers of Indian homes to the risk of being financially vulnerable in

the future. As this system crumbles, there is a greater need to work towards making Indian households more financially secure. The Indian context warrants that the majority of population accepts and appreciates the need and importance of financial competence for their well being. Financial competence could uniquely prepare and compliment life skills of the populace who can handle the opportunities and risks with relative efficiency.

**Definition of Financial Literacy**

The OECD 2012-13 (Atkinson, A. and F. Messy, 2012) defines financial literacy as “A combination- of knowledge, behaviour and attitude -necessary to make sound financial decisions and ultimately achieve financial well being”

The financial literacy has been accepted as major skills for financial well being though globally we face challenges of large scale financial illiteracy. Many studies around the world report on much of the world's population continue to be suffering from financial illiteracy and advocate for urgent measures to remedy the problem of financial illiteracy (Lusardi and Mitchell, 2011; Atkinson and Messy, 2012; Brown and Graf, 2013; Shlomo Benartzi and Richard H. Thaler , 2013; World Bank, 2014).

**Factors Impacting Financial Literacy**

There exists a knowledge gap about fundamental link in literacy, education and behavior as appropriate data is not available for these variables. Though in some studies of US population efforts have been undertaken to construct sophisticated measures of Financial Literacy and establish causal links between financial education, literacy and behaviour (Bernheim, 1995; Annamaria Lusardi and Mitchell, 2007a, b; Van Rooij, Lusardi and Alessie, 2011).

Several papers link financial literacy to set of behaviors like education levels, Income levels, saving, wealth, and portfolio choices. It has been established in some papers that individuals with higher numeracy and financial skills will opt for investing more in stocks or participate in financial markets (Campbell, 2006; Hastings Tejada-Ashton and Lydia, 2008; Hastings and Mitchell, 2011).

An alternative approach to eliciting financial literacy levels which has also become prevalent in the literature involves asking survey respondents for a self-assessment of their financial capabilities. A study by Agnew and Szykman (2005) tested the respondents of self assessed financial literacy and reported that the respondents tend to be over confident on how much they really know on financial domain.

**Low Financial Literacy not limited to Lower Income Group**

In India with complex societal and income profiling, basic financial competence and relevant level of financial education is significantly more relevant for people who are on the marginal end-resource poor however when it comes to channelizing savings to markets or its proper use even the mainstream financially included population perform

poorly on their financial behaviour or attitude. There are significant number of people who either avoid using the services or continue to look for traditional products or being misled into seeking predatory products, services that are not what they intend to seek.

The financial literacy scores for the study has been derived for a sample population residing in major Indian metro city specifically from National Capital Region India, having high education and high income, by evaluating them on three dimensions of financial knowledge, financial behavior and financial attitude attributes.

**The framework for measurement of financial literacy**

While finalizing the definition and concept for financial literacy the OECD (2011) has considered the three major dimensions to measure and explain financial literacy; these three dimensions are Financial Knowledge, Financial Behaviour and Financial Attitude. The OECD has used these three basic dimensions to derive a composite 22 point score of Financial Literacy by combining the individual scores of Financial Knowledge [FK-Maximum Score of 8], Financial Behaviour [FB-Maximum Score of 9] and Financial Attitude [Maximum Score of 5]. Each of the three components of financial literacy measure through questionnaire, the few main aspects of Financial Knowledge [8 questions], Financial behaviour [9 questions] and financial attitude [3 questions] covering the following aspects:

Dimensions of Financial Literacy	Variable Content
<b>Financial Knowledge (FK)</b>	<ul style="list-style-type: none"> <li>• Basic Division.</li> <li>• Simple and compound interest calculations.</li> <li>• Time value of money.</li> <li>• Understanding of inflation and its impact on investment return.</li> <li>• Investment return based on risks.</li> <li>• Investment diversification and return.</li> </ul>
<b>Financial Behaviour (FB)</b>	<ul style="list-style-type: none"> <li>• Ability to decide on affordability of products and expenses to it.</li> <li>• Habit of paying bills on time</li> <li>• Belief in designing household budget and personally monitoring it.</li> <li>• Behaviour related to regular savings habits.</li> <li>• Behaviour related to inclination to borrow when short of money.</li> </ul>
<b>Financial Attitude (FA)</b>	<ul style="list-style-type: none"> <li>• Belief in saving.</li> <li>• Belief in long term saving, planning.</li> <li>• Belief in risk taking while investing.</li> </ul>

**Financial Literacy -Self Assessment**

In addition to test based measures to measure financial literacy, few of the studies also included questions that allowed the respondents to rate themselves for their own financial literacy skills. The respondents were given scaled

measure to rate themselves on how competent they think themselves on their financial capabilities. This is categorized as self assessment measure of financial knowledge.

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## II. LITERATURE REVIEW

The OECD (OECD, 2012) defines financial literacy as – “A combination -of knowledge, behavior and attitude - necessary to make sound financial decisions and ultimately achieve financial well being”. Moore (2003) explains, “Individuals are considered financially literate if they are competent and can demonstrate they have used knowledge they have learned”. The information on levels of financial literacy is relatively limited especially in developing or emerging economies. In the developed nations like USA, UK, and other European Countries a relatively richer strand of literature is available on financial literacy and financial competence.

Financial literacy around the world is found to be low as measured by various studies including the OECD (2013) survey study carried out across 14 countries; Moore, 2003; Mandell, 2004, Agnew and Szykman, 2005; Lusardi and Mitchell, 2006 reported widespread financial illiteracy.

In India, the levels of financial literacy are poor even by the low global standards, according to some studies such as the VISA International Financial Literacy Barometer (2012).

Bernheim (1995) mentions key demographic variables like Gender-women, Education-the less educated, Income- low income, Ethnicity-ethnic minorities; Age-older/younger respondents severely affect financial literacy levels. Several papers (Christelis, Jappelli and Padula, 2010; Almenberg and Widmark, 2011; Van Rooij, Lusardi and Alessie, 2011) link financial literacy to set of behaviors like education levels, Income levels, saving, wealth, and portfolio choice. It has been established in some papers that individuals with higher numeracy and financial skills will opt for investing more in stocks or participate in financial markets.

Financial Literacy remains a relatively less researched area of behavioral finance; even the measures of Financial Literacy used in available studies are often very basic. In various studies researchers used very basic measures while evaluating Financial Literacy like Lusardi and Mitchell (2006, 2007 a) opted for just three questions to measure Financial Literacy, researcher Stango and Zinman (2007) measured the literacy level with only one question. The OECD surveys (2005, 2010, 2012, 2016) use a series of questions to measure knowledge, behavior and attitude to be the sum of scores on these three dimensions.

### Financial Knowledge -Self Assessment

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An alternative approach to eliciting financial literacy levels which has also become prevalent in the literature involves asking survey respondents for a self-assessment of their financial capabilities. A study by Agnew and Szykman (2005) tested the respondents of self assessed financial literacy and reported that the respondents tend to be over confident on how much they really know on financial domain. Lusardi and Mitchell (2014, p. 11) in their measure of financial literacy asked the respondents to “self assess” themselves by asking “ How you self assess your overall financial knowledge on a score of 1 to 7, where 1 is very low and 7 is very high”. The financial decision involves responsibility for decisions that has short term as well long term consequences. The evidences emerging from self assessment survey of financial literacy indicates overconfidence on the part of the respondents with regards to their self rank of financial literacy and this over confidence may be a problem when the respondents base their financial decision on this self assessed financial capability with over confidence bias (Lusardi, Mitchell 2014). The sense of over confidence on their financial capability is more seen with the older people though they do perform relatively poorly on financial literacy score when assessed with test based measures of financial literacy. (Lusardi and Tufano,2015; Lusardi and Mitchell,2011a, c). On gender based trend of self assessed overconfidence on financial capability, it was found that generally the male respondents reported over confidence in their financial capability as compared to female respondents who tend to be under confident (Banner C E and Neubert M, 2016a). In another cross country study covering US, Dutch and German respondents, it was found that the gender difference is not only resulting from test based assessments but also on self assessment test where male respondents are found to be over confident of their self assessed financial capabilities as compared to female respondents who score relatively lower on test based assessment and also reported under confident on self assessment (Koenen T B, Lusardi A, Alessie R and Van Rooij,2016).

Some of the studies attempted to see the relationship between the self assessed financial literacy and the test based observations to find that these two do not always correlate strongly. (Collins et al. 2009; Hastings and Mitchell, 2011). The median correlation of observed financial literacy and self assessed financial literacy as reported by Agnew and Szykman (2005) came as 0.49 and this was qualitatively validated in the study of Lusardi and

Mitchell (2009); Parker AM, de Bruin WB, Yoong J and Willis R (2012). These self assessed and test based financial literacy scores found to be individually associated with the investment and financial decisions of the respondents and these scores individually predictive of respondents' actions on retirement planning, savings, diversification on investments and stock market exposure (Hastings J S, Madrian B C and Skimmyhorn W L ,2013; Asaad C T,2015;Allgood S and Walstad W B, 2016; Parker AM, de Bruin WB, Yoong J and Willis R ,2012; Van Rooij , Lusardi A and Alessi ,2011b;Banner C E and Neubert M ,2016b).

Wide disparity has been reported between assessment results of questionnaire based tests and the self assessed financial literacy in respect of the elderly population as there is prevalence of over confidence among elderly with regard to their belief in self financial capabilities (Gamble KJ, Patricia A B , Lei Yu and Bennett D., 2015).

Another fillip side of this overconfidence is that this group of elderly population are susceptible to financial frauds and scams as their overconfidence in self financial capabilities do not decline with age (Deevy M, Lucich S and Beals M ,2012).

### Sampling Design

Low Financial Literacy not limited to Lower Income Group. In India with rapidly changing income profiles of citizens, higher disposable income with significantly larger groups of people specifically in Indian metros, when it comes to channelizing savings into meaningful investment alternatives to meet long term financial goals even this group of upwardly mobile population fail to show significant skills as they perform very poorly on financial literacy dimensions like financial knowledge, behaviour or attitude.

The study considered respondents within the age bracket 25-55 years residing in major Indian Metro city specifically in National Capital Region India, having good education and gainfully earning and evaluating them on their financial literacy level for their financial attitude, financial behavior and financial knowledge attributes.

The sample size after accounting for missing value and error was 378; however total responses were collected from 435 respondents of National Capital Region-Delhi. The researcher has in the present study, adopted non-probability purposive sampling technique.

### III. STUDY METHODOLOGY

The study evaluated financial literacy levels by measuring people on financial knowledge, behavior and attitude while also investigating the socio-demographic variables that influence financial literacy scores of population.

An extensive list of questions was used to measure financial literacy and related variables. The demographic and individual attributes on which data was collected were

gender, age, level of education, marital status, family income, family size, no. of dependents, financial decision making process and budgeting of expenditure.

The OECD framework to measure financial literacy has been referenced for this study. The financial literacy was measured through a composite score for financial literacy derived from a combination of sub score on financial knowledge, financial behaviour and financial attitude. The level of financial knowledge was evaluated using a combination of eight very elementary and basic questions that tested the basic numeracy, computation of simple and compound interest (time value of money), understanding of link between inflation and price, relation between inflation and return, investment risk-return relation, concepts of diversification in reducing the risk. The Financial Knowledge questions contained a total of 8 score points with each question having a score point of 1. Each correct answer was given a score of one. Respondents with score of 6 and above were categorized as individuals possessing high financial knowledge.

The financial behaviour of the respondents was measured by a set of 9 questions investigating the way respondents dealt with money in their day to day routine affairs. The questionnaire subjected the respondents to 9 behavioral issues including evaluation on affordability of products and expenditures, checking the responses on timely payment of bills, behaviour relating to planning and monitoring of household budget, evaluation of financial products prior to investment, habits relating to active saving, responses to borrowing preferences or patterns. All correct responses were given a score of 1 and the wrong responses were scored as 0. All the respondents who scored a score of 6 or above were categorized as exhibiting good and acceptable financial behaviour in terms of scope of this study.

The financial attitude of the respondents was measured by obtaining scaled responses from the respondents. The study evaluated the financial attitude of the respondents using three questions referencing the OECD approach to capture the respondent's extent of belief in planning, propensity to save and consume. The scaled responses were evaluated using a scale from 1 to 5 by numerically adding all the 3 scaled responses and then dividing their total by 3 to get the attitude score. A score of 5 indicates the highest positive financial attitude score. Respondents with an average financial attitude score of greater than 3 on a combined total financial attitude score of across of 5 were categorized as those with positive financial attitude.

The profile of respondents for the study consisted of earning member male or female members of the family having family income of at least Rs. 5 lacs per annum with minimum educational qualification as under graduate. The respondents were obtained from gainfully working population of 3 categorical age groups age groups 25-36 Years; 36-45 Years; 46-55 Years, having annual family income in any of the following categories, more than Rs. 20

Lacs, within Rs. 5-15 Lacs per annum or less than Rs. 5 lacs per annum. The responses were collected individually through face to face response collection from 435 respondents of National Capital Region-Delhi.

The financial literacy for each respondent was derived using a composite measure of financial literacy score by adding respective individual score of respondent on financial knowledge, financial behaviour and financial attitude. It is only logical and likely that higher scores of respondents on each of these three dimensions will lead to a composite high score for financial literacy meaning a positive influence.

The literature on financial literacy favors the numerical competence of the respondents in shaping the overall financial literacy score and thus indicating key role of financial knowledge scores on the two other dimensions of financial literacy scores i.e. the financial behaviour and financial attitude. On the other hand the financial behaviour of the respondents may get shaped based on their attitude towards money i.e. their financial attitude scores. It is only logical and likely that higher scores of respondents on each of these three dimensions will lead to a composite high score for financial literacy meaning a positive influence.

**Self-reported financial knowledge**

Apart from measuring the respondents on their financial knowledge skills based on 8 questions on financial literacy, the present study also asked the respondents to rate themselves on a scale of 1 (Very Low) to 5 (Very High), Scale of 3 being Average. The respondents were asked “How would you rate your level of financial knowledge on a scale of 1 to 5”.

**Hypotheses of the study**

Self Assessed Financial Literacy		
No.	Null	Hypothesis
1	H0	There is no significant association between measured financial knowledge scores and the self reported financial knowledge of respondents

**IV. RESULTS AND DISCUSSIONS**

The scores of respondents on the three response variable financial knowledge, financial behaviour, financial attitude and a composite score of financial literacy derived through this survey on financial literacy indicate a low financial literacy score for the people with high education and high income. Only 15% of the respondents obtained high score, individually on all the three dimensions of financial literacy [Figure-5]. Over all 62% of the respondents scored high on financial knowledge, 52% of the respondents scored high on financial behaviour and 41% of the respondents scored high on financial attitude measures respectively [Figure-5].

The mean composite score for financial literacy for the study was 14.31 with standard deviation of 3.06 [Figure-2]. The study reported mean composite score of financial literacy as 14.31 which is comparable to OECD 2016 study of financial literacy of 30 countries that reported low financial literacy across countries with mean composite score of 13.96.

The low composite score of financial literacy reported under these aforesaid studies are despite the fact that the financial literacy questionnaire contained very basic and elementary questions related to financial knowledge, behaviour and attitude.

In the present study the respondents represented a population with high income and education residing in Indian Metro yet their composite score for financial literacy at 14.31 still remained within comparable range as reported for OECD countries covering a population from low to high income level and diverse educational background, social profile. The current study also reports that only 15% of the respondents scored high, individually on all the three dimensions (FK, FB, and FA) of financial literacy [Figure-5], the low score of 15% is relatively lower to the scores of most of the countries covered under OECD’2016 [Figure-5].

**Self-reported financial knowledge**

The figure 6 below presents the results of “Self Assessed Financial Knowledge” from the study. The average financial knowledge score as measured under the study on each scale of self rating (1-very low to 5-Very High) category is included in figure 7 below.

Figure 1: The distribution of self reported financial knowledge (%)

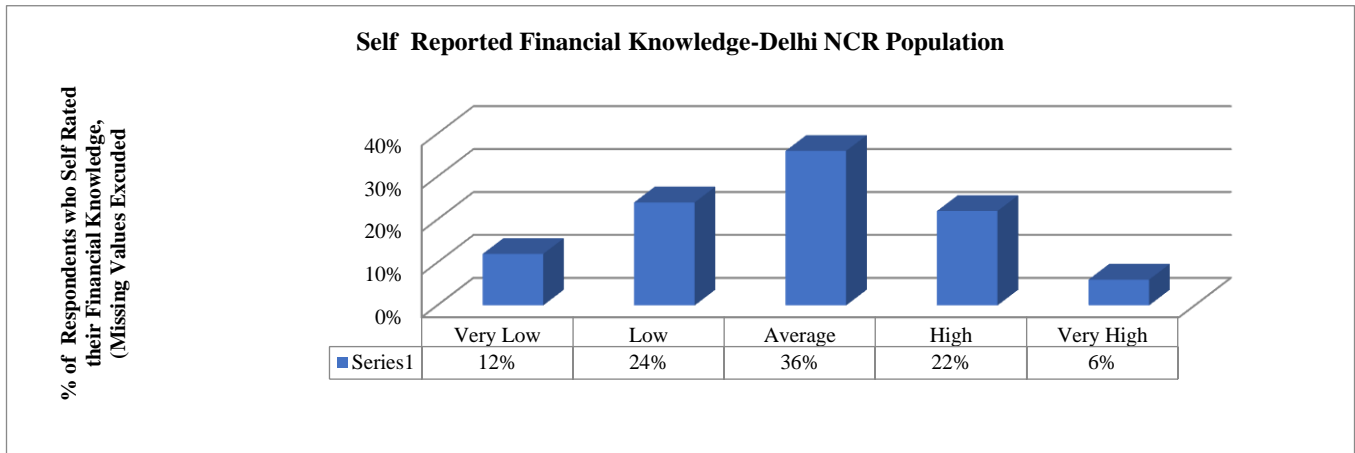


Figure 7: Avg. measured financial knowledge for self reported knowledge

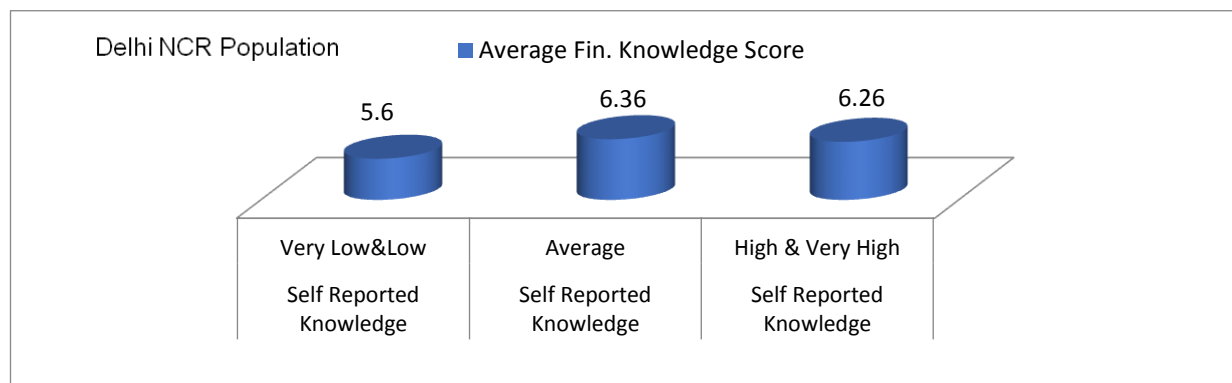


Figure 82: Results of OECD’2016# Survey on Self Rated Financial Knowledge

Country	Low/very low	Average	High/very high
Average Fin. Knowledge -OECD (Top 10 Countries)	4.39	5.04	5.61
OECD-2016 (Adjusted for 8 FK Question: multiplied by 8/7)	5.02	5.76	6.41

\*(OECD/INFE INTERNATIONAL SURVEY OF ADULT FINANCIAL LITERACY COMPETENCIES -OECD 2016)

The outcome of the self reported assessment of financial knowledge of the respondents under the present study, when compared with their average financial knowledge as assessed through questionnaire based framework of the study reflects that respondents are nearly correct in assessments of their own financial knowledge level.

It is however interesting to note that the High Financial Knowledge Score as reported under this study was 62% of all respondents (figure: 4) and the self reported financial literacy for respondents who reported average or higher financial knowledge came as 64% (figure: 6 above). The statistical test confirms there is significant relationship between self reported financial knowledge of the respondents and their financial knowledge scores, the assessed knowledge scores found to be significant at 0.05 levels (Refer: Hypothesis 1).

**Measured Financial Knowledge and Self Assessed Financial Knowledge- Inferential Statistics**

Sr No	Null	Hypothesis	Statistical Tool	Decision	Interpretation
1	H0	There is no significant association between measured financial knowledge scores and the self reported financial knowledge of respondents	Linear Regression	Null Hypothesis <b>Rejected</b>	The measured financial knowledge scores are <b>significant associated</b> to self reported financial knowledge.

**Association of Measured and Self reported Financial Knowledge**

**(Linear Regression)**

Coefficients <sup>a</sup>								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.101	.249		8.446	.000	1.611	2.590
	Measured FK Score	.126	.040	.181	3.161	.002	.047	.204

a. Dependent Variable: Self Reported FK Score

## V. CONCLUSION

The scores of respondents on the three response variable financial knowledge, financial behaviour, financial attitude and a composite score of financial literacy derived through this survey on financial literacy indicates a low financial literacy score for people with high education and high income. This is more concerning that the low composite score is despite the fact that the respondents represented upstream population of high income and education individuals and the financial literacy questions were very basic and elementary. The low scores of financial literacy also highlight that higher education and income profile of the respondents do not exactly reflect into higher financial literacy for them.

Gender of the respondent had some impact of financial literacy as male respondents generally scored better on financial literacy as compared to female respondents however this is not found statistically significant.

The study also analyzed the association between measured level of financial literacy and respondent's self assessed financial literacy ranking and found that the respondents are generally correct in their assessment of their own financial literacy level of skills. The measured financial knowledge scores are **significant associated** to self reported financial knowledge based on statistical inference. This outcome on self assessment is also found to be similarly reported in other studies like the OECD (2016).

Overall the financial literacy of individuals from Indian metro (Delhi NCR, India) having high education, high income is similar to the levels that prevail among comparable groups in other countries. There are however differences that are notable to mention, despite the education and income levels of the respondents in the sample being high, it does not translate into adequate financial literacy. This is likely due to lack of financial education measures adopted within the country's formal education system, lack of initiatives on the part of policy makers, financial services regulators, providers and employers. Regulated Interest rate regime adopted by government and monetary authority through small savings and bank fixed has indirectly influenced people to remain laidback on their appreciation for being financially well informed and competent. The policy makers and the stakeholders can come together for a comprehensive and more directed approach in addressing concerns of low financial literacy.

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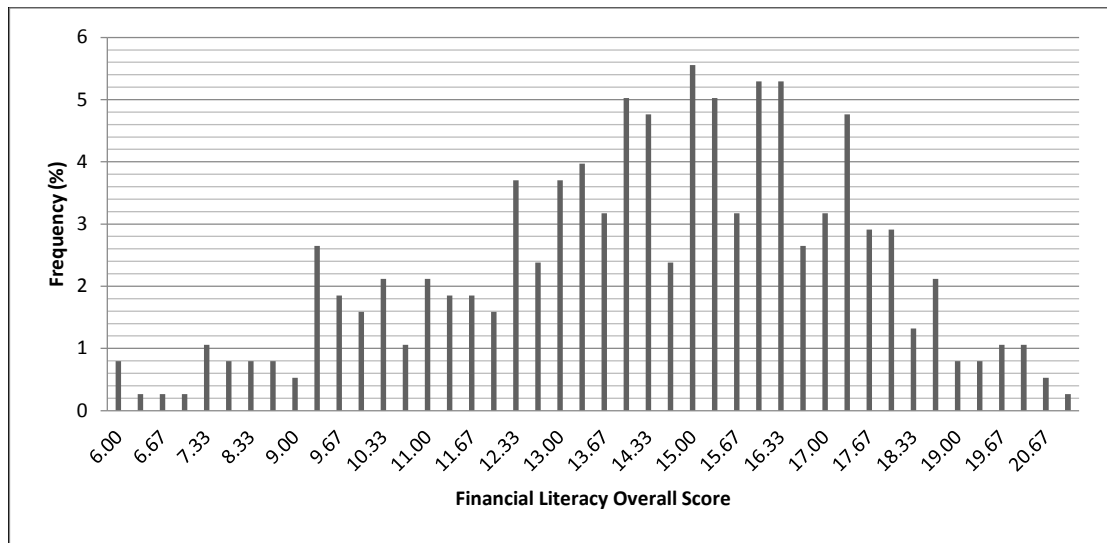
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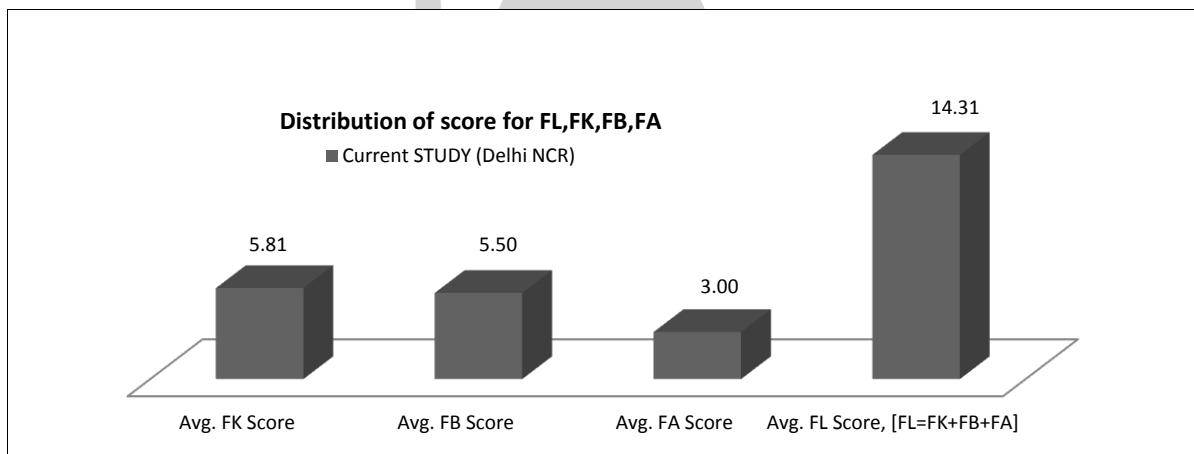
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**Figure 3: Distribution of Financial Literacy Score (all respondents)**



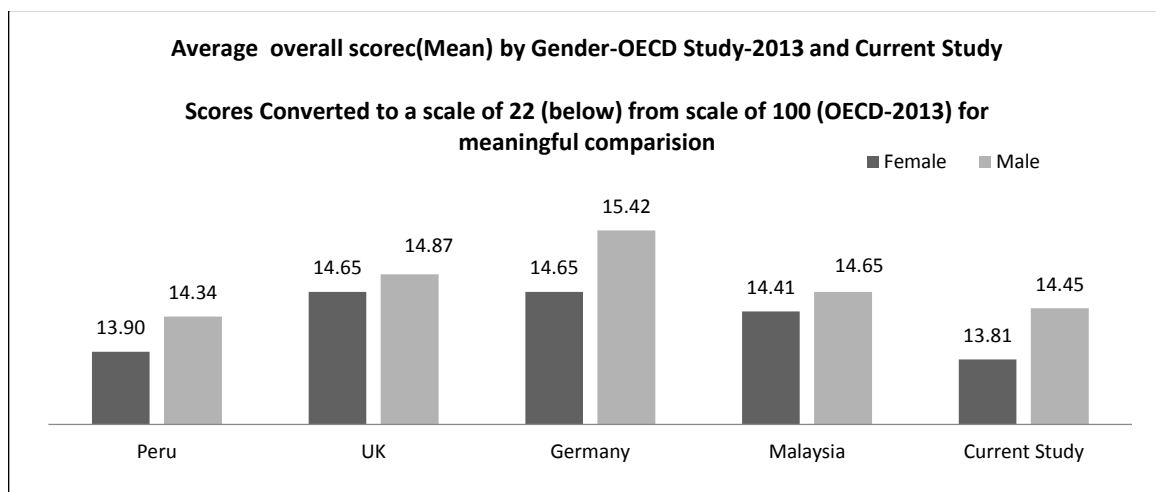
**Figure 4: Distribution of a composite score of Financial Literacy based on score for FK, FB, FA**

All respondents (overall FL score out of 22)



The current study has 8 FK questions (FK Max. Score=8) and Maximum FL score of 22

**Figure 5: Mean overall FL score by gender**



#FINANCIAL LITERACY AND INCLUSION: RESULTS OF OECD/INFE SURVEY ACROSS COUNTRIES AND BY GENDER (OECD 2013)

Figure 4: High And Low Score on All the Three Dimensions of Financial Literacy

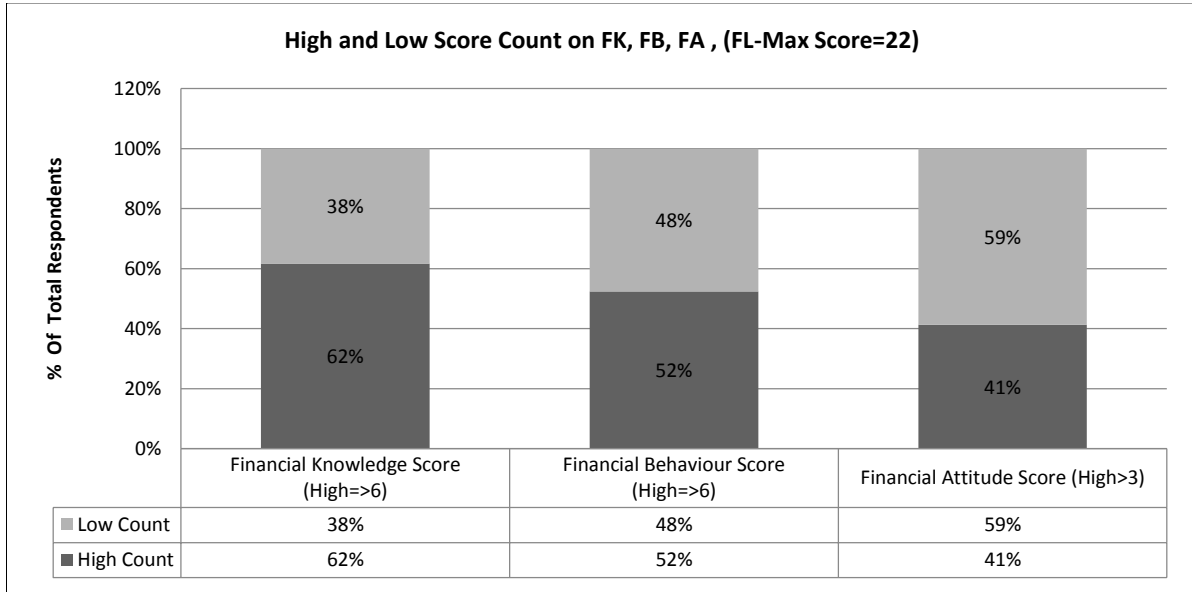


Figure 5: High Score Count [Weighted % all Respondents] in All 3 FL Dimensions FK, FB, FA

