

Beyond Knowledge: The Interplay of Financial Knowledge, Overconfidence, Under-confidence and Demographic Factors in Personal Financial Decision Making

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Abstract: *This study explores the intricate relationship between subjective and objective financial knowledge, overconfidence, under-confidence, and demographic factors in personal financial decision-making. Conducted in Hyderabad, Telangana, with a sample size of 412 individuals, the research employs a quantitative approach to analyze how demographic characteristics such as age, gender, education, employment, income, and work profile influence financial knowledge and decision-making. Findings reveal a moderate positive correlation between subjective and objective financial knowledge, highlighting significant discrepancies in financial self-assessment among the respondents. The study identifies four distinct segments: individuals with accurate self-assessment, those overconfident, under-confident, and those with misaligned financial knowledge. The analysis underscores the profound impact of demographic factors on financial knowledge, with age, education, employment, work profile and income emerging as key determinants. Additionally, the research demonstrates that overconfidence and under-confidence can significantly distort financial planning, leading to suboptimal financial outcomes. The study concludes that targeted financial education and intervention strategies, tailored to specific demographic segments, are essential for improving financial literacy and fostering more informed financial decision-making across diverse populations.*

Keywords: Financial Knowledge, Subjective Financial Knowledge, Objective Financial Knowledge, Overconfidence, Under Confidence, Personal Finance, Financial Literacy

1. Introduction

Personal financial planning is a systematic process for managing finances to achieve long-term goals. As outlined in the Missouri State University publication (2015), this process involves six critical steps:

- 1) Assessing Current Financial Position
- 2) Setting Financial Goals
- 3) Exploring Alternative Strategies
- 4) Evaluating Options
- 5) Implementing a Financial Action Plan
- 6) Regularly Reviewing and Updating the Plan

Apparently, the intricate nature of financial markets frequently results in decisions being made without a complete grasp of their consequences (Atkinson & Morelli, 2011; Chang, 2014; Alberto, 2018; Cardaci, 2018). In fact, Disney and Gatherwood (2019) found that individuals with low financial literacy are more likely to utilize high-cost credit products and demonstrate a lack of understanding regarding credit terms and financial concepts. Hence, the role of financial knowledge is crucial in personal financial planning as it empowers individuals to make informed decisions, manage risks effectively and achieve long-term financial stability and goals. Many previous studies have primarily focused on either subjective or objective financial knowledge independently, without thoroughly examining the relationship between the two. There is a research gap in understanding how these two dimensions interact and influence financial decision-making. This study bridges this gap by exploring the correlation between subjective

/objective financial knowledge and categorizing respondents into overconfident, underconfident and accurately assessed groups. The primary objective of this study is to examine the relationship between subjective and objective financial knowledge among individual investors in Hyderabad, Telangana and to analyse how demographic factors influence the region wise segmentation.

2. Review of Literature

In general, financial knowledge encompasses the conceptual understanding of finance matters along with its appropriate application in real life financial decisions. It equips an individual to navigate the financial affairs with utmost confidence and helps channelize the hard-earned money into productive and profitable investment ventures. As Huston (2010) puts it: "Financial knowledge is an integral dimension of, but not equivalent to, financial literacy. Financial literacy has an additional application dimension which implies that an individual must have the ability and confidence to use his/her financial knowledge to make financial decisions" (p. 307). Allgood & Walstad (2016) asserts that, individuals require adequate financial knowledge and skills to make informed financial decisions across various areas, including transactions, borrowing, saving, investing and retirement planning. It equips individuals with the ability to apply fundamental financial concepts, such as interest calculations and navigate the complex landscape of personal financial choices, including investment, borrowing and insurance options.

Financial knowledge indeed plays a crucial role in fostering financially disciplined behaviour too and it has been empirically established by many studies. Researchers like Ida and Dwinta, 2010; Dwiastanti, 2015; Tang and Baker 2016; Arifin 2017; Guiso & Jappelli, 2008; Lusardi & Mitchell, 2007; Van Rooij and Lusardi & Alessie, 2011 have all empirically proved that financial knowledge has a significant positive impact on financial behaviour. In fact, Allgood & Walstad (2016), opines that, individuals with a higher level of financial knowledge demonstrate more responsible mortgage and loan payment behaviour.

Subjective Knowledge

According to Rosen et al., (2017) subjective financial literacy pertains to an individual's confidence in their own knowledge of financial matters. Researchers such as, Drolet (2016), Peach & Yuan (2017), David W. Rothwell (2019), Gizelle D. Willows (2020), and Dundure & Sloka (2021) have highlighted the significance of self-assessment of financial knowledge. In fact, the study by Riitsalu et al., (2018) indicates that subjective financial knowledge is a stronger predictor of an individual's overall financial well-being.

Objective financial knowledge

Robb and Woodyard (2011) argue that objective financial knowledge is an important factor that explains positive financial practices. A study conducted by Park (2020) highlight the significance of financial education, particularly knowledge acquired during the high school and college in positively impacting objective financial knowledge.

According to Lee et al (2019) both objective and subjective measures of financial knowledge serve as effective indicators of overall financial knowledge. Nejad & Javid (2018) conducted an extensive examination study and conclusively demonstrated that the discrepancy between objective and subjective financial knowledge can have a substantial influence on individuals' financial decisions and their willingness to take on relevant risks.

Overconfidence/ Under-confidence:

Lind et al (2020) argues that those with a high perceived level of financial knowledge but a low actual level of financial understanding can be considered overconfident. While financial knowledge is a valuable asset, it can sometimes lead to overconfidence or under confidence. Porto and Xiao (2016) put forth that, financial literacy overconfidence is defined as the gap between consumers' subjective and objective financial knowledge. Voros et al (2021) puts forth an interesting argument that, overconfidence is a complex trait, and its various manifestations can have varying impacts on financial wellbeing. Atlas et al. (2019) employed mediation and floodlight analysis to demonstrate that subjective financial knowledge, is a prerequisite for proactive financial decision-making, however, they also highlighted that overconfidence can have detrimental consequences, leading to a range of negative financial behaviours and outcomes. Pikulina et al., (2017) found that that individuals exhibiting high levels of overconfidence tend to engage in excessive investments, while those with under confidence tend to underinvest. While financial knowledge is essential for informed decision-making, overconfidence and under confidence can significantly distort financial planning.

3. Methodology and Survey Design

Research Design

This study employs a quantitative research design to examine the relationship between subjective and objective financial knowledge and how demographic factors influence these dimensions.

Sample Selection

The study was conducted in Hyderabad, Telangana, using a multi-stage sampling method. The sample size of 412 individuals was determined using Cochran's formula to ensure representativeness. Participants were selected from diverse demographic backgrounds, including various age groups, genders, education levels, employment statuses, incomes and work profiles.

Data Collection

Data was collected through a structured questionnaire comprising sections on demographic information, subjective financial knowledge (SFK), and objective financial knowledge (OFK). The questionnaire was distributed both online and in-person to ensure broad participation.

Data Analysis

Data was analyzed using SPSS. Descriptive statistics were employed to summarize the demographic characteristics of the respondents. A chi-square test was conducted to examine the association between demographic factors and levels of financial knowledge. Correlation analysis was used to explore the relationship between subjective and objective financial knowledge. Respondents were then categorized into overconfident, underconfident, and accurately assessed groups based on the comparison between their SFK and OFK scores.

Limitations

While this study provides valuable insights, its findings are limited to the specific context of Hyderabad, Telangana, and may not be generalizable to other regions. Additionally, the reliance on self-reported data for subjective financial knowledge may introduce bias.

4. Discussion

The latent variable, financial knowledge was assessed using a two-dimensional construct: subjective and objective knowledge (Lee et al 2019). Here in this study, the Subjective financial knowledge was measured with one question coded as a continuous variable: "On a scale from 1 to 5, (1 means very low and 5 means very high financial knowledge) how would you assess your overall financial knowledge?" Objective financial knowledge was measured by a five-question developed by the Financial Industry Regulatory Authority (FINRA). The questionnaire focused on interest, inflation, mortgages, bonds and risk. The questionnaire provided response options such as "yes," "no" and "I don't know." Correct responses were awarded one point, while incorrect or uncertain responses were not scored.

Table 1: Self-Assessment of Financial Knowledge

S. No	Assessment level	Frequency	Percent
1	Very less knowledge	28	7
2	Less knowledge	16	4
3	Moderate knowledge	194	47
4	Knowledgeable	157	38
5	Highly Knowledgeable	17	4
	Total	412	100

Source: Computed

Analysis of the data reveals that the majority of respondents (89%) self-assessed their financial knowledge as moderate to high. Apparently, 11% reported possessing low financial knowledge. The average self-reported financial knowledge score was 3.28, with a standard deviation of 0.890.

Table 2: Score of Objective Financial Knowledge

Number of correct responses	Frequency	Percentage
All five correct	58	14
Four out of five	107	26
Three out of five	82	20
Two out of five	78	19
One out of five	49	11.8
None correct	38	9.2
Total	412	100

Source: Computed

The scoring system is based on OECD/INFE recommendations and ranges from 0 to 5. The reliability analysis showed a Cronbach's alpha of 0.553, which is consistent with the measure reported in the study by Robb and Woodyard (2011) which was 0.556.

Table 3: Mean and SD of Correct Answers

Financial Concept	Compound Interest	Inflation	Bond pricing	Mortgage	Risk diversification
Mean	0.54	0.66	0.48	0.62	0.69
Std. Deviation	0.499	0.473	0.5	0.485	0.461

Source: Computed

Respondents demonstrated strong understanding of risk diversification and financial concepts like interest, inflation and mortgages, but lacked knowledge of bond pricing. A alarmingly low level of knowledge in bond pricing can significantly impair personal financial decision-making, as it may lead to misguided investments, where individuals either overestimate the security of bonds or fail to recognize the impact of interest rate fluctuations on bond values. This lack of understanding can result in poor portfolio diversification, increased exposure to risk particularly in volatile markets where the nuances of bond valuation are crucial for informed decision-making.

Over-confidence/ under confidence analysis regarding Financial Knowledge

Previous studies by Nejad and Javid (2018) highlights the potential consequences of miscalibration on financial decision-making. To examine the alignment between perceived and actual financial knowledge, the study compared individuals' self-assessed financial confidence with their objective understanding. Therefore, the correlation between subjective and objective financial knowledge was analysed.

Ho: There is no significant association between self-evaluation and objective evaluation of financial knowledge.

Table 4: Correlation between Subjective and Objective Financial Knowledge

Subjective/ Objective Knowledge	Correlation	Subjective Knowledge	Objective Knowledge
Subjective Knowledge	Pearson Correlation	1	.322**
	Sig. (2-tailed)		0.000
	N	412	412
Objective Knowledge	Pearson Correlation	.322**	1
	Sig. (2-tailed)	0.000	
	N	412	412

Source: Computed

Note ** Correlation is significant at the 0.01 level (2-tailed).

Statistical analysis revealed a positive correlation between self-assessed financial knowledge and objective understanding. The correlation coefficient of 0.322 indicates a moderate relationship, aligning with findings from previous studies conducted by Carlson et al. (2009), Ning Tang (2016), Nejad & Javid (2018) and Lind et al. (2020)

Table 5: Mean and SD of Subjective and Objective Financial Knowledge

Particulars	Mean	Maximum possible score	Std. Deviation
Objective Financial Knowledge	3	5	1.449
Subjective Financial Knowledge	3.28	5	0.890

Source: Computed

The table presents the mean scores for objective and subjective financial knowledge, which serve as thresholds for classification. Respondents scoring above the mean scores are categorized as having high objective or subjective financial knowledge respectively, while those below the mean are considered to have low financial knowledge. Using these thresholds, a 4x4 matrix was constructed to categorize respondents into four groups: appropriate high financial knowledge, appropriate low financial knowledge, overconfidence, and under confidence. This classification aligns with previous research by Robb et al. (2019) and Hur et al. (2019).

Financial Knowledge: A Segmentation Analysis

Here, the study identifies four distinct segments based on respondents' self-assessment of financial knowledge and their objective performance.

- **Accurate Assessment:** Approximately 59.7% of respondents accurately assessed their financial knowledge, aligning their self-assessment with their objective performance.
- **Overconfidence:** 19.6% of respondents overestimated their financial knowledge, scoring below average objectively but rating themselves highly.
- **Under confidence:** 20.7% of respondents underestimated their financial knowledge, scoring above average objectively but rating themselves poorly.

Table 6: Assessing Financial Knowledge: A Segmentation Analysis

Subjective Financial Knowledge	Region – III Over confidence -19.6% (objective FK < 3) (subjective FK > 3.28).	Region - I High financial knowledge = 22.3%
	Region – II Low financial knowledge = 37.39%	Region – IV Under confidence – 20.72% (subjective FK < 3.28), (objective FK > 3)
	Objective Financial Knowledge	

Source: Computed

These findings suggest that Region I and II, includes a significant portion of respondents who have a realistic understanding of their financial knowledge. However, the focus of attention lies on Region III and IV, which requires a deeper exploration. Region III represents overconfidence.

Porto and Xiao (2016) and Chu et al. (2017) have argued that overconfidence can have a detrimental impact on financial decision-making. Region IV denotes under confidence. Studies by Van Rooij et al., (2011) and Pikulina et al., (2017) have expressed that under confidence can also lead to making erroneous financial decisions, which can ultimately affect wealth accumulation.

Assessing Knowledge Distribution: A Chi-Square Analysis

To gain a more comprehensive understanding of financial knowledge distribution across various demographics, a chi-square analysis was conducted. This statistical technique allows for the examination of the relationship between the regional distribution of knowledge (R1, R2, R3 and R4) and demographic characteristics. By analysing the interdependence between these factors, potential disparities in financial literacy levels can be identified.

Table 7: Chi Square Analysis of Demographic Factors

Demographic Variable	R1	R2	R3	R4	Total	Chi square	P Value
Age							
20-30	38 (22%)	66 (38%)	38 (22%)	31 (18%)	173	22.063	0.009**
31- 40	23 (24%)	38 (41%)	17 (18%)	16 (17%)	94		
41- 50	14 (15%)	33 (36%)	20 (22%)	26 (27%)	93		
51 +	19 (36%)	15 (29%)	5 (10%)	13 (25%)	52		
Total					412		
Gender							
Male	54 (27%)	55 (28%)	45 (23%)	45 (23%)	199	23.508	<0.001**
Female	38 (17.7%)	99 (46.3%)	36 (17%)	40 (18.9%)	213		
Total					412		
Education							
High School	0	6 (67%)	3 (33%)	0	9	24.793	0.016*
Under Graduate	15 (15.20%)	42 (44.10%)	21 (22.10%)	18 (18.60%)	96		
Post Graduate	38 (22.60%)	62 (36.90%)	27 (16.30%)	40 (24.20%)	167		
PhD	12 (39%)	5 (16%)	8 (26%)	6 (19%)	31		
Professionally Qualified	34 (31.50%)	33 (29.70%)	22 (20.60%)	20 (18.20%)	109		
Total					412		
Employment							
Public Sector	8 (22%)	12 (33.3%)	6 (16.7%)	10 (28%)	36	24.254	0.019*
Private Sector	67 (23%)	105 (37%)	54 (19%)	60 (21%)	286		
Professional Practice	8 (23%)	9 (26%)	11 (31%)	7 (20%)	35		
Business	2 (8%)	10 (42%)	9 (38%)	3 (12%)	24		
Homemaker/ Unemployed	5 (16%)	17 (55%)	3 (10%)	6 (19%)	31		
Total					412		
Monthly Income							
less than 50,000	12 (13%)	40 (45%)	23 (26%)	14 (16%)	89	48.743	<0.001**
50,001 to 1,00,000	36 (20%)	76 (44%)	32 (18%)	31 (18%)	175		
1,00,001 to 1,50,000	10 (20%)	16 (33%)	10 (20%)	13 (27%)	49		
1,50,001 to 2,00,000	4 (20%)	4 (20%)	3 (15%)	9 (45%)	20		
Above 2,00,000	29 (37%)	19 (24%)	14 (18%)	17 (21%)	79		
Total					412		
Marital Status							
Single	31 (20%)	62 (42%)	31 (20%)	25 (18%)	149	4.562	0.207*
Married	60 (23%)	93 (35%)	50 (19%)	60 (23%)	263		
Total					412		
Work Profile							
Finance Sector	58 (36%)	40 (25%)	34 (20%)	31 (19%)	163	52.336	<0.001**
Non- Finance Sector	34 (14%)	114 (46%)	46 (18%)	55 (22%)	249		
Total					412		

Source: Computed

The analysis demonstrates that demographic factors such as age, gender, education, employment, monthly income and work profile significantly influence response categories. In contrast, marital status does not show a notable impact. The findings reveal that financial knowledge improves notably after the age of 50, likely due to accumulated experience. Gender differences are evident, with a higher percentage of women having low financial knowledge and men showing greater tendencies towards both overconfidence and under confidence, aligning with prior studies by Barber & Odean (2001) and Marco Angrisani (2019). Higher education correlates with more accurate self-assessments, reducing rates of overconfidence and under confidence. Private sector employees are the most represented group, possibly due to differing motivations or pressures compared to those in the public sector or business. Income-related differences in response behaviour are apparent, with respondents earning between 50,001 to 1,00,000 INR concentrated in R2 (44%), and those earning above 2,00,000 INR more likely in R1 (37%). This corroborates with the result of Lusardi & Tufano (2009). Respondents in the finance sector predominantly fall into R1 (36%), while those in non-finance sectors are more concentrated in R2 (46%), likely due to differences in professional expertise or exposure to financial information. Overall, these demographic insights are crucial for tailoring communication strategies or interventions to specific groups.

Table 8: Chi-Square Test Result-Demographic Factors & Regional Knowledge Distribution

S. No	Demographic factors	χ^2 Value	P value	Statistical significance
1.	Age	22.063	0.009**	Associated
2	Gender	23.508	<0.001**	Associated
3	Educational qualification	24.793	0.016*	Associated
4	Employment	24.254	0.019*	Associated
5	Monthly income	48.743	<0.001**	Associated
6	Marital status	4.562	0.207*	Not associated
7	Work profile	52.336	<0.001**	Associated

Source: Computed

The patterns suggest that certain demographic groups—such as younger individuals, females, postgraduates, private sector employee and those with specific income levels—tend to have more distinct and statistically significant response behaviours. However, Marital Status does not appear to have a significant impact, indicating that other factors are more influential in determining response patterns. Understanding these associations can provide valuable insights into tailoring communication strategies or interventions to specific demographic segments.

5. Conclusion

The study underscores the substantial impact of demographic factors on personal financial decision-making, revealing significant variations in how individuals from different age groups, genders, educational backgrounds, employment types, income levels and professional sectors approach and manage their finances. Overconfidence, under confidence and low confidence, that's prevalent across various demographic cohorts and can significantly hinder effective financial planning. Overconfidence may lead to overly risky financial decisions and subsequent losses, while under confidence can result in missed opportunities and poor financial outcomes.

Low confidence, on the other hand, can cause individuals to avoid necessary financial decisions, exacerbating financial instability.

To mitigate the detrimental effects of overconfidence, under confidence, and low confidence in financial decision-making, targeted interventions should focus on both enhancing objective knowledge and fostering realistic self-assessments. Educational programs that emphasize key financial concepts, such as compound interest, inflation and risk diversification, can equip individuals with the necessary tools to make informed decisions. Moreover, tailored financial literacy workshops should be designed to address the specific needs of different demographic groups, acknowledging the unique challenges faced by various cohorts.

Incorporating behavioral finance principles into these interventions could further aid individuals in recognizing and correcting cognitive biases that lead to overconfidence or under confidence. Further research could explore the effectiveness of these interventions in different demographic contexts, ensuring they are both inclusive and impactful.

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