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Significance of Retirement Planning Skills and the effect of Financial Understanding on Investment Behaviour:
Insights and Implications from the "Big Three"

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Abstract
Using the "Big Three" questions, we looked at the crucial association among financial-literacy and retirement-planning knowledge. We discovered a link between varied investment options and a better grasp of financial concepts, underscoring the need of financial education. Surprisingly, individuals who had a better grasp of intricate financial concepts exhibited a stronger propensity to choose riskier assets, such stocks and mutual funds. Our study underscores the role that financial knowledge plays in influencing Retirement planning and investing choices. It's vital to note, there are certain restrictions, such as, modest sample size, and a narrow geographic focus, which may affect how generalizable our findings are.

Keywords
Financial Literacy, Retirement Planning, Financial well-being, Financial Planning, Financial Education

INTRODUCTION

Retirement, an unavoidable stage in everyone's life, is a topic that resonates universally across borders, economies, and cultures. This transitory era signals a significant shift in financial dynamics, which is frequently accompanied by a tangle of uncertainties and complexity. The importance of RP and FL cannot be emphasized in today's quickly changing financial market. The intention of research study is to inspect the complicated link between RP skills and investing behavior, with a particular emphasis on the "Big Three" FL questions devised by Mitchell and Lusardi in 2011.

The 'Big Three' array of questions is one of most common FL measuring instruments (Mitchell and Lusardi 2011). Lusardi (2019) found out that people's financial understanding is far from adequate in an entire nation literature study. Even the most educated countries score relatively low on the BIG3 scale.

FL is an important measure of individual's capacity to take sound financial decisions. FL is defined by the "Organization for Economic Cooperation and Development" (OECD) as not just comprehending financial ideas and related risks, but also possessing the ability, motivation, and self-assurance to use this information successfully in a variety of financial situations. The eventual goal is to promote the financial comfort of individuals and society as a whole, as well as to stimulate active participation in economic activities. As a result, FL encompasses both financial understanding and financial conduct, and this research will examine on both factors.

To answer these issues, we conducted a thorough investigation into connection between financial understanding and investment diversity, the investment preferences of various industries, and the role gender plays in investment decisions. This paper provides an understanding of the trends and actions that characterize the investing environment for our sample group using a variety of statistical methods, including regression models and chi-squared tests.

As we explore further into this research paper, our goal is to provide a thorough examination of the significance of RP skills and the impact of financial understanding, as measured by Mitchell and Lusardi's "Big Three" questions

developed in 2011, on investment behavior in this specific area. By investigating these concerns, we want to uncover both similarities and differences, therefore improving our understanding of retirement readiness. This knowledge may then be used to support local policies and initiatives focused at improving RP and FL.

LITERATURE REVIEW

- **Lusardi (2019),** Low FL is more prevalent in some population groupings, heightening risks. For example, as reported by Lusardi and Mitchell (2011), data from the Flat World study across 15 nations indicate differences in financial understanding. Notably, education alone does not ensure financial understanding, since even well-educated people may lack FL.
- **Lusardi & Mitchell (2014),** After controlling for demographic characteristics such as income, FL has a considerable influence on RP. Answering all three FL questions correctly improves the chance of saving by around 10%. Higher income and education levels, as well as age and gender, all connect positively with RP. FL tends to have a stronger influence on RP for those with lower incomes. According to the study, FL is both a result of and a factor in RP, albeit particular tools for assessing it are missing.
- **Urban et al., (2020),** Individual finance teaching in high school has a favourable effect on students' financial conduct later in life. Young adults made better financial decisions in three U.S. states where such instruction was mandatory (Georgia, Idaho, and Texas). Georgia's more thorough approach, which included teacher training and assessment, had the best outcomes. Over 5,000 students in Texas alone profited from this instruction, which helped them avoid significant financial problems, eventually benefiting people, lenders, and communities by lowering financial stress and challenges. In short, financial education in high school looks to be advantageous for lifelong financial decision making and community wellbeing.
- **Kurach et al. (2020),** Found that there are poor linkages between competency in specific FL questions (BIG3), self-assessed financial knowledge, and reasonable pension decisions. Respondents might be guessing because they are uncomfortable. Solutions include adopting more sensitive language and rephrasing questions to focus on realistic financial decision-making.
- **Kumari, D. A. T. (2020),** According to the findings, pupils have a good comprehension of savings and borrowing but a lack of understanding of investments and insurance. They accurately answered fewer than half of the questions. Income, exposure to financial concerns, and personal accounts all have a favourable influence on FL. Students' investing selections are heavily influenced by their financial abilities and awareness of investment possibilities, whereas money management is less important.
- **Niu et al. (2020),** Found that many Chinese residents, notably the elderly, women, and those with less education, are uninformed about money. According to the report, FL greatly aids RP in China. It entails identifying financial requirements, developing longterm financial strategies, and buying private pension insurance. The report proposes improving FL to promote retirement readiness in China.
- **Tan, S., and Singaravelloo, k. (2019),** looked at Malaysian government officers' FL and RP. They had strong financial understanding and conduct in general, but their RP was ordinary. Education and income had an impact on FL, but not on RP. The study found no significant correlation between FL and retirement readiness among these officers.
- **Hauff et al. (2020),** Their research investigated how financial knowledge (F-BFL) and self-reported FL influence RP. F-BFL had a considerable influence on all three stages: planning, savings, and investment, with the greatest influence on investment decisions. These findings are consistent with earlier studies. While it had no impact on retirement savings, our new F-BFL scale outperformed the Big5. It also verified that FL is a unified concept that encompasses a wide range of financial issues, and that objective and subjective knowledge are positively associated, both of which are essential to comprehending personal finance.
- **Safari et al. (2021),** This study sought to discover how FL affects personal RP in the Democratic-Republic-of-the-Congo (DRC), a nation with limited retirement benefits. The researchers expected that financial knowledge, computing competence, financial teaching, and standpoints toward financial goods all had an impact on RP. The findings, based on data obtained from public sector workforces in Bukavu, DRC, and analyzed using structural equation modelling, indicated that computing competence and financial awareness are important factors in these individuals' personal RP. Employee syndicates should promote awareness about RP, and the government and the World Bank should implement financial education initiatives.
- **Hoffmann, A. O., & Plotkina, D. (2020),** RP is critical, but it has become more difficult as a result of aging populations and changes in Social Security. Governments throughout the world are attempting to assist individuals by providing information and services, but their communication methods may be improved. Our research investigates how teaching financial skills and providing pension information affects people's financial decisions and RP.
- **Yeh, T. M., & Ling, Y. (2022),** They studied how confidence in financial knowledge affects stock market participation and RP in Japan. FL is important, but confidence also plays a role. Overconfidence can motivate action for those with low FL, while under-confidence may deter action for those who are financially savvy. Gender can influence these effects.

OBJECTIVES

1. Assess the association between FL and RP abilities.
2. Evaluate the influence of investment decision on retirement planning for personnel in the public and private sector.
3. Investigate the impact of complicated topic knowledge on investment behaviour in the context of retirement planning.

HYPOTHESES AND TESTS

1. **Better Financial Literacy and Financial Planning Skills**:
   - **Hypothesis:** The section aims to determine if better FL leads to enhanced financial planning skills.
   - **Test conducted:** A linear regression test was used to analyze the relationship between FL and financial planning skills based on a questionnaire.
2. **Investment Choices: Public sector employees Vs. Private sector employees:**
   - **Hypothesis:** The section explores the distribution of riskier investments between public and private sector employees. One hypothesis mentioned challenges the idea that public sector employees invest more in safer choices.
   - **Test conducted:** A crosstabulation was used to visualize the distribution of riskier investments between the two occupation types. The Pearson Chi-Square test was also employed to determine if there's statistically noteworthy variance in investment choices among public and private sector employees.
3. **Knowledge of complex subjects and their effect on investment behavior:**
   - **Hypothesis:** This section delves into the relationship between FL on advanced topics and investment behaviors. It seeks to discern if nuanced financial knowledge correlates with a propensity for riskier investment endeavors.
   - **Test Conducted:** Logistic regression performed to analyze the relationship among an individual's knowledge of complex financial subjects (as measured by the FL score) and their likelihood to engage in risky investments.

MATERIALS AND METHOD

Data

Our survey included 139 respondents who were carefully chosen to represent a diverse range of persons from both the public and private sectors. This method guaranteed that our data included a wide-ranging variety of demographic backgrounds, job experiences, and financial views, which increased the robustness and application of our findings. Interpreting findings requires an in-depth understanding of our respondents' demographic profile. Our data set contained persons of diverse ages, educational backgrounds, income levels, and employment statuses, allowing us to provide a complete picture of the population.

Research Methodology

This study employed a systematic and logical strategy that depended on statistical data analysis. Its major goal was to investigate the differences between those working in government sector and those working in private sector in order to determine how their financial knowledge influenced their investment decisions. The following were the actions:

1. **Creation of FL Score**:
   - For every respondent, a 'FL Score' was created. This grade represented the respondent's overall correct response total for all FL questions. More points mean a higher level of FL.
2. **Establishment of Investment Diversity Metric**:
   - To measure the diversity in investments, an 'Investment Diversity' metric was devised. This metric was calculated by counting the number of different investment types a respondent had. A higher count indicated a wider range of investments, suggesting a diversified investment portfolio.
3. **Risky Investment Categorization** :
   - Investment types were further classified into two categories: 'risky' and 'safe'. A binary variable named 'Risky Investment' was created for the analysis. If a respondent's investment was deemed risky, this variable took the value of 1; otherwise, it was 0.
4. **Hypothesis Testing** :
   - Centered on previous literature and the objectives of study, various hypotheses were formulated. These hypotheses were rooted in understanding the nuances between FL, occupation sector (public vs. private), and their combined effect on investment decisions.
   - Statistical tests, including regression analysis and chi-square tests, were employed to validate or refute these hypotheses. For instance, regression models were used to ascertain the impact of FL on investment diversity and the propensity for risky investments.

Ethical Considerations

The conduct of this study required strict adherence to ethical principles. Confidentiality and privacy were ensured by securely maintaining the information and never sharing it with a third party. Respondents received respectful treatment, and it was assumed that their responses were truthful and impartial. The rights and confidence of every participant were protected throughout the study process with a focus on transparency, integrity, and adherence to ethical standards.

RESULTS AND DISCUSSION

1. **FL and Financial Planning:** In this section, we will use a linear regression test to see if a better FL leads to better financial planning skills based on the questionnaire: here is the output of our linear regression analysis.

Table 1 Dependent Variable: Investment diversity

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.112	.226		4.917	.000
	Financial_literacy_score	.226	.059	.310	3.811	.000

a. Dependent Variable: Investment_diversity

Interpretation: The regression equation can be represented as:
Investment_diversity = 1.112 + 0.226 X Financial_literacy_score
Constant: The constant value of 1.112 indicates the expected value of the Investment diversity score when the FL score is zero. It serves as a baseline measure for the dependent variable.
Coefficient of FL score: The coefficient value of 0.226 suggests, for each one-unit increment in FL score, the Investment diversity score is expected to increase by 0.226 units, holding all else constant.
Significance: The p-value associated with the FL score coefficient is 0.000, that is lesser than representative significance level of 0.05. This display, the relationship among FL score and Investment diversity is statistically significant
Beta (Standardized Coefficient): The number 0.310 reflects the quantity by which a one-standard-deviation shift in the independent variable causes a one-standard-deviation shift in the dependent variable. It's valuable for the comparison of the strength of, effect of individual independent variables to the dependent variable.
Result: Based on the provided regression results, there is confident and statistically noteworthy relationship between FL and investment diversity. This suggests that better FL is associated with a more diverse range of investments, supporting the notion that better financial understanding leads to better RP.

2. **Investment choices: Public sector employees Vs. Private sector employees:** In this section, we created a cross tabulation to see the distribution of the types of investments across the sector type, and then we did a Chi-Square test to analyze the difference statistically.

Table 2 Chi-Square Test

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.088[a]	17	.117
Likelihood Ratio	25.395	17	.086
N of Valid Cases	139		

a. 29 cells (80.6%) have expected count less than 5. The minimum expected count is .23.

Interpretation

Test Statistic Value: The Pearson Chi-Square value is 24.088.
Degrees of Freedom (df): The test has 17 degrees of freedom.
Significance Level: The p-value related with the Pearson Chi-Square test is 0.117.
Cell Count: 29 cells (or 80.6% of the cells) have expected counts less than 5, which is a potential violation of one of the chi-square test's assumptions. To be considered as legitimate, not more than 20% of the predicted frequencies must be lesser than 5, and all separate expected counts must be 1 or larger.
Result: Given the p-value of 0.117 (this is greater than the conventional significance level of 0.05), suggests, there is not a statistically noteworthy difference in the investment choices (safer vs. riskier) between public and private sector employees, at least based on the Pearson Chi-Square test.

Table 3 Cross tabulation of types of investment

Occupation * Investments Crosstabulation

Count

		Investments																		
		FD	FD;No investments	FD;Savings Bank Account	FD;SIP and Mutual Funds	FD;SIP and Mutual Funds; Savings Bank Account	FD;Stocks	FD;Stocks; Savings Bank Account	FD;Stocks; SIP and Mutual Funds	FD;Stocks; SIP and Mutual Funds; Savings Bank Account	No investments	Savings Bank Account	Savings Bank Account;No investments	SIP and Mutual Funds	SIP and Mutual Funds; Savings Bank Account	Stocks	Stocks; Savings Bank Account	Stocks;SIP and Mutual Funds	Stocks;SIP and Mutual Funds; Savings Bank Account	Total
Occupation	Private Sector	3	1	8	4	10	1	3	0	10	24	15	1	12	2	4	3	3	3	107
	Public Sector	0	0	4	0	1	0	1	1	8	3	2	0	5	4	1	0	1	1	32
Total		3	1	12	4	11	1	4	1	18	27	17	1	17	6	5	3	4	4	139

3. **Knowledge of complex subjects and their effect on investment behavior:** The association among Financial-Knowledge, and Investment Risk-Taking: A crucial concern emerges within the complex terrain of financial markets: how does an individual's understanding of sophisticated financial concepts impact their investing decisions? Are people who have enhanced grip of sophisticated financial concerns more likely to choose riskier investing options like stocks, mutual funds, and SIPs? This study investigates the relationship between advanced FL and investing habits, with the goal of determining if sophisticated financial knowledge correlates with a preference for riskier investment initiatives. This examination's findings may give useful insights for financial education campaigns, investment strategies, and policy creation. The following section analyses the effect of financial understanding of complex topics such as inflation, recession and stock market, on the investment behavior.

Table 4 Complex Subjects

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Financial_literacy_score	.308	.122	6.398	1	.011	1.360
	Constant	-.828	.459	3.257	1	.071	.437

a. Variable(s) entered on step 1: Financial_literacy_score.

Interpretation:

Coefficient for FL score

- The coefficient (B) for FL score is 0.308.
- The value suggests, for every one-unit increment in the FL score, the log odds of making a risky investment (as opposed to not making one) increases by 0.308.

Significance of FL score:

- The p-value associated with the FL score coefficient is 0.011.
- This indicates that the relationship between FL score and the likelihood of making a volatile investment is statistically significant.

Odds Ratio (Exp(B)) for FL score:

- The odds ratio for FL score is 1.360.
- This meant, for every one-unit increment in the FL score, the odds of making a risky investment are multiplied by approximately 1.360.

Constant (Intercept):

- The constant term in a logistic regression is the log odds of the outcome when all predictors are at their reference or baseline levels.

Result: Based on the logistic regression results, there is a confident and statistically substantial association between an individual's knowledge of complex financial subjects (as measured by the FL score) and their likelihood to engage in risky/volatile investments. Specifically, individuals with higher scores in FL have higher odds of making riskier investments.

CONCLUSION

The findings of our study shed light on numerous crucial areas of financial decision-making. First, we discovered a strong correlation between FL and financial planning. Individuals who understand financial concepts better, tend to make more diversified investment selections, highlighting the importance of financial-education and awareness in improving RP. However, when we compared the investment preferences of public sector employees to those of private sector employees, we found no statistically significant differences. This shows that variables other than employment type may have a greater impact on investment decisions and should be investigated further in future study.

The most surprising discovery came when we explored the association among complicated financial knowledge and investment-behavior. Individuals with a higher comprehension of complicated themes such as inflation, recession, and the stock market, in particular, indicated a larger proclivity towards riskier investments such as stocks and mutual funds. This discovery has far-reaching consequences for financial education efforts and policymakers. It implies that promoting a thorough understanding of these complex financial concepts may encourage individuals to make more educated choices regarding investments and potentially choose less risky alternatives, or they can use the services of financial advisors to calculate the risk to profit ratio and diversify the investment sufficiently to achieve a greater percentage of profitability.

Finally, our research emphasizes the relevance of FL in influencing investing decisions and RP. While job sector may not be the most important determinant in investing decisions, higher financial knowledge substantially corresponds with a preference for riskier investments. These findings provide important insights for financial education campaigns, investment strategies, and policy creation, underlining the importance of providing individuals with the tools and information they need to traverse the complicated environment of financial decision-making."

LIMITATIONS

Despite our study's positive outcomes, it is critical to recognize its limits. For starters, our research was conducted on a limited regional scale, which may restrict the generalizability of our findings to larger geographical contexts. Furthermore, while we worked hard to get a representative sample, the sample size was quite modest. These limitations imply that, while our findings give useful insights, they should be used with caution when applied to larger or more varied populations. Future research with bigger and more geographically diversified samples would aid in validating and expanding on the implications of our findings.

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DECLARATION OF CONFLICT

The authors declare that they have no known competing financial interests of personal relationships that could have appeared to influence the work reported in this paper.

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