

The Mediating Role of Financial Personality on the Relationship Between Financial Literacy and Financial Behavior Among Farmers in Candaba, Pampanga

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ABSTRACT

Financial literacy plays a crucial role in helping farmers make better financial decisions, especially given the economic uncertainties and risks they face. This study analyzed data from 369 farmers in Candaba, Pampanga, Philippines, using a relational research design and Structural Equation Modeling (SEM). Results showed a significant positive correlation between financial literacy and financial behavior, while financial personality did not serve as a meaningful mediator. The findings suggest that improved financial behavior among farmers is driven more by increased financial literacy than by specific personality traits. Consequently, the study recommends implementing tailored financial education programs for farmers in Candaba to enhance their financial knowledge and decision-making skills.

Keywords: *Farmers; Financial behavior; Financial literacy; Financial personality; Structural equation modeling (sem)*

INTRODUCTION

Financial literacy is vital for economic stability and is linked to sound financial behaviors across sectors like agriculture, but knowledge alone does not ensure prudent actions. Psychological factors, collectively known as financial personality, play a crucial moderating role in how individuals apply their financial understanding. This necessitates further research into the interplay between literacy, personality, and behavior, especially in agriculture where financial decisions directly impact productivity and sustainability.

Recent studies confirm that financial literacy significantly influences financial behavior, though its effects are shaped by personality, educational, and demographic factors. While some research shows that traits like Type A personality enhance financial literacy and rational decision-making, other studies reveal that personality can have negligible or even negative effects depending on the context. These varied findings underscore the nuanced and context-dependent relationship between financial literacy, personality traits, and financial behavior.

This study addresses the financial challenges faced by farmers in Candaba, Pampanga, who struggle with managing income, investments, and risks despite their economic importance. The research aims to explore the interrelationships between financial literacy, financial personality traits, and financial behaviors among these farmers. It specifically seeks to fill a literature gap by investigating how financial personality mediates the link between farmers' financial knowledge and their actual financial decision-making.

This study will examine how financial knowledge translates into practice among Candaba farmers by identifying the psychological factors that facilitate or hinder this process. The findings aim to inform targeted financial education programs and policies tailored to farmers' specific personality profiles and needs. Ultimately,

the research seeks to enhance the financial resilience of this vulnerable population while contributing to broader academic understanding of how financial literacy and personality interact to shape real-world financial outcomes.

Literature Review

Financial literacy is defined as the ability to acquire, understand, and evaluate financial information for decision-making (Carolyn LJ Mason & Richard MS Wilson, 2000). Its importance is highlighted by small business failures (Pearl & Eileen, 2014) and informed business decision-making (Brown et al., 2006). Financial literacy—encompassing saving, budgeting, and investing—is crucial for economic stability and poverty alleviation, though many communities lack these skills (OECD, 2020; World Bank, 2018; Lusardi & Mitchell, 2017). Melendrez (2024) found that rice farmers in Bongabong were proficient in budgeting and debt management but lacked revenue generation expertise, recommending customized financial education programs. Research across Indonesia, Rwanda, and India confirms that financial literacy positively impacts farmers' decision-making and management (A. Sayinzoga et al., 2016; N. R. Satiti & C. Sa'diyah, 2021), though many farmers exhibit low literacy levels, such as an average score of 33% among Indian farmers (S. Maji & A. Laha, 2022). Saumyadwip et al. (2023) found that among 10,263 Indian farmers, most had low literacy and confidence, with only 42.99% saving regularly.

Sanglay et al. (2021) reported significant disparities in age, education, and income among Filipino rice farmers influencing their financial behavior, with financial literacy positively correlated with addressing family needs but negatively correlated with debt repayment. Research on financial personality shows it significantly influences farmers' credit access—conscientiousness and extroversion reduce exclusion, while agreeableness intensifies it (Yaqun Tian et al., 2022). Farmers face financial risks due to cyclical income and weather/market shocks (Klapper et al., 2019), requiring access to tools like insurance, savings, and credit (Klapper et al., 2019).

Psychological factors shape financial risk tolerance: financial stress negatively impacts life satisfaction while locus of control has a positive effect (Heo et al., 2020); for investors, self-efficacy and resilience enhance FRT, while uncertainty intolerance and anger diminish it (Brooks & Williams, 2020; Mukhtar et al., 2023; Thanki et al., 2020). Impatient farmers tend to be more risk-averse (Clot et al., 2017), and financial stress, trade pressures, and family tensions contribute to anxiety and depression (Riethmuller et al., 2024). In Candaba, Philippines, farmers face obstacles with timely bill payments, long-term financial goals, and debt management (Manila Bulletin, 2019), highlighting the need for specialized financial literacy programs despite agriculture's vital role in the Philippine economy (Philippine Statistics Authority, 2020).

Research Objectives

This study aims to analyze and evaluate the mediating role of financial personality in the relationship between financial literacy and financial behavior among farmers in Candaba.

1. To test the significant relationship between financial literacy and financial behavior.
2. To test the significant relationship between financial literacy and financial personality; and
3. To test the significant relationship between financial personality and financial behavior.
4. Does financial personality positively mediate between financial literacy and financial behavior?
5. To propose a financial literacy seminar and workshop designed specifically for farmers.

This study explores how financial literacy and personality traits like risk aversion affect farmers' financial behavior in Candaba, Philippines, to develop a tailored financial literacy seminar that improves their practical skills, confidence, farm profitability, and financial security.

Hypotheses

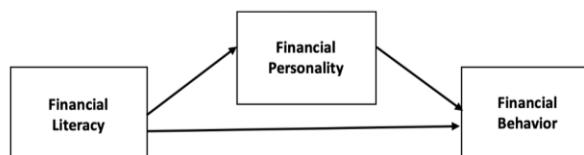
Ho1: There is no significant relationship between financial literacy and financial behavior.

Ho2: There is no significant relationship between financial literacy and financial personality; and

Ho3: There is no significant relationship between financial personality and financial behavior.

Ho4: Financial personality does not positively mediate between financial literacy and financial behavior.

Conceptual Framework



This study used Structural Equation Modeling (SEM) to analyze the direct and indirect relationships between financial literacy, financial personality, and financial behavior among farmers. SEM allowed for testing causal pathways, particularly how financial personality mediated the link between financial literacy (independent variable) and financial behavior (dependent variable). The hypotheses were grounded in the Theory of Planned Behavior, Social Cognitive Theory, and the Five-Factor Model. The study proposed that financial personality positively mediated the relationship, meaning financial literacy influenced behavior both directly and indirectly by shaping personality traits.

METHODS

This section concisely discussed the research design, participants/respondents, the development of the research instruments, the administration of the survey questionnaire, and the statistical tools that will be utilized to analyze and interpret the data and information gathered.

Research Design

This study used a relational research design to assess the impact of financial literacy on financial behavior and to explore how financial literacy influenced financial personality as a mediator. It also analyzed the joint effects of both variables on financial behavior, distinguishing between direct and indirect effects, to clarify their complex relationships and inform strategies for improving financial well-being.

Respondents of the Study

The researchers selected 369 rice and corn farmers from Candaba, Pampanga, Philippines, out of a total population of 9,023, using Raosoft to determine the sample size for survey questionnaires. Ethical approval was secured through letters signed by the Research Management Office (RMO) and addressed to the head of the agriculture department in Candaba.

Instrument

In gathering the data, the researchers adapted instruments from the study of Medina (2019) specifically on variables: financial literacy and financial behavior. Meanwhile, the variable on financial personality was developed by the researchers. A focus group discussion (FGD) was conducted in constructing the instrument of the variable “financial personality” and was subjected to validation of three experts to verify the alignment of the instrument to the study.

Results and Discussion

Reliability

	α	ρ_C	AVE	ρ_A
Financial Literacy	0.803	0.884	0.717	0.804
Financial Personality	0.579	0.635	0.370	0.551
Financial Behavior	0.681	0.809	0.520	0.701

The reliability table assessed internal consistency and convergent validity for three constructs. Financial Literacy showed strong reliability (Cronbach’s $\alpha = 0.803$, $\rho_C = 0.884$, $\rho_A = 0.804$, AVE = 0.717), all exceeding recommended thresholds. Financial Personality exhibited weak reliability and poor convergent validity ($\alpha = 0.579$,

$\rho_C = 0.635$, $\rho_A = 0.551$, $AVE = 0.370$), with all values below ideal standards. Financial Behavior demonstrated acceptable but moderate reliability ($\alpha = 0.681$, $\rho_C = 0.809$, $\rho_A = 0.701$, $AVE = 0.520$), with sufficient convergent validity.

Variance Inflation Factor

Financial Literacy	VIF
Savings	1.859
Budgeting	1.637
Investing	1.731

Financial Personality	VIF
Financial Risk Tolerance	1.126
Financial Self-efficacy	1.253
Financial Impulsivity	1.282
Financial Anxiety	1.156

Financial Behavior	VIF
Purchasing Behavior	1.372
Promptness and Timeliness of Bills Payment	1.584
Long-term Financial Goals	1.612
Incidence of Debt	1.138

The VIF values for all indicators were well below the threshold of 5, confirming no significant multicollinearity issues. For Financial Literacy, VIFs ranged from 1.657 to 1.974, indicating moderate but acceptable correlations among its indicators. Financial Risk Tolerance (VIF = 1.126), Financial Self-Efficacy (1.253), Financial Impulsivity (1.282), and Financial Anxiety (1.156) all showed low multicollinearity. For Financial Behavior, VIFs ranged from 1.138 to 1.612, also indicating low multicollinearity among its indicators.

Heterotrait-Monotrait (HTMT) ratios

	Financial Literacy	Financial Personality	Financial Behavior
Financial Literacy			
Financial Personality	0.218		
Financial Behavior	0.924	0.263	

The Heterotrait-Monotrait (HTMT) ratios are mostly below the conservative threshold of 0.85, indicating good discriminant validity. The HTMT between Financial Literacy and Financial Behavior is 0.924, which exceeds the 0.85 threshold but still acceptable in some context. The HTMT values for Financial Personality with Financial Literacy (0.218) and Financial Behavior (0.263) are well below 0.85, confirming distinctness between these constructs.

Fornell-Larcker (FL) criteria

	Financial Literacy	Financial Personality	Financial Behavior
Financial Literacy	0.847		
Financial Personality	-0.214	0.608	
Financial Behavior	0.688	-0.088	0.721

The Fornell-Larcker criteria confirmed discriminant validity for all constructs, as the square root of AVE for Financial Literacy (0.847), Financial Behavior (0.721), and Financial Personality (0.608) exceeded their respective correlations with other constructs. The correlation between Financial Literacy and Financial Behavior was moderate to strong (0.688). In contrast, Financial Personality showed weak or negative correlations with Financial Literacy (-0.214) and Financial Behavior (-0.088), indicating weak or inverse relationships.

Cross Loadings

	Financial Literacy	Financial Personality	Financial Behavior
Savings	0.854	0.175	0.548
Budgeting	0.831	0.168	0.581
Investing	0.855	0.198	0.614
Financial Risk Tolerance	0.334	0.139	0.007
Financial Self-efficacy	0.262	0.728	0.063
Financial Impulsivity	0.206	0.910	0.081
Financial Anxiety	0.233	0.320	0.027
Purchasing Behavior	0.400	0.081	0.671
Promptness and Timeliness of Bills Payment	0.574	0.091	0.808
Long-term Financial Goals	0.517	0.041	0.816
Incidence of Debt	0.467	0.187	0.559

The cross-loadings table confirmed convergent and discriminant validity, as each indicator loaded most strongly on its intended construct. For instance, savings, budgeting, and investing loaded highly on Financial Literacy (0.854–0.855), while Financial Personality indicators (e.g., Financial Impulsivity at 0.910) and Financial Behavior indicators (e.g., long-term goals at 0.816) also loaded highest on their respective constructs and weakly on others.

Squared Loadings

	Financial Literacy	Financial Personality	Financial Behavior
Savings	0.854		
Budgeting	0.831		
Investing	0.855		
Financial Risk Tolerance		0.139	
Financial Self-efficacy		0.728	
Financial Impulsivity		0.910	
Financial Anxiety		0.320	
Purchasing Behavior			0.671
Promptness and Timeliness of Bills Payment			0.808
Long-term Financial Goals			0.816
Incidence of Debt			0.559

The squared loadings table showed that Financial Literacy indicators (Savings, Budgeting, Investing) had strong squared loadings (0.831–0.855), capturing significant variance. Financial Personality indicators varied (0.320–0.910), with Financial Impulsivity contributing most, while Financial Behavior indicators showed moderate to strong loadings (0.559–0.816), confirming their relevance to the construct.

	Financial Literacy	Financial Personality	Financial Behavior
Savings	0.372		
Budgeting	0.391		
Investing	0.418		
Financial Risk Tolerance		0.109	
Financial Self-efficacy		0.463	
Financial Impulsivity		0.732	
Financial Anxiety		0.037	
Purchasing Behavior			0.291
Promptness and Timeliness of Bills Payment			0.404
Long-term Financial Goals			0.366
Incidence of Debt			0.321

Weights

The weights table indicated that for Financial Literacy, indicators contributed fairly evenly (weights 0.372–0.418), with Investing having the highest weight. For Financial Personality, contributions varied widely (weights 0.037–0.732), where Financial Impulsivity exerted the strongest influence, and for Financial Behavior,

Promptness and Timeliness of Bills Payment showed the highest weight (0.404) among indicators ranging from 0.291 to 0.404.

Paths

	Financial Personality	Financial Behavior
R^2	0.046	0.476
Adjusted R^2	0.043	0.474
Financial Literacy	0.041	0.501
Financial Personality	.	0.061

The path table showed that Financial Literacy explained only 4.6% of the variance in Financial Personality (low $R^2 = 0.046$), while Financial Literacy and Financial Personality together explained 47.6% of the variance in Financial Behavior (moderate $R^2 = 0.476$). Financial Literacy had a strong positive direct effect on Financial Behavior (0.501), but Financial Personality had a weak effect on Financial Behavior (0.061), indicating a negligible mediating role.

Total Indirect Effects

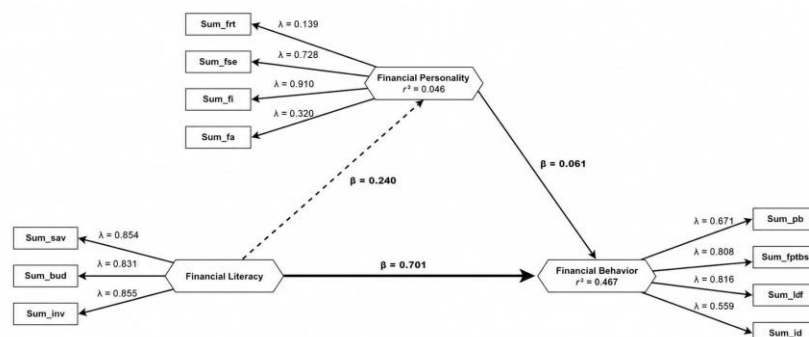
	Financial Literacy	Financial Personality	Financial Behavior
Financial Literacy	0.000	0.000	0.000
Financial Personality	0.000	0.000	0.000
Financial Behavior	0.000	0.000	0.000

The total indirect effects table revealed that Financial Personality had no mediating role in the relationship between Financial Literacy and Financial Behavior, as all indirect effects were zero (0.000).

Total Effects

	Financial Literacy	Financial Personality	Financial Behavior
Financial Literacy	0.000	0.000	0.068
Financial Personality	0.000	0.000	0.061
Financial Behavior	0.000	0.000	0.000

The total effects table showed that Financial Literacy had a minimal total effect on Financial Behavior (0.068) and Financial Personality had a similarly weak total effect on Financial Behavior (0.061), indicating both constructs exerted very limited overall influence on financial behavior.



The results showed that Financial Literacy had a strong positive direct effect on Financial Behavior (0.701) and a positive but weaker effect on Financial Personality (0.214). Financial Personality had only a minimal

positive effect on Financial Behavior (0.061), indicating it played a negligible role. Together, Financial Literacy and Financial Personality explained 47.6% of the variance in Financial Behavior, confirming that Financial Literacy was the strongest predictor.

Financial Literacy Seminar and Workshop Design for Farmers

Seminar Structure	Duration
Introduction	10 mins
Key Findings Presentation	20 mins
Components of Financial Literacy	15 mins
Interactive Session: Financial Personality Assessment	20 mins
Direct vs. Indirect Impact	15 mins
Case Study Analysis	20 mins
Q&A Session	15 mins

Workshop Design	Duration
Financial Literacy Tools and Techniques	30 mins
Interactive Budgeting Exercise	30 mins
Behavioural Finance Workshop	45 mins
Financial Goal Setting	20 mins
Group Discussions and Peer Sharing	30 mins
Action Plan Development	20 mins

CONCLUSIONS

1. Candaba farmers' financial literacy significantly and positively correlates with their financial behavior, highlighting financial literacy's crucial role in improving financial outcomes and decision-making.
2. The findings suggest that financial literacy, rather than personality traits, is the primary factor influencing improved financial behavior among Candaba farmers.
3. A strong positive relationship exists between financial personality and financial behavior; improved financial personality leads to improved financial behavior.
4. This study found that among farmers in Candaba, Pampanga, financial literacy has a direct positive impact on financial behavior, and financial personality positively mediates this relationship. Financial literacy remains the key driver of financial behavior, indicating the need for further research on other mediating factors or contextual influences within the farming community.

Recommendations

1. A tailored financial literacy program for Candaba farmers must begin with a needs assessment to design a practical curriculum covering essential topics like budgeting, record-keeping, and risk management relevant to their farming activities. The program should employ diverse delivery methods such as workshops and community sessions, accompanied by a robust evaluation plan to measure its long-term effectiveness.
2. Financial education programs should integrate behavioral finance principles to help farmers understand psychological biases like overconfidence and loss aversion that influence their decisions. A tailored approach combining personalized guidance, diverse teaching methods, and practical goal-setting tools will enhance learning and foster more informed financial choices.
3. Ongoing monitoring and evaluation, guided by measurable key performance indicators and diverse data collection methods like surveys and interviews, are essential for assessing program effectiveness. Regular

reporting and adaptive management based on participant feedback ensure the initiative remains relevant and allows for necessary modifications to improve farmers' financial behavior.

4. First, develop targeted financial literacy programs that address diverse learning styles and personality traits through needs assessments, varied delivery methods, and personalized content. Second, establish mentorship and peer learning networks by recruiting successful farmers as mentors and creating peer groups for knowledge sharing, leveraging technology to support ongoing collaboration.
5. The "Boosting Your Farm's Bottom Line" seminar-workshop will deliver practical financial skills to Candaba farmers through interactive modules on financial understanding, saving and investment strategies, debt management, and mentorship. Expected outcomes include increased financial literacy, improved financial management, enhanced saving and investment practices, effective debt management, strong support networks, and ultimately increased farm profitability and financial security.
6. Future research should comprehensively investigate contextual factors and external shocks influencing farmers' financial behavior, including climate change, market volatility, and credit access, while expanding measures of financial literacy, behavior, and personality traits. A mixed-methods approach will provide deeper insights to guide the development of more effective financial literacy programs and policies tailored to farmers' unique challenges.

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