

PSYCHOLOGICAL DRIVERS OF RETIREMENT SAVING BEHAVIOR: LOCUS OF CONTROL AS KEY MEDIATOR OF FINANCIAL LITERACY, RISK TOLERANCE AND FUTURE ORIENTATION

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ABSTRACT

This study aims to examine the effects of financial literacy, future time perspective, and financial risk perception on pension saving behavior, while also testing the mediating role of locus of control among young adults. This research uses a descriptive quantitative approach with a causal research design to analyze direct and indirect relationships among variables. The population consists of adult residents of Padang, and the sample is selected using a random sampling technique. Primary data are collected through structured questionnaires and analyzed using Partial Least Squares Structural Equation Modeling (SEM-PLS). The findings indicate that financial literacy, future time perspective, and financial risk perception are relevant factors in explaining pension saving behavior. Young adults with better financial knowledge, stronger future-oriented thinking, and appropriate perceptions of financial risk tend to show greater awareness of long-term saving. However, locus of control does not significantly mediate the effects of financial literacy, future time perspective, and financial risk perception on pension saving behavior. These results suggest that locus of control may not function as an intervening mechanism in this setting. The study offers implications for financial education, pension policy, and early retirement planning strategies.

Keywords: *financial literacy, future time perspective, financial risk perception, locus of control, retirement pension behaviour*

INTRODUCTION

Indonesia is currently still experiencing a demographic bonus period, which is projected to end in 2038. Thereafter, by 2045, the national demographic structure is expected to undergo a significant shift. The proportion of the non-productive population will increase substantially, with the dependency ratio estimated to exceed 50%. This means that two individuals of productive age will have to support more than one person outside the working-age population. This phenomenon reflects an aging population trend that may increase the country's fiscal burden, particularly in financing social security and public pension funds.

The millennial generation, which was born and raised in the era of globalization, currently serves as the backbone of Indonesia's economy. However, retirement planning has not yet become a major priority for them, as their focus remains largely on meeting short-term needs and desires. On the other hand, their ease of access to information and strong engagement with digital technology indicate a higher entrepreneurial potential compared to previous generations.

A study by Budiati et al. (2018) shows that the informal economic sector has long been an integral part of Indonesia's economic structure, with many individuals relying on it for their

livelihoods. Although this sector contributes significantly to reducing unemployment and promoting economic growth, informal workers tend to face challenges such as limited social protection and unstable income. Studies by Dorfman (1989) and Ferraro and Su (1999) reveal that many individuals are shocked when they realize they cannot retire adequately due to a lack of early financial planning. This delay risks insufficient savings accumulation, leading to financial difficulties in old age.

Retirement planning has become increasingly important in the modern era, particularly for Generation Z, who are just entering the workforce. This generation faces various challenges, including rising inflation, technological disruption, and global economic uncertainty. Research by Van Rooij et al. (2011a) indicates that low financial literacy can be a major barrier to building a stable financial future. In this context, prudent and proactive financial behavior is key to successful retirement planning.

Generation Z encounters different dynamics compared to previous generations, including changes in work patterns, more flexible lifestyles, and more complex economic challenges. In Indonesia, particularly in West Sumatra, they must adapt to local economic conditions characterized by inflation and an uncertain labor

market. Research suggests that a lack of financial knowledge can lead to suboptimal financial decisions, which ultimately affect long-term financial stability (Lusardi & Mitchell, 2007a; 2007b).

Generation Z, born between the mid-1990s and early 2010s, is known for being highly familiar with technology. They have broad access to information and various financial resources through the internet and digital applications. However, despite this access, many of them still lack adequate understanding of the importance of retirement planning. In the coming decades, they will enter retirement, and without proper planning, they risk facing financial hardship (Falahati et al., 2012).

One psychological factor influencing Generation Z's financial behavior is locus of control. This concept refers to an individual's belief about the extent to which they can control outcomes in their life. Individuals with an internal locus of control believe that life outcomes are determined by personal effort and decisions, whereas those with an external locus of control tend to believe that fate or external factors play a greater role. Research by Sadiq et al. (2021) shows that individuals with an internal locus of control are more likely to engage in financial planning and make prudent decisions regarding retirement funds.

Financial knowledge is also a crucial factor in individual financial planning. A study conducted in Bukavu City, DRC, by Cibangala (2019) found that financial literacy has a significant impact on individual financial well-being. In addition to positive social attitudes, individuals from families with high levels of financial literacy tend to have better risk attitudes toward financial planning and financial management. They believe that planning projects and future expenses enhances their financial stability and well-being. Lin et al. (2017) also demonstrated that financial literacy positively influences retirement planning: the more financially literate an individual is, the better prepared they are for retirement.

Therefore, this study aims to explore more deeply how locus of control mediates the influence of financial behavior on the success of retirement planning. Understanding this relationship will provide deeper insights into the factors shaping Generation Z's financial decisions and how they can be better prepared for their financial future. By focusing on the context of West Sumatra, this study also seeks to contribute to the existing literature and support the design of more relevant financial education programs for today's younger generation.

RESEARCH METHODS

This study adopts an explanatory quantitative research approach aimed at testing hypotheses and examining causal relationships among variables, particularly to confirm or reject theoretical consistency established in previous studies (Sugiyono, 2006). The research population consists of residents of Padang City, with samples selected using a random sampling technique. Referring to the guidelines proposed by Hair et al. (2010) for Structural Equation Modeling (SEM), the sample size was determined based on the number of indicators and latent variables, resulting in 201 responses. Primary data were collected through structured questionnaires distributed directly to respondents, while secondary data were obtained from books, official documents, and relevant academic literature.

Data collection was conducted through library research and field research. The field survey employed a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The study examines Retirement Saving Behaviour as the dependent variable, while Financial Literacy, Future Time Perspective, and Financial Risk Tolerance serve as independent variables. Locus of Control is positioned as a mediating variable. Each construct was operationalized using measurement indicators adopted from established literature to ensure content validity and conceptual consistency.

Data analysis was performed using Partial Least Squares-Structural Equation Modeling (PLS-SEM) with SmartPLS software. The analytical procedure involved evaluation of the outer model to assess convergent validity, discriminant validity, and reliability, followed by evaluation of the inner model to examine structural relationships among latent variables. Hypothesis testing was conducted using t-statistics and p-values, with a significance level of 5% ($t > 1.96$; $p < 0.05$), enabling a comprehensive assessment of direct and mediating effects within the proposed research model.

RESULTS

The Partial Least Squares Structural Equation Modeling (PLS-SEM) approach was utilized to analyze the data. As an initial procedure, the measurement model (outer model) was assessed to confirm that the observed indicators effectively captured the intended constructs. The assessment criteria included convergent validity, discriminant validity, and construct reliability.

1. Outer Loading

To evaluate convergent validity, the outer loading of each indicator was examined. Indicators with outer loading values above the recommended

threshold of 0.70 were considered to have satisfactory validity (Hair et al., 2021; Yarsasi et al., 2025). The detailed results of the outer loading evaluation are reported in Table 1.

Table 1. Result of Outer Loading

Indicator	FL	LoC	PKP	PMD	TR
FL1	0,862				
FL2	0,832				
FL3	0,828				
LoC4		0,818			
LoC6		0,906			
PKP1			0,730		
PKP5			0,837		
PKP6			0,885		
PKP7			0,883		
PMD1				0,882	
PMD2				0,878	
TR2					0,892
TR4					0,821

Based on Table 1, all indicators of the FL, LoC, PKP, PMD, and TR variables have outer loading values above 0.70. The outer loading values for FL range from 0.828 to 0.862. LoC has outer loading values ranging from 0.818 to 0.906. Furthermore, PKP has outer loading values ranging from 0.730 to 0.885, while PMD ranges from 0.878 to 0.882. The TR variable also shows outer loading values ranging from 0.821 to 0.892. These results indicate that all indicators have met the recommended convergent validity criterion because each loading value exceeds 0.70. Therefore, the indicators used in this model can be considered valid and able to represent their

respective constructs in explaining the psychological drivers of retirement saving behavior, with locus of control as a key mediator.

2. Construct Reliability and Validity

To evaluate the adequacy of the measurement model, construct reliability and validity were first assessed using established SEM-PLS criteria. Internal consistency reliability was measured through Cronbach's alpha and composite reliability, while convergent validity was evaluated based on outer loadings and the average variance extracted (AVE). The findings are presented in Table 2.

Table 2. Result of Construct Realibilty and Validity

Indicator	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
FL	0,798	0,829	0,878	0,707
LoC	0,664	0,705	0,853	0,744
PKP	0,854	0,854	0,902	0,699
PMD	0,708	0,708	0,873	0,774
TR	0,644	0,667	0,847	0,735

The results presented in Table 2 indicate that the constructs of Financial Literacy, Locus of Control, Retirement Saving Behavior, Future Orientation, and Risk Tolerance demonstrate acceptable reliability and convergent validity. All constructs have Composite Reliability values above 0.70 and AVE values above 0.50, indicating that the indicators are able to measure their respective constructs consistently. Although the Cronbach's Alpha values for LoC (0.664) and TR (0.644) are slightly below the ideal threshold, their Composite Reliability and AVE values remain

adequate, so the constructs can still be considered reliable and valid for further analysis.

3. Discriminant Validity

Following the assessment of construct reliability and convergent validity, discriminant validity was evaluated to determine whether each construct was empirically distinct from the other constructs in the research model. This assessment ensures that the indicators measure their intended constructs more strongly than any other constructs. The results are presented in Table 3.

Table 3. Result of Discriminant Validity

Indicator	FL	LoC	PKP	PMD	TR
FL					
LoC	0,346				
PKP	0,138	0,132			
PMD	0,165	0,327	0,677		
TR	0,325	0,218	0,286	0,087	

Table 3 shows that the constructs of Financial Literacy, Locus of Control, Retirement Saving Behavior, Future Orientation, and Risk Tolerance demonstrate adequate discriminant validity. The correlation values among the constructs are relatively low, ranging from 0.087 to 0.677, indicating that each construct is distinct from the others. The highest correlation is found between Future Orientation and Retirement Saving Behavior (0.677), but it remains within an acceptable range. Therefore, the constructs in this model can be considered to have met the

discriminant validity criteria and are suitable for further analysis.

4. R-Square

Following the evaluation of the measurement model, the structural model was assessed by examining the coefficient of determination (R-square). The R-square value indicates the proportion of variance in the endogenous construct that can be explained by its predictor variables, thereby reflecting the model's explanatory power. The results are presented in Table 4.

Table 4. Result of R-Square

Indicator	R-square	R-square adjusted
LoC	0,124	0,111
PKP	0,319	0,305

The results presented in Table 4 indicate that the model explains 12.4% of the variance in Locus of Control, with an adjusted R-square value of 0.111, showing relatively small explanatory power. Furthermore, the Retirement Saving Behavior variable has an R-square value of 0.319 and an adjusted R-square value of 0.305, meaning that 31.9% of its variance can be explained by the variables included in the model. Overall, these results show that the model has stronger

explanatory power in explaining Retirement Saving Behavior than Locus of Control.

5. F-Square

Following the evaluation of the coefficient of determination (R-square), the effect size (f-square) was assessed to determine the contribution of each exogenous construct to the endogenous constructs in the structural model. The f-square values indicate the magnitude of the impact that each predictor variable has when included in the model. The results are presented in Table 5.

Table 5. Result of F-Square

Indicator	FL	LoC	PKP	PMD	TR
FL		0,053	0,009		
LoC			0,000		
PKP					
PMD		0,050	0,357		
TR		0,012	0,057		

Based on Table 5, indicate that the effect size of Future Orientation (PMD) on Retirement Saving Behavior (PKP) is 0.357, showing a large effect and indicating that future orientation has the strongest contribution to retirement saving behavior. Meanwhile, FL on LoC (0.053), PMD on LoC (0.050), and TR on PKP (0.057) show small effect sizes. The effects of FL on PKP (0.009), LoC on PKP (0.000), and TR on LoC (0.012) are very weak or negligible. Overall, these results suggest that future orientation plays the most important role in explaining retirement saving

behavior, while the other relationships show relatively small effects within the model.

6. Goodness of Fit

Following the evaluation of the structural model, the Standardized Root Mean Square Residual (SRMR) was assessed to examine the overall goodness-of-fit of the proposed model. SRMR measures the discrepancy between the observed and predicted correlations, where lower values indicate a better model fit. The results are presented in Table 6.

The results are presented in Table 5.

Table 6. Result of Goodness of Fit

Indicator	Saturated model	Estimated model
SRMR	0,081	0,081
d_ULS	0,598	0,598
d_G	0,328	0,328
Chi-square	419,890	419,890
NFI	0,600	0,600

Based on Table 6, the Goodness of Fit indicates that the model has an acceptable fit in explaining the relationships among Financial Literacy, Locus of Control, Retirement Saving Behavior, Future Orientation, and Risk Tolerance. The SRMR value is 0.081 for both the saturated and estimated models, suggesting that the model fit is acceptable. The d_ULS value is 0.598, while the d_G value is 0.328 for both models. Furthermore, the Chi-square value is 419.890, and the NFI value is 0.600. Overall, these results indicate that the model has a moderate level of fit and can be used for further analysis.

7. Path Coefficient

Following the evaluation of the measurement and structural models, the path coefficient analysis was conducted to examine the strength, direction, and significance of the relationships among the constructs in the proposed research model. The path coefficients indicate the magnitude and direction of the influence of the exogenous variables on the endogenous variables, while the significance is determined based on the t-statistics and p-values obtained from the bootstrapping procedure. The results are presented in Table 7.

Table 7. Path Coefficient and Result of Hypotheses Testing

Hipotesis	Path	Strd Beta	Strd Error	t-value	p-value	Bias	Confidence Interval		Keputusan
							2.5%	97.5%	
H1	LK -> PKP	0,052	0,055	0,948	0,343	0,007	-0,043	0,172	Di tolak
H2	PMD -> PKP	0,228	0,062	3,703	0,000	0,007	0,122	0,361	Diterima
H3	TR -> PKP	0,083	0,048	1,715	0,086	0,006	-0,007	0,184	Di tolak
H4	LoC -> PKP	0,517	0,065	8,012	0,000	0,009	0,392	0,646	Diterima
H5a	LK -> LoC	0,100	0,101	0,987	0,324	0,011	-0,081	0,312	Di tolak
H5b	PMD -> LoC	0,441	0,089	4,978	0,000	0,003	0,265	0,614	Diterima
H5c	TR -> LoC	0,160	0,093	1,726	0,084	0,010	-0,012	0,349	Di tolak
H6a	LK -> LoC -> PKP	0,052	0,055	0,948	0,343	0,007	-0,052	0,158	Di tolak
H6b	PMD -> LoC -> PKP	0,228	0,062	3,703	0,000	0,007	0,114	0,349	Diterima
H6c	TR -> LoC -> PKP	0,083	0,048	1,715	0,086	0,006	-0,017	0,170	Di tolak

Sumber : data diolah tahun 2025

Based on the results of hypothesis testing presented in Table 4.2, a total of eleven hypotheses were examined, consisting of both direct and indirect (mediating) effects. The findings indicate that financial literacy (H1) and financial risk tolerance (H3) do not have a significant direct effect on retirement saving behaviour, as evidenced by p-values greater than the 5% significance level. In contrast, future time perspective (H2) shows a positive and statistically significant effect on retirement saving behaviour, suggesting that individuals with a stronger orientation toward the future are more likely to engage in pension saving. Additionally, locus of control (H4) has a strong and significant positive influence on retirement saving behaviour, highlighting the importance of personal control beliefs in shaping long-term financial decisions.

Regarding the direct effects on the mediating variable, the results demonstrate that future time perspective (H5b) significantly influences locus of control, while financial literacy (H5a) and financial risk tolerance (H5c) do not show significant effects. This implies that individuals who are more future-oriented tend to develop a stronger internal locus of control, whereas financial knowledge and risk preferences alone are insufficient to shape such control beliefs.

In terms of mediation effects, locus of control does not mediate the relationship between financial literacy and retirement saving behaviour (H6a), nor between financial risk tolerance and retirement saving behaviour (H6c). However, locus of control significantly mediates the relationship between future time perspective and retirement saving behaviour (H6b). This finding suggests that future-oriented individuals are more likely to save

for retirement partly because they perceive greater personal control over their financial outcomes. Overall, the results emphasize the central role of psychological factors particularly future orientation and locus of control—in promoting retirement saving behaviour.

DISCUSSION

This study advances the literature on retirement saving behaviour by highlighting the primacy of psychological factors over purely cognitive or risk-based considerations. Contrary to conventional assumptions in financial education frameworks, financial literacy does not exhibit a significant direct effect on retirement saving behaviour. While financial literacy represents individuals' understanding of fundamental financial concepts such as retirement planning, investment, and risk management (Lusardi, 2014), the findings suggest that knowledge alone is insufficient to induce sustained saving behaviour. This result aligns with Atkinson (2011) and Atkinson and Messy (2012), who argue that financial literacy must be accompanied by motivational and behavioral drivers to translate into real-world financial actions. Recent evidence from Sundarasan et al. (2024) further supports this view, indicating that retirement saving decisions are more strongly influenced by psychological variables such as motivation, perceived control, and future orientation than by financial knowledge per se.

In contrast, future time perspective (FTP) emerges as the most robust predictor of retirement saving behaviour, exerting both direct and indirect effects. This finding provides strong empirical support for the Future Time Perspective theory proposed by Zimbardo and Boyd (1999), which posits that individuals with a long-term temporal orientation are more willing to delay immediate gratification in pursuit of future goals. In the context of retirement planning, individuals who actively contemplate their future financial conditions are more likely to engage in disciplined saving behaviour. This result is consistent with prior studies by Hershey et al. (2007) and Jacobs-Lawson and Hershey (2005), which identify future orientation as a key determinant of pension planning across different demographic groups. The significance of FTP is particularly relevant for younger cohorts facing economic uncertainty, where long-term planning becomes a critical adaptive strategy.

The findings further demonstrate that locus of control plays a pivotal role in shaping retirement saving behaviour. Individuals with an internal locus of control—who believe that their financial

outcomes are primarily determined by their own actions—are significantly more likely to save for retirement. This supports Rotter's (1966) social learning theory and is consistent with empirical evidence from Cobb-Clark et al. (2016), which shows that perceived control influences a wide range of financial behaviours, including saving and investment decisions. Importantly, locus of control not only exerts a direct effect on retirement saving behaviour but also functions as a mediating mechanism through which future time perspective influences saving decisions.

The significant mediation pathway from future time perspective to locus of control to retirement saving behaviour suggests an integrative psychological process. Individuals who are future-oriented tend to develop stronger beliefs in their ability to control financial outcomes, which in turn motivates proactive saving behaviour. This finding is consistent with Bandura's (1997) self-regulation theory, which emphasizes goal-setting, self-efficacy, and perceived control as central mechanisms in long-term behavioral regulation. Supporting this view, Hershey and Mowen (2000) argue that the interaction between temporal orientation and personal control constitutes a powerful explanatory framework for retirement-related behaviour.

Conversely, financial risk tolerance does not significantly influence retirement saving behaviour, either directly or indirectly through locus of control. Although behavioral finance theory suggests that individuals with higher risk tolerance are more active in financial decision-making (Grable & Lytton, 1999), retirement saving is fundamentally a security-oriented and conservative financial behaviour. As such, it appears to be driven more by long-term planning and psychological control than by preferences for financial risk. This finding underscores the conceptual distinction between investment behaviour and pension saving, which are often conflated in prior research.

Overall, the results indicate that retirement saving behaviour is primarily shaped by future orientation and internal control beliefs, rather than by financial literacy or risk tolerance alone. These findings carry important implications for retirement policy and financial education. Programs that focus solely on increasing financial knowledge may have limited effectiveness unless they also foster future-oriented thinking, self-regulation, and perceived control. Integrating psychological components into financial literacy initiatives may therefore represent a more effective strategy for encouraging early and sustained retirement saving, particularly among younger generations.

CONCLUSION

This study provides empirical evidence that psychological constructs outweigh purely financial factors in explaining retirement saving behaviour among young adults. While financial literacy and risk tolerance do not exert significant direct effects, future time perspective and locus of control emerge as robust predictors, underscoring the importance of temporal orientation and perceived personal agency in long-term financial decision-making. Importantly, locus of control functions as a selective mediator, transmitting the effect of future time perspective to retirement saving behaviour, but not mediating the effects of financial literacy or risk tolerance. These findings suggest that enhancing financial knowledge alone is insufficient to induce sustained retirement saving. From a policy perspective, retirement systems and financial education interventions should be redesigned to incorporate behavioral and psychological components, such as goal visualization, self-efficacy reinforcement, and future-self continuity. Such integrative approaches are likely to be more effective in promoting retirement preparedness among young adults in emerging economies.

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