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Future Time Perspective, Risk Appetite, Pension Planning, and Retirement Saving Behavior Among Construction Service Entrepreneurs

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ABSTRACT

Saving and pension funds are effective methods for supporting future life, especially for SMEs that lack access to pension insurance. This study analyzes the impact of future time perspective, risk appetite, and pension planning on retirement saving behavior, with gender as a moderating variable. Data were collected from 102 construction service entrepreneurs in Yogyakarta, Indonesia. Using a quantitative approach, the data were analyzed using moderation regression with SEM-PLS. The results indicate that future time perspective has a positive effect on retirement saving behavior (O = 0.180, p = 0.045). Risk appetite does not affect retirement saving behavior (O = -0.338, p = 0.053). Pension planning has a positive effect on retirement saving behavior (O = 0.696, p = 0.000). Gender significantly moderates the effects of future time perspective (O = 0.781; p = 0.000), risk appetite (O = 0.454; p = 0.022), and pension planning (O = -0.618; p = 0.000) on retirement saving behavior. This model has a high level of suitability in explaining the retirement saving behavior (Q^2 = 0.618). The results emphasize the importance of future awareness, risk considerations, and understanding of financial planning and retirement in shaping savings behavior.

Keywords: Construction Service Entrepreneurs; Future Time Perspective; Pension Planning; Retirement Saving Behavior; Risk Appetite

JEL Classification: D14; D91; G51; J26; J32

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INTRODUCTION

Service businesses in the construction sector are economic activities that focus on the planning, implementation, and supervision of physical development such as buildings, roads, bridges, ports, and other infrastructure. This sector is categorized as a non-financial service business because it offers services based on expertise, labor, and technology. The risk management capabilities of construction service businesses need to be improved. Small and medium-sized construction service businesses will struggle to survive in conditions of business uncertainty and limited technological and human resource competencies (Humas Pemda DIY, 2025). Another phenomenon that occurs is that small construction service entrepreneurs work in a turbulent, high-risk, and often seasonal environment, making them vulnerable to resilience and sustainability issues. Income uncertainty and business sustainability in the future are on the rise. Construction service entrepreneurs need to be highly aware of the importance of planning for a stable financial future by saving more.

Construction entrepreneurs face fluctuating income and irregular project cycles. Without consistent savings practices, they lack a financial cushion in case of obstacles such as project delays, decreased demand, or unexpected costs. Unlike permanent workers who may have a pension plan or BPJS (Social Security Agency), construction entrepreneurs lack a formal pension plan. They rely heavily on personal savings and investments for funding when they retire or retire. Saving helps entrepreneurs build an emergency fund, ensuring business liquidity during difficult times. This emergency fund serves as a backup fund for retirement or when deciding to reduce the heavy, physical workload common in construction (Harahap et al., 2022).

Retirement saving behavior is a crucial aspect in building financial readiness after entering non-productive age. The level of retirement savings behavior among SME entrepreneurs remains low, putting them at risk of facing financial difficulties in their later years. According to Alkhawaja & Albaity (2024) and Tabita & Marlina (2023), factors such as age, gender, education level, and income play a role in shaping individuals' patterns of setting aside funds and systematically allocating income for retirement funds.

Future time perspective plays a role in shaping long-term saving habits. Individuals with a strong future time perspective will have a higher awareness of their financial needs in retirement. People who are future-oriented (high consideration of future consequences) tend to be financially prepared and save more for retirement (Mooney et al., 2021). Correlational evidence and several causal models show that future time perspective predicts retirement savings intentions and practices (Alkhawaja & Albaity, 2022).

Risk appetite shapes the way individuals develop financial strategies, especially when facing future uncertainty. High risk tolerance encourages aggressive investment decisions, while low risk tolerance makes a person more likely to choose safe assets. Risk appetite affects pension portfolio allocation (the proportion of equities vs. bonds). Research by Daminato et al. (2024) shows that risk appetite has a positive relationship with the habit of saving for retirement.

Pension planning plays a crucial role in shaping retirement savings habits. Mooney et al (2021) reveal that pension planning has a positive and significant influence on retirement savings behavior. Individuals with good financial understanding tend to be more disciplined in setting aside financial funds early on. SME entrepreneurs who lack access to formal pension programs must rely on personal initiatives to manage their finances.

Longitudinal analysis in Australia shows different retirement savings trajectories between genders and the factors that cause them (Feng et al., 2018). Research by Giannikos and Korkou (2023) reveals that there are gender differences in pension asset allocation and the gender moderation of the relationship between risk attitude and savings.

This research aims to analyze the psychological and financial factors that influence retirement saving behavior. This research's novelty integrates future time perspective, risk appetite, pension planning, and gender into one comprehensive model. The model is tested in the context of developing countries. Studies on retirement savings behavior among SME entrepreneurs in the construction services sector in Indonesia are still limited, especially in Indonesia. The lack of social security and limited access to formal pension programs are factors that can influence SME entrepreneurs' decisions to save for retirement. This study fills the gap in previous research by analyzing the impact of future time perspective, risk appetite, and pension planning on the retirement saving behavior of SME entrepreneurs in the construction services sector in Yogyakarta, Indonesia. This analysis was conducted by considering gender as a moderating variable.

LITERATURE REVIEW

Grand Theory Framework

The theme of future time perspective, risk appetite, and pension planning on retirement saving behavior is best explained through an integration of three grand theories, namely life-cycle theory, behavioral economics, and psychological time perspective theory. These theories jointly explain why individuals plan (or fail to plan) for retirement, despite rational incentives.

Life-cycle theory, developed by Modigliani and Brumberg (2013) is a role in the model providing the economic foundation of retirement saving behavior. The core assumptions of this theory are: individuals are rational, they smooth consumption over their lifetime and savings during working years finance retirement. Key constructs linked to this theme are: retirement planning is interring temporal consumption decision, retirement saving is a delayed consumption, and risk appetite affects asset allocation over the life cycle. behavioral economics theory, developed by Bondt and Thaler (1995), explains deviations from rational saving behavior. The connection to research variables is as follows: risk appetite determines portfolio choice and retirement participation; pension planning is affected by behavioral biases: and saving behavior is influenced by heuristics, not pure rationality. Behavioral economics explains why people under-save, even when they know they should save. Future time perspective theory by Zimbardo and Boyd (2015) provides the psychological foundation of long-term financial behavior (Alkhawaja & Albaity, 2024; Ghadwan et al., 2022; Mooney et al., 2021). The core idea is that individuals differ in how strongly they value the future; future-oriented individuals (plan more, save more, and accept calculated risks for long-term gains).

Retirement Saving Behavior

Retirement saving behavior is the act of setting aside a portion of one's income or wealth for retirement purposes (Alkhawaja & Albaity, 2024; Teoh et al., 2024, 2026). According to Alkhawaja & Albaity (2022) and Teoh et al. (2024), saving can be achieved in various ways, including saving cash, placing funds in deposits, investing in financial instruments, and participating in pension fund schemes offered by the government or the private sector. Default or automatic enrollment consistently increases participation in pension programs, has a strong effect on participation, but the long-term effect on accumulation depends on individual behavior (Daminato et al., 2024).

Future Time Perspective

Future time perspective is defined as a primary personality trait indicating the extent to which an individual can imagine and plan for the future. This concept can be measured in various ways depending on the field of study, such as patience, time preference in economics, and planning horizon in psychology (Alkhawaja & Albaity, 2022; Tomar et al., 2021). Interventions that make the future-self more vivid (future-self vividness) increase savings allocation. A strong example: experiments using age-progressed images/future self-visualization show an increase in savings (Teoh et al. 2026). This supports the psychological approach (making the future feel more mine) to increase retirement savings (Mooney et al., 2021).

Risk Appetite

Risk appetite is the extent to which individuals are willing to accept uncertainty or potential losses in their financial decisions. It reflects individuals' attitudes and preferences toward risk in managing their assets and investments (Utami & Wedasuari, 2023). Several studies have found a mediating/moderating effect: literacy and future orientation strengthen/modify the relationship between risk tolerance and saving behavior (Choukhmane & Silva, 2026). The saving and liquidity constraints theory, developed by Angus Deaton in 1991, is a theory that explains how individuals make savings decisions under constraints (Alkhawaja & Albaity, 2024).

Pension Planning

Pension planning is a systematic process of determining an individual's long-term financial goals after retirement, then designing strategies for asset accumulation and distribution to meet their retirement needs (Giannikos & Korkou, 2023). Pension planning is an individual's understanding of the strategies and practices necessary to prepare for financial needs in retirement, including an understanding of investment instruments, asset management, and available pension programs (Ghadwan et al., 2022; Herrador-Alcaide et al., 2021).

Gender

Gender is not merely a biological difference, but rather a social and cultural construct that shapes how individuals interact in various aspects of life (Giannikos & Korkou, 2023). In an economic context, gender plays a role in influencing how individuals make financial decisions. Biological, social, and psychological differences between men and women often shape the mindset and approach used in the decision-making process (Pereira et al., 2023).

Hypotheses Development

The Influence of Future Time Perspective on Retirement Saving Behavior

This grand theory serves as an umbrella framework explaining that: Saving behavior for retirement is not only determined by economic rationality, but also by future time orientation and individual psychological factors. In the Integrated Behavioral-Economic perspective, Future Time Perspective plays a key psychological role in shaping long-term economic decisions. Individuals with a strong future orientation tend to have higher levels of self-control, reduced behavioral bias, and more consistent retirement saving behavior. This concept shows the extent to which individuals view the future as a broad time span and are forward-looking. Individuals with a high future time perspective are more likely to think about long-term consequences and plan for the future.

According to life-cycle theory and behavioral findings, forward-looking time orientation encourages attention to long-term outcomes, which is expected to promote saving behavior for retirement (Mooney et al., 2021). Other studies show that individuals with a

stronger future perspective tend to have better retirement savings behavior than those who are more oriented towards short-term gratification (Alkhawaja & Albaity, 2022). Future time perspective plays a role in shaping their financial attitudes and decisions. Increasing awareness of the future through financial education and intervention programs can help individuals develop better saving habits and prepare for life after retirement (Alkhawaja & Albaity, 2022).

H1: Future time perspective has a positive effect on retirement saving behavior.

The Influence of Risk Appetite on Retirement Saving Behavior

The integrated behavioral–economic perspective grand theory comprehensively explains the influence of risk appetite on retirement saving behavior by emphasizing that retirement saving behavior is not only the result of rational economic calculations, but is also influenced by psychological risk preferences. Individuals with a higher risk appetite are better able to accept investment uncertainty and make more aggressive saving decisions (through riskier asset allocation or long-term diversification), while risk-averse individuals tend to choose conservative strategies that can impact the volume of their retirement savings. This theory integrates the strengths of traditional economic models and real human behavior, which is important for understanding variations in retirement saving behavior.

Studies show that individuals with higher risk tolerance tend to invest in more aggressive financial instruments, which can lead to increased accumulation of their retirement funds. Attitudes toward risk and financial literacy influence retirement contribution decisions (Choukhmane & Silva, 2026). Some studies indicate that individuals with high risk tolerance tend to invest in riskier financial instruments, but they may also face greater volatility, which could impact their financial stability in retirement. High risk tolerance is associated with better saving behavior for retirement, as their investment decisions are also influenced by other factors, such as financial knowledge and a future time perspective (Alkhawaja & Albaity, 2022; Choukhmane & Silva, 2026).

H2: Risk appetite has a positive effect on retirement saving behavior.

The Influence of Pension Planning on Retirement Saving Behavior

In the integrated behavioral–economic perspective, pension planning is positioned as a key mechanism linking economic rationality to actual behavior. Although classical economic theory predicts that individuals will save optimally for retirement, behavioral evidence suggests that without structured planning, individuals tend to fail to realize this intention. Pension planning serves as a behavioral tool that reduces cognitive biases, enhances self-control, and activates long-term commitment, thus significantly encouraging retirement saving behavior. Financial planning for retirement is a systematic process of setting financial goals, estimating financial needs, and determining investment and savings strategies to achieve financial security in old age. Knowledge of financial planning for retirement is closely related to saving behavior for retirement (Pereira et al., 2023).

Studies in Malaysia indicate that retirement financial planning has a significant impact on pension savings behavior. Financial knowledge is related to individual awareness in planning for retirement funds early on. Individuals who actively engage in financial planning (e.g., setting savings targets, calculating retirement fund needs, and managing investments) tend to exhibit stronger saving behavior. Individuals who understand financial instruments, investment risks, and fund management strategies tend to have consistent and focused saving patterns (Alkhawaja & Albaity, 2022). Increased financial

literacy enables individuals to manage their income more effectively, secure retirement funds, and maintain financial stability in their later years.

H3: Pension planning has a positive effect on retirement saving behavior.

The Influence of Gender

Within the Integrated Behavioral–Economic Perspective framework, gender plays a moderating role in shaping how future orientation, risk appetite, and retirement planning translate into retirement saving behavior. Psychological, social, and economic differences between men and women result in systematic variations in long-term financial decision-making, thereby strengthening or weakening the influence of future time perspective, risk appetite, and pension planning on retirement saving behavior. Gender often moderates or mediates the relationship between psychological factors and financial behavior. Women and men differ in terms of risk tolerance. Men generally have a higher risk appetite. In terms of financial literacy, men often report higher levels of financial literacy (Giannikos & Korkou, 2023). In terms of future time orientation, women tend to have a higher and more stable orientation towards the future.

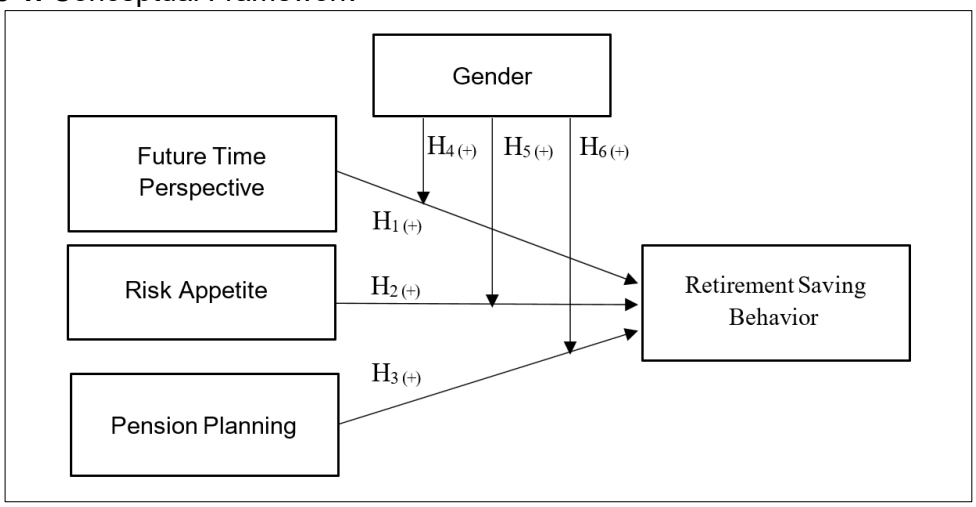
Gender can act as a mediator in the relationship between future time perspective, financial risk tolerance, pension planning, and retirement saving behavior. Research by Afthanorhan et al. (2020) reveals that women are more likely to be prepared to save for retirement than men. Research by Ketkaew et al. (2022) shows that women tend to have a short-term focus. Men, on the other hand, tend to have a longer and more structured perspective in their financial planning. According to Shah et al. (2020), financial risk tolerance varies by gender, with men being more willing to take higher financial risks than women. Women tend to choose safer investment instruments. According to Fabian et al. (2022) and Giannikos & Korkou (2023), women generally have a lower level of financial understanding than men in terms of retirement planning. This has an impact on their readiness to save and invest for retirement.

H4: Gender moderates the influence of future time perspective on retirement saving behavior.
H5: Gender moderates the influence of risk appetite on retirement saving behavior.
H6: Gender moderates the influence of pension planning on retirement saving behavior.

Conceptual Framework

The study framework model is depicted in Figure 1.

Figure 1. Conceptual Framework



As illustrated in Figure 1, future time perspective is positioned as the first independent variable (X1), risk appetite as the second independent variable (X2), and pension planning as the third independent variable. Retirement saving behavior is the dependent variable (Y), and gender is the moderating variable (Z).

RESEARCH METHOD

Research Design

This study uses a quantitative research design to examine the effects of future time perspective, risk appetite, and pension planning on retirement saving behavior, with gender as a moderating variable. The research object in this study is the retirement savings behavior of small construction service entrepreneurs in the Special Region of Yogyakarta, Indonesia, with a population of 134 small construction service businesses. The response rate was 76.119% or 102 small construction service entrepreneurs (Sekaran & Bougie, 2016). In this study, retirement saving behavior serves as the dependent variable. The independent variables consist of future time perspective, risk appetite, and pension planning. Gender is used as a moderating variable. The analysis technique used regression moderation.

Measurement of Variables

The operational definitions and indicators of retirement saving behavior, risk appetite, and pension planning are based on the research of Alkhawaja & Albaity (2022). The future time perspective indicator uses research by Tomar et al. (2021). The variables in this study are measured using a 5-point Likert scale. The indicators of retirement saving behavior (Y) are: frequency of saving for retirement (y.1), awareness of saving (y.2), savings planning according to retirement needs (y.3), and readiness for pension savings (y.4), and The future time perspective indicator (X1), consists of: thinking about the future (X1.1), reflecting on future life (X1.2), enthusiasm for the future (X1.3), awareness of long-term perspective (X1.4), and social perception of future orientation (X1.5). Risk appetite indicators (X2) include: reference to risky investments (X2.1), focus on long-term asset growth (X2.2), willingness to take financial risks (X2.3), and attitudes towards safe versus risky investments (X2.4). Pension planning indicators (X3) are: knowledge of financial planning for retirement (X3.1), confidence in financial planning (X3.2), ability to access financial information (X3.3), and understanding of retirement investment instruments (X3.4).

Data Analysis

The data were analyzed using Structural Equation Modeling with Partial Least Squares (SEM-PLS). This method was chosen because it is appropriate for small sample sizes and models with moderating variables. The analysis consisted of two steps: evaluation of the measurement model to confirm reliability and validity, and testing of the structural model to assess direct and indirect effects, with significance levels determined through bootstrapping.

RESULTS

Respondents' Demographic Profiles

Table 1. Respondent Characteristics

Characteristics	Category	Frequency	Percentage
Gender	Women	21	20.59%
	Men	81	79.41%
Age	16 - 25 Years	20	19.61%

	26 - 35 Years	31	30.4%
	36 - 45 Years	27	26.5%
	46 - 55 Years	20	19.61%
	>56 Years	4	3.9%
Education	Elementary School	1	1%
	Junior High School	14	13.7%
	Senior High School	41	40.2%
	Diploma	9	8.8%
	Bachelor's degree	36	35.3%
	Postgraduate (S2/S3)	1	1%

Table 1 shows that the majority of respondents in this study were men (79.41%), while women accounted for 20.59%. This indicates that construction service respondents in this study are dominated by men. This dominance is in line with the characteristics of the construction sector, which demands high physical activity, field mobility, and long working hours, which socially and culturally are still predominantly occupied by men. As the main breadwinners, male respondents have the potential to have a higher awareness of the importance of financial security in the future, including retirement planning. In the context of the construction services sector, project-based income uncertainty can increase awareness of financial risks in old age and encourage men to save long-term reserve funds, including retirement savings.

Table 1 also shows that the majority of respondents were aged between 26 and 35 (30.4%), and the fewest were aged 56 and over (3.9%). This indicates that the respondents in the construction services sector in this study are predominantly of early to middle productive age, particularly young adults, and most construction service sector workers are in the early stages of long-term financial planning.

Regarding the educational level of the construction service respondents in this study, the majority had a senior high school education (40.2%), with the fewest having an elementary school and postgraduate education (1% each). Structurally, these findings indicate that the construction services sector in Yogyakarta is dominated by workers with secondary education, who generally occupy technical and operational positions in the field. However, this does not preclude awareness of the importance of future planning. However, a limited understanding of formal financial instruments may impact the form and quality of retirement saving behavior.

Descriptive Statistics of Variables

Table 2. Descriptive Statistics of Variables

Variables	Dimension	Mean	Category
Future Time Perspective (X1)	Orientation for future finance (5 questions)	4.14	High
Risk Appetite (X2)	Ability to tolerate risks faced (4 questions)	1.96	Low
Pension Planning (X3)	Planning future finances with a pension program (4 questions)	4.20	Very high
Retirement Saving Behavior (Y)	Saving behavior for future retirement funds (4 questions)	4.31	Very high

Table 2 confirms that the future time perspective variable had an average score of 4.14, considered high. This indicates that respondents have a strong awareness of future financial needs, consider long-term consequences when making financial decisions, and

are not solely focused on short-term consumption. A strong future orientation is the main psychological foundation that encourages individuals to start saving early in preparation for retirement.

The risk appetite variable had an average score of 1.96, considered low, indicating that respondents tend to avoid financial risks, prefer safe and secure instruments, and are less interested in high-risk investments. This low risk tolerance does not necessarily hinder retirement saving behavior, but may lead respondents to choose conservative product-based retirement savings, formal pension schemes, or stable, regular savings.

The pension planning variable had an average score of 4.20, considered high, indicating that respondents actively plan for their future finances through pension programs, are aware of income limitations in old age, and understand the importance of post-work financial preparedness.

The retirement saving behavior variable had an average score of 4.31, which is considered high. This indicates that respondents demonstrated concrete behavior in saving for retirement, not only having the intention but also actual action, and making retirement savings a financial priority.

Validity Test

Table 3. Loading Factor

Variables	Indicator	Loading Factor	Category
Future Time Perspective (X1)	X1.1	0.870	Valid
	X1.2	0.851	Valid
	X1.3	0.778	Valid
	X1.4	0.777	Valid
	X1.5	0.787	Valid
Risk Appetite (X2)	X2.1	0.849	Valid
	X2.2	0.859	Valid
	X2.3	0.868	Valid
	X2.4	0.915	Valid
Pension Planning (X 3)	X3.1	0.733	Valid
	X3.2	0.745	Valid
	X3.3	0.827	Valid
	X3.4	0.802	Valid
Retirement Saving Behavior (Y)	Y.1	0.787	Valid
	Y.2	0.796	Valid
	Y.3	0.815	Valid
	Y.4	0.819	Valid

Table 3 shows that the loading factor meets the convergent validity requirement, as it exceeds 0.70 (Sekaran & Bougie, 2016). The questionnaire items in this study are valid and represent all aspects of the concept being studied.

Reliability Test

Table 4. Composite Reliability Value

Variable.	Composite reliability (rho_a)	Composite reliability (rho_c)	Category
X1	0.887	0.927	Reliable
X2	0.972	0.938	Reliable
X3	0.878	0.868	Reliable
Y	0.718	0.891	Reliable

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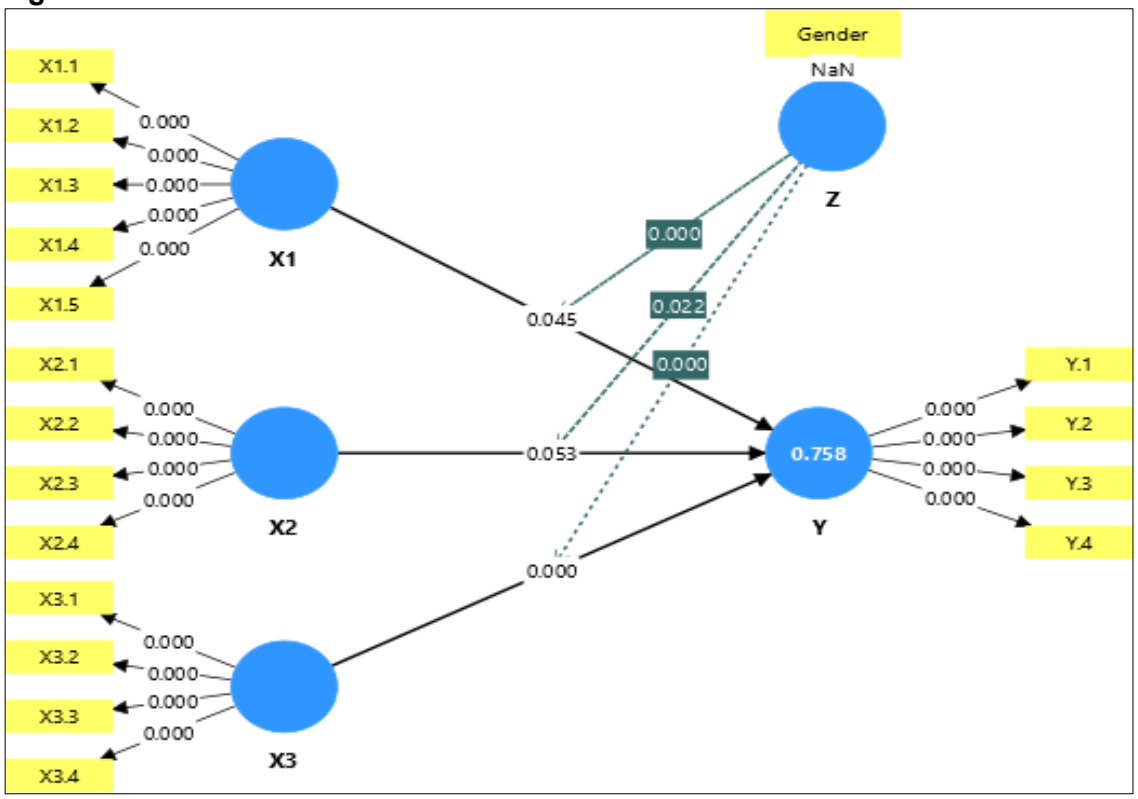
Table 4 shows that each variable in this study has a composite reliability value > 0.70. This indicates that all variables used in this study meet the composite reliability criteria and can be declared reliable. All variables have internal consistency between items within a variable.

Structural Model Analysis (Inner Model)

According to Figure 2, the retirement saving behavior variable has an R-Square value of 0.758, indicating that the model has strong predictive power in explaining this variable. The model used in this study has a high level of suitability in explaining the retirement saving behavior variable. The Q2 test result for variable Y is 0.618. This value indicates that variable Y has a Q2 value > 0. It can be concluded that the variables in this study have predictive relevance and have a good model and parameter estimation.

Figure 2. Inner Model



Effect Without Moderation

Table 5 shows the statistical results of the direct influence between the variables, including future time perspective (X1), risk appetite (X2), and pension planning (X3), on retirement saving behavior (Y).

Table 5. Path Coefficient Without Moderation

Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
X1 -> Y	0.180	0.201	0.090	2.001	0.045
X2 -> Y	-0.338	-0.291	0.174	1.938	0.053
X3 -> Y	0.696	0.724	0.155	4.496	0.000

Table 5 shows that the future time perspective (X1) variable has a positive effect (original sample (O) = 0.180), and this effect is significant on retirement saving behavior, as the p-value of 0.045 is less than 0.05 (the set α value). This means that H1 is accepted. The risk appetite (X2) variable has a negative effect (O = -0.338), but this effect is not significant on retirement saving behavior, as the p-value of 0.053 is greater than 0.05 (the set α value). Based on these results, H2 is rejected. The pension planning (X3) variable has a positive effect (O = 0.696), and this effect is significant on retirement saving behavior, as the p-value of 0.000 is less than 0.05 (the set α value). This means that H3 is accepted.

Moderated Influence

Table 6. Path Coefficient with Moderation

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	p-values
Z x X1 -> Y	0.781	0.692	0.194	4.025	0.000
Z x X2 -> Y	0.454	0.395	0.198	2.291	0.022
Z x X3 -> Y	-0.618	-0.582	0.153	4.026	0.000

Table 6 shows the moderating role of gender (Z) in this study. From Table 6, it can be seen that gender strengthens the influence of future time perspective (X1) on retirement saving behavior (Y), because the original sample (O) = 0.781 with a p-value of 0.000 smaller than 0.05 (the set α value). From this result, it means that H4 is accepted. Gender also strengthens the influence of risk appetite (X2) on retirement saving behavior (Y). This is shown by the original sample (O) = 0.454 with a p-value of 0.022, smaller than 0.05 (the set α value). From this result, it means that H5 is accepted. Finally, gender is known to moderate the influence of pension planning (X3) on retirement saving behavior (Y), because the original sample (O) = -0.618 with a p-value of 0.000, which is smaller than 0.05 (the set α value). This means that H6 is accepted; however, the negative coefficient indicates that gender weakens the relationship between pension planning and retirement saving behavior.

DISCUSSION

The Effect of Future Time Perspective on Retirement Saving Behavior

The results of this study show that future time perspective has a significant positive effect on retirement saving behavior. Therefore, H1 is supported. This indicates that the higher the future time perspective, the greater the tendency for construction service entrepreneurs to save for retirement. The research results are in accordance with the grand research theory, life-cycle theory, and future time perspective theory. The results of this study align with the goal-based motivation theory proposed by Mooney et al. (2021). This study supports the research conducted by Alkhawaja & Albaity (2024) and Tomar et al. (2021). Individuals with a high future time perspective tend to think about their financial condition in the future. To maintain stability in life or financial condition in the future, saving for the future becomes very important.

The Influence of Risk Appetite on Retirement Saving Behavior

For the risk appetite variable (X2), the results show no effect on retirement saving behavior. Therefore, H2 is not supported. A person's level of financial risk tolerance does not have a significant effect on the tendency of small construction service entrepreneurs to save for retirement. This indicates that decision-making or saving behavior is influenced by factors other than risk appetite. The findings of this study align with those of several previous studies. Giannikos & Korkou (2023) and Utami & Wedasuari (2023)

found that risk tolerance does not influence retirement savings or investments. Saving is often motivated by liquidity needs, security, or short-term goals rather than a desire to avoid financial risk in the future.

This finding further reinforces the notion that other factors may play a greater role in retirement savings decisions. The research findings argue that, within the integrated behavioral–economic perspective, risk appetite does not always influence retirement saving behavior because, first, the future time perspective plays a dominant role in motivating savings. Second, there is a difference between risk preferences (often relevant for investment allocation) and consistent saving (more influenced by long-term motivation, goals, and financial literacy). Third, psychological factors can moderate or shift the role of risk preferences in the context of long-term savings.

The Effect of Pension Planning on Retirement Saving Behavior

The test results indicate that pension planning has a significant positive effect on retirement saving behavior. Therefore, H3 is supported. Knowledge about financial planning for retirement acts as a cognitive factor that influences individuals' decisions in developing long-term financial strategies. Research by Alkhawaja & Albaity (2022), Choukhmane & de Silva (2026), and Sirait et al. (2025) found that financial knowledge has a significant influence on pension fund planning. These findings reinforce that DIY construction service entrepreneurs have a higher understanding of financial planning for retirement. Pension planning requires careful calculation and knowledge of private financial management. Saving behavior for pensions is determined by pension planning.

The Effect of Future Time Perspective on Retirement Saving Behavior Moderated by Gender

The results of statistical tests show that gender moderates the influence of future time perspective, risk appetite, and retirement planning on the retirement saving behavior of DIY construction service entrepreneurs. These results indicate that H4, H5, and H6 are supported, although H6 shows a negative moderating direction. This finding aligns with social role theory, proposed by Bajtelsmit (2024). Gender significantly moderates the effect of future time perspective on retirement saving behavior. Future perception (individuals' view of the future/goal-oriented) influences the tendency to save. Gender influences life goal priorities (such as family roles, career, and future turbulence), which are then translated into saving behaviors.

Gender moderates the effect of risk appetite on retirement saving behavior. This indicates that there are differences between men and women in managing risk and financial strategies. This study supports the research of Byrnes et al. (1999) and Giannikos & Korkou (2023). Several studies have found that men show a higher risk appetite than women (risk-taking), so that the effect of risk appetite on investment/saving differs between genders. This makes gender moderate the influence of risk appetite on saving behavior.

This finding can be explained through financial socialization theory (Pereira et al., 2023). The study states that even though a person has high financial knowledge, environmental influences and social factors (including gender) can affect their application of that knowledge. Research by Feng et al. (2018) indicates that pension planning is more commonly undertaken by men than women. Men and women may differ in financial knowledge, access to pension products, and work experience (formal vs. informal). Therefore, the ability/intention to plan has a different impact on saving behavior according to gender.

Moderation results show that gender weakens the influence of pension planning on retirement saving behavior. This finding indicates that in construction entrepreneurs, who are predominantly male, high levels of retirement planning are not always followed by realized retirement savings. Based on hegemonic masculinity theory by Connell and social role theory by Eagly (Pereira et al., 2023), men tend to view themselves as primarily responsible for family finances, which influences how they translate retirement planning into actual saving behavior. Thus, men's role as primary breadwinners can create a gap between retirement planning and realized savings. Funds planned for retirement, often diverted for business expansion, project capital, or emergencies, are perceived as flexible assets, not funds that should be locked away. This results in planning not being fully realized.

CONCLUSION

This study analyzes the impact of future time perspective, risk appetite, and pension planning on retirement saving behavior, with gender as a moderating variable. The object of this study is small construction service entrepreneurs in the Special Region of Yogyakarta, Indonesia. This research concludes that: future time perspective influences retirement saving behavior, risk appetite does not influence retirement saving behavior, pension planning influences retirement saving behavior, and gender moderates the influence of future time perspective, risk appetite, and pension planning on retirement saving behavior. Specifically, gender strengthens the effects of future time perspective and risk appetite, but weakens the effect of pension planning on retirement saving behavior.

The theoretical implications of this research provide an important contribution by expanding the life-cycle theory, which has been normative and rational, to include psychological and behavioral factors. This shifts the paradigm from fully rational savers to behaviorally bounded savers. It demonstrates that retirement saving decisions are determined not only by income and age, but also by an individual's future perspective and risk appetite. Increased financial education and awareness for small construction service entrepreneurs is needed. The results of this study suggest that pension planning has a positive impact on retirement savings behavior. Given this condition, the government, financial institutions, and social organizations need to improve financial education programs that are more affordable and accessible to small construction service entrepreneurs and SMEs in general. These programs can include training on private financial management, long-term investment strategies, financial risk management, and the benefits of retirement planning.

LIMITATION

Some of the weaknesses of this study include: the relationship between variables can be bidirectional or reverse causality is possible, so a longitudinal design is needed if possible. Saving behavior and risk appetite are often reported subjectively, with social desirability or recall bias, so it is necessary to add objective behavioral indicators (savings accounts, pension fund contributions). Respondents may have given answers that were considered socially good or not entirely accurate in considering their retirement savings behavior. The focus on construction service entrepreneurs means that the research results may not be generalizable to other sectors, such as manufacturing or non-construction services.

Further research should include socio-demographic factors such as education level, occupation, or financial experience. These variables are thought to influence decisions about saving for retirement. Future research recommendations for methodology include

using mixed methods to explore psychological aspects. Research instruments can use different models. Control variables and factors such as age and demographic factors play a role in decisions about retirement behavior.

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DECLARATION OF CONFLICTING INTERESTS

The authors have declared no potential conflicts of interest concerning the study, authorship, and/or publication of this article.

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