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Financial Attitudes and Micro pension Scheme Participation Among Informal Economy Workers in Ghana: Application of the Theory of Planned Behavior

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Abstract

Micro pension schemes (MPS) have been instituted to guarantee economic security for informal economy workers after retirement, yet a substantial proportion of these workers remain excluded from such schemes. This study applied the Theory of Planned Behaviour to examine how financial knowledge, planning, and risk tolerance shape MPS participation among informal workers in Ghana. Employing a mixed-methods design, the study analysed quantitative survey data from 400 informal workers using logistic regression, alongside thematic synthesis from 15 qualitative key informant interviews. The logistic regression analysis revealed that financial attitudes significantly determine enrolment. Financial planning emerged as the strongest predictor, with workers who budget and set goals being over three times more likely to participate in an MPS. Financial knowledge also significantly increased participation probabilities, despite critically low baseline literacy levels. Conversely, financial risk tolerance was not statistically significant, indicating that workers perceive the MPS as a low-risk savings tool rather than a volatile investment. Qualitative insights highlighted that participation is heavily constrained by structural barriers, including income volatility, institutional mistrust, and a cultural preference for traditional informal networks. The study concludes that individual savings behaviour is restricted by low financial literacy and rigid institutional frameworks. To enhance uptake, it is recommended that the National Pensions Regulatory Authority and scheme administrators design flexible MPS products with variable contribution rates and emergency withdrawal options. Additionally, policymakers should deploy targeted financial literacy campaigns through mobile money platforms and trusted community channels to dismantle systemic barriers.

Keyword: Behavior, Financial Attitude, Ghana, Informal Economy Workers, Micro Pension, Savings

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Introduction

Securing financial stability for informal economy workers during their old age is a critical development challenge, particularly in nations like Ghana where a vast majority of the workforce operates outside formal structures. Micro pension saving (MPS) schemes serve as essential mechanisms to mitigate aging-related economic risks, providing a pathway to security consistent with international social protection standards (Mukherjee, 2014; Sahu, 2014). By filling the void left by traditional pension systems, these schemes offer a rights-based approach to safeguarding individuals against the poverty and economic crises that often plague informal economy workers who lack access to conventional pension coverage (Hu & Stewart, 2009; ILO, 2011; Lugilde et al., 2017).

The effectiveness of these schemes, however, is heavily influenced by the psychological and behavioural dimensions of individual participation. While traditional economic models like the Life Cycle Hypothesis often fail to account for the irregular incomes of informal economy workers, the Theory of Planned Behaviour (TPB) offers a more robust framework for understanding these decisions (Ajzen, 1991; Deaton, 1992; Lugilde et al., 2017). Research suggests that financial attitudes, specifically financial knowledge, planning, and risk tolerance are central determinants of whether an individual chooses to participate in a pension scheme, acting as the primary drivers of conscious savings efforts and retirement preparedness (Chou et al., 2014; Lee & Kim, 2016).

Ghana serves as an ideal case study for this issue, as it faces the dual challenges of a massive informal economy and a rapidly aging population (GSS, 2015; WHO, 2014). Although the National Pensions Act of 2008 was designed to extend coverage, enrolment rates remain critically low, often hovering around three to four percent of eligible informal workforce (Asafu-Adjaye, 2022; MELR, 2017). Recent studies indicate that while workers are often willing to contribute, they are frequently hindered by limited financial literacy, a poor understanding of pension tiers, and institutional barriers (Asiamah, 2023; Segbenya et al., 2024). These realities highlight an urgent need to transition from focusing solely on institutional supply to better understanding the underlying attitudes of the workers themselves.

This study seeks to address the gap in existing literature by applying the TPB framework to investigate how specific financial attitudes such as knowledge, planning, and risk tolerance influence MPS participation among Ghana's informal workforce. By moving beyond traditional analyses of institutional barriers, this research aims to provide a nuanced understanding of the behavioural motivations that shape pension enrolment (Boyetey, 2020; Lee & Kim, 2016). This perspective is vital for designing more effective policies that resonate with the preferences and capabilities of informal workers, ultimately fostering greater long-term financial security for this vulnerable demography.

To achieve this, the study utilizes a mixed-methods research design, integrating quantitative logistic regression with qualitative insights from key informant interviews. This methodology ensures a comprehensive analysis of both statistical correlations and the contextual factors that influence savings decisions. The remainder of this paper is structured to provide a thorough review of the relevant literature, a detailed description of the research methodology, a presentation of empirical findings, and a final discussion of policy recommendations aimed at enhancing MPS uptake across the informal sector.

Literature Review

Micro pension schemes and informal economy workers

Micro pension schemes are designed to extend social security to informal economy workers by offering low-contribution thresholds, flexible payment schedules, and simplified administration. These features are specifically intended to accommodate the unique challenges faced by informal workers, such as chronic income volatility, the absence of employer-sponsored support, and restricted access to formal financial institutions (Hu & Stewart, 2009; Mukherjee, 2014; Sahu, 2014). This inclusion is particularly vital in developing nations like Ghana, where roughly 86% of the workforce operates informally, leaving the majority of the population without a safety net and at significant risk of poverty during old age (GSS, 2015; Kpessa & Bland, 2013).

Despite the potential of these schemes, participation rates in programs like Ghana's Tier 3 voluntary pension remain dismally low, often falling below 5% in the informal economy (Asafu-Adjaye, 2022; MELR, 2017). Research identifies a range of barriers, including low financial literacy, administrative hurdles, and deep-seated mistrust of formal institutions (Asiamah, 2023; Segbenya et al., 2024). Studies indicate that product design is a decisive factor; for instance, increased withdrawal flexibility has been shown to significantly boost uptake among vulnerable groups like cocoa farmers (Kos & Lensink, 2023). International evidence from countries like Tanzania and Nigeria further suggests that unless reforms address income volatility and align with the realities of informal labour, formal schemes will continue to struggle against systemic and regulatory impediments (Obuobi, 2024; Wango, 2023). Ultimately, MPS must contend with the prevalence and reliability of well-established, informal savings mechanisms. Workers frequently turn to community-based strategies such as *susu* groups, church welfare, and reciprocal lending that offer immediate liquidity and high levels of social trust (Danso-Wiredu, 2021; Obuobi, 2024). Because these informal arrangements are deeply embedded in the social fabric of these communities. They often function as effective substitutes for formal social protection. Consequently, formal pension initiatives must innovate to become competitive, ensuring their designs offer the same flexibility and social relevance as the informal systems they seek to complement.

The theory of planned behavior and financial attitudes

The Theory of Planned Behaviour (TPB), introduced by Ajzen (1991), provides a robust framework for analysing human decision-making by positing that behaviour is primarily driven by intention. This intention is shaped by three core dimensions: the individual's attitude toward the behaviour, subjective norms regarding social expectations, and perceived behavioural control over the ability to perform the act. In the realm of financial decision-making, this model is particularly effective for understanding retirement savings, as it accounts for the complex psychological and social motivations that influence whether an individual chooses to participate in pension schemes.

Within this framework, financial attitudes encompassing; knowledge, planning, and risk tolerance are viewed as critical components that define an individual's evaluation of pension savings (Lee & Kim, 2016). Recent empirical applications, such as those by Mohd and Kim (2024) in Malaysia, demonstrate that these factors, alongside subjective norms, are strong predictors of actual savings behaviour. These findings validate the TPB as a reliable theoretical lens for examining the unique barriers and drivers of pension participation among populations similar to those in Ghana's informal economy.

Financial knowledge

Financial knowledge, or financial literacy, is foundational to effective personal financial management, budgeting, and retirement planning. Scholars such as Lusardi and Mitchell (2011) and Remund (2010) highlight its role in enabling individuals to navigate complex pension products and ensure long-term security. Empirical research consistently confirms a positive correlation between higher financial knowledge and increased pension participation, with recent studies in sub-Saharan Africa, such as Asiamah (2023) in Ghana and Nchise and Akosso (2024) in Cameroon, demonstrating that literacy is a significant driver of retirement preparedness, particularly when integrated with formal and informal financial service usage.

Despite these findings, the relationship between knowledge and financial behaviour is complex and context-dependent. While some studies confirm that literacy directly influences retirement planning and net worth, others, such as Janposri (2020) and Agabalinda and Ndi (2020), indicate that financial attitudes may not always be a significant predictor of wealth accumulation. In the specific context of Ghana's informal economy, where literacy remains limited, fostering financial knowledge is essential for empowering workers to understand the benefits of pension schemes, streamline enrolment, and make informed decisions regarding their long-term investment options.

Financial planning

Financial planning is the essential process of establishing goals and developing strategies, such as budgeting and expense tracking, to secure long-term financial well-being (Ortega, 2008; Stawski et al., 2007). Research consistently demonstrates that individuals who engage in structured financial planning accumulate greater wealth and are more likely to participate in pension schemes (Chou et al., 2014; Lusardi & Mitchell, 2011). However, for workers in the informal economy, this process is often complicated by income volatility and the necessity of prioritizing immediate consumption (Deaton, 1992; Hu & Stewart, 2009). Despite these significant obstacles, financial planning remains a critical driver of pension participation, as it serves as a tangible expression of an individual's commitment to future financial stability.

Financial risk tolerance

Financial risk tolerance, defined as the maximum uncertainty an individual is willing to accept when making financial decisions (Grable & Lytton, 1999), is a critical factor in determining engagement with long-term savings products like pension schemes. While empirical evidence indicates that individuals with higher risk tolerance are more likely to participate in such schemes (Chou et al., 2014; Xiao et al., 2011), this relationship is often moderated by financial knowledge and perceived behavioral control. Within Ghana's informal economy, risk tolerance is further shaped by income volatility and institutional trust, necessitating design strategies that address the specific concerns of workers who may view pension investments as unreliable.

Empirical evidence on financial attitudes and pension participation

Empirical research consistently links financial literacy and retirement planning to increased pension participation, establishing a positive relationship across both developed and developing economies. Studies in the Netherlands and Australia (Van Rooij et al., 2011; Worthington, 2006) demonstrate that financially literate individuals are better equipped to accumulate pension wealth. Similarly, research in sub-Saharan Africa (Boyetey et al., 2021; Kpessa & Bland, 2013) highlights how financial knowledge and proactive planning are vital drivers for promoting participation among informal workers, often facilitated by access to formal and informal financial services (Nchise & Akosso, 2024). However, the predictive power of financial attitudes remains contested, with recent evidence suggesting that knowledge and behaviour are more reliable indicators of retirement preparedness than attitudes alone (Janposri, 2020; Agabalinda & Ndi, 2020). While studies in Thailand and Uganda indicate that attitudes may not significantly predict wealth accumulation, the specific role of these factors in Ghana's informal economy remains under-researched. This study aims to fill that gap by applying the Theory of Planned Behaviour (TPB) to evaluate how financial knowledge, planning, and risk tolerance collectively influence participation in Ghana's micro pension schemes.

Conceptual framework

Based on the literature review, this study proposes a conceptual framework that integrates the Theory of Planned Behavior with financial attitudes to explain MPS participation among informal economy workers in Ghana. The framework posits that financial attitudes comprising financial knowledge, financial planning, and financial risk tolerance influence individuals' attitudes toward MPS, which in turn affect their intentions to participate and their actual participation behavior. The framework also acknowledges the role of subjective norms (social influences) and perceived behavioral control (perceived ease or difficulty of participation) in shaping intentions and behavior.

The conceptual framework is illustrated in Figure 1. The framework suggests that informal economy workers with higher financial knowledge, stronger financial planning behaviors, and greater risk tolerance are more likely to have positive attitudes toward MPS, leading to higher intentions to participate and ultimately higher participation rates. The framework also recognizes that external factors, such as income level, age, education, and access to financial services, may moderate these relationships.

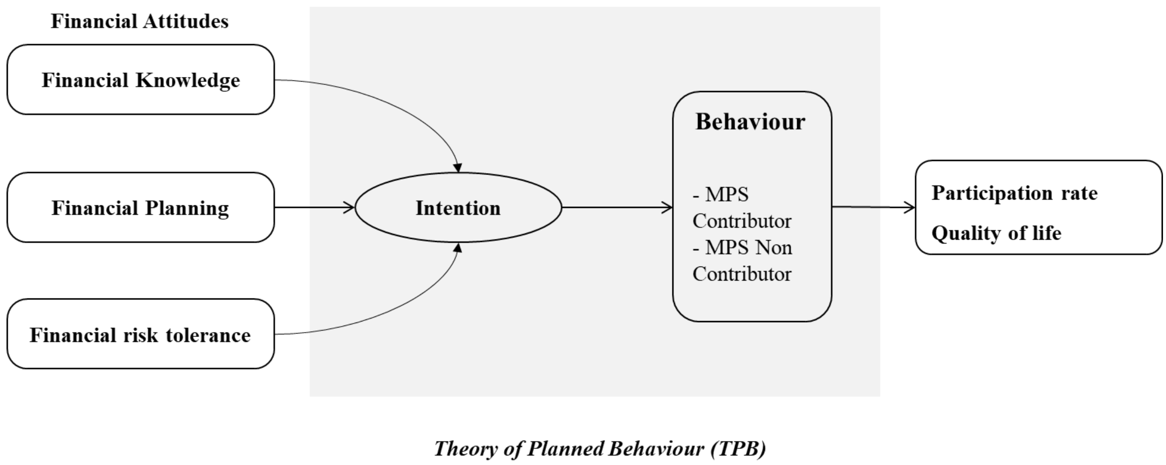

Figure 1: Conceptual framework of financial attitudes and MPS
Source: Authors' construct based on reviewed literature (2026)

Material and Methods

Research design

This study employed a mixed-methods research design, combining quantitative and qualitative approaches to provide a comprehensive understanding of the relationship between financial attitudes and MPS participation among informal economy workers in Ghana. The mixed-methods approach is particularly appropriate for this study, as it allows for the triangulation of findings from different data sources and provides both statistical

evidence and contextual insights (Johnson & Onwuegbuzie, 2004; Zohrabi, 2013).
The quantitative component of the study involved a cross-sectional survey of informal economy workers in selected urban and peri-urban areas of Ghana. The survey collected data on respondents' demographic characteristics, financial attitudes (financial knowledge, financial planning, and financial risk tolerance), and MPS participation status. The data were analyzed using logistic regression to examine the association between financial attitudes and the likelihood of MPS participation.

The qualitative component involved semi-structured interviews with key informants, including informal workers, pension scheme administrators, and policymakers. The interviews explored the contextual factors influencing MPS participation, the barriers and enablers to participation, and the lived experiences of informal workers in relation to pension savings. The qualitative data were analyzed using thematic analysis to identify recurring themes and patterns.

Study area and population

The study was conducted in selected urban and peri-urban areas of Ghana, including Accra Metropolitan area, Kumasi metropolitan area, and Somanya (capital of Yilo Krobo district). These areas were chosen because they have significant concentrations of informal economy workers engaged in diverse activities such as petty trading, artisanal work, and small-scale manufacturing. The target population consisted of informal economy workers aged 18 years and above who were not enrolled in any formal pension scheme at the time of the study.

According to the Ghana Statistical Service (Baah-Boateng & Vanek, 2020; GSS, 2015), the informal economy accounts for approximately 86% of total employment in Ghana, with the majority of workers engaged in agriculture, trade, and services. The study focused on non-agricultural informal workers, as they are the primary target group for urban-based micro pension schemes.

Sample size and sampling procedure

The sample size for the quantitative survey was determined using Yamane's (1967) formula for finite populations: $n = \frac{N}{\left(1 + N(e)^2\right)}$ where n is the sample size, N is the population size (see Table 1), and e is the margin of error (set at 5%). Based on available data on the informal economy workforce in the study areas, a sample size of 400 respondents was determined to be adequate for the study.

A multi-stage sampling procedure was employed to select respondents. In the first stage, three urban/peri-urban areas (Accra, Kumasi, and Somanya) were purposively selected based on their high concentrations of informal workers. In the second stage, specific markets, trading centers, and artisanal clusters within each area were randomly selected. In the third stage, individual respondents were selected using systematic random sampling, with every 10th informal worker was approached for participation.

Table 1: Population size of the studied areas

Study Area	Population (N)	Percent (%)
Accra Metropolitan area	284,124.00	36
Kumasi Metropolitan area	443,981.00	56
Urban Yilo Krobo Municipal	58,096.00	7
Total	786,201.00	100

Source: Compiled from the Assemblies' web sites, May 2026.

For the qualitative component, a purposive sampling approach was used to select key informants. A total of 15 key informants were interviewed, including 10 informal workers, 3 pension scheme administrators, and 2 policymakers from the National Pensions Regulatory Authority (NPRA) and the Ministry of Employment and Labour Relations (MELR).

Data collection

The quantitative data were collected using a structured questionnaire administered through face-to-face interviews. The questionnaire was developed based on the literature review and the study's conceptual framework. It consisted of four main sections: first, the demographic characteristics. This section collected information on respondents' age, gender, education level, marital status, household size, and monthly income. Second, financial knowledge. This section assessed respondents' understanding of basic financial concepts and pension products. It included questions on compound interest, inflation, risk diversification, and the structure of Ghana's pension system. Responses were scored, and a composite financial knowledge index was created.

The third section assessed financial planning. The section measured respondents' financial planning behaviors, including budgeting, setting savings goals, tracking expenses, and planning for retirement. Respondents were asked to indicate the frequency with which they engaged in these behaviors on a Likert scale (1 = never, 5 = always). A composite financial planning index was created by summing the scores. Finally, on the financial risk tolerance, respondents were assessed on their willingness to take financial risks. It included questions on their preferences for safe versus risky investments, their comfort with uncertainty, and their willingness to invest in long-term savings products. A composite risk tolerance index was created based on the responses.

Further, on MPS participation, respondents were asked whether they were currently contributing to any micro pension scheme (Tier 3 of Ghana's pension system). This was coded as a binary variable (1 = participating, 0 = not participating). The questionnaire was pre-tested with a sample of 30 informal economy workers to ensure clarity and reliability. Based on the pre-test results, minor modifications were made to improve the wording and structure of some questions. The final questionnaire was administered by trained research assistants over a period of one month.

The qualitative data were collected through semi-structured interviews with key informants. The interview guide included open-ended questions on the following topics: Awareness and understanding of micro pension schemes; Perceived benefits and barriers to MPS participation; Financial attitudes and behaviors related to pension savings; Experiences with formal and informal savings mechanisms; and Recommendations for improving MPS uptake among informal workers.

The interviews were conducted in English or the local language (Twi or Ga or Dangme), depending on the preference of the respondent. Each interview lasted approximately 30-45 minutes and was audio-recorded with the consent of the respondent. The recordings were transcribed verbatim and translated into English where necessary.

Data analysis

The quantitative data were analyzed using SPSS version 25. Descriptive statistics (frequencies, percentages, means, and standard deviations) were computed to summarize the demographic characteristics of respondents and their financial attitudes. Bivariate analysis (chi-square tests and t-tests) was conducted to examine the association between demographic variables, financial attitudes, and MPS participation. Logistic regression analysis was employed to examine how financial attitudes shape the likelihood of MPS participation, controlling for demographic variables. The logistic regression model was specified as follows:

$$\log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1(\text{Financial Knowledge}) + \beta_2(\text{Financial Planning}) + \beta_3(\text{Financial risk tolerance})$$
$$+\beta_4(\text{Age}) + \beta_5(\text{Gender}) + \beta_6(\text{Education}) + \beta_7(\text{Income}) + \varepsilon$$

where p is the probability of MPS participation, β_0 is the intercept, β_1 to β_7 are the regression coefficients, and ε is the error term. The model's goodness of fit was assessed using the Hosmer-Lemeshow test, and the overall model significance was evaluated using the likelihood ratio test. The predictive accuracy of the model was assessed using the classification table and the area under the ROC curve.

The qualitative data were analyzed using thematic analysis, following the six-step process outlined by Braun and Clarke (2006). The analysis was conducted manually, with codes and themes organized using Microsoft Excel. To enhance the rigor and credibility of the analysis, the responses were independently coded by two analysts and the transcripts were compared. Discrepancies were resolved through discussion and consensus.

Ethical considerations

Ethical approval for the study was obtained from the Institutional Review Board of the University of Environment and Sustainable Development. Informed consent was obtained from all participants prior to data collection. Participants were informed of the purpose of the study, their right to withdraw at any time, and the measures taken to ensure confidentiality and anonymity. All data were stored securely and used solely for research purposes.

Results and discussion

Demographic characteristics of respondents

Table 2 presents the demographic characteristics of the 400 respondents who participated in the quantitative survey.

Majority of respondents were female (58.5%), reflecting the gender composition of the informal economy in Ghana, where women predominate in petty trading and food vending. The age distribution showed that most respondents were between 30 and 49 years (33.0%), with a mean age of 38.7 years (SD = 10.2). This age profile is consistent with the economically active population in the informal sector.

In terms of education, 42.8% of respondents had completed primary education, 35.5% had secondary education, and only 12.3% had tertiary education. About 9.5% had no formal education. This distribution reflects the generally low educational attainment among informal workers in Ghana. The majority of respondents were married (64.8%), and the average household size was 4.6 persons (SD = 2.1).

Monthly income varied widely among respondents, with a mean of GH¢ 850 (approximately USD 71 at the time of the study) and a median of GH¢ 600. About 38.5% of respondents earned less than GH¢ 500 per month, while only 15.3% earned more than GH¢ 1,500 per month. This income distribution highlights the economic vulnerability of informal workers and the challenges they face in setting aside funds for long-term savings.

Out of the 400 respondents, only 47 (11.8%) reported that they were currently contributing to a micro pension scheme (Tier 3). This participation rate, while higher than the reported national figure of less than 5% (Asafu-Adjaye, 2022; MELR, 2017), is still remarkably low and indicates significant barrier to MPS uptake among informal workers. The higher rate in this sample may be attributed to the study's focus on urban and peri-urban areas, where awareness of pension schemes and access to financial services are relatively better than in rural areas.

The low participation rate is consistent with recent findings from Ghana. Segbenya et al. (2024) reported that most informal workers had partial or poor understanding of pension tiers, and Asiamah (2023) found that financial literacy was extremely low among informal workers in Accra. These studies underscore the persistent challenges in extending pension coverage to the informal sector despite policy reforms.

Table 2: Demographic characteristics of respondents

Variables	Category	Frequency	Percentage
Gender	Mael	166	41.50
	Female	234	58.50
	Total	400	100.00
Age	18 to 29 years	78	19.50
	30 to 39 years	132	33.00
	40 to 49 years	117	29.25
	50 years & above	73	18.25
	Total	400	100.00
Education	No formal education	38	9.50
	Primary	171	42.75
	Secondary	142	35.50
	Tertiary & higher	49	12.25
	Total	400	100.00
Marital status	Single	98	24.50
	Married	259	64.75
	Divorced/widowed	43	10.75
	Total	400	100.00
Monthly income	Less than ¢500	154	38.50
	¢500 to ¢999	138	34.50
	¢1000 to ¢1499	47	11.75
	¢1,500 & above	61	15.25
	Total	400	100.00
MPS participation status	MPS contributor	47	11.75
	Non-contributor	353	88.25
	Total	400	100.00

Financial attitudes of respondents

Table 3 presents the results of the financial knowledge assessment. Overall, respondents demonstrated low levels of financial knowledge, with a mean score of 3.8 out of 10 (SD = 2.1). Only 18.5% of respondents scored 7 or above, indicating adequate financial knowledge, while 26.75% scored below 3, indicating very low financial knowledge. The questions on compound interest and inflation were particularly challenging, with only 22% and 28% of respondents answering correctly, respectively.

These findings are consistent with previous studies documenting low financial literacy among informal workers in Ghana and other developing countries (Asiamah, 2023; Lusardi & Mitchell, 2011). The low financial knowledge levels suggest that many informal workers lack the basic understanding needed to make informed decisions about pension savings and other financial products.

Table 3: Distribution of financial knowledge scores

Score Range	Frequency	Percent	Interpretation
0 to 2	107	26.75	Very Low
3 to 4	145	36.25	Low
5 to 6	74	18.5	Moderate
7 to 10	74	18.5	High
Total	400	100	
Statistic		**Mean**	**Std. Dev**
Financial knowledge index		3.8	2.1

Table 4 presents the results of the financial planning assessment. Respondents' financial planning behaviors were measured on a scale of 1 to 5, with higher scores indicating more frequent engagement in planning activities. The mean financial planning score was 2.6 (SD = 1.1), indicating that most respondents engaged in financial planning behaviors only occasionally. Specific planning behaviors showed considerable variation. While 52.3% of respondents reported that they "sometimes" or "often" or “always” set aside money for emergencies, only 28.5% reported that they regularly tracked their expenses, and only 20.1% reported that they had a written budget. Planning for retirement was particularly uncommon, with only 15.3% of respondents reporting that they “sometimes” or "often" or "always" thought about their financial needs in old age.

These findings highlight the limited financial planning capacity among informal workers, which may be attributed to several factors, including low financial literacy, income volatility, and competing immediate financial needs. The low levels of retirement planning are particularly concerning, as they suggest that many informal workers are not actively preparing for old age.

Table 4: Financial planning behaviors (N = 400)

		Never		Rarely		Sometimes		Often		Always		Mean	S.D
Sn	Behaviour	Count	%	Count	%	Count	%	Count	%	Count	%		
1.	Set aside money for emergencies	74.0	18.5	117.0	29.3	131.0	32.8	58.0	14.5	20.0	5.0	2.6	1.1
2.	Track expenses regularly	143.0	35.8	143.0	35.8	74.0	18.5	30.0	7.5	10.0	2.5	2.1	1.0
3.	Have a written budget	169.0	42.3	151.0	37.8	50.0	12.5	21.0	5.3	9.0	2.3	1.9	1.0
4.	Plan for retirement	194.0	48.5	145.0	36.3	38.0	9.5	16.0	4.0	7.0	1.8	1.7	0.9

Overall Planning Score: Mean = 2.6 with S. D = 1.1

Table 5 presents the results of the financial risk tolerance assessment. The mean risk tolerance score was 2.4 (SD = 1.0), indicating that most respondents were risk-averse. Specifically, 62.8% of respondents indicated a preference for "safe" investments with guaranteed returns, even if the returns were low. Only 15.5% expressed willingness to invest in products with uncertain returns for the possibility of higher gains.

When asked about their comfort with locking funds away for long periods (a key feature of pension schemes), 58.3% of respondents expressed discomfort or strong discomfort. This finding is particularly relevant for understanding barriers to MPS participation, as micro pension schemes typically require long-term commitment and restrict early withdrawals. The preference for liquidity and flexibility among informal workers is consistent with findings from Kos and Lensink (2023), who found that uptake of pension accounts was significantly higher when greater withdrawal flexibility was offered, particularly among women.

Table 5: Financial risk tolerance (N = 400)

		Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Mean	SD
Sn	Behaviour	Count	%	Count	%	Count	%	Count	%	Count	%		
1.	I prefer safe investments with guaranteed returns.	21.0	5.3	48.0	12.0	80.0	20.0	171.0	42.8	80.0	20.0	3.6	1.1
2.	I am willing to take risks for higher returns.	154.0	38.5	113.0	28.3	71.0	17.8	48.0	12.0	14.0	3.5	2.1	1.2
3.	I am comfortable locking funds for long periods.	131.0	32.8	102.0	25.5	88.0	22.0	61.0	15.3	18.0	4.5	2.3	1.2

Overall Risk Tolerance score: Mean = 2.4 with S.D =1.0

Financial attitudes and MPS participation

Table 6 presents the results of bivariate analysis comparing financial attitudes between MPS participants and non-participants. Independent samples t-tests were conducted to examine whether there were significant differences in financial knowledge, financial planning, and financial risk tolerance between the two groups.

The results show that MPS participants had significantly higher financial knowledge scores (M = 5.8, SD = 1.9) compared to non-participants (M = 3.5, SD = 1.9), $t(398) = 7.82$, $p < 0.001$. Similarly, MPS participants had significantly higher financial planning scores (M = 3.9, SD = 0.9) compared to non-participants (M = 2.4, SD = 1.0), $t(398) = 9.45$, $p < 0.001$. However, the difference in financial risk tolerance between participants (M = 2.7, SD = 1.0) and non-participants (M = 2.3, SD = 1.0) was smaller and marginally significant, $t(398) = 2.15$, $p = 0.032$.

These findings provide preliminary evidence that financial knowledge and financial planning are strongly associated with MPS participation, while the relationship with risk tolerance is weaker. The strong association between financial planning and participation is particularly noteworthy, as it suggests that individuals who engage in proactive financial management are more likely to recognize the value of pension savings and take steps to enroll in MPS.

Table 6: Comparison of financial attitudes by MPS participation status

Financial attitude	MPS Contributors, n = 47		MPS non-contributors, n = 353		t – value	p - value
	Mean	SD	Mean	SD		
Financial knowledge	5.80	1.90	3.50	1.90	7.82	<0.001**
Financial planning	3.90	0.90	2.40	1.00	9.45	<0.001**
Financial risk tolerance	2.70	1.00	2.30	1.00	2.15	0.032*

*p<0.05; **p<0.001

Logistic regression analysis: Predictors of MPS participation

Table 7 presents the results of the logistic regression analysis examining the predictors of MPS participation. The model included financial knowledge, financial planning, and financial risk tolerance as the main independent variables, along with demographic control variables (age, gender, education, and monthly income).

Table 7: Logistic regression results (N = 400)

Variable	B	SE	Wald	p-value	Odd Ratio	95% CI
Financial knowledge	0.42	0.10	17.64	<0.001**	1.52	[1.24, 1.86]
Financial planning	1.23	0.23	28.56	<0.001**	3.42	[2.18, 5.37]
Financial risk tolerance	0.17	0.16	1.15	0.284	1.18	[0.87, 1.61]
Age	0.02	0.02	1.00	0.1317	1.02	[0.98, 1.06]
Gender (female)	0.28	0.35	0.64	0.424	1.32	[0.67, 2.61]
Education (Ref: No formal)			8.42	0.038*		
Primary	0.65	0.52	1.56	0.212	1.92	[0.69, 5.34]
Secondary	0.82	0.54	2.31	0.129	2.27	[0.79, 6.52]
Tertiary & higher	1.05	0.48	4.79	0.028*	2.85	[1.12, 7.24]
Income (ref: Less than ¢500)			7.85	0.049*		
¢500 to ¢999	0.54	0.38	2.01	0.156	1.72	[0.82, 3.61]
¢1000 to ¢1499	0.68	0.45	2.28	0.131	1.97	[0.82, 4.74]
¢1,500 & above	0.90	0.42	4.59	0.032*	2.47	[1.08, 5.65]
Constant	-6.82	1.12	37.05	<0.001**	0.001	

Note: Model $\chi^2(7) = 142.35$, $p < 0.001$; Hosmer-Lemeshow $\chi^2(8) = 8.42$, $p = 0.394$; Nagelkerke $R^2 = 0.48$; Classification accuracy = 89.3%; *p<0.05; **p<0.001

The overall model was statistically significant, $\chi^2(7) = 142.35$, $p < 0.001$, indicating that the set of predictors reliably distinguished between MPS participants and non-participants. The Hosmer-Lemeshow test indicated good model fit, $\chi^2(8) = 8.42$, $p = 0.394$. The model correctly classified 89.3% of cases, and the area under the ROC curve was 0.87, indicating excellent predictive accuracy.

The results from Table 7 further show that financial planning was the strongest predictor of MPS participation (OR = 3.42, 95% CI [2.18, 5.37], $p < 0.001$). For each one-unit increase in the financial planning score, the odds of MPS participation increased by 242%. This finding underscores the critical role of financial planning behaviors in driving pension savings decisions. Informal workers who engage in budgeting, expense tracking, and goal-setting are significantly more likely to participate in MPS, as these behaviors reflect a forward-looking orientation and a commitment to long-term financial security. Financial knowledge was also a significant predictor of MPS participation (OR = 1.52, 95% CI [1.24, 1.86], $p < 0.001$). For each one-unit increase in the financial knowledge score, the odds of MPS participation increased by 52%. This finding is consistent with previous research demonstrating that financial literacy enhances retirement planning and savings behavior (Asiamah, 2023; Lusardi & Mitchell, 2011; Nchise & Akosso, 2024; Van Rooij et al., 2011). Financially knowledgeable individuals are better equipped to understand the benefits of pension savings, navigate enrollment procedures, and make informed decisions about contribution levels.

Interestingly, financial risk tolerance was not a significant predictor of MPS participation (OR = 1.18, 95% CI [0.87, 1.61], $p = 0.284$) after controlling for other variables. This finding suggests that risk tolerance may play a less important role in MPS participation decisions than financial knowledge and planning. One possible explanation is that micro pension schemes in Ghana are generally perceived as low-risk savings products with guaranteed returns, rather than as risky investments. Consequently, risk tolerance may be more relevant for decisions about investment portfolios within pension schemes rather than for the initial decision to participate.

Among the demographic control variables, education and monthly income were significant predictors of MPS participation. Respondents with tertiary education had 2.85 times higher odds of MPS participation compared to those with no formal education (OR = 2.85, 95% CI [1.12, 7.24], $p = 0.028$). Similarly, respondents with monthly income of GH¢1,500 or above had 2.47 times higher odds of participation compared to those earning less than GH¢ 500 (OR = 2.47, 95% CI [1.08, 5.65], $p = 0.032$). These findings are consistent with previous research showing that education and income are important determinants of pension participation (Kibona, 2021; Kpessa & Bland, 2013).

Age and gender were not significant predictors of MPS participation in this model. The non-significance of age may be due to the relatively narrow age range of the sample (most respondents were between 30 and 49 years). The non-significance of gender is somewhat surprising, given that previous studies have found gender differences in pension participation (Kos & Lensink, 2023). However, this finding may reflect the specific context of Ghana's informal economy, where both men and women face similar barriers to pension savings.

The quantitative results of this study demonstrate that financial attitudes, specifically financial planning and financial knowledge, are major determinants of MPS participation among informal economy workers in Ghana. The logistic regression model reveals that financial planning is the single strongest predictor of enrolment, with workers who practice budgeting and goal-setting being more than three times as likely to participate compared to those who do not. Viewed through the Theory of Planned Behaviour, these structured behaviours foster a forward-looking mindset and positive evaluations regarding the long-term benefits of retirement savings (Ajzen, 1991). This theoretical interpretation aligns with recent regional and global literature applying TPB to savings behaviour; for instance, Boyetey (2020) demonstrated that TPB constructs effectively predict financial savings behaviour among informal workers in Ghana, while Mohd and Kim (2024) similarly found that financial literacy, attitudes, subjective norms, and intentions significantly drive savings outcomes among youth.

Furthermore, cognitive capacity in the form of financial knowledge emerged as a statistically significant predictor of MPS enrolment. Individuals with higher financial literacy are fundamentally better equipped to comprehend complex pension structures, navigate bureaucratic registration processes, and optimize contribution schedules, a finding that strongly corroborates a well-established body of global and regional empirical research (Asiamah, 2023; Lusardi & Mitchell, 2011; Nchise & Akosso, 2024; Van Rooij et al., 2011). However, the remarkably low baseline financial knowledge observed in this sample (a mean score of 3.8 out of 10) signals a severe structural barrier to voluntary program adoption. Interestingly, financial risk tolerance was not a significant predictor of participation when controlling for other variables. While this contrasts with some traditional economic literature highlighting risk tolerance as a key investment determinant (Chou et al., 2014; Xiao et al., 2011), the non-significance in this context likely reflects the fact that Ghanaian micro pensions are widely perceived as safe, low-risk, and guaranteed savings vehicles rather than volatile asset investments.

Qualitative findings: Barriers and enablers to MPS participation

The qualitative interviews with key informants provided rich contextual insights into the barriers and enablers to MPS participation among informal workers. The thematic analysis identified five major themes: (1) low awareness and understanding of MPS, (2) income volatility and competing financial priorities, (3) mistrust of formal financial institutions, (4) preference for informal savings mechanisms, and (5) the role of financial education and outreach.

Low awareness and understanding of MPS

A recurring theme across the interviews was the low level of awareness and understanding of micro pension schemes among informal workers. Many respondents reported that they had heard of pension schemes but did not understand how they worked or how to enroll. As one informal trader explained:

> *"I have heard about pension on the radio, but I don't really understand it. Is it like a bank account? How do I join? Nobody has come to explain it to us."* (Female trader, age 42 years)

This finding is consistent with recent research by Segbenya et al. (2024), who found that most informal workers in Ghana had partial or poor understanding of pension tiers. Pension scheme administrators interviewed for this study acknowledged that outreach efforts have been limited and have not effectively reached informal workers in markets and trading centers. One administrator noted:

> *"We have done some sensitization programs, but they are mostly in formal workplaces. Reaching informal workers is challenging because they are scattered and mobile. We need a different approach."* (Pension scheme administrator)

Income volatility and competing financial priorities

Informal workers consistently cited income volatility and competing financial priorities as major barriers to MPS participation. Many respondents explained that their incomes fluctuate from day to day and month to month, making it difficult to commit to regular pension contributions. As one artisan stated:

> *"Some days I make good money, other days I make nothing. How can I promise to pay a fixed amount every month? I have to feed my family first."* (Male artisan, age 38)

This finding aligns with the broader literature on informal workers' savings behavior, which emphasizes the challenges posed by irregular income streams (Hu & Stewart, 2009; Wango, 2023). Respondents also highlighted competing financial priorities, including children's education, healthcare, and housing, which often take precedence over long-term savings. One respondent explained:

> *"I would like to save for old age, but right now I need to pay school fees for my children. That is more urgent. Maybe when they finish school, I can think about pension."* (Female trader, age 45 years)

These findings underscore the need for flexible pension products that accommodate irregular incomes and allow for variable contribution amounts. Kos and Lensink (2023) demonstrated that greater withdrawal flexibility significantly increased uptake of pension accounts among cocoa farmers in Ghana, particularly among women, suggesting that product design features can effectively address these barriers.

Mistrust of formal financial institutions

Several respondents expressed mistrust of formal financial institutions, including pension schemes. This mistrust was often rooted in negative experiences with banks or concerns about the safety of their savings. As one respondent explained:

> *"I don't trust these big institutions. What if they collapse and I lose my money? I prefer to keep my money where I can see it."* (Male trader, age 50 years)

This finding is consistent with research from other sub-Saharan African contexts, where mistrust of formal institutions has been identified as a significant barrier to pension participation (Lambin & Nyyssola, 2022; Obuobi, 2024). Ethnographic research in Northern Nigeria has similarly critiqued market-based micro-pension approaches for failing to account for mistrust and reliance on informal supports (Obuobi, 2024). Building trust through transparent communication, reliable service delivery, and community-based outreach may be critical for enhancing MPS uptake.

Preference for informal savings mechanisms

Many respondents reported that they relied on informal savings mechanisms, such as susu (rotating savings and credit associations), church welfare groups, and family networks, for financial security. These mechanisms were perceived as more flexible, accessible, and socially embedded than formal pension schemes. As one respondent explained:

> *"I save with my susu group. Every week I contribute, and when it is my turn, I get a lump sum. It is flexible, and I trust the people in my group. With pension, I have to wait until I am old."* (Female trader, age 36 years)

This finding is consistent with research by Danso-Wiredu (2021), who documented that urban informal workers in Ghana institutionalize interest-free, reciprocal saving and loan arrangements that substitute for formal social protection. Obuobi (2024) similarly found that most informal workers in Ghana rely on informal strategies such as church welfare, rental property, and susu rather than formal pension tiers. These findings suggest that formal micropension schemes must compete with well-established informal mechanisms that offer immediate liquidity, social support, and flexibility.

The role of financial education and outreach

Both informal workers and key informants emphasized the importance of financial education and targeted outreach in promoting MPS participation. Respondents expressed a desire for clear, simple information about pension schemes, delivered in accessible formats and languages. As one respondent stated:

> *"If someone could come and explain pension to us in our language, and show us how it benefits us, I think more people would join. We need education."* (Male artisan, age 44 years)

Pension scheme administrators and policymakers also recognized the need for enhanced financial education efforts. One policymaker noted:

> *"Financial literacy is very low among informal workers. We need to invest in education programs that are tailored to their needs and delivered through channels they trust, such as community leaders and market associations."* (NPRA official)

This finding is strongly supported by recent empirical evidence. Asiamah (2023) found that financial literacy was extremely low among informal workers in Accra but positively and significantly associated with participation in the personal pension scheme, suggesting that education interventions could substantially increase uptake. Nchise and Akosso (2024) found that usage of both formal and informal financial services mediated the relationship between financial literacy and retirement preparedness among informal-sector workers in Cameroon, indicating that financial education should be coupled with efforts to improve access to financial services.

The qualitative findings enrich the quantitative results by demonstrating that low baseline awareness, profound income volatility, institutional mistrust, and a cultural preference for informal savings mechanisms are structural barriers deeply embedded within Ghana's informal economy. Rather than substituting formal systems for traditional arrangements, research suggests formal micro pension schemes must complement and build upon existing networks. This is underscored by Danso-Wiredu (2021), who documented how urban informal workers institutionalize reciprocal, interest-free saving and loan structures as durable old-age coping strategies, while Obuobi (2024) similarly confirmed that most informal workers structurally rely on these informal strategies over formal pension tiers. To bridge this gap, scheme administrators should partner directly with established *susu* groups and market associations to leverage their embedded social capital and localized trust for enrolment and contribution collection.

A paradigm shift toward product flexibility and technological integration is also critical to accommodate the irregular incomes of informal workers. Kos and Lensink (2023) provided experimental evidence demonstrating that account uptake rises significantly when greater withdrawal flexibility is offered, particularly among women, showing that rigid regulations act as severe deterrents. Furthermore, Segbenya et al. (2024) established that informal workers explicitly prefer mobile money or agent collection methods paired with variable contribution rates to match fluid incomes. This requires a holistic transformation of the social protection architecture; as Lambin and Nyyssola (2022) observed, competitive informal arrangements naturally attract workers away from formal structures if the formal options fail to align with their economic capacities. Similarly, Wango (2023) found that while informal organizations play a vital protective role that can be leveraged to expand coverage, standard formal administrative procedures actively deter informal actors.

Finally, targeted financial education and accessible outreach emerge as vital catalysts for expanding participation. Given the low levels of financial literacy observed alongside its strong correlation with program enrolment, interventions must be delivered directly to marketplaces, trading hubs, and artisanal clusters using simple language and partnerships with trusted community leaders. Asiamah (2023) confirmed that financial literacy is positively and significantly associated with personal pension participation, reinforcing the value of localized educational campaigns. Moreover, Nchise and Akosso (2024) demonstrated that the usage of both formal and informal financial services mediates the relationship between financial literacy and overall retirement preparedness. This indicates that financial education must not exist in a vacuum but must be strategically coupled with structural reforms that reduce transaction costs, improve physical and digital access, and transparently communicate how benefits are safeguarded

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Conclusion and policy implications

This study applied the Theory of Planned Behaviour through a mixed-methods research design, to investigate how financial knowledge, financial planning, and financial risk tolerance, which collectively constitute a worker's financial attitude, shapes the likelihood of saving in an MPS. Quantitative analysis reveals that proactive financial planning (budgeting, tracking expenses) makes workers over three times more likely to enrol, while financial knowledge enables them to safely navigate administrative processes. Conversely, financial risk tolerance plays a negligible role because these schemes are largely perceived as safe, low-risk savings instruments. However, widespread uptake remains heavily constrained by socioeconomic disparities, as enrolment is heavily concentrated among higher-income and tertiary-educated demographics, leaving the broader, low-earning informal workforce structurally excluded.

Qualitative insights further reveal that participation is severely impeded by systemic barriers, including pronounced income volatility, immediate consumption priorities, low baseline pension awareness, institutional mistrust, and a cultural preference for traditional savings. To mitigate these bottlenecks, policymakers and the National Pensions Regulatory Authority (NPRA) must move away from rigid, formal-sector frameworks and implement a multifaceted strategy. First, administrators should deploy targeted financial literacy interventions focused on practical budgeting and planning skills. Rather than generic campaigns, these should be delivered using simplified language through culturally embedded mediums, such as market associations, religious organizations, and mobile platforms.

Second, expanding financial inclusion requires a paradigm shift in product design and macro-level regulatory frameworks. Micro pension designs must be modernized to incorporate flexible, non-fixed contribution rates that accommodate fluctuating incomes, short vesting periods, and emergency partial withdrawal options. Such features are supported by experimental evidence to increase enrolment among vulnerable groups. Also, these flexible systems must be integrated with mobile money networks and localized *susu* groups to inherit existing social capital and build institutional trust. Ultimately, scaling up coverage demands that the state simplify bureaucratic enrolment, expand agent banking into underserved zones, provide matching contributions for low-income earners, and reform regulatory structures that remain fundamentally biased toward formal, salaried employment models.

Limitations and directions for future research

While this study establishes an empirically grounded baseline for expanding financial inclusion in sub-Saharan Africa, its cross-sectional design, reliance on self-reported data, and urban/peri-urban focus limit its causal verification, measurement precision, and generalizability to rural contexts. To address these limitations, future research should adopt longitudinal frameworks, incorporate objective administrative records, and expand into rural areas to capture localized savings behaviors. Furthermore, future scholarship must move beyond individual-level analyses toward a holistic, socio-ecological paradigm by utilizing structural equation modeling to explore the mediating roles of subjective norms and perceived behavioral control, employing randomized controlled trials (RCTs) to test flexible product design variations, and examining the complex interplay between individual cognitive attitudes, micro-pension structures, and macro-level regulatory frameworks.

Declarations

Availability of data and materials

The dataset used and/or analysed in this study can be made available upon reasonable request from the corresponding author.

Competing interests

The author declares that there are no competing interests

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