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Retirement Preparation of Self-employed Workers in Ghana. Does Financial Literacy, Financial Inclusion and Household Income Levels Matter?

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Abstract
Retirement preparation determinants have been a topic of discussion among governments, policy makers and researchers for some years now. Financial Literacy has been established as an important determinant of retirement preparation, yet little is known about how financial literacy influences the retirement preparation among self-employed workers. Our study fills the gap by assessing the relationship between financial literacy, financial inclusion and retirement preparation of self-employed workers in Ghana with household income levels serving as a mediating variable. The study adopted purposive and convenient sampling techniques to distribute 600 questionnaires among the self-employed workers in the Kumasi Metropolis in the Ashanti Region of Ghana. Using a structural equation modelling method, the results of the study showed that that financial literacy has a positive significant relationship with retirement preparation. Additionally, the study also revealed household income level mediates the relationship between financial literacy and retirement preparation as well as the relationship between financial inclusion and retirement preparation of self-employed workers in Ghana. Based on the findings of the study, it is recommended that policymakers, financial institutions, and non-government organizations should formulate financial education initiatives specifically tailored for self-employed workers that will enhance their financial literacy levels and also increase their income levels.

Keywords: Financial Literacy, Financial Inclusion, Retirement Preparation, Income Level, Self-employed workers.

Introduction

It is common knowledge that retiring is a major change in life; in fact, most people view it as a pivotal event that will greatly impact one's future. Retirement is a significant life shift frequently linked in public conversations to lower economic productivity and a host of personal weaknesses (Moffatt, & Heaven,

2017). For many years, the transition from work to retirement has been the subject of intense scholarly debate, partly due to curiosity about the changes that have occurred recently in this process. Gone were the days, when preparing for retirement and securing the future was an obligation of the government and employers but over time, it has been established that the government-sponsored and employer-sponsored retirement programs are not adequate to secure the future of the individual worker (Blackburn, 2020) and hence the need for people to take charge of their retirement planning. People now have a great deal of responsibility to actively plan for their retirement due to changes in the retirement planning and pensions landscape (Principi, et al., 2018). Retirement has grown to be a more unique experience in terms of when it happens, how it happens (gradual versus abrupt, voluntary versus involuntary, early versus late), and the growing complexity of making sure there is enough money (Moffatt, & Heaven, 2017). Theories of retirement decision-making stem from the idea that the first step is to plan, or "imagine the future" (Weierich et al,2011). Pre-retirement planning is a goal-oriented practice where people put effort into being ready for retirement. Through this practice, retirees can realistically anticipate the changes they will encounter during the transition to retirement (Wanka, 2019). The available data suggest that there exists significant variation in the extent to which people actively prepare for retirement. Extant literature has established that those who prepare and plan for retirement tend to be happy and satisfied in old age. For instance, Yeung and Zhou (2017) contend that retirement is a significant life event, and adjusting effectively to it is crucial to preserving one's physical and mental health as one ages. In a worker's life, retirement can have both positive and negative repercussions (Sewdas et al., 2017). Planning for this new phase is typically accompanied by favorable characteristics, such as maintaining physical and mental health, engaging in leisure activities or taking up new formal or volunteer employment, and enjoying a high quality of life following retirement from the workforce (Gorry et al, 2018). Preston et al. (2023) suggest that making plans and being ready for old age are linked to better well-being in old age. Additionally, Krijnen et al.2022) observed that individuals who actively plan and prepare for retirement have a higher chance of having sufficient savings than those who do not. Nevertheless, despite the data and the "intuitive assumption" that "retirement planning will lead to positive outcomes" (Principi et al., 2020), people still don`t plan for retirement. A telephone survey conducted in 2016 asked a representative sample of Americans to rank their top financial regrets (Bell, 2016). "Not saving for retirement early enough" was their top most financial regret. Another survey by Wijzer and Geldzaken, (2016) as cited by Krijnen et al.,(2022) in the Netherlands revealed that nearly half of the participants thought they should put more time and effort into planning for their retirement; 40% never considered their income and expenses after retirement; 59% never looked at their online pension overview; and 63% never looked at their annual pension statement that arrived in the mail. According to Nam and Loibl (2021), the majority of older persons in the United States—those over 55—have neither accumulated pension benefits nor retirement savings. The case is not different in developing countries such as Ghana. For instance, Asiamah (2022) posits that most people in Ghana, apart from their monthly compulsory contributions, are not voluntarily saving for their retirement. When people should ideally be taking action, most may not think that saving for retirement is vital enough (Suh, 2022). This seeming lack of planning is caused by several circumstances, which lead us to propose that retirement planning assumptions should be given more thought. One area that has attracted attention from policymakers and researchers over the past two decades, which is believed to influence retirement planning and preparation, is Financial Literacy.

Many experts with varying viewpoints have defined financial literacy. Financial literacy, for example, was defined by Lusardi and Mitchell (2014) as "... people's ability to process economic information and make

informed decisions about financial planning, wealth accumulation, debt, and pensions" (p. 2).Furthermore, financial literacy was defined as "a combination of awareness, knowledge, skill, attitude, and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing" (p. 50) by the Organisation for Economic Cooperation and Development (OECD) and the International Network on Financial Education (INECD) in 2016. What is common among the two definitions is the two dimensions of the definitions. The possession of economic knowledge and information and the ability to make informed financial decisions. This implies that financially literate people have an understanding of financial issues and that guides them in making sound financial decisions.

It is well-recognized that self-beneficial financial behavior and successful retirement planning are positively correlated with financial literacy (Mireku et al., 2023). Several studies have explored the relationship between financial literacy and retirement planning in various parts of the world. For instance, Kalmi and Ruuskanen (2018) explored the relationship in Finland; Lusardi and Mitchell (2011) in the United States; Bucher-Koenen and Lusardi (2011) in Germany; Van Rooij et al., (2011) in the Netherlands; Boisclair et al., (2017) in Canada; Brown and Graf, (2013) in Switzerland; Crossan et al., (2011) in New Zealand; Sekita, (2011) in Japan; Moure (2016) in Chile; Githui and Ngare, (2014) in Kenya; Dhlembeu et al.,(2022) in South Africa; and Almenberg and Säve-Söderbergh, (2011) in Sweden. One basic feature of all these studies is the use of financial planning in measuring retirement planning. The shortfall in such measurement is that planning for retirement goes beyond financial planning, even though it has a major stake in retirement planning. Additionally, most of these studies focused on workers in the formal sector who have at least their pension schemes to cater to them in old age. The most vulnerable age group is the people in the informal sector. These are people who are characterized by low income, low or no education level (Basole, 2014). Such people mostly don't have any pension coverage in old age and hence tend to struggle at this stage of their lives. Unfortunately, there haven't been adequate studies on how financial literacy impacts the retirement planning behavior of workers in the informal sector. The results of the previous studies have been conflicting, as some of the studies established a positive significant relationship between financial literacy and retirement. Still, others showed no relationship between the two variables. These are the gaps the current study seeks to fill. This paper adds to the literature on existence in several ways. Firstly, this paper extends the current literature on the impact of financial literacy and retirement preparation by using a more comprehensive measure for retirement preparation. The study further tests the relationship between financial inclusion and retirement preparation among the informal sector workers in Ghana. Lastly, we explore the mediation role of household income level in the relationship between financial literacy, financial inclusion and retirement preparation.

2.0 Literature Review and Hypothesis Development

2.1 Theoretical Review

The Life-Cycle Hypothesis (LCH) is a psychological and economic theory that seeks to explain the behavior and consumption patterns of individuals throughout their lives. The standard Life-Cycle Hypothesis (LCH) proposed by Modigliani and Brumberg states that when individuals are of working age, they tend to save more for the consumption needs of their retirement, deplete their savings during retirement, and die thereafter (Deaton, 2005). According to the LCH, an individual often plans how they spend the income they gain throughout their lifetime, taking into consideration their future need for income (Richert-Kaźmierska, 2022).

The LCH holds that people concerning their saving and spending aim to smooth their consumption

throughout their life and therefore may borrow when they have little income and then save when they have excess (Browning and Crossley, 2001). The LCH begin with the premise that there is inequality between the consumption needs of individuals and their income throughout their life cycle (Richert-Kaźmierska, 2022). It claims that people make spending plans throughout their lives, taking on debt when they are young and saving during their middle years to ensure consumption income in retirement. The Life Cycle Hypothesis (LCH) theory acknowledges that households have finite lives and focuses on systematic income variations and various needs throughout their life cycle. These variations, and associated savings, are influenced by changes in family size, maturity, and retirement (Modigliani, 1986). The life cycle is used to analyze people's financial behavior as they age and to explain why people want to retire in the long run (da Silva et., 2021). The life-cycle model, developed by economists over the past 50 years, offers guidance for financial asset management, allowing households and planners to make logical and rigorous decisions (Rehman & Mia, 2024). Several studies have adopted the life-cycle model as a basis to examine retirement planning decisions. For instance, Amka (2020) used the life-cycle model to explore the determinants of Retirement Preparedness among the elderly population in Malaysia. Additionally, Koka and Kosempei (2014) employ a life cycle model to examine the welfare implications of removing the mandatory pension age, revealing a decrease in individual welfare overall. Creedy et al (2015) found that changes to retirement policy have a modest impact on household savings and consumption using a life cycle framework. We extend the literature on the life-cycle model by testing the relationship between financial literacy, financial inclusion and retirement preparation. We also test the mediation role of household income level.

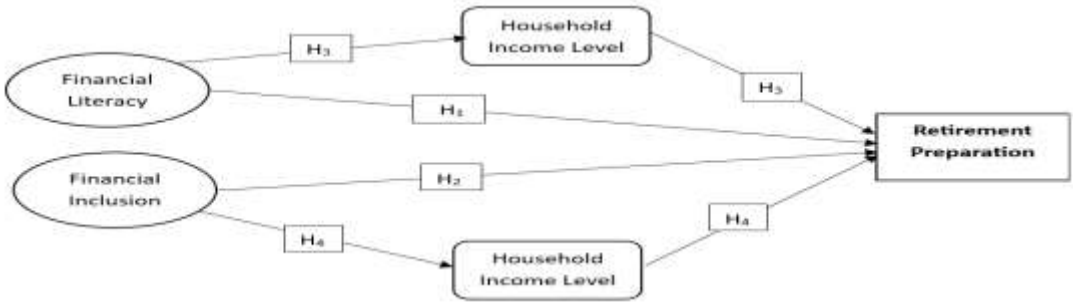

Figure 1: Conceptual framework on the impact of financial Literacy and financial inclusion on retirement preparation

Figure 1 shows the direct and indirect relationship between the Financial Capability variables and retirement preparation. The study will test (H_1) which stage financial literacy has a positive significant relationship with retirement preparation. The study will also test (H_3) the mediation role of Income in the relationship between financial literacy and retirement preparation. The study will once again test (H_2) the direct relationship between financial inclusion and retirement preparation and (H_4) the mediation role of income in the relationship between financial inclusion and retirement preparation.

2.2 Hypotheses Development

2.2.1 Financial Literacy and Retirement Preparation

Financial literacy skills involve the confidence, knowledge, and skills required to make informed financial decisions that promote self-sufficiency, stability, and well-being (Kumar et al., 2023). These skills involve effectively locating, evaluating, and using information, resources, and services, and making informed

decisions about financial obligations, budgeting, credit, debt, and future planning. Lusardi and Mitchell (2014) define financial literacy as the capacity to understand economic information and make informed decisions about financial planning, wealth accumulation, pensions, and debt. According to Sarpong-Kumankoma (2023), the capacity to save and ensure a comfortable retirement may be impacted by illiteracy and ignorance. Few people seek the assistance of financial advisors, and a lack of wealth and retirement planning can be associated with a lack of understanding of fundamental financial concepts (Lusardi, 2008). However, the application of financial knowledge and skills varies based on an individual's skill level, aspirations, and life circumstances (Johan et al., 2021). Numerous governments over the past decades have implemented laws and programs to raise people's financial literacy levels after realizing the economic importance of this skill to their constituents. For example, in 2003, the American government established the Financial Literacy and Education Commission to create a national financial education strategy and a national financial education website (Hillman, 2009). Similar to this, the Ministry of Finance in Ghana after setting up a five-year National Financial Literacy Strategy (2021 -2025), launched a financial literacy campaign in 2023 in collaboration with financial industry associations and regulators, such as the Bank of Ghana, Securities and Exchange Commission, Ghana Stock Exchange, National Insurance Commission, National Pensions Regulatory Authority, Ghana Deposit Protection Corporation, Ghana Microfinance Institutions Network, Ghana Association of Savings and Loans Companies, Micro Credit Association of Ghana, and Co-operative Credit Unions Association (Ministry of Finance- Ghana, 2023). The campaign aims to empower financial service consumers to act in their best interests, considering their unique socioeconomic and environmental circumstances.

It is believed that a financially literate person can make an informed decision as far as investments, debts, wealth accumulation, and pension planning are concerned (Janposri, (2021). Numerous scholarly studies have examined the impact of financial literacy in different facets of household and economic well-being. Empirically, researchers have tested the relationships between financial literacy and other human behavior variables. For instance, researchers such as Baidoo et al. (2020), Msomi and Nzama (2022), and Verma et al. (2024) tested the relationship between financial literacy and loan repayment behavior. Similarly, Anisa et al. (2020), Jabar and Delayco (2021), and Ningtyas and Vania (2022) examined the relationship between financial literacy and impulse buying behavior. In terms of financial literacy and savings behavior, researchers like Mpaata et al., (2023), Setiawan et al., (2022) and Widjaja et al., (2020) have investigated this, and most of the studies have shown a significant statistical relationship between financial literacy and savings behavior. Over the past decades, researchers and policy makers have given much attention to financial literacy and retirement planning. This has come about as a result of the unpreparedness of most people when transitioning to retirement. It's believed that, as financial literacy can positively influence other human behavior, it can equally make people prepare adequately before going on retirement (Fang et al., 2022). Lowe (2024) posits that financial literacy is crucial due to the declining birthrate and increasing aging population, which makes pay-as-you-go pension systems vulnerable. Several studies have explored the impact of financial literacy and retirement planning, and the findings have been mixed. For instance, Dhlembeu et al., (2022) investigated the influence of financial literacy on the retirement planning of the people of South Africa. Using secondary data from the South African Social Attitudes Survey, the researchers tested the relationship between financial literacy and retirement planning, using a binomial logistic regression. The study found a positive relationship between financial literacy and retirement planning. Additionally, Safari et al., (2021) conducted a study in the Bukavu city in the Democratic Republic of the Congo (DRC); using a d a sample size of 361 of public sector employees and a d a

structural equation modeling data analysis method, the study also found a significant positive relationship between financial literacy and retirement planning among the public sector workers in the DRC. Similarly, a study was conducted in Ghana by Sarpong-Kumankoma (2023) on financial literacy and retirement planning in Ghana. The researcher used a sample size of 1200 public and private sector workers across the 16 regions of Ghana. Using probit models, the study revealed a positive significant relationship between financial literacy and savings for retirement. On the other hand, a study by Tan and Singaravelloo (2020) in Malaysia, using a sample size of 320 government officers, found no correlation between financial literacy and retirement planning. This result is consistent with the result of Antoni et al. (2020), who conducted their study in South Africa, using a sample size of 122 government employees and structural equation modelling. The different results of the above studies call for more studies to scientifically establish the relationship between financial literacy and retirement planning or otherwise. Moreover, there are several weaknesses in the above studies that our current studies seek to address. Firstly, all the studies reviewed so far focused on formal public and private sector workers who have a mandatory monthly contribution towards their retirement. As noted by Dovie (2018), employees in the formal sector are more prepared for retirement than those in the informal sector. So, if there is any group that needs to be more researched to provide information for their retirement planning, it should be the informal sector workers who are most vulnerable and weak at retirement. Secondly, almost all the studies on retirement planning have used saving for retirement and other financial planning constructs to represent retirement planning. However, studies have shown that preparing financially for retirement or saving alone for retirement wouldn't guarantee a successful life in old age. It is therefore imperative for the measurement of retirement planning and preparation to be multifaceted to cover other areas of retirement preparation. It is this gap in the literature we seek to fill with this study and hypothesize that:

H_1: Financial literacy has a significant direct relationship with retirement preparation.

2.2.2 Financial Inclusion and Retirement Preparation

Financial inclusion refers to the provision of affordable, useful, and sustainable financial products and services for individuals and businesses (Arner et al., 2020). Since a transaction account enables people to send and receive payments as well as keep money, having access to one is a first step toward greater financial inclusion (Ahmad et al., 2020). Financial accessibility makes daily life easier and aids in business and family planning for everything from long-term objectives to unforeseen crises. Financial inclusion is increasingly seen as a crucial solution to rising poverty levels, particularly for women and poor adults in many countries. This is due to the growing evidence of its substantial benefits for the excluded population. According to the World Bank in 2018, financial inclusion plays a significant role in determining economic growth and poverty reduction (Demirgüç-Kunt et al., 2020). Ozili (2021) posit that financial inclusion has gained great attention from policy makers and scholars for four reasons. Firstly, the United Nations' sustainable development goals are thought to be largely attained through financial inclusion (Fouejieu et al., 2020; Demirguc-Kunt et al, 2022). Chitimira and Warikandwa (2023) posit that 7 out of the 17 Sustainable Development Goals are made possible by financial inclusion. Secondly, financial inclusion helps to improve the level of social inclusion in many societies (Bold, et al, 2012); thirdly, financial inclusion can help in reducing poverty levels to a desired minimum (Chibba, 2009, Neaime and Gaysset, 2018), and lastly, financial inclusion brings other socio-economic benefits (Sarma and Pais, 2011; Kpodar and Andrianaivo, 2011). Policy makers in several countries continue to commit significant resources to increase the level of financial inclusion in their countries to reduce financial exclusion.

Financially integrated households are better equipped to start enterprises, empower women, invest in education, boost savings, and enhance health results. (Adera & Abdisa, 2023; Andriamahery & Qamruzzaman, 2022; Ranabahu & Tanima, 2022). Individuals who have accounts are more likely to utilize additional financial services, including credit and insurance, to establish and grow companies, make investments in their health or education, manage risk, and get through financial hardships. All of these things may help individuals live better lives overall. In terms of the number of financially inclusive people, there has been significant progress. The World Bank data in 2021 shows that globally the population of individuals without access to an account has consistently decreased from 2.5 billion in 2011 to 1.7 billion in 2017, and further to 1.4 billion in 2021 (Demirgüç-Kunt et al.,2022) In 2021, 76% of the global adult population had an account. However, the question that arises from this progress made world is `what is the implication of people owning accounts on their lives? There have been several empirical studies on the impact of financial inclusion on the livelihood of people. At the macro level, several studies have revealed the positive impact of financial inclusion on Development (Ahmad et al., 2020; Bull & Klapper, 2023; Pradhan et al.,2021; Sarma & Pais, 2011) Additionally, other studies have established positive relationship between financial inclusion and economic growth (Ahmad et al., 2021; Emara & El Said, 2021; Ozili et al., 2022; Van et al., 2021). At the micro level, studies have shown a positive impact of financial inclusion on poverty alleviation (Churchill & Marisetty, 2020; Koomson et al., 2020; Ratnawati, 2020; Omar & Inaba, 2020), financial inclusion on women empowerment (Andriamahery, & Qamruzzaman, 2022; Aziz et al., 2022; Ghosh, 2022; Pal et al., 2022), financial inclusion on entrepreneurship and employment (Ajide, 2020; Ji et al.,2021; Yang et al.,2022). However, not much is known about the impact of financial inclusion on retirement planning and preparation, especially in a developing country such as Ghana. Financial institutions present a variety of financial and non-financial products, including retirement planning packages, to their customers. Few studies have explored the relationship between financial inclusion and retirement planning, and that has mostly happened in the developed world. For instance, a study by Yogo et al. (2021) in the United States (U.S) examined Bank Account Participation and retirement planning of the universe of U.S. households with a member aged 50 to 59. The study, among other things, found a positive relationship between Bank Account Participation and Retirement Planning Account Participation. Additionally, Nam and Loibl (2021) explored the relationship between retirement financial-planning behaviors and financial inclusion, which was one of the variables of financial capability in the study in the U.S. They found a positive significant relationship between financial inclusion and retirement financial-planning behaviors. Based on this, we hypothesize that:

H_2: Financial Inclusion has a significant direct relationship with retirement preparation.

2.2.3 Household Income as a mediator between financial literacy, financial inclusion and retirement preparation

Income has always been identified as a primary factor influencing spending and, by extension, saving choices (Belay & Mengiste, 2023). In his seminal work, "General Theory of Employment, Interest and Money" (1936), Keynes contended that consumption rises with income, but at a diminishing rate. Duesenberry (1949) in his "relative income hypothesis" and Modigliani and Brumberg (1954) in their "life-cycle hypothesis" posited that income significantly influences savings behavior.

Household finances have garnered more attention due to their escalating significance in the banking sector and the need to augment retirement savings. Consequently, it is logical to assert that income plays a vital role in the choice to save privately for retirement, as shown by prior empirical studies (Garcia & Marques,

(2017); Rey-Ares et al., 2018). Cappelletti et al., (2013) analyzed Italian data and determined that income serves as the most significant predictor of participation in supplementary pension schemes, indicating that individuals with higher earnings possess greater resources to invest in private pension plans. Similarly, Foster and Smetherham (2013) indicate that an increase in income results in greater disposable income and enhanced opportunities for savings via private retirement accounts. A study by Moreno-Herrero et al., (2017) also revealed that expectations of lower future income affect the likelihood of having a private pension plan. Consequently, both available income and anticipated income appear to influence the decision to subscribe to an individual pension plan. It is believed that people who are financially literate and inclusive tend to make financial decisions that increase their income levels. This is because such people with their knowledge in financial matters are able to make the best investment decisions as well as have access to loans and other credit facilities from their banks that boost their capital for doing business and hence expand in their operations. As their income levels increases, it is expected that such people will take decision that will secure their future including preparing for retirement. It is based on this analogy, we hypothesize that

H_3: Household Income Levels mediate the relationship between financial literacy and retirement preparation.

H_4: Household Income Levels mediate the relationship between financial inclusion and retirement preparation.

3 Method

3.1 Data and sample

The study used primary data taken from 600 self-employed workers in the Kumasi Metropolis in the Ashanti Region of Ghana between June 2024 and February 2025 with a closed-ended questionnaire. In distributing the questionnaires, both self-administered and assisted methods were used. This was done for those who were illiterate in the English language, which was used to create the questionnaire, not to be disregarded. To achieve this, people who can read, understand, and write in English were given the questionnaire to complete on their own; people who were unable to do so were questioned, and the information gleaned from their answers was utilized to complete the questionnaire. After screening the responses received, 550 responses were complete and valid for the analysis, giving a response rate of 92%. We used purposive and convenient sampling techniques to distribute the 600 questionnaires among the informal sector workers in the Kumasi Metropolis in the Ashanti Region of Ghana. The researchers used the Kumasi Metropolis because the Kumasi metropolis is centrally located in the Ashanti Region of Ghana, and it is the second largest city in Ghana and the administrative capital of the Ashanti Region.

3.2 Measurement of the variables.

The study used financial literacy and financial inclusion as the independent variables and retirement preparation as the dependent variable. The study also used household income level as a mediating variable. In measuring financial literacy, the study adapted the financial literacy construct used by Lusardi and Mitchell (2017). The 17-item scale measurement assessed respondents' financial knowledge, financial attitude and financial behavior. The researcher amended the construct by Lusardi and Mitchell (2017) to suit the settings for the study. In measuring Financial Inclusion, the study adapted the constructs used by Demirgüç-Kunt and Klapper (2012). This construct was developed to test respondents' access, barriers and usage of financial institutions. Once again, the construct was amended to suit the settings of the study. Retirement Preparation was measured with four variables –namely, financial planning, health planning,

living arrangement planning and psychological planning as used by Lee and Law (2004). This 18-item scale was developed to assess the financial planning, health planning, living arrangement planning and psychological planning of respondents for retirement. We used a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree' to measure the responses from the respondents.

4.0 Results

4.1 Sample characteristics

Table 1 presents the demographic profile of the respondents used for the study, which comprises gender, age, education, occupation and income level. On the gender of respondents, 306 of the respondents, representing 55.6 percent, were males, while 244 of the respondents, representing 44.4 percent, were females. This indicates the sample distribution fairly represented both genders in the study. On the age of respondents, 63 of the respondents, representing 11.5 percent were between the ages of 18-25 years, 145 of the respondents, representing 26.4 percent were between the ages of 26-30 percent, 195 of the respondents, representing 35.5 percent were between the ages of 31-40 years. 103 of the respondents, representing 18.7 percent, were also between the ages of 41-50 years. Respondents who were between the ages of 51-60 years were 27 percent, representing 4.9 percent, and those above 60 years were 17 representing 3.1 percent. This indicates that people of all ages were used for the study. Nonetheless, the majority of respondents were of working age and not yet retired. This group dynamics is important to extract relevant information on pre- and post-retirement planning attitudes and processing.

On the education level of respondents, the majority of the respondents (225, representing 40.9 percent) had no formal education. This was followed by respondents who had attained certificates (138, representing 25 percent). Respondents who had other educational qualifications were 67, representing 12.2 percent. Few of the respondents (13, representing 2.4 percent) had attained a master's degree. This supports the literature that most workers in the informal sector have no or lower education levels. On the occupation of respondents, most of the respondents, 269 (48.9 percent), were service/Sales workers, followed by 240 (43.6 percent) who were Craft and related trade workers and then 41(7.5 percent) of the respondents were engaged in Agricultural/Fishery work. This statistic doesn't come as a surprise since the urban informal sector work is characterized by more service delivery and less of Agricultural/Fishery stuff. According to the Ghana Statistical Service (2021), in rural Ghana, the informal economy is mostly comprised of agriculture (75%), fishing and fish processing, and Agro-based processing. Contrarily, a greater percentage of urban employees (43%) are employed in non-agricultural activities. The study also took information on the average annual income of respondents. Table 5.1 again shows that 165 of the respondents, representing 30 percent, earn an average income below 10,000 cedis. 222 of the total respondents, representing 38.9 percent, earn between 10,000 – 20,000 cedis annually on average. 98 respondents representing 17.8 percent earn between 20,001 – 30,000 cedis annually on average. Respondents who earn between 30,001 – 40,000 cedis annually on average were 42, representing 17.8 percent. In addition, 20 out of the total respondents earn between 40,001 – 50,000 cedis, representing 3.6 percent, while 3 respondents, representing 0.5 percent, earn above 50,000 cedis annually on average.

Table 1: Demographics Profile of Respondents

Variable	Frequency	Percentage (%)
Gender		
Male	306	55.6

Female	244	44.4
Age		
18-25 years	63	11.5
26-30 years	145	26.4
31-40 years	195	35.5
41-50 years	103	18.7
51-59 years	27	4.9
60 and above	17	3.1
Education		
No formal education	225	40.9
Certificate	138	25.1
Diploma	61	11.1
Degree	46	8.4
Masters	13	2.4
Others	67	12.2
Occupation		
Agriculture/Fishery workers	41	7.5
Craft and related trade workers	240	43.6
Service /Sales workers	269	48.9
Household Income (Gh₵)		
Below 10,000	165	30.0
10,001 - 20,000	214	38.9
20,001 - 30, 000	98	17.8
30, 001- 40,000	35	6.4
40, 001 -50, 000	20	3.6
50,001 and above	3	.5

Source: Field study (2025)

4.2 Assessment of Measurement Model

Table 2 indicates that all the factor loadings (α) of the indicators loaded above 0.5 which satisfy the recommended threshold acceptable for PLS-SEM 140 analysis. The factor loadings test whether the indicators could significantly measure the individual latent constructs. The results presented in Table 2 indicate that, the latent constructs were consistently measured by the selected constructs indicators.

The results from Table 2 presents the construct validity and reliability. The reliability was assessed by Cronbach's alpha, Composite reliability, and Average variance explained (Hayduk, 2018) recommend that if the AVE and CR have loading less than 0.5 and 0.7 respectively, the implications are that, there is weak convergent validity and internal consistency. All constructs recoding Cronbach's alpha CR less than 0.7 were not considered in the PLS-SEM analysis and are therefore eliminated from the model.

Results from Table 2 shows that, the Composite Reliability and the Cronbach's Alpha for all the constructs are above 0.7 implying that, the requirements for inclusion in the measurement model has been satisfied. The results therefore revealed that there is stronger internal consistency in the indicators measuring the

latent variable constructs. Likewise, Table 2 shows that the AVE for all the constructs is also above 0.5 which shows that, all the indicators considered in the measurement model are valid and actually measured the items intended to be measured.

As shown on Table 2, financial inclusion was evaluated with four items which loaded significantly and ranged 0.924 – 0.955 with an AVE score of 0.880. This demonstrates strong convergent validity as none of the indicators loaded below the standard cut off of 0.5. The first order construct assessment of financial literacy demonstrated that three dimensions were relevant for evaluating financial literacy including financial attitude, financial behavior and financial knowledge. As shown on Table 2, financial attitude was measured using 3 indicators with factor loadings ranging from 0.846 – 0.870. All the items loaded at less than 1% significant level. The AVE, CR and CA scores met their prior restrictions. On the other hand, 5 items were identified as best fit for evaluating the nature of financial behavior. The factor loadings recorded also ranged between 0.563 and 0.874 with AVE, CR and CA calculated to be 0.569, 0.838 and 0.736 respectively. Similarly, the items used to measure financial knowledge showed strong fit with an AVE of 0.686. The factor loadings showed that 7 items are good for assessing this dimension; generating a Cronbach's alpha and Composite Reliability values of 0.909 and 0.927 respectively. With respect to the dependent variable, retirement preparation, the analysis indicate that the first order construct measurement described four dimensions of evaluating retirement preparation in terms of financial planning, health planning, living arrangement planning and psychological planning.

Table 2 Factor Loadings, Construct Reliability and Validity

First Order Construct	Second Order construct	Indicators	Indicator Loadings	C A	CR	AVE
	Financial Inclusion	Financial Inclusion1	0.927			
		Financial Inclusion2	0.946	0.954	0.967	0.880
		Financial Inclusion3	0.955			
		Financial Inclusion4	0.924			
Financial Literacy				0.852	0.879	0.315
	Financial Attitude	Financial Attitude1	0.868	0.829	0.896	0.742
		Financial Attitude2	0.846			
		Financial Attitude3	0.870			
	Financial Behaviour	Financial Behavior1	0.563			
		Financial Behavior2	0.874	0.736	0.838	0.569
		Financial Behavior3	0.783			
		Financial Behavior4	0.764			
		Financial Knowledge1	0.746			
		Financial Knowledge2	0.887			

	Financial Knowledge	Financial Knowledge3	0.886	0.907	0.929	0.686
		Financial Knowledge4	0.897			
		Financial Knowledge5	0.753			
		Financial Knowledge6	0.787			
Retirement preparation				0.918	0.929	0.429
	Financial Planning	Financial Planning1	0.536			
		Financial Planning2	0.772			
		Financial Planning3	0.641			
		Financial Planning4	0.807			
		Financial Planning5	0.812	0.815	0.871	0.576
	Health Planning	Health Planning1	0.676			
		Health Planning2	0.816			
		Health Planning3	0.704			
		Health Planning4	0.829			
		Health Planning5	0.759			
	Living Arrangement Planning	Living Arrangement Planning1	0.936			
		Living Arrangement Planning2	0.952	0.942	0.963	0.895
		Living Arrangement Planning3	0.950			
	Psychological Planning	Psychological Planning	0.874	0.884	0.916	0.686
		Psychological Planning	0.848			
		Psychological Planning	0.705			
		Psychological Planning	0.884			
		Psychological Planning	0.818			

Note: CA-Cronbach's Alpha, CR-Composite Reliability, AVE-Average Variance Extracted

Aside living arrangement planning which was evaluated with three items, all the other dimensions of retirement preparation were evaluated by five items. The loadings ranged from as low as 0.554 in financial planning to as high as 0.953 in living arrangement planning with the AVE scores also between 0.517 to 0.895.

The second order validity assessment was performed for financial literacy and retirement preparation constructs accordingly. As shown in Table 6.2, the second order retirement preparation and financial literacy constructs were more efficient than their first order models. The calculated t-coefficient were found to be 0.915 for retirement preparation and 1.0 for financial literacy. Thus, both constructs were measured as second-order constructs.

Table 3: Second Order Retirement Preparation Model

Construct	Items	Indicator Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Retirement Preparation	Financial Planning	0.751			
	Health Planning	0.791			
	Living Arrangement Planning	0.891	0.669	0.888	0.890
	Psychological Planning	0.833			
Financial Literacy	Financial Attitude	0.753	0.716	0.757	0.517
	Financial Behavior	0.533			
	Financial Knowledge	0.827			

Source: Field study (2025)

4.3 Discriminant Validity of measurement model

The construct validity assesses the degree to which a particular measurement item actually connects to what is intended to be measured guided by a fundamental theory (Hair et al., 2017; Hair et al., 2019; Manley et al., 2021). The latent construct validity was assessed by three robust diagnostics namely the: AVE, Fornell & Larcker Discriminant Validity Criterion and Heterotrait-Monotrait ratio (HTMT). The results from Table 2 and 3 show that, the AVE values of the all the constructs are above the minimum threshold of 0.5. Moreover, the results from the Fornell & Larcker Discriminant Validity Criterion presented Table 4 reveal that the square root of the AVE of the various constructs have a loading in the major diagonal higher than their corresponding correlations with other latent constructs of the major diagonal. This implies that the measurement models are logically valid and essentially meet the recommended construct validity requirement for further analysis of measurement model using the PLS-SEM.

Table 4 Discriminant Validity of measurement model 1(Fornell-Larcker Criterion)

Constructs	Financial Inclusion	Financial Literacy	Income Level	Retirement Preparation
Financial Inclusion	0.938			
Financial Literacy	0.603	0.562		
Income Level	0.428	0.496	1.000	
Retirement Preparation	0.500	0.767	0.444	0.655

Source: Field study (2025)

The study further evaluated the discriminant validity of the various latent constructs based on the Heterotrait-Monotrait ratio (HTMT) criterion. According to (Ali et al., 2018; Sarstedt, Ringle, et al., 2020) to check for the discriminant validity of the latent constructs, the cross values of HTMT must be less than 0.85 threshold. In line of this criterion, results from Table 6.4 show that, all the Heterotrait-Monotrait ratio (HTMT) are less than 0.85 hence the conditions of discriminant validity are qualified and the PLS-SEM bootstrapping of 5000 resampling can be applied.

Table 5 Heterotrait-Monotrait ratio (HTMT)

Construct	Financial Inclusion	Financial Literacy	Income Level
Financial Inclusion			
Financial Literacy	0.625		
Income Level	0.438	0.498	
Retirement Preparation	0.562	0.763	0.494

Source: Field study (2025)

4.4 Partial Least Square Structural Equation Model Results

A PLS-SEM approach was used in this study to examine the impact of financial literacy and financial inclusion on retirement preparation after validation of the measurement model. The role of socioeconomic factors such as income is also explored. The regression analysis was also essential to test the study's hypotheses: H_1, H_2, H_3 and H_4.

4.4.1 Direct and Indirect Effects of Financial Literacy and Financial Inclusion on Retirement preparation

The study examines the direct impact of financial literacy and financial inclusion on income level and retirement preparation of informal sector workers in Ghana using the PLS-SEM technique. The results from Table 6 shows that financial inclusion ($\beta = 0.202$, $p < 1\%$) has positive and statistically significant influence on income level. This implies that improvement financial inclusion of the participants tends to increase the income level. Moreover, the results show that financial inclusion has positive and but statistically not significant influence on retirement preparation ($\beta = 0.050$, $p > 10\%$). This implies that being financial included does not influence the retirement preparation efforts of informal sector workers in Ghana.

The results further indicate that financial literacy ($\beta = 0.374$, $p < 1\%$) has positive and significant influence on income level of participants at 1% level of statistical significance. This suggest that improvement in the financial literacy of participants tend to increase the income level and improve retirement preparation by participants. Agnew et al. (2013) assert that if a person is unable to apply fundamental mathematical formulas to their situation, they will find it challenging to make wise financial judgments. The findings of this study therefore support the evidence of previous research that also found that financial literacy is a primary determinant of retirement planning behavior and preparation (Harahap et al., 2022; Van Rooij et al., 2011; Sarpong-Kumankoma, 2023; Janposri, 2021). Moreover, Table 6 also reveals that, financial inclusion has positive but statistically insignificant effect on retirement preparation. Nonetheless, financial literacy ($\beta = 0.61$, $p < 1\%$) has positive and significant influence on retirement preparation by participants at 1% level of statistical significance.

The study also attempted to examine the mediating effect of income level in the relationships between financial inclusion, financial literacy and retirement preparation. Results from Table 7 shows that, income level partially mediates the relationship between financial inclusion and retirement preparation. In other words, financial inclusions (β = 0.024, p <5%) has statistically significant indirect effect on retirement preparation through income level as a mediator. The results again revealed that financial literacy (β = 0.044, p <1%) has positive indirect effect on retirement preparation through income level. Figure 6.1 shows the path diagram demonstrating the relationship between the study variables.

Table 6 Direct Pathway Effects

Structural relationships	Original Sample (O)	Standard Deviation	T Statistics	P-Values
Financial Inclusion -> Income Level	0.202***	0.059	3.437	0.001
Financial Inclusion -> Retirement Preparation	0.050	0.034	1.477	0.141
Financial Literacy -> Income Level	0.374***	0.060	6.198	0.000
Financial Literacy -> Retirement Preparation	0.610***	0.040	15.385	0.000
Income Level -> Retirement Preparation	0.117***	0.031	3.840	0.000

Note: *, ** and *** denote statistically significant at p <0.10, p <0.05 and p <0.001 levels respectively

Source: Field study (2025)

Table 7 Mediation analysis

Structural relationships	Coefficient	Standard Deviation	T Statistics	P Values
Financial Inclusion -> Income Level -> Retirement Preparation	0.024**	0.009	2.512	0.013
Financial Literacy -> Income Level -> Retirement Preparation	0.044***	0.014	3.191	0.002

Note: *, ** and *** denote statistically significant at P<0.10, P<0.05 and P<0.001 levels respectively.

Source: Field study (2025)

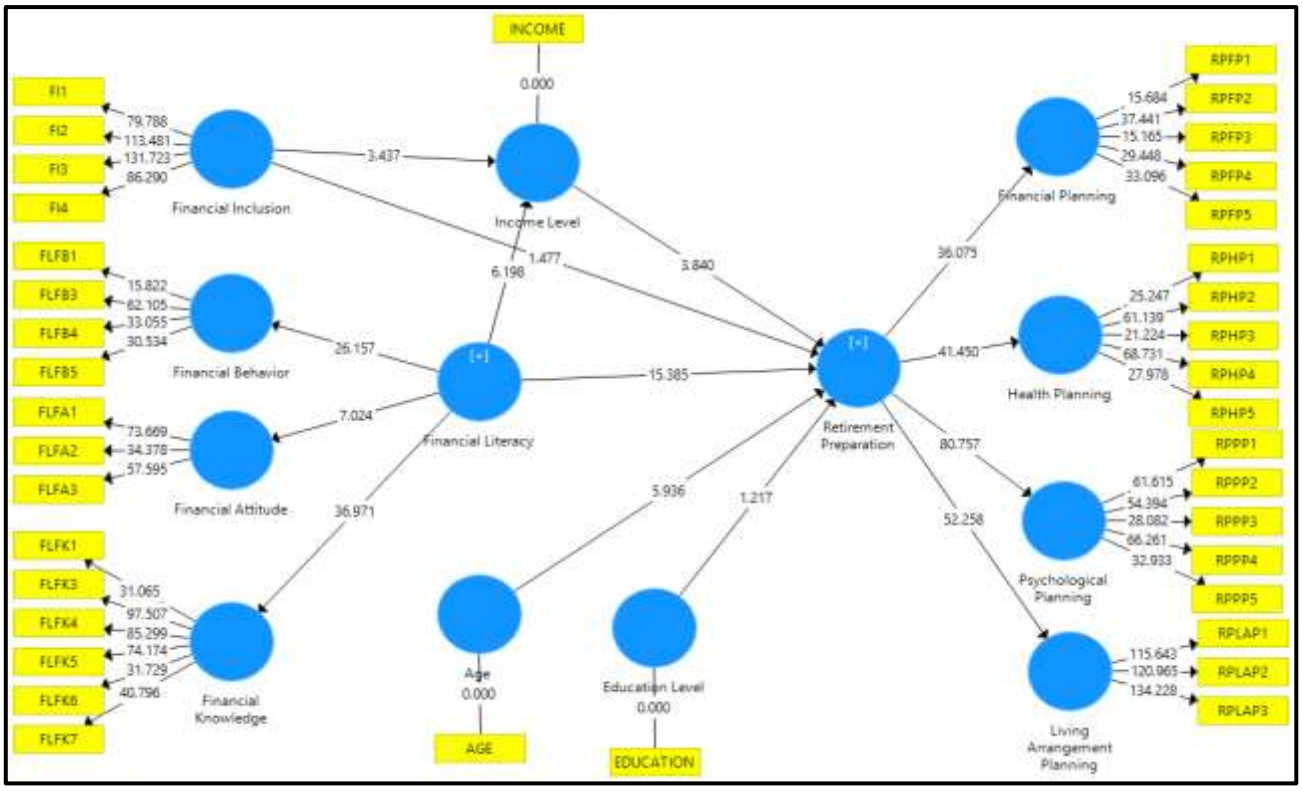

Figure 2: Path Diagram demonstrating the effect of financial literacy and financial inclusion on retirement preparation

4.5 Hypothesis Testing

The study sought to test four different hypotheses; H_1, H_2, H_3 and H_4.

H_1 hypothesized that financial literacy has a significant direct relationship with retirement preparation. From the results of Table 8, it can be deduced that financial literacy has a positive and significant effect on retirement preparation ($\beta = 0.610$, $p < 0.001$); indicating H_1 is Supported. This result confirms the findings of earlier studies such as (Boisclair, Lusardi, & Michaud, 2017; Brown & Graf, 2013; Bucher-Koenen & Lusardi, 2011; Kalmi & Ruuskanen, 2018). Even though these earlier studies were conducted in different countries with different methodologies, the confirmation of their results by the current study give credence to the significance of financial literacy in influencing people to plan and prepare for retirement. The evidence therefore implies that increasing financial literacy of people is essential requirement for individuals to think, plan, and save towards their retirement.

Additionally, H_2 hypothesized that Financial Inclusion has a significant direct relationship with retirement preparation. The results from table 8 shows no significant relationship between financial inclusion and retirement preparation ($\beta = 0.050$, $p > 0.001$); implying that H_2 is not supported. This result contradicts the finding of earlier studies such as (Baskoro, Aulia, & Rahmah, 2019 and Nam, & Loibl, 2021). This result implies that having access to mainstream financial services was not associated with the planning and preparing for retirement. As suggested by Tomar, et al., (2021), being financially included alone does not promote savings, there is the need to look beyond financial inclusion to understand the factors that stimulate and inhibit retirement saving behavior.

Furthermore, H_3 hypothesized that Income Level would mediate the relationship between financial literacy and retirement preparation. The results from table 8 shows that household income level mediate the relationship between financial literacy and retirement preparation ($\beta = 0.044$, $p < 0.005$) at 5% significant

level. Hence H_3 is supported. The result implies that financial literate individuals with high income levels tend to prepare more for retirement. Moreover, H_4 which hypothesized that income level mediates the relationship between financial inclusion and retirement preparation is also supported and the result in table 8 confirms the mediation role of income level in the relationship between financial inclusion and retirement preparation ($\beta = 0.024$, $p < 0.005$) at 5% significant level. This result is interesting, given the evidence that there is no statistically significant relationship between financial inclusion and retirement preparation. Thus, increasing financial inclusion in the informal sector is less likely to lead to adequate retirement preparation but when the effort towards inclusion translates to improvement in the income level of workers, it might influence decisions and attitude towards preparing for retirement.

Table 8 Hypothesis testing for Financial Literacy, Financial Inclusion and Retirement Preparation

Hypothesized Relationship		Coefficient (β)	p-value	Decision
Financial Literacy → Retirement Preparation	H_1	0.610***	0.000	Hypothesis Supported
Financial Literacy → Income Level→ Retirement Preparation	H_3	0.044**	0.002	Hypothesis Supported
Financial Inclusion → Retirement Preparation	H_2	0.050	0.141	Hypothesis not Supported
Financial Inclusion → Income → Retirement Preparation	H_4	0.024**	0.013	Hypothesis Supported

Source: Field study (2025)

5.0 Practical Implication

This study established that financial literacy has a positive and significant relationship with retirement preparation of informal sector workers in the Kumasi Metropolis of Ghana. The mediation role of household income level in the relationship between financial literacy and retirement preparation was also established by the study. The findings of this study confirm the pivotal influence of financial literacy in improving retirement preparation of informal sector workers in Ghana through the mediation of household income. Based on these observations, policymakers, financial institutions, and non-government organizations (NGOs) should then focus on the formulation of such financial education initiatives specifically tailored for informal workers. These programs should encourage budgeting, savings, insurance, investment options, pension planning, etc. for the workers to make educated decisions for their future.

Also, methods of income diversification, microfinance access as well as social safety measures may help in improving retirement preparedness. Improving such workers' financial awareness could aid in preparing them to attain financial security in retirement by stabilizing their income

5.1 Limitation of the study

This study has several limitations. The research focused solely on informal sector workers in Ghana, hence restricting the applicability of the findings to other nations or formal sector employees. Secondly, the study relied on self-reported data, which may be prone to biases, including the overestimation of financial literacy or retirement preparation. Thirdly, although household income was recognized as a mediator,

other possible mediating factors—such as social support, government pension plans, and access to financial services—were not examined.

5.2 Suggestion for further studies

To expand upon these findings, further study should expand the study to include various demographics, including formal sector employees and distinct geographic areas, to investigate if the relationship between financial literacy and retirement planning persists across numerous situations. Additionally, future studies should integrate other mediating and moderating variables (e.g., financial behavior, governmental pension regulations, or cultural impacts) to enhance the comprehension of the interplay between financial literacy and retirement preparation. Again, future studies should adopt experimental or intervention-based research to assess the efficacy of financial literacy programs and income-enhancing activities in improving retirement preparation among informal workers.

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