

**THE EFFECTS OF FINANCIAL LITERACY ON RETIREMENT
PLANNING OF GOVERNMENT EMPLOYEES IN TANZANIA:
MODERATING EFFECT OF FINANCIAL DECISION BEHAVIOUR**

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THE DEGREE OF DOCTOR OF PHILOSOPHY (PhD)
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CERTIFICATION

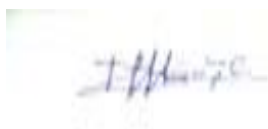
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26 JANUARY 2026

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DEDICATION

This PhD thesis is dedicated to Almighty God, who has provided me with life, health and emotional resilience during challenging and joyful times in my work. I also dedicate this thesis to my late parents Mr. & Mrs. Phillip Kisogonze Mlowosa who tirelessly laid the foundation of my life and installed in me a spirit of hard work. Lastly, I dedicate this thesis to my dear children Prosper, Lilian, Phillip, Laureen, Hezron and Lissah, with the hope that they recognize the importance of studying hard and fulfilling their purpose in life.

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ABSTRACT

This study investigated the influence of financial literacy on retirement planning of government employees in Tanzania: moderating effect of financial decision-behavior. Grounded in the theories of Expected Utility and Planned Behavior, the research adopted a positivist paradigm, a deductive approach, and a cross-sectional survey design. Data were collected from 408 employees across 24 ministries and analyzed descriptively using IBM SPSS 25 and inferential analysis via PLS-SEM. Results indicated that computation capability and risk attitude toward financial products significantly and positively affected retirement planning, whereas financial knowledge and education showed no significant impact. A theoretical contribution from the finding is that financial decision-behavior fully moderated the relationship between risk attitude and retirement planning. This outcome reinforces critiques from behavioral finance by challenging the rational premises of Expected Utility Theory and highlighting the critical role of behavioral factors. The study concludes that effective retirement planning is primarily driven by practical computation skills and risk attitudes, rather than by general financial knowledge or education. The full moderating effect of financial decision-behavior represents a pivotal insight, emphasizing the paramount importance of psychological and behavioral dimensions in financial planning. Consequently, policymakers and pension providers are urged to design targeted financial retirement training programs that focus on practical skills and the necessity of sufficient long-term savings. Future research is recommended to apply this validated model in different contexts to assess its generalizability.

Keywords: Financial Literacy, Computation Capability, Financial Knowledge, Risk Attitude Towards Financial Products, Financial Decision Behavior.

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LIST OF ABBREVIATIONS

AVE	Average variance extracted
CFA	Confirmatory factor analysis
CB	Covalence based
CI	Confidence interval
EAC	East African Community
EFA	Explanatory factor analysis
GFLEC	Global Financial Literacy Excellence Center.
PSSSF	Public Service Social Security Fund
NSSF	National Social Security Fund
PLS	Partial Least Squares
PV	Predictive validity
IA	Artificial Intelligence=
IAS	International accounting standards
IFRS	International Financial Reporting Standards
OECD	Organization for Economic Cooperation and Development
SEM	Structural Equation Modelling
SSA	Sub-Saharan Africa
SPSS	Statistical package for social science
TGRS	Transamerica Global Retirement Survey
VIF	Variance inflation factor
URT	United Republic of Tanzania

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter introduces the study by providing background information, a statement of the problem and research objectives, both general and specific. It discusses the significance of the study, emphasizing its relevance and potential impact. The chapter outlines the study's scope, detailing the focus areas and boundaries of the research. Finally, it provides an overview of the structure of the report, guiding the reader through the content of each chapter.

1.2 Background to the Research Problem

Employees across the globe view retirement as a major shift in life. Public sector workers, like any other category of workers, retire after active service and are mostly entitled to pensions and gratuity (OECD, 2023). Thus, pension systems and the associated allowances remain a cornerstone of retirement planning and a vital source of income for retirees worldwide. However, contemporary research highlights challenges to these systems, such as sustainability under demographic pressures and a structural shift that transfers financial risk from institutions to individuals (OECD, 2023). Financial retirement preparation helps employees form a realistic view of retirement life, reducing anxiety and improving adaptation. Yet, empirical studies now show that behavioral barriers like present bias and overconfidence can limit the effectiveness of financial education alone (Goda et al. 2023). Consequently, the vital role of employers has evolved to include not only offering retirement plans, education, and planning tools but also implementing behavioral "nudges," such as

automatic enrollment, to improve outcomes (Benartzi et al. 2023). To prepare adequately, individuals must still seek sufficient information and advice before taking financial action. Still, the literature now strongly emphasizes that this preparation must be holistic, encompassing non-financial planning for social connection and purposeful time use, a need particularly acute for the growing gig economy workforce who lack traditional safety nets (Topa et al. 2021; Clark et al. 2021). This comprehensive approach allows individuals to manage resources, plan consumption according to age-related needs, and make arrangements independently of current income.

Achieving financial preparedness for retirement requires employees to develop key competencies during their working lives, chief among them being financial literacy (Lusardi, 2023). This critical skill set encompassing earning, spending, borrowing, protecting, and saving (Coxwell, 2020) enables long-term financial stability and post-retirement security. Building this literacy requires dedicated training to enhance employee awareness and understanding of financial principles (Coxwell, 2020; Divers & McHale, 2021). Both employers (through facilitation) and employees (through personal effort) play roles in ensuring individuals acquire this essential capability.

Financial illiteracy poses a severe and enduring threat to individual well-being (Lusardi, 2023). One of the causes of poor retirement planning is the lack of financial expertise to assess how much is needed for their coming economic well-being and if they are saving enough (Antoni et al. 2020, Hastings et al. 2020).

Empirical evidence confirms that consumers lacking financial literacy face heightened exposure to predatory lending, mortgage fraud, and high-cost scams directly increasing risks of bankruptcy and housing insecurity (OECD, 2020; Kaiser & Menkhoff, 2022). When individuals improve their financial literacy, they make the best savings and credit decisions. They tend to plan their retirement better and diversify the assets in their investment portfolios. Conversely, low levels of financial literacy pose a lifelong threat to their wellbeing (Batsaikhan & Demertzis, 2018).

This study is related to the expected utility theory proposed by Oskar Morgenstern and John von Neumann to define rational behavior when making decisions in an indeterminate future. The theory indicates that people should behave in a specific way when faced with decision-making uncertainty. People must contemplate anticipated future profits and losses when planning their retirement. The plan should have strategies to maximize profits and reduce losses in the future, like diversification, involving financial knowledge, financial education, risk attitudes, and computation capability toward financial products. Meanwhile, Ajzen (1991) expanded the idea of planned behavior to explain people's intent to behave in a specific way when under perceived behavioral control. Financially literate people may not necessarily act in their best interests to enhance their financial well-being. A central tenet of behavioral finance is that Expected Utility Theory (EUT) offers an incomplete framework by neglecting the role of investor psychology (Barberis, 2018). To bridge this gap, this study employs the Theory of Planned Behavior (TPB) (Ajzen, 1991), introducing "financial decision behavior" as a moderating variable to

account for the systematic impact of individual cognitive processes and biases, thereby extending the explanatory power of traditional models (Raut et al. 2023).

Several studies have been done across the globe to empirically investigate the relationship between financial literacy and retirement planning (D'Acunto et al. 2022, Bianchi et al. 2021, Klapper and Lusardi 2020, Atkinson and Messy 2020). These studies indicated that components of financial literacy were linked to positive retirement planning behavior. However, the concern globally is that working individuals do not sufficiently plan for retirement (Niu et al. 2020). For example, studies on financial retirement planning conducted in developed countries such as; the United States of America, Australia, and Germany confirm that; employees who are not well prepared normally try to retire, and then they find out that they are unable to do so due to several factors. Such factors include; the reduction of benefits amount, the raising age limit for one to start acquiring pension benefits and the need to add more amount of money to start getting benefits. Moreover, most employees in developed countries overspent money during their employment life (Umpierrez, 2019). In developing countries such as Malaysia, Thailand, and Indonesia many pre-retiring employees are anxious, most of them are unprepared, and they lack essential knowledge on the best way to have a successful retirement life. This is because of the absence of professional financial guidance and exhaustion (Divers & McHale, 2021). Eventually, retirees in most developing countries, such as Filipinos opt to live together with their grown children who will take care of them financially; similarly, the larger part of them opt to have post-retirement employment to supplement their living (Nordheim & Kvist, 2022).

Studies conducted across Africa continue to affirm that financial literacy components are critical for retirement preparedness. For instance, contemporary research in Ghana underscores that persistent financial strain prevents many low and middle-income public sector workers from accumulating savings, leaving them vulnerable (Annan et al. 2024). Similarly, in Kenya, challenges within the public service persist, where insufficient pre-retirement programs are compounded by employees' limited education on post-career life and inadequate salaries (Chepkwony & Kiprop, 2023). The situation in Uganda remains complex, with retirees still facing a knowledge gap and lack of preparation for the mental and financial demands of retirement, a problem exacerbated by a benefits dependency syndrome rooted in the expectation of lifelong government support (Nabukeera & Musinguzi, 2023). Likewise, a recent study in Nigeria's public sector found that employees encounter significant challenges, including inadequate post-retirement income, difficulty securing alternative vocations, and societal stigmatization, all of which were directly linked to deficient pre-retirement planning (Okafor & Eze, 2023).

In Tanzania, a scarcity of research on the effects of financial literacy on retirement planning has resulted in significant empirical and contextual gaps. Existing local studies, such as those by Mwansasu and Mushi (2023) and Kapinga et al. (2024), have predominantly examined the direct relationship between financial literacy and retirement preparation. However, they often overlook the inclusion of moderating variables that explain how financial literacy enables government employees to plan effectively. Methodologically, research in this domain (e.g., Ngowi, 2023) has primarily relied on descriptive statistics and basic regression analysis, neglecting

advanced techniques like Partial Least Squares Structural Equation Modeling (PLS-SEM) that are better suited for assessing complex relationships with moderating effects, such as the role of financial decision-making behavior.

Given that retirement planning is vital for achieving financial freedom in old age (Niu 2020), this research addresses these knowledge, methodological, contextual, and empirical gaps. It provides critical insights for retirees, policymakers, and pension schemes to assist in tailoring services, thereby reducing the risk of financial loss or misuse due to poor investment decisions.

1.3 Statement of the Problem

A substantial body of global research has explored the retirement planning behaviors of employees; however, a persistent gap exists as this work has concentrated primarily on industrialized economies, often overlooking the unique contexts of rapidly growing developing nations (Khalid et al. 2023; Rastogi & Gupta 2022).

There is a persistent global challenge of insufficient retirement preparation among individuals (Yarovaya et al. 2024; OECD 2023). Increasing life expectancy continues to elevate the need for substantial savings to support extended retirement periods and growing elderly populations (World Economic Forum 2023). Studies on financial literacy in sub-Saharan Africa consistently evidence low levels, with regional rates significantly lagging behind those of high-income OECD economies (Grohmann et al. 2023). This is particularly pronounced in East Africa, where financial literacy rates remain among the lowest, as seen in figures such as only 28%

of Tanzanians, 27% of Ugandans, and 31% of Kenyans demonstrating financial competency (GFLEC, 2023).

Several studies on financial literacy in Tanzania, such as those by Makona (2020) and Nyangarika et al. (2020) have primarily concentrated on the effects of retirement benefits on retirees and the challenges of retirement education for workers. These studies predominantly employed descriptive statistics and regression analysis as their methods of data analysis. However, a gap remains as they have overlooked advanced multivariate techniques such as Partial Least Squares Structural Equation Modeling (PLS-SEM), which is more ideal for testing complex models with multiple latent variables. This methodological shortfall persists in more recent research, including the work of Mwita (2022) on pension fund choices and Kaale (2023) on financial preparedness, which continue to rely on traditional regression methods, thereby limiting the depth of analysis on the intricate relationships between financial literacy, behavioral factors, and retirement planning outcomes.

Despite the growing body of financial literacy research, the effects on retirement planning among government employees in Tanzania remain an under-explored area. While foundational studies have laid important groundwork, a clear gap exists in understanding the specific mechanisms within the public sector. The present study therefore evaluated the effect of financial literacy on government employees' retirement planning in Tanzania, incorporating the dimensions of computation capability, financial knowledge, financial education, and risk attitudes toward financial products, with financial decision-making behavior as a moderating variable (Kulondwa et al. 2021; Mwita 2023). Consequently, for government employees to

achieve secure retirement outcomes, they must possess a composite of numerical skills, applied financial knowledge, and prudent attitudes to make informed long-term decisions.

1.4 Research Objectives

1.4.1 General Research Objective

To examine the effects of financial literacy on government employees' retirement planning in Tanzania: The moderating effect of financial decision behavior.

1.4.2 Specific Research Objectives

- (i) To assess the effects of computational capability on retirement planning of government employees in Tanzania.
- (ii) To evaluate the effects of financial knowledge on retirement planning of government employees in Tanzania.
- (iii) To determine if financial education is a determining factor for government employees' retirement planning in Tanzania.
- (iv) To examine if risk attitude towards financial products determines government employees' retirement planning in Tanzania.
- (v) To determine if financial decision behavior moderates the relationship between independent variables and retirement planning of government employees in Tanzania.

1.5 Significance of the Research

This study makes several distinct contributions to the field of financial retirement planning:

Theoretically, this study develops and validates a novel integrated framework that merges the rational calculations of Expected Utility Theory with the psychosocial dimensions of the Theory of Planned Behavior, offering a more holistic lens for understanding retirement planning decisions. This provides researchers and consultants in other developing countries with a robust methodological tool to diagnose the specific barriers to retirement preparedness in their own regions, moving beyond assumptions and enabling the creation of locally relevant solutions.

Methodologically, it advances the field of finance by demonstrating the rigorous application of moderation analysis, which moves beyond simple correlations to reveal the specific conditions under which financial literacy influences preparedness. This approach moves beyond establishing direct relationships to illuminate the contingent conditions under which financial knowledge influences preparedness, thereby offering a more nuanced understanding of the phenomenon.

Empirically, the study provides critical empirical evidence from a previously under-researched context government employees in Tanzania. It's key empirical finding that financial education and knowledge were not significant predictors of retirement preparedness challenges the universal applicability of dominant theories and sparks a necessary scholarly debate on the dominant drivers of preparedness in developing economies.

Contextually, these converging strands of inquiry are grounded in the unique setting of Tanzania, a developing nation whose economic and cultural landscape remains critically underexplored, thereby shifting the research lens and providing vital insights for similar regions.

Similarly, on a practical level, the findings offer a primary practical contribution to provide policymakers, financial institutions, and employers with a critical evidence base to design a more effective financial wellness programs. The key findings that financial knowledge and education do not drive retirement preparedness signals that resources should be shifted away from generic literacy campaigns toward behaviorally informed interventions that address the actual attitudes, social norms, and perceived control of employees. This allows for the development of targeted strategies, such as auto enrollment savings schemes or tailored financial products, that can effectively bridge the gap between knowledge and action. Consequently, these insights empower organizations to enhance employee long-term financial security, mitigate future old-age poverty, and improve the sustainability of social welfare systems, particularly in developing contexts like Tanzania.

1.6 Chapter Summary

This chapter has shown that financial retirement planning is a relatively novel concept in Tanzania, where lessening the expectation gap is essential since many people are not preparing for retirement. Financial retirement preparation studies have demonstrated that low financial literacy levels affect retirement planning. Thus, more must be done to help people prepare for retirement.

1.7 Organization of the Study

This research report is structured into six main chapters: Chapter one provides an introduction and background of the study including the statement of the problem, research objectives and research hypotheses. Additionally, the chapter covers the significance, scope and limitations of the study. Chapter two reviews the body of

literature on the study. It includes conceptual definitions, theoretical reviews, empirical studies, research gaps and the conceptual framework. Chapter three outlines the research methodology used in the study. It details the research philosophy, approach, design, strategies, study area, study population, sampling techniques, sources of data, data collection tools, data analysis and ethical considerations.

Chapter four presents the findings of the study through descriptive and inferential statistics. It includes analyzed data in the form of percentages and frequency distribution of key variables from the questionnaire, as well as tested hypotheses. Chapter five discusses the research findings obtained from data analysis in chapter four. It provides interpretation of the research findings, and hypotheses testing using PLS-SEM and compares the findings to theoretical expectations and relevant empirical studies. Chapter six offers' conclusions, implications and recommendations based on the study's findings. It also suggests areas for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Chapter Overview

This chapter presents conceptual definitions of the concepts used in the study and the empirical and theoretical literature review. It delineates the research gap identified via the critical literature evaluation. The study culminates with its conceptual and theoretical framework, along with the study hypotheses.

2.2 Definition of Key Concepts

2.2.1 Computation Capability

Computation capability refers to an individual's practical mathematical proficiency in performing calculations essential for personal financial decision-making, particularly regarding retirement planning, interest rates, inflation adjustments, and investment risk assessment (Potrich et al. 2023). This domain-specific numeracy skill enables individuals to quantify long-term financial needs, project compound growth, evaluate loan terms, and model retirement income sustainability. Recent studies emphasize that deficiencies in these computational skills directly correlate with poor retirement preparedness, as individuals struggle to contextualize abstract concepts like inflation erosion, compounding returns, or probabilistic investment outcomes without concrete numerical framing (Potrich et al. 2023). Consequently, computational capability is a critical dimension of financial literacy, serving as the foundational toolkit for transforming financial awareness into actionable planning (Sekita, 2021). This study will adopt the definition of computation capability by (Potrich et al. 2023) as it provides critical dimensions of financial literacy and saving for retirement.

2.2.2 Pension Plan

"In this study, a pension plan is conceptualized as a formal employer-sponsored arrangement that guarantees a specific retirement benefit to employees, who typically receive regular lifetime payments. This aligns with the OECD's (2023) definition of a plan where the sponsor promises a specified payment based on a predefined formula. Similarly, Miller and Davis (2024) characterize it as a plan where the employer bears the risk and is obligated to fund these promised benefits, which are paid out as an annuity.

2.2.3 Financial Education

In this study, financial education means structured interventions designed to improve individuals' financial capabilities through knowledge acquisition, skill development, and behavioral change (Lusardi & Urban, 2023). It is a systematic approach to developing financial literacy that combines traditional economic concepts with behavioral insights and digital competencies" (OECD, 2023). Modern financial education increasingly incorporates digital tools, behavioral nudges, and culturally-relevant content to address diverse population needs in an evolving financial landscape (Xu et al. 2023). Financial education serves as the input encompassing structured programs, instruction, or interventions (Kaiser, Lusardi, Menkhoff, & Urban, 2022).

2.2.4 Financial Behavior

Financial behavior refers to individuals' observable money management actions and financial decision-making processes, shaped by psychological, social, and

technological factors (Xiao & O'Neill, 2022). Contemporary research defines it as a multidimensional construct encompassing cash flow management, savings, credit usage, and investment activities, while emphasizing the critical influence of cognitive biases (e.g., present bias), financial literacy, and digital adaptation (Klontz et al. 2023; Mitra & De, 2025). Xiao & O'Neill (2022) suggests that financial behavior is the interplay between financial literacy, self-control, and financial behavior, emphasizing that financial behavior is not merely about technical money management but is deeply influenced by psychological traits and cognitive biases. The present study conceptualizes financial behavior based on Xiao & O'Neill (2022) definition of regular cash, savings, and credit management.

2.2.5 Financial Control

Financial control refers to an individual's active management of cash flows, spending, and debt through structured practices (e.g., budgeting, tracking expenses, and goal-setting) to align financial behavior with long-term objectives like retirement security or emergency preparedness. It combines behavioral self-regulation (restraining impulsive spending) and technical oversight (monitoring accounts, using digital tools) to reduce financial fragility, limit debt accumulation, and ensure liquidity for unexpected shocks (OECD, 2020; Frijns et al. 2021). The present study conceptualizes financial control based on the definition by (Frijns et al. 2021) as it includes some aspects of cash management important for wealth accumulation to meet retirement life living expenses.

2.2.6 Financial Literacy

Financial literacy is defined as a multidimensional competence encompassing knowledge (understanding concepts like compound interest, inflation, and risk diversification), skills (applying calculations for budgeting or retirement planning), attitudes (motivation toward long-term financial goals), and behaviors (actions such as saving, investing, and debt management) necessary to make sound financial decisions and achieve financial well-being (OECD, 2020). Contemporary research emphasizes that this literacy directly enables individuals to navigate digital finance, assess emerging risks (e.g., cryptocurrency, algorithmic bias), and build resilience during economic shocks (Klapper & Lusardi, 2020; OECD/INFE, 2023). Crucially, it bridges theoretical understanding with practical actions such as retirement preparedness and emergency savings where deficits correlate strongly with poor financial outcomes (Potrich et al. 2023; Global Financial Literacy Excellence Center, 2023). This study will adopt the financial literacy definition by (OECD, 2020) as it covers many aspects of retirement planning.

2.2.7 Financial Planning

Financial Planning is a systematic process of assessing an individual's or organization's current financial resources, setting measurable objectives, and implementing strategies to achieve long-term security while accounting for behavioral biases, life-stage needs, and macroeconomic variables like inflation and tax policy changes (Lim & Weissmann, 2023). Contemporary research emphasizes its role in behavioral finance, where cognitive biases (e.g., overconfidence) and non-cognitive factors (e.g., financial socialization) significantly influence planning

efficacy (Baker et al. 2023). Financial planning presents the critical steps to produce future income and meet future expenses. On the other hand, a financial plan can be considered what a company or an individual intends to do with revenue or income obtained (Maverick, 2021).

2.2.8 Financial Preparedness

Financial preparedness refers to the state of possessing sufficient resources to maintain one's standard of living and autonomy after exiting the workforce. It represents an individual's control over their financial future and is a dynamic, ongoing process of allocating time and capital to generate income in old age, thereby ensuring survival, dignity, and social inclusion (Lusardi & Mitchell, 2023). This process involves a systematic approach: analyzing one's current financial status, projecting future needs and expenses, calculating the shortfall, and implementing a savings and investment strategy to bridge that gap and create a reliable post-retirement income stream (Mouna & Jarboui, 2023). Consequently, when carefully planned and executed, financial preparedness is a critical determinant of long-term financial security, providing relaxation, peace of mind, and a greater sense of control over one's future (Fidelity Investments, 2024).

2.2.9 Financial Knowledge

Financial knowledge refers to an individual's demonstrable understanding of core financial concepts (e.g., compound interest, inflation, risk diversification), numerical proficiency in applying these principles (e.g., calculating loan costs or investment

returns), and the capacity to translate this awareness into informed financial behaviors (e.g., debt management, retirement planning). It represents a measurable outcome distinct from financial education programs, though its retention is often unstable without reinforcement, as knowledge gains frequently decay over time (OECD, 2020). Financial knowledge represents the measurable output, defined as an individual's acquired understanding and skills (Kaiser, Lusardi, Menkhoff, & Urban, 2022). In this study the financial knowledge definition by (Kaiser, Lusardi, Menkhoff, & Urban, 2022) will apply as it includes understanding and skills gained.

2.2.10 Financial Instruments

According to the International Financial Reporting Standards (IFRS), a financial instrument is defined as "any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity" (IASB, 2024a, IFRS 9). These instruments represent tradable asset or capital packages that facilitate the efficient flow and transfer of capital across markets and investors globally. The underlying assets can include cash, a contractual right to exchange financial assets or liabilities under potentially favorable or unfavorable conditions, or evidence of an ownership interest in another entity. For the purpose of the present study, a financial instrument is defined as any contract that generates a financial asset for one entity and a financial liability or equity instrument for another, consistent with the IFRS conceptual framework (IASB, 2024b).

2.2.11 Retirement

Carrino et al. (2023) characterize it as a shift from full-time employment that may involve a gradual withdrawal through activities like part-time work or an abrupt

cessation, reflecting the modern view of retirement as a dynamic process shaped by policy, health, and financial readiness. In a complementary definition, Fasbender et al. (2023) describe retirement as the exit from the workforce due to old age, a stage often associated with changes in social role and performance. An effective retirement preparation plan is widely recognized as a key strategy for mitigating retirement-related stress. It is a comprehensive process involving planning, budgeting, and making practical decisions on core retirement issues. This includes budgeting for essential expenses, designing a fulfilling retirement lifestyle, managing guaranteed income like pensions, creating personal savings and investment schemes, and protecting all acquired assets to sustain one's post-career lifestyle (Topa & Valero, 2023). For the purpose of this study, the definition advanced by Fasbender et al. (2023) will be applied, as it aligns with the context of employees who cease all work engagements upon reaching old age.

Theoretical Review

This study is grounded in two complementary theoretical frameworks addressing financial retirement planning behavior. The Expected Utility Theory (EUT), formally axiomatized by von Neumann and Morgenstern (1944; 1947), serves as the primary lens for analyzing financial decision-making under risk. EUT posits that individuals evaluate probabilistic outcomes by maximizing expected utility, providing a normative basis for modeling retirement-related trade-offs (e.g., wealth accumulation versus longevity risk) (Frank, 2009; Kahneman & Tversky, 1979). Complementary, Ajzen's (1991; 2005) Theory of Planned Behavior (TPB) examines psychosocial drivers of planning actions, linking behavioral intentions to attitudes, subjective

norms, and perceived control over retirement preparedness. By integrating EUT's risk-based calculus with TPB's behavioral predictors, this research addresses a critical gap in understanding retirement planning in Tanzania's developing economy context. The findings aim to inform policymakers on enhancing financial literacy initiatives to strengthen retirement security in settings with evolving pension systems.

2.2.12 Expected Utility Theory

Christian Huygens, Pierre de Fermat, and Blaise Pascal established the probabilities principle in the 17th century. This led to the formulation of the initial mathematical theory on deciding risky options (Thorsten et al. 2010). Lewin's (1943) expected utility theory, cited in Kafari (2019), was established to explain rational behavior when deciding on an indefinite future. The theory illustrates that people ought to act in a certain way when faced with uncertain decision-making (Kulondwa et al. 2021).

Thus, the theory is "normative," which suggests people's rational behaviors. This opposes a "positive" theory demonstrating people's behaviors (Lucy et al. 2010). Von Neumann and Morgenstern (1947) established EUT as a normative framework for rational decision-making under uncertainty, providing a mathematical foundation for evaluating trade-offs between probabilistic outcomes through utility functions. In retirement planning, EUT enables the quantification of complex trade-offs such as higher withdrawal rates versus longevity risk by assigning utility weights to outcomes, transforming abstract risks into comparable metrics. The theory incorporates risk aversion via concave utility functions, aligning with retirees'

psychological preference for capital preservation over aggressive growth due to diminishing marginal utility of wealth. Empirically, EUT supports lifecycle modeling that optimizes decumulation strategies by balancing consumption, investment allocation, bequest motives, and insurance products (e.g., annuities) to maximize lifetime satisfaction. Despite empirical challenges like the St. Petersburg and Allais paradoxes, which reveal descriptive limitations, EUT remains foundational in economics for retirement optimization. Modern applications integrate behavioral insights (e.g., prospect theory's loss aversion) while retaining EUT's core structure, allowing calibration to individual risk profiles (e.g., CRRA parameters) for personalized asset allocation. Thus, EUT endures as a benchmark for evaluating retirement strategies under uncertainty, despite requiring supplements from behavioral economics to address cognitive biases.

The expected utility model provides a well-established and conventional procedure to measure risk. Von Neumann Morgenstern's expected utility theorem is the formal theory of expected utility. The theory's fundamental footing is that individuals choose the substitute with the maximum expected utility (Frank, 2009). This is to say that individuals will select the option that maximizes their expected utility value (Snyder et al. 2011). Moreover, utility theory recognizes that individuals exhibit diverse risk preferences, influencing their investment choices. Risk aversion, risk neutrality, and risk-seeking behavior represent different attitudes towards uncertainty (Jia et al. 2023). Through utility theory, investors can assess their risk preferences and select investments that align with their comfort levels. Consequently, the impact

of utility theory extends beyond maximizing expected returns, as it addresses the subjective nature of risk and accommodates the varying risk appetites of investors.

The expected utility theory has a big influence on how people make financial decisions by establishing a framework that takes risk attitudes and subjective preferences into account. Utility theory enables investors to make more informed and individualized decisions by taking utility together with expected returns. Employees can align their decisions with their unique risk preferences by evaluating expected utility and using utility functions, so increasing their total happiness and wellbeing. Although utility considerations are only one aspect of the vast terrain of retirement planning options, utility theory implementation should be conscious of the contextual elements that influence financial retirement planning decision.

This study used this theory because people face uncertainties about income and when they decide on retirement. People must contemplate expected future profits and losses when deciding on retirement planning. The adopted retirement plan will deliver the desired outcomes to offer a comfortable income to retirees. The plan should include strategies to maximize future profits and reduce losses, like diversification, involving computation capability, financial knowledge, risk attitudes, and financial education on financial products (Kulondwa et al. 2021). This study has adopted the variables computation capability, financial knowledge, risk attitudes, and financial education on financial products extracted from the expected utility theory. Therefore, government employees must possess some computation skills, financial

knowledge, and attitudes to make informed financial planning on retirement (Kulondwa et al. 2021).

Although the expected utility theory offers useful insights into investment decision-making, its use in real-world contexts requires taking into account additional aspects. Personal circumstances, financial aspirations, time horizons, and market conditions frequently have an impact on investors' choices. These contextual variables interact with utility considerations to influence people's final investment decisions. Thus, the expected utility theory is limited by the failure to fully reflect on the agent's interactions in the real world, which tends to break some hypotheses in the expected utility.

2.2.13 The Theory of Planned Behavior

Theory of Planned Behavior originated from the Theory of Reasoned Action-TRA (Fishbein and Ajzen, 1975) with two variables (attitude and subjective norm) as main predictors of intention. However, in 1991 Icek Ajzen extended TRA into TPB by adding one variable that is perceived behavioral control and indicated to be a better predictor of intention and behavior. TPB states that attitude (behavioral belief) toward behavior, subjective norms (normative belief), and perceived behavioral control (control belief), together shape an individual's behavioral intentions and behaviors. The theory detailed that social impact, attitude, superficial behavioral regulation, subject norms, cumbersomeness, or ease form the basis for the intent of a given action (Kulondwa et al. 2021). Those are the significant factors determining a behavior toward a financial decision or product (Ajzen, 1991).

The theory of planned behavior is based on three variables discovered to predict the intention to perform a given behavior. These variables are attitude toward the behavior, perceptions of social pressures as a result of the views and actions of significant others (subjective or social norms), and perceptions of control over behavior performance (perceived behavioral control). Intention and perceived behavioral control both predict behavior performance. The current study looks into the effects of financial literacy on retirement planning of government employees in Tanzania which in turn predict intention and behavior. The theory of planned behavior has explained, on average across context of retirement planning intention and behavior (Garcia Mata, 2021; Hoffmann, & Plotkina, 2020). However, issues about the theory's predictive adequacy persist, Ajzen (1991) acknowledged that, depending on the behavioral context, it may be proper to include variables other than those in the theory's original formulation. According to Ajzen and Fishbein (2005), one of the most frequently addressed issues in tests of the theory has been the question of its sufficiency. Thus, this study has used the variable financial decision behavior as a moderator to provide more insight of financial retirement planning of government employees in Tanzania.

On the other hand, retirement planning behavior (RPB) is coined out from Ajzen's concept of behavior. Scholars have offered a wide range of definitions in that regard. For instance, Lee & Law (2004) defined RPB as an idea that centers on a set of events, financial and health planning. Hearn, Borstorff & Thomas (2005) regard it as a process which changes one's awareness and behavior as they move through their profession and consider retirement as imperative. Petkoska & Earl (2009) defined

RPB as the rate at which workers participate in issues of finance, health, interpersonal /leisure, and planning for retirement to achieve a targeted goal. Moreover, Gutierrez & Hershey (2015) suggested that RPB is a stage in retirement planning which includes situation assessment, formulation of goals and how to achieve them in the future. In this study, therefore, RPB is defined as a complex set of behaviors, determined by the individual's attitude towards financial planning, perception of social pressures from others and the ability to have financial control over retirement planning all of which are influenced by the anticipated regrets over retirement. Review of literature indicated RPB has a close inter-relationship with financial planning for retirement and savings decision of the workers (Moorthy et al., 2012; Muhidin et al., 2013; Clark et al., 2015; Hassan et al., 2016; Kajauchire, 2015; Talib & Manaf, 2017). A recent study conducted by Nguyen, Nguyen, Tran, & Trinh, (2022) suggested that retirement saving intention strongly predicts retirement saving behaviors.

Strengths of the Theory of Planned Behavior is that it excels in capturing socio-psychological drivers of behavior, making it ideal for studying retirement planning: One of this theory's strengths is the positive linkage with financial literacy. The behavioral intention in financial literacy significantly positively impacts the objective of embracing an economic decision or product (Kennedy, 2013). The theory asserts that intents to perform different behaviors can be anticipated with high accuracy from the attitudes towards the behavior, subjective norms, behavioral norms, and perceived behavioral control. Outcome evaluations and behavioral beliefs impact attitude. Subjective norms are determined by the motivation to comply and

normative beliefs, while perceived behavioral control depends on perceived facilitation and control beliefs. In financial literacy, individuals propose to gain insight into the various concepts since they have the right attitude, perceive it to be acceptable, and can afford to learn. According to Ajzen, individuals are more likely to intend to perform or perform behavior for which they feel high levels of control over those they have little control. Therefore, retirement planning and financial literacy can be described as planned behavior (Griffin et al. 2012).

The theory of expected utility has been used to explain and predict behavior in a variety of behavioral contexts, including consumer behavior, recycling, safer sex, drug use, technology adoption, and privacy protection, to name a few (Ajzen, 2020). Like other human behaviors, the TPB is an appropriate theory for studying determinants of retirement planning behavior. The current study adopts the TPB theory to assess the effects of financial literacy on retirement planning of government employees in Tanzania. This theory was applied in this study because financial literacy affects financial decision-making. When determining financial strategies to adopt at retirement, people may assume a particular behavior that may be influenced by their risk attitudes toward retirement financial plans and perceptions. Thus, they will probably take up retirement plans they perceive as necessary for their future. However, they will not be planning if they do not perceive it as a way of maintaining or enhancing their living conditions during retirement.

However, the theory of planned behavior is limited since it fails to describe how individuals can deal with the behaviors they cannot control (Deaton, 2005).

2.3 Empirical Literature Review

This section reviews empirical studies related to the present study to establish the gaps that were filled by the findings. The section is organized according to the study objectives. The aim is to contextualize the current and known literature before establishing the gaps.

2.3.1 Computation Capability and Personal Retirement Planning

Financial knowledge reflects an individual's understanding of fundamental economic concepts and principles. It is typically measured by assessing a person's comprehension of core financial topics such as inflation, compound interest, risk diversification, the time value of money, interest rates, and the fundamental differences between assets and debt (OECD, 2023).

Di Matteo et al. (2023) investigated the drivers of retirement planning among university students in Italy. The purpose of their research was to identify the factors that predict students' intentions to invest in pension funds. Grounded in the theory of planned behavior, their analysis utilized regression techniques. The findings confirmed that the theory's core predictors, along with pension-specific knowledge and money management skills, all positively influenced the intention to invest in a pension fund. While such studies provide valuable insights into the planning intentions of specific demographics in developed economies, a distinct gap remains in understanding the behaviors of those closer to retirement in developing contexts.

The current study addresses this gap by examining the financial literacy and retirement planning of government employees in Tanzania, employing the Partial Least Squares Structural Equation Modeling (PLS-SEM) as a more robust tool for data analysis.

Farooq et al. (2021) examined the influence of financial literacy, financial attitude, and parental financial socialization on prudent financial management practices among youth in Pakistan, demonstrating that these factors significantly and positively impact financial behavior (Farooq et al., 2021). This study underscores the critical role of these determinants in shaping financial practices, a principle that is increasingly recognized in diverse contexts. Building on this foundation, the present study aims to assess financial retirement planning among government employees in Tanzania, extending the understanding of financial behavior from youth in Pakistan to mature professionals in a different socio-economic environment, thereby highlighting the universal importance of financial literacy and socialization in fostering effective financial planning (Smith & Lee, 2022).

Hamid and Loke (2020) examined the correlation between financial literacy, money management skill, socioeconomic variables, overspending and impulsiveness in credit card repayment decisions among credit card users in Malaysia. In the study, money management skill consists of spending within budget, prompt bill payment, handling money matters well, and financial statements monitoring. From the study, financial literacy and money management skill show positive significance in decision-making amongst credit card holders. Whereas socioeconomic variables

namely ethnicity, marital status, education, income, and the number of credit cards also show significance in credit card repayment decisions. The previous study was carried in Malaysia, the current study addressed this gap by examining the case of government employees in Tanzania by employing Partial Least Square Structuring Equation Model as a tool for data analysis.

Ochieng et al. (2023) conducted a study on Financial Literacy and Retirement Planning Among Kenyan Millennials. They investigated the relationship between financial literacy and retirement planning using a cross-sectional design and quantitative strategy. Data were collected through structured questionnaires from 400 Kenyan millennials, and regression analysis was employed to assess the impact of financial literacy on retirement planning while controlling for demographic and socioeconomic factors. The findings revealed that higher financial literacy levels significantly improved retirement planning behaviors, with understanding of interest rates, inflation, and risk diversification being key predictors. However, many millennials prioritized short-term financial goals over long-term savings, and those with access to digital financial tools were more likely to engage in retirement planning. This study was carried out in Kenya involving Kenyan Millennials using regression analysis to measure the financial literacy on retirement planning. The present study aimed at filling this gap by studying the financial retirement planning of government employees in Tanzania.

Safari et al. (2021) investigated the impact of financial literacy indicated by financial knowledge and computation capability on personal retirement planning amongst

public sector employees in Congo. Results from the investigation revealed that both of the financial literacy components have significant impacts on personal retirement planning, indicating the significant role financial literacy plays as a determinant of personal retirement planning. This study was conducted in Congo. The present study aimed at filling this gap by studying the financial retirement planning of government employees in Tanzania. The following Hypothesis was developed based on these studies:

H₁: Computation capability is positively related to the personal retirement planning of government employees in Tanzania.

2.3.2 Financial Knowledge and Personal Retirement Planning

Financial knowledge is important in financial literacy; individuals choose financial services and products and provide understanding for good decision-making use. Investing in financial knowledge can have significant consequences for retirement well-being by affecting individuals' ability to invest and save (Lusardi et al. 2020). Knowledge is substantial in financial decisions (Robb et al. 2021) since it is the basis for decision-making; understanding risks inherent in financial instruments, financial products, and the calculation of returns will impact the results obtained after retirement.

Klapper and Lusardi (2023) in their study "Financial Literacy and Financial Resilience: Evidence from the World," confirms that Sub-Saharan Africa continues to have one of the world's lowest financial literacy rates, with only 27% of adults considered financially literate. This figure remains significantly below the global

average of 35% and starkly contrasts with rates in advanced economies, which often exceed 50%. The region exhibits a persistent and pronounced gender gap, with 23% of women compared to 31% of men being financially literate. Significant disparities also exist between urban and rural areas, where access to formal education and financial services is limited. The study concludes that this widespread lack of financial literacy severely undermines financial resilience, leaving populations vulnerable to economic shocks and ill-equipped for long-term planning, including retirement. To address these challenges, the authors recommend targeted financial education, enhanced access to financial services, and supportive policy reforms aimed at boosting financial inclusion. While this study provides a broad global panorama, the current research addresses a critical contextual gap by focusing specifically on the effects of financial literacy on the retirement planning of government employees in Tanzania.

Robb et al. (2021) conducted a study on Financial Knowledge and Best Practice Behaviour employed regression analysis on a sample of 2,319 U.S. adults to explore the relationship between financial knowledge and financial best practice behaviour. The findings revealed a significant positive relationship between financial knowledge and the adoption of best financial practices, such as budgeting, saving, and investing, though income and education levels also played a critical role. The study concluded that while financial knowledge is essential, it is not sufficient on its own to ensure best practice behaviour. This study involved on a sample of 2,319 U.S. adults to explore the relationship between financial knowledge and financial best practice behaviour. The current study filled that gap by studying the effects of financial

literacy on retirement planning of government employees in Tanzania employing smart PLS SEM.

Bucher-Koenen et al. (2021) conducted a study to fearless women financial literacy and stock market participation in Netherlands. Study results revealed that financial literacy, comprising financial knowledge and confidence gives an impact on individuals' stock market participation in the Netherlands. In the findings, women's lower level of financial literacy is found to be explained by their lower confidence level. However this study is centered in Netherlands. The present study aimed at filling this gap by studying the financial retirement planning of government employees in Tanzania by employing Partial Least Square Structuring Equation Model as a method of data analysis.

Peiris (2021) examined the influence of financial literacy on savings behavior amongst employed individuals in Sri Lanka. The study concludes that financial literacy plays a significantly positive impact on savings behavior. Hence, the finding suggests the promotion towards knowledge of the financial system in order to support increasing positive savings behavior. This study was conducted in Sri Lanka. The present research addresses that gap by investigating financial retirement planning of government employees in Tanzania.

Recent research continues to affirm the critical role of financial literacy in retirement preparedness. For instance, a study by Sari and Hidayat (2023) in Indonesia confirms that individuals with advanced financial knowledge and numerical proficiency are

better equipped to understand the importance of retirement planning and, consequently, are more successful in accumulating wealth for their post-career life. The findings indicate that a high level of financial literacy is a strong predictor of proactive saving and investment behaviors during an individual's working years specifically for retirement. While this evidence comes from the Indonesian context, a clear gap exists in understanding this dynamic within the Tanzanian public sector. Therefore, the present study investigates the effects of financial literacy on the retirement planning of government employees in Tanzania.

Asante et al. (2024) investigated the significance of financial literacy, encompassing the dimensions of knowledge, attitude, and awareness, on the success of small and medium-sized enterprises (SMEs) in Ghana. The study concluded that all three aspects of financial literacy had a significant positive impact on both the financial and non-financial performance of the enterprises. While this study was conducted among SME managers in Ghana, its findings underscore the multifaceted nature of financial literacy as a critical competency. The present study builds upon this understanding by applying a similar conceptualization of financial literacy to a different context and outcome, investigating its effects on the retirement planning of government employees in Tanzania. Based on the foundation of these studies, the following hypothesis was developed:

H₂: Financial knowledge is positively related to the personal retirement planning of government employees in Tanzania

2.3.3 Financial Education and Retirement Planning

There is a strong and urgent focus on educating individuals in developing countries to manage their income and save for long-term goals like retirement and children's education (Demirgüç-Kunt et al. 2022). The advantages of financial literacy are well-documented in the literature; however, access to such education remains limited, particularly in low-income nations. Inadequate integration of financial education into formal school curricula in many of these countries denies a significant portion of the population the opportunity to develop the essential skills needed for long-term financial security (Atkinson & Messy, 2023).

The World Bank (2023) report on retirement in Sub-Saharan Africa used a mixed-methods approach to analyze regional retirement preparedness and financial education's impact. Its analysis of surveys and case studies revealed significant challenges like low financial literacy but found that tailored financial education positively impacts savings behavior. The report concluded that financial education is essential and recommended policy interventions and further research. However, due to its broad regional scope and mixed-methods design, a gap remains. This current study addresses that gap by focusing specifically on government employees in Tanzania and employing a quantitative approach using Smart PLS-SEM for analysis.

Klapper and Lusardi (2023) in emerging Asian economies found that affluent, highly educated demographics often exhibit financial literacy levels comparable to those in developed nations. Their research also indicated that within these specific, educated cohorts, gender disparities in financial literacy were not statistically significant.

Furthermore, the study reinforced the link between financial knowledge and investment behavior, showing that higher literacy is correlated with a greater propensity to invest in higher-risk, higher-return assets like equities. While such findings provide insights into specific professional and high-income groups in other regions, a gap remains regarding the broader population of public sector employees in different contexts. The present research addresses this gap by investigating the financial literacy and retirement planning of government employees in Tanzania.

Amagir et al. (2022) investigated financial literacy related disparities in a group of middle-income countries by identifying financial literacy levels. Results from the participating countries of Colombia, Lebanon, Mexico, Turkey, and Uruguay indicate the least financially literate groups in each country to facilitate targeting of public policy. The study reveals that groups with lower financial literacy scores are women, younger adults, and individuals with lower educational attainment. In addition, the quality of education also positively affects financial literacy, influenced not only by the years of education possessed by respective individuals but the quality of education as well. This study was conducted in groups of middle-income countries of Colombia, Lebanon, Mexico, Turkey, and Uruguay. The present study aimed at filling this gap by studying the financial retirement planning of government employees in Tanzania.

Bayar et al. (2020) conducted a study on financial literacy and education level risk tolerance amongst investors within Turkish at Usak University personnel. The study results concluded that financial literacy and education level give positive impacts on

financial risk tolerance amongst investors within Turkish Usak University personnel. The study finds that financial literacy and education level are proven to ease complicated financial decision making. This study was conducted in Turkish to Usak University personnel. The current study investigated the effects of financial literacy on retirement planning of government employees in Tanzania.

Atkinson and Messy (2020), in their study titled *The Role of Financial Education in Improving Financial Behavior, Including Retirement Savings, in Developing Countries, Including Africa*, employed a mixed-methods approach combining quantitative and qualitative research to examine the impact of financial education on financial behavior. Using a quasi-experimental design, the study compared groups exposed to financial education interventions with control groups, collecting data through structured surveys and in-depth interviews from hundreds of participants across developing countries, with a focus on Africa. Quantitative data was analyzed using statistical techniques like difference-in-differences (DiD), while qualitative data was thematically analyzed to identify behavioral changes. The findings revealed that financial education significantly improved financial behavior, including increased retirement savings, though challenges such as low initial financial literacy, cultural barriers, and limited access to financial products were noted. The study concluded that financial education is crucial for enhancing retirement preparedness in developing countries and recommended targeted interventions, collaboration between financial institutions and NGOs, and further research on the long-term impacts and role of digital tools in financial education programs. This study focused on developing countries including Africa and employed a mixed-methods approach

combining quantitative and qualitative research to examine the impact of financial education on financial behavior. The current study investigated the effects of financial literacy on retirement planning of government employees in Tanzania and employed quantitative research.

A study by Mubalama and Kajingulu (2023) in the Democratic Republic of Congo showed that financial literacy significantly enhances individuals' economic well-being. The research found that, alongside positive social attitudes, individuals from families with high financial literacy exhibited more favorable risk attitudes towards financial management and were more likely to engage in future-oriented planning. This proactive planning for expenses and projects was a key factor in achieving greater financial stability. While this study provides valuable insights from the DRC context, its focus differs from the specific retirement planning challenges faced by public sector employees in neighboring East African nations. Therefore, the current research addresses this gap by specifically investigating the effects of financial literacy on the retirement planning of government employees in Tanzania.

Recent empirical evidence continues to underscore the critical link between financial capability and behavior. For instance, Uwera, Ntirenganya, and Shukla (2023) affirmed that limited financial knowledge, skills, and confidence among Rwandans are directly associated with poor financial decision-making and planning. While this study was conducted in Rwanda, its findings highlight a pervasive challenge across many developing economies. The current study builds upon this understanding by specifically investigating the effects of financial literacy on the retirement planning

of government employees in Tanzania, thereby addressing a significant contextual and demographic gap in the existing literature.

Kaiser and Menkhoff (2023), conducted a meta analysis study on effective financial education programmes in schools from 76 experimental studies conducted across multiple countries. The research design focused on identifying causal effects by synthesizing findings from randomized controlled trials (RCTs) and quasi-experimental studies. Data collection involved extracting effect sizes, study characteristics, and methodological details from the included studies, while data analysis utilized meta-regression techniques to assess the impact of financial education on students' financial literacy and behaviour. The findings revealed that financial education programs in schools have a statistically significant, though modest, positive effect on financial literacy. However, the impact on financial behaviour was smaller and less consistent, suggesting that knowledge gains do not always translate into behavioural changes. The study also identified key moderators of effectiveness, such as program duration, interactive teaching methods, and integration into the standard curriculum, which enhanced outcomes. The authors concluded that while financial education in schools is beneficial, its design and implementation require careful consideration to maximize impact.

Mbinji et al. (2022), in their study titled *The Role of Financial Education in Improving Retirement Preparedness Among Informal Sector Workers in Kenya*, employed a quantitative research approach with a quasi-experimental design to investigate the impact of financial education on retirement preparedness among

informal sector workers. Using stratified random sampling, the study collected data from several hundred informal sector workers through structured surveys, which assessed financial literacy, retirement planning behaviors, and socioeconomic characteristics. Data analysis involved descriptive and inferential statistics, including regression analysis, to examine the relationship between financial education and retirement preparedness while controlling for variables like age, income, and gender. The findings revealed that financial education significantly improved retirement preparedness, with participants showing increased savings behavior and participation in informal savings groups, though challenges such as low income, irregular cash flows, and limited access to formal financial products persisted. The study concluded that financial education is crucial for enhancing retirement planning among informal sector workers and recommended targeted interventions, collaboration between financial institutions and NGOs, and further research on the long-term impacts of financial education and the role of digital tools in improving retirement outcomes. This study was conducted in Kenya involving Informal Sector Workers by employing regression analysis. The current study investigated the effects of financial literacy on retirement planning of government employees in Tanzania employing smart PLS SEMI.

Epaphra and Kiwia (2021) conducted a study on financial literacy and participation in the financial markets in Arusha, Tanzania by applying logit regression model. The study found that individuals with higher financial literacy, represented by financial knowledge variable as well as male and married people residing in Arusha, Tanzania have a better chance to invest in the financial market despite their education level.

Meanwhile, other variables such as income level and risk attitude play significant roles to influence one's participation in the financial markets. The current study investigated the effects of financial literacy on retirement planning of government employees in Tanzania. Based on the above studies, the following hypothesis was developed:

H₃: Financial education is positively related to personal retirement planning among government employees in Tanzania.

2.3.4 Risk Attitudes Toward Financial Products and Personal Retirement Planning

The importance of financial literacy in spreading awareness of various financial products cannot be denied. These products are bonds, treasury bills, mutual funds, shares and just to name a few. Investment in financial products is better done when the prospective investors grasp an understanding of the level of risks attached to complex financial products. Both fundamental and complex skills in financial literacy are paramount in predicting the level of risk attached to investment and complex products (Yong, 2023). Furthermore, Riitsalu and Murakas (2024) argued that financial literacy had a positive impact on aspects of retirement plans, long term financial plans, purchasing private pension insurance and just to name a few.

Shimizutani (2023), in an analysis of financial literacy and wealth inequality, revealed that financially literate individuals are more likely to invest in stocks, securities, and other financial products, highlighting their greater awareness of financial market opportunities compared to their less literate counterparts. This

study, which leveraged quantitative methods and longitudinal data, underscored the critical role of financial literacy in shaping investment behavior and decision-making. Building on these findings, the present research addresses a gap by investigating financial retirement planning among government employees in Tanzania, utilizing the Partial Least Squares Structural Equation Modeling (PLS-SEM) method to analyze data. By focusing on a developing country context, this study aims to provide insights into how financial literacy influences retirement planning, contributing to the broader discourse on financial security and the importance of financial education.

Satria and Hutabarat (2020) explored the effect of financial literacy on financial planning for retirement using a sample of 120 university lecturers selected in Indonesia. To achieve the purpose of the research, a linear regression model was applied to test the relationships. The results from the study show that attitudes toward retirement products are significant in making personal plans for the retirement. Individuals with positive attitudes toward retirement products are more likely to make pension financial plans. This study focuses on university lecturers who are individuals with high education levels and who are more likely to be financially literate. This study was conducted in Indonesia employing linear regression model to university lecturers. The present research addresses that gap by investigating financial retirement planning of government employees in Tanzania by employing Partial Least Square Structuring Equation Model as a method of data analysis.

Eton et al. (2021) conducted a study on Financial Literacy and Retirement Planning Among Teachers in Uganda. They investigated the relationship between financial literacy and retirement planning using a cross-sectional design and quantitative strategy. Data were collected through structured questionnaires from 300 teachers across urban and rural areas, and PLS-SEM was employed to analyze the impact of financial literacy on retirement planning while controlling for demographic and socioeconomic factors. The findings revealed that higher financial literacy levels significantly improved retirement planning behaviors, with understanding of interest rates, inflation, and risk diversification being key predictors. However, many teachers faced barriers such as limited access to formal financial products and relied on informal savings mechanisms. This study involved teachers in Uganda. The present research addresses that gap by investigating financial retirement planning of government employees in Tanzania.

Mwamba et al. (2022), conducted a study on The Role of Financial Literacy in Retirement Planning: Evidence from Zambian Public Sector Employees. They investigated the relationship between financial literacy and retirement planning using a cross-sectional design and quantitative strategy. Data were collected through structured questionnaires from 250 public sector employees, and multiple regression analysis was employed to assess the impact of financial literacy on retirement planning while controlling for demographic and socioeconomic factors. The findings revealed that higher financial literacy levels significantly improved retirement planning behaviors, with understanding of interest rates, inflation, and risk diversification being key predictors. However, limited access to formal financial

products and reliance on informal savings mechanisms were significant barriers to effective retirement planning. This study involved Zambian Public Sector Employees and employed multiple regression analysis as a tool for data analysis. The present research addresses that gap by investigating financial retirement planning of government employees in Tanzania by employing smart PLS SEM as a method of data analysis.

Uwimana (2023) examined the role of financial literacy in retirement planning in Rwanda. The independent variable in this study was Financial Literacy, and the dependent variable was Pension Fund Planning. The analysis technique used was multiple regression analysis, with data from 64 respondents. The findings demonstrated a significant positive relationship between Financial Literacy and Pension Fund Planning. While this study was conducted in Rwanda using multiple regression analysis, the present research addresses a contextual and methodological gap by investigating the financial retirement planning of government employees in Tanzania, employing the Partial Least Square Structural Equation Model (PLS-SEM) as the method of data analysis. Based on the above studies, the following hypothesis was developed:

H4: Risk attitudes toward financial products are positively and significantly related to personal retirement planning among government employees in Tanzania.

2.3.5 Moderating Role of Financial Decision Behavior

Sarstedt et al. (2022) empirically demonstrate that a moderator effect occurs when a third variable (the moderator) systematically alters the strength (and potentially the

direction) of the relationship between an independent variable and a dependent variable in a structural model. Gidengil et al. (2023), emphasizes that the accurate detection of this effect is critically dependent on the inclusion and proper specification of a statistical interaction term (e.g., independent variable $\times$ moderator) within the model. This principle is vividly illustrated in applied behavioral science by Zhang et al. (2024), who demonstrate how individual traits like self-efficacy act as significant moderators. In their study, the effectiveness of an intervention (independent variable) on health outcomes (dependent variable) was substantially stronger for individuals with high pre-existing self-efficacy, showing how the moderator defines the boundary conditions of the intervention's effect. Collectively, these studies confirm that investigating moderator effects is fundamental for understanding the contextual nuances of theoretical relationships, thereby moving beyond simple direct effects to explain for whom or under what circumstances a primary relationship holds and accounting for heterogeneity in observed outcomes.

Literature reveals that financial literacy continues to have significant implications for public financial behavior. Contemporary research confirms that financial knowledge is a strong predictor of both short-term and long-term financial decision-making (OECD, 2023). The consequences of these behaviors are profound, as they play an essential part in influencing economic resilience not only at the household level but also at a national level (Cazachevici et al. 2023). A key insight from the literature is that individuals with higher financial literacy are more likely to engage proactively in wealth accumulation strategies, such as saving and investing during their working years to prepare for retirement (Li et al. 2024). In agreement with this view, recent

studies suggest that acquiring financial knowledge is crucial for enabling individual investors to make informed financial decisions and optimal investment choices (Li et al. 2023).

D'Acunto et al. (2022), in their study "The Role of AI in Personal Financial Decision-Making," explore the impact of AI-driven tools on financial behaviors such as budgeting, saving, and investing using a global, multi-country dataset that includes participants from both developed and developing nations. Through experimental and observational methods involving 3,000 individuals, the study employs regression analysis, difference-in-differences models, and machine learning techniques to demonstrate that AI tools significantly enhance financial decision-making by reducing behavioral biases like present bias and loss aversion, improving savings rates, and providing cost-effective, personalized advice, particularly for those with lower financial literacy. The authors conclude that AI tools have the potential to democratize access to financial guidance globally and recommend policy support, financial education, and increased consumer awareness to maximize their benefits, especially in underserved. This study was on participants from both developed and developing nations, the study employed regression analysis, difference-in-differences models. The current study is on financial retirement planning of government employees in Tanzania and employed smart PLS SEM.

Peiris (2021) examined the influence of financial literacy on savings behavior amongst employed individuals in Sri Lanka. The study concludes that financial literacy plays a significantly positive impact on savings behavior. Hence, the finding suggests the promotion towards knowledge of the financial system in order to

support increasing positive savings behavior. This study was on savings behavior and was carried out in Sri Lanka, the current study is on financial retirement planning of government employees in Tanzania.

Senda et al. (2020) conducted a study to investigate the effect of financial literacy level and demographic variables on investment decisions amongst government employees of Kalibawang Community Health Centre, Yogyakarta. The study found that financial literacy does not explain investment decisions of real assets and financial assets. The study also reveals that only age, income, and investment experience show a correlation with those investment decisions studied. Whereas education and gender do not show significance in their relations with investment decisions. This study was conducted to amongst government employees of Kalibawang Community Health Centre, Yogyakarta. The present research addresses that gap by investigating financial retirement planning of government employees in Tanzania.

Oseifuah et al. (2023), conducted a study on Financial Literacy and Retirement Planning Among Ghanaian Civil Servants. They investigated the relationship between financial literacy and retirement planning using a cross-sectional design and quantitative strategy. Data were collected through structured questionnaires from 400 civil servants, and structural equation modeling (SEM) was employed to analyze the impact of financial literacy on retirement planning while controlling for demographic and socioeconomic factors. The findings revealed that higher financial literacy levels significantly improved retirement planning

behaviors, with understanding of interest rates, inflation, and risk diversification being key predictors. However, behavioral factors such as procrastination and low trust in pension systems were significant barriers to effective retirement planning. This study involved Nigerian Civil Servants. The present research addresses that gap by investigating financial retirement planning of government employees in Tanzania.

Ngugi and Mugo (2023), in their study titled *Risk Attitudes and Participation in Pension Schemes Among Informal Sector Workers in Kenya*, employed a quantitative research approach with a cross-sectional design to investigate the relationship between risk attitudes and pension participation among informal sector workers. Using stratified random sampling, the study collected data from several hundred informal sector workers through structured surveys, which assessed risk tolerance, awareness of pension products, and socioeconomic characteristics. Data analysis involved descriptive statistics and logistic regression to examine the relationship between risk attitudes and pension participation while controlling for variables like age, income, and gender. The findings revealed that risk-averse individuals were less likely to participate in formal pension schemes, with barriers such as low income, irregular cash flows, and limited access to information further hindering participation, particularly among women. The study concluded that risk attitudes significantly influence pension participation and recommended targeted financial education programs, the development of accessible pension products, and further research on the role of digital tools in improving risk tolerance and retirement planning among informal sector workers in Kenya. This study involved Informal

Sector Workers in Kenya. The present research addresses that gap by investigating financial retirement planning of government employees in Tanzania.

The principle that attitude precedes behavior remains a cornerstone of behavioral models (Ajzen, 2020; Ma et al., 2023). Empirical evidence consistently shows that attitude has a predictive and directly positive relationship with subsequent behavior (Zhou & Kim, 2024). In the financial domain, this behavioral sequence is critical, as financial behavior is itself a primary driver of financial capability, which encompasses the ability to act effectively (Bruggen et al., 2023; Oehler et al., 2024). This establishes a causal chain where financial attitude influences financial behavior, which in turn develops financial capability. Therefore, financial behavior does not moderate but rather mediates the relationship between attitude and capability, serving as the mechanism through which attitudes translate into tangible skills and outcomes (Hayes, 2022). Based on this rationale, the following hypothesis is developed:

H₅: Financial decision behavior positively moderates the relationship between financial literacy and retirement planning of government employees in Tanzania.

2.4 Research Gap

Evidence from the literature review on the effects of financial literacy on retirement planning of government employees in Tanzania shows that there is little knowledge and, therefore, gaps to be filled at theoretical, methodological, contextual, and empirical levels as detailed below.

2.4.1 Theoretical Gap

Previous studies have predominantly used the expected utility theory to examine the direct relationship between financial literacy and retirement planning preparation (Kulondwa & Njoka, (2021), Bizimana et al. (2022), Uluochi, (2021). However, these studies have largely overlooked the moderating mechanisms that explain how financial literacy enables government employees to plan for their after retirement life. To address this limitation, this study introduces financial decision behavior as a moderator from the theory of planned behavior. The theory of planned behavior provides a robust framework for understanding how financial literacy can enhance retirement planning preparation, which in turn improves life style of employee on retirement.

Furthermore, scanty prior research in Tanzania has examined the effects of financial literacy on retirement planning, particularly to government employees. By the theories of expected utility and planning behaviour, this study offers a comprehensive theoretical framework to explore the interplay between computation capability, risk attitude towards financial products, financial decision behaviour and retirement planning. The findings will contribute to advancing theoretical knowledge and provide actionable insights by preparing public employees towards financial retirement planning preparation.

2.4.2 Methodological Gap

While previous studies in Tanzania have primarily relied on descriptive statistics and regression analysis, a significant methodological gap remains in utilizing advanced

techniques such as Structural Equation Modelling (SEM) to assess the complex relationships between financial literacy and retirement planning preparation. Descriptive and regression-based approaches, though useful, are limited in their ability to model multiple relationships simultaneously or account for latent variables like financial decision behaviour, which moderates the effects of financial literacy on retirement planning. This study addresses this gap by employing PLS-SEM, which enables the analysis of complex, multi-dimensional relationships while accommodating challenges specific to retirement planning sceneries, such as small sample sizes and non-normal data distributions (Hair et al. 2021). This methodological advancement enhances the validity of the findings and provides a foundation for future research in similar contexts.

2.4.3 Contextual Gap

Most studies on the effects of financial literacy on retirement planning were conducted outside Tanzania, resulting in a contextual gap (Adeabah 2020; Lusardi et al. 2020, 2023; Swiecka et al. 2020; Niu et al. 2020; Satria et al. 2020; Klapper et al. 2020; Khan et al. 2021; Tan et al. 2020; Hastings et al. 2020; Cibangala 2019). In Tanzania, studies on financial literacy on retirement planning (Makona 2020, Nyangarika et al. 2020) have entirely concentrated on retirement income plans, the effect of retirement benefits on retirees and the challenges of retirement education to workers. Therefore, little was known about financial planning preparedness for the retirement of Tanzania government employees, making it an under-explored area in the financial literacy literature. This study seeks to fill this gap by investigating the effects of financial literacy on government employees, offering practical

recommendations for employees to start saving enough by accumulating more wealth to cater for retirement life.

2.4.4 Empirical Gap

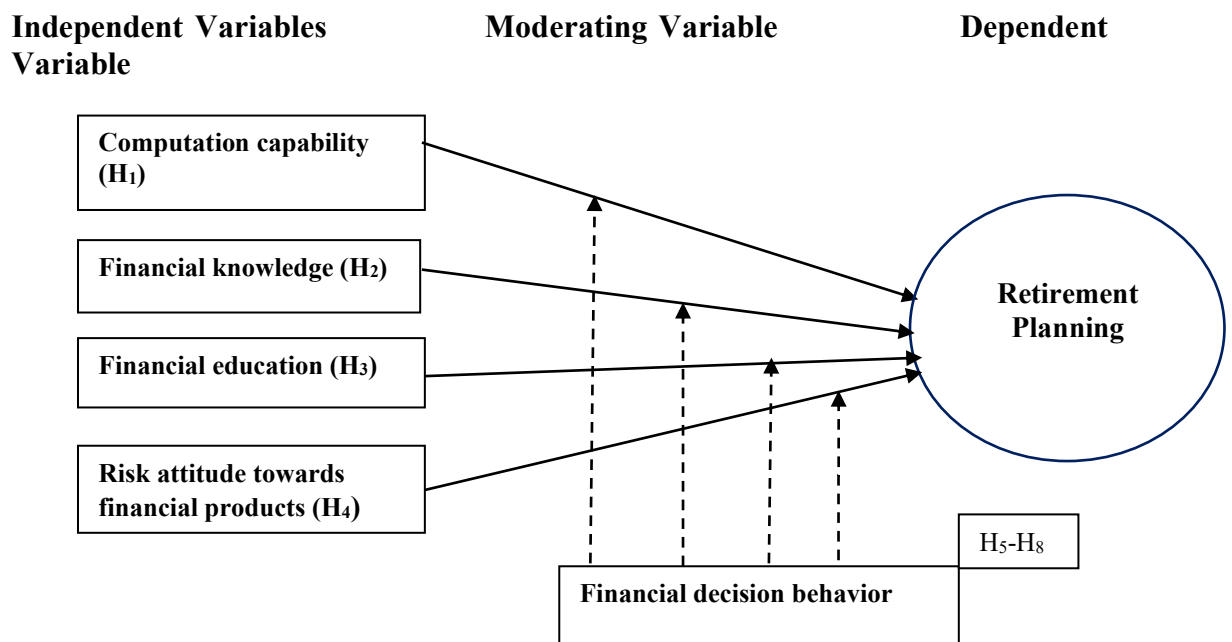
Several studies on the effect of financial literacy on the retirement planning of government employees (Ketkaew et al. 2019, Mndzebele et al. 2020, Ghimire 2022) have been carried outside Tanzania. In Tanzania, most studies (Makona 2020, Nyangarika et al. 2020) have entirely concentrated on retirement income plans, the effect of retirement benefits on retirees and the challenges of retirement education to workers. Therefore, little was known about financial planning preparedness for the retirement of Tanzania government employees, making it an under-explored area in the financial literacy literature. Conducting this study in Tanzania is essential as it has provided current information on financial literacy status that will assist the government and other stakeholders in formulating and implementing programs and policies to support and reinforce financial literacy among Tanzanian government employees. This has increased the qualities and abilities of public employees in financial access, financial management, and decision-making. With these scanty studies on the effect of financial literacy on the retirement planning in Tanzania, it is necessary to conduct further studies. Thus, this study has filled that gap.

2.5 Conceptual Framework

A thorough conceptual framework is crucial for providing direction and clarity to a study. It serves as a visual representation of the conceptual relationships between variables (Engelbart, 2023). Studies lacking a strong conceptual foundation often lack direction, incorporate unrelated theories and have weak methodological

justifications (Waldt, 2020). Based on the research hypotheses determining the effect of financial literacy on employees' retirement planning preparedness, with financial decision behavior as a moderating factor, the conceptual framework for this study was developed to illustrate the potential relationships among key variables as illustrated by Engelbart, (2023). The model represents significant factors such as computation capability, risk attitude towards financial products and financial decision behavior by government employees working in different ministries within the city of Dodoma. By visually representing these relationships, the framework provides a clear structure for the study's approach and analysis. The conceptualized relationship between variables and retirement planning among government employees in Tanzania, as deduced from theories and empirical studies, is shown in Figure 2.1:

Figure 2.1: Conceptual Framework of the Study



Source: Developed from the literature by the Researcher, (2025).

The conceptual framework outlines the relationships between key variables in the study. Financial literacy (computation capability, financial knowledge, financial

education v and risk attitude towards financial products) are considered as independent/exogenous variables. These practices are expected to directly affect employee retirement planning, the dependent/endogenous variable, which is assessed based on responsiveness, reliability, tangibility, assurance and empathy. Financial decision behavior is a moderating variable. The hypothesis posits that financial decision behavior moderates the relationship between financial literacy and retirement planning preparation. The arrows in the framework represent the expected directions of these effects: financial literacy is expected to positively influence retirement planning, which in turn influences employee savings to accumulate more wealth for retirement life. This conceptual model provides a clear visualization of the proposed relationships, guiding the study's approach and analysis.

2.6.1 Research Hypotheses

The conceptual framework led to the formulation and testing of the following hypotheses:

- H₁: The computation capability of retirement benefits is significantly and positively related to the personal retirement planning of government employees in Tanzania.
- H₂: Financial knowledge is positively related to the personal retirement planning of government employees in Tanzania.
- H₃: Financial education is positively related to personal retirement planning among government employees in Tanzania.
- H₄: Risk attitudes toward financial products is positively related to personal retirement planning among government employees in Tanzania.

H₅: Financial decision behavior positively moderates the relationship between computation capability and retirement planning of government employees in Tanzania.

H₆: Financial decision behavior significantly and positively moderates the relationship between financial knowledge and retirement planning of government employees in Tanzania.

H₇: Financial decision behavior significantly and positively moderates the relationship between financial education and retirement planning of government employees in Tanzania.

H₈: Financial decision behavior significantly and positively moderates the relationship between risk attitude towards financial products and retirement planning of government employees in Tanzania.

Table 2.1: Summary of Theories and Associated Constructs

Theory	Constructs extracted
Expected Utility Theory	Computation capability
	Financial knowledge
	Financial education
	Risk attitude toward financial products
Theory of Planned Behavior	Financial decision behavior

Source: Researcher, 2025.

2.6 Summary

This chapter has provided a general review of the study on how retirement planning among government employees in Tanzania is influenced by financial literacy. The reviewed theories of expected utility and planned behaviour were done to develop a conceptual framework for research to determine the financial retirement preparedness among government employees in Tanzania.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

Research methodology comprises the systematic framework of principles and procedures that guide researchers in designing, executing, and analyzing a study to ensure its findings are credible and robust (Bhandari, 2023). It encompasses the philosophical assumptions and strategic choices that inform the selection of data collection and analysis techniques, thereby upholding the study's validity, reliability, and ethical integrity (Saunders et al. 2019). This chapter elaborates on the study's foundation in the positivist research philosophy. It subsequently delineates the research design, defines the study area and target population, and explicates the sampling procedures and sample size. Furthermore, the chapter details the data collection methods and analysis techniques employed. A critical assessment of the validity and reliability of the research instruments is provided, concluding with a discussion of the ethical considerations adhered to throughout the research process. Collectively, these components establish a comprehensive and rigorous methodological framework that underpins this investigation.

3.2 Research Philosophy

Research philosophy refers to a set of assumptions and beliefs about how knowledge is developed, which fundamentally affects how research is conducted (Saunders et al. 2019). This study is guided by a positivist research philosophy, which emphasizes understanding reality through observable and measurable phenomena (Bell et al. 2022 & Park et al. 2020). Positivism aims to test theories using statistical analysis to

conclude the effects of financial literacy on retirement planning of government employees in Tanzania.

Positivist philosophy involves deriving research objectives and hypotheses from existing theory, quantifying concepts, and aiming for generalizability (Park et al. 2020). The study measured variables within the conceptual framework to validate assertions through empirical tests, enhancing our understanding of retirement planning preparedness to public sector employees' settings. The decision to adopt positivism was driven by the goal of testing theories and understanding the effects of financial literacy on retirement planning of government employees in Tanzania. (Saunders et al. 2019).

3.3 Research Approach

The research approach refers to the plan and procedure for conducting research, spanning from broad assumptions to detailed methods of data collection, analysis and interpretation (Creswell & Creswell, 2017). It includes deductive, inductive and abductive approaches. The deductive approach systematically explores causal relationships between variables, aiming to explain a specific phenomenon and produce generalizable findings; the inductive approach starts with specific observations to develop new theories; and the abductive approach focuses on explaining unexpected observations (Bell et al. 2022). This study utilized a deductive approach, which involves systematically exploring causal relationships between variables, aiming to explain a specific phenomenon and produce generalizable findings (Saunders et al., 2019).

This study adopts a quantitative research approach, it involves collecting numerical data through structured questionnaires, enabling the testing of hypotheses and the use of statistical techniques to analyze the data (Gupta & Gupta, 2022). A quantitative approach was employed to ensure the collection of trustworthy and accurate data, broadening the scope of data analysis while minimizing bias (Mohajan, 2020). The choice of a quantitative approach aligns with the positivist research philosophy, emphasizing evidence and measurable outcomes (Sanders et al. 2019).

This approach facilitates the identification of patterns and averages, enable predictive analysis, explores cause-and-effect relationships and supports the generalization of findings (Park et al. 2020). By integrating the theories of expected utility and planned behavior, the study aimed to understand the effect of financial literacy on retirement planning of government employees working in different ministries within the city of Dodoma, with financial decision behavior as a moderator.

3.4 Research Design

The research design outlines the method used to gather evidence in line with the study's objectives and criteria (Bell et al. 2022). It serves as an organized plan that guides the entire process of data collection, measurement and analysis (Pandey & Pandey, 2021). This study adopts an explanatory research design, which aims to establish cause-and-effect relationships between variables and provide justification for specific phenomena under investigation (Rahi, 2017). This design offers new insights into a topic, which can be used to develop, refine, and evaluate theories (Rahi et al. 2019). By focusing on cause-and-effect relationships, this design is well-

suited to examine how financial literacy on retirement planning, with financial decision behavior as a moderating variable.

Data was collected using a survey questionnaire to determine cause-and-effect relationships between financial literacy on retirement planning, with a focus on the financial decision behavior as a moderating. The survey method was chosen for its efficiency in collecting quantitative data from a large population and enabling straightforward and cost-effective comparisons (Thomas et al. 2020).

3.5 Research Strategy

The research strategy refers to the systematic approach used to address the research inquiries and achieve the study's objectives (Saunders et al. 2019). The selection of a strategy is influenced by factors such as the study's objectives, questions, existing knowledge, time constraints, resources and philosophical orientation (Saunders et al. 2019). Common research strategies include cross-sectional research, case study, ethnography, action research, experimental, survey, grounded theory and mixed methods, longitudinal, and narrative research (Rahi, 2017). This study adopts a cross-sectional survey strategy, which is well suited for examining cause-and-effect relationships between variables at a specific point in time. This strategy is cost-effective, allows for hypotheses testing, captures multiple variables, and provides generalizable results (Rahi, 2017 & Thomas et al. 2020).

Additionally, the use of surveys through structured questionnaires is easy to administer and interpret, making it possible to gather and analyze data from a larger number of respondents efficiently (Saunders et al. 2019). Data were collected using

self-administered survey questionnaires distributed to employees in rural public health facilities to determine the effect of financial literacy on retirement planning, focusing on the role of financial decision behavior as a moderator and testing the study's related hypotheses.

3.6 Research Area

This study was conducted in the Dodoma Region, the designated national capital of Tanzania. As the administrative heart of the country, Dodoma hosts a high concentration of government employees across all major ministries and departments. This makes it a critical and strategic site for investigating the effects of financial literacy on retirement planning among public servants. The findings from this central administrative hub are therefore essential for developing targeted policies that could be scaled nationally to address the pervasive challenge of inadequate retirement preparation among government employees (Niu, 2020).

3.7 Study Population

Population can be defined as a generalization area consisting of individuals or items with specific attributes selected by researchers for study, from which a conclusion can be drawn (Rahi et al. 2017). It includes all elements that meet certain criteria for inclusion in the study (Creswell & Creswell, 2017). In this study, the population consisted of 19,387 government employees working in different ministries within Dodoma region in Tanzania (NBS, 2023). This population provided the necessary data to explore the research question within the context of government employee's financial retirement planning.

3.8 Sample Size

The sample size refers to a subset of persons drawn from the target population from which data is collected (Kumar, 2018). In this study, the sample size was calculated based on the total number of government employees working in different ministries within Dodoma region in Tanzania. Yamane's formula (1967) was used to determine the sample size as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = required sample size

N= targeted study population

e = level of precision (0.05)

Given N=19,387 government employees in Dodoma region (NBS, 2023), the calculated sample size resulted into 391.

The formula yielded a sample size of 391 participants. Typically, researchers augment the sample size by 40-50% to account for lost questionnaires, unwilling participants, and untraceable respondents, mainly when participation is anonymous and free (Ahmed & Halim, 2017). Data is collected via self-administered survey questionnaires including 40% of the projected sample size of 391 results in a total sample of 547 persons. Consequently, the sample size for the present study was 547 people drawn from the target population. Nevertheless, only 408 participants completed and submitted the questionnaires. This sample size was deemed sufficient to ensure statistical reliability while adequately representing the targeted population.

3.9 Sampling and Sampling Procedures

Sampling procedure involves selecting a subset of individuals from a larger population to conduct research or analysis (Bell et al. 2022). In quantitative studies, sampling is essential because surveying the entire population can be costly, time-consuming and sometimes impractical (Bell et al. 2022). For this study multi-stage sampling technique was used to systematically select government employees working in different ministries within the city of Dodoma in Tanzania who are scattered throughout the city, the study adopted multi-stage sampling Cluster Sampling to overcome the challenge of such kind of a population and where face-to-face communication is needed (Saunders et al. 2019). Since there are 25 ministries, the researcher selected all ministries where the samples were collected. According to the National website, there are 25 ministries in Tanzania (<https://www.tanzania.go.tz>). The first stage was to select all the Ministries of the United Republic of Tanzania using systematic sampling, forming the sample frame at that stage. There were 19,387 government employees in Dodoma region (NBS, 2023). In the second stage, Yamane's formula (1967) was applied to determine the sample size of facilities.

This calculation resulted in a sample size of 391 government employees. Data was collected via self-administered survey questionnaires including 40% of the projected sample size of 391 results in a total sample of 547 persons. Consequently, the sample size for the present study was 547 employees drawn from the target population. Nevertheless, only 408 participants completed and submitted the questionnaires. These questionnaires were systematically distributed across the 24 ministries as shown in appendix 4.

In the third stage, simple random sampling was used to systematically select 457 government employees from the 24 selected ministries. Government employees were randomly selected from each ministry to ensure that every employee had an equal chance of being included in the study. This approach ensured that the sample was representative of government employees in the selected ministries.

3.10 Data Collection Methods

Data collection is essential for addressing research questions and testing hypotheses. In this study, primary data was collected directly from government employees working in different ministries within Dodoma region of Tanzania. This approach ensures reliability and confidence in decision-making (Sileyew, 2019). Self-administered questionnaires were used as the primary data collection method due to their efficiency in gathering data from diverse and geographically dispersed sample (Saunders et al. 2019).

3.10.1 Primary Data

Primary data is a highly influential method in quantitative studies (Rahi, 2017). It consists of information collected directly by the researcher through various means from the respondents, tailored to the specific needs of the research (Fink, 2015). In this study, primary data was collected from the respondents using a self-administered survey questionnaires designed to address research objectives.

3.10.2 Data Source

Primary data was collected via surveys administered to government employees across several departments from different ministries within Dodoma region,

Tanzania. Government employees were chosen because they possess the basic knowledge to respond to research questions and are the ones who receive pensions on retirement as per their employment contracts.

3.11 Research Instruments

The research instrument for this study was developed to align with the research objectives and was informed by theoretical frameworks and empirical literature. The questionnaire was designed to support Structural Equation Modeling (SEM) analysis, which requires carefully constructed measurement items to ensure the validity and reliability of the construct. The measuring elements of the questionnaire were derived from previous researchers in the domains of accounting and finance.

3.11.1 Survey Questionnaires

The survey questionnaire is a systematically organized set of questions used to collect information from diverse sources (Pandey & Pandey, 2021). This method was selected for its efficiency in gathering larger amounts of information in a short period (Gupta & Gupta, 2022). The questionnaire was adapted from previous studies and modified to align with the specific objectives and hypotheses of this study. It consisted of closed-ended questions measured on a 5-point Likert scale, where 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A) and 5 = Strongly Agree (SA). The Likert scale is widely used in quantitative research for its ability to measure continuous variables and enhance response rates by providing a clear response option (Fink, 2015).

The questionnaire was organized into four sections to capture various aspects of the study. Section one focused on gathering information about the personal and job characteristics of the respondents. Section two concentrated on financial literacy, Section three concentrated on level of retirement planning and section four measured financial literacy level including computation capability, financial knowledge, financial education, risk attitude towards financial products and financial decision behavior. Depending on the respondent's willingness, the questionnaires were both self-administered and researcher-administered to the ministries within Dodoma region in Tanzania. Before data collection, appointments were scheduled with the respective Permanent Secretaries of those ministries, and participants were informed that completing the questionnaire would take approximately 25 minutes.

3.12 Variables and Measurement

In this study, the measurement of variables was carefully designed to align with the research objectives and ensure the validity and reliability of the collected data. The key variables include financial literacy (independent variables), financial decision behavior (moderating variable) and retirement planning (dependent variable). All variables were measured using a 5-point Likert Scale (1 = Strongly Disagree to 5 = Strongly Agree), adapted from validated scales in prior research.

3.12.1 Dependent Variables

The dependent variable, retirement planning, was measured using a series of items adapted from prior research in accounting and finance. These items focused on three dimensions of retirement planning: saving, investment, and consumption.

Respondents rated each item on a 5-point Likert scale, reflecting their financial retirement planning readiness for the retirement life.

3.12.2 Independent Variables

The independent variables consist of four financial literacies: computation capability, financial knowledge, financial education, and risk attitude towards financial products. Each practice was measured using items adapted from validated scales in the field of accounting and finance. Respondents rated their level of agreement with each statement on a 5-point Likert scale, indicating the perceived effectiveness of financial literacy on retirement planning.

Table 3.1: Constructs of the Measurement Model

Variable	Construct	Code	Indicator	Scale	Reference
Dependent	Retirement planning	RP2	I do have a retirement plan in place	Interval (5-point scale)	Peiris (2021), Satria et al. (2020), Lusardi et al, (2020), Lusardi et al. (2023), Antoni et al. (2020), Sarpong Kumankoma, (2021).
		RP3	I have an idea of my retirement income.		
		RP4	I normally used to save for my retirement.		
		RP6	I am able to implement my retirement plan.		
	Computation capability	CC1	It is easy for me to calculate interest rates on my savings, credits, and investments.	Interval (5-point scale)	Di Matteo et al. (2023), OECD (2023), Farooq et al. (2021), Hamid and Loke (2020),
		CC2	I can efficiently compute benefits due to my retirement.		
		CC3	I have calculated how much money I will save for my retirement period.		

		CC4	I know the amount of money I will need for retirement.		Safari et al. (2021), Ochieng et al. (2023),
		CC5	I know how much money I should save every month to prevent financial problems during my retirement.		
	Financial education	FE1	I have acquired through formal education (Schools, Colleges and Universities)	Interval (5-point scale)	World Bank Report (2023), Amagir et al. (2022), Bucher-Koenen et al. (2021), Bayar et al. (2020), Atkinson and Messy (2020), Bayar et al. (2020), Epaphra and Kiwia (2021), Mubalama and Kajingulu (2023), Kaiser and Menkhoff (2023), Mbinji et al. (2022),
		FE2	I have acquired formal training in financial retirement planning.		
		FE3	I have received formal training in the management of finances.		
		FE4	I have acquired through social media, i.e., Email_ Twitter_ Facebook_ WhatsApp_ Instagram Telegram.		
	Financial knowledge	FK1	I use financial knowledge to make personal financial decisions	Interval (5-point scale)	Sari and Hidayat (2023), Bucher-Koenen et al. (2021), Asante et al. (2024), Peiris (2021), Tuffour et al. (2020), Klapper et al. (2020), Robb et al. (2021),
		FK2	I understand the available investment options for pension schemes.		
		FK4	I know how to calculate the interest due on my investments.		
	Risk	RA1	Investment options and saving options, on	Interval (5-	Shimizutani &

	attitudes toward financial products		the whole, are far too complicated for me.	point scale)	Yamada (2019), Satria and Hutabarat (2020), Eton et al. (2021), Mwamba et al. (2022).
		RA2	I avoid investments and saving because you can lose much money with them.		
		RA3	I cannot save or invest without an investment advisor as an intermediary.		

Source: Literature Review, 2025

3.13 Data Processing

Data processing is a critical step in ensuring the accuracy and reliability of the data before analysis (Field, 2018). The raw data from the survey questionnaires were first coded to ensure consistency and ease of analysis, with each variable assigned a unique code and responses numerically coded based on the 5-point Likert scale. The coded data were then systematically entered into IBM SPSS version 25, ensuring that each variable was correctly labeled and organized for analysis. Next, the dataset was meticulously cleaned to identify and correct errors such as duplicate entries, data entry mistakes, and missing values. Missing data handled using appropriate techniques such as mean substitution or case-wise deletion (Tabachnick & Fidell, 2019). Finally, the cleaned dataset was validated to ensure all entries were accurate and consistent with survey responses, involving cross-checking a sample of entries against original questionnaires. Once data were processed and cleaned, they were ready for analysis.

3.13.1 Missing Data and Outliers

Missing data and outliers were addressed to ensure the integrity of the dataset before analysis. Missing data, which refers to unanswered questions by respondents, were handled using regression imputation, a technique that replaces missing values with estimated values based on available information (Hair et al. 2017). For minor gap, mean imputation was used, while case-wise deletion was applied in cases with extensive missing data. Outliers, which are extreme observations in variables, were managed through an extreme value analysis using SPSS. Cook's Distance statistics were calculated, and if all values were below the threshold of 1, it was concluded that there were no significant outliers (Civelek, 2018). This step ensured that dataset was free from distortions that could affect validity of the analysis.

3.14 Data Analysis

Data analysis involved both descriptive and inferential methods. The data were analyzed using IBM SPSS version 25 for descriptive statistics and SmartPLS-SEM version 3 for inferential analysis.

3.14.1 Descriptive Analysis

Descriptive statistics were used to summarize the main characteristics of the respondents and distribution of key variables (Field, 2018), including profiling variables such as age, gender, marital status, education level, job experience, and job title using frequencies and percentages, as well as assessing the appropriateness of the measurement scale through mean, median, mode, and standard deviation. The

distribution of key variables was also examined to ensure they met the assumptions of the statistical techniques used in the inferential analysis.

3.14.2 Inferential Data Analysis

Inferential data analysis employed Partial Least Square Structural Equation Modelling (PLS SEM). PLS SEM is a general statistical tool used to test the relationship of variables such as dependent variable and dependent variable after observing its assumptions, it has greater advantage of testing well indirect variable association that is the moderating Variable (Civelek 2018). Also, the SEM has advantage of measuring both variables including the latent (unobservable variable) and can analyze or test the hypothesis simultaneously (Hair et al. 2019). For that case SEM is suitable for this study which has four independent variable which are computation capability, financial knowledge, financial education, risk attitude towards financial products, with one moderating variable financial decision behavior and one dependent variable the retirement planning.

The path model in PLS-SEM represents hypothesized relationships between variables and consists of the measurement model and the structural model (Hair et al. 2019). The measurement model (outer model) assesses the relationships between indicators and their latent variables, while the structural model (inner model) examines the relationships among latent variables (Sarstedt et al. 2021). PLS-SEM analysis follows a two-step process: First, the measurement model, is evaluated using confirmatory composite analysis to ensure construct validity and reliability. Second,

the structural model is assessed by examining path coefficients and testing causal relationships for hypothesis validation (Hair et al. 2019).

The analysis was performed using PLS-SEM in SmartPLS version 3.2.9 (Ringle et al. 2015). PLS-SEM was employed to test the research hypothesis and examine the relationships between the independent (financial literacy), moderating (financial decision behavior), and dependent (retirement planning) variables. The analysis also assesses the significance level, either supporting or challenging the research proposed model (Kline, 2023). PLS-SEM is a second-generation multivariate technique that combines factor analysis with multiple regressions to determine the relationships among measured variables and latent constructs (Sarstedt et al. 2021). It is a powerful tool for analyzing complex relationships within datasets and is widely used across diverse research domains (Hair et al. 2020; Memon et al. 2021). A key advantage of SEM over traditional regression analysis is its ability to manage both random and non-random measurement errors, thereby enhancing the reliability of the analysis (Hair et al. 2020).

PLS-SEM is highly valued because it accommodates the estimation of complex models with numerous constructs without strict distributional assumptions, making it a compelling alternative to CB-SEM (Hair et al. 2020). While CB-SEM often yields weaker results in the measurement model but demonstrates significant relationships in the structural model, PLS-SEM generally provides more satisfactory outcomes in the measurement model, although it may show less significant relationships in the structural model (Hair et al. 2020). PLS-SEM is a multivariate technique that can

simultaneously handle multiple response and explanatory variables, focusing on maximizing the explained variance in dependent variables while assessing the quality of the measurement model (Dash & Paul, 2021).

PLS-SEM was chosen for this study due to several critical reasons. First, the complexity of the model, particularly the reflective measurement of the latent variables and inclusion of a moderation term, necessitated a robust analytical method like PLS-SEM (Sarstedt et al. 2021). Second, PLS-SEM is well-suited for exploring the relationships between independent (exogenous) and dependent (endogenous) latent variables, making it ideal for theory testing and identifying key driver constructs (Sarstedt et al. 2021). Third, its flexibility allows it to accommodate diverse sample sizes and different data distributions, making it appropriate for this study (Hair et al. 2020).

Fourth, PLS-SEM offers a higher degree of statistical power and employs nonparametric bootstrap confidence intervals (CI) to establish statistical significance (Sarstedt et al. 2021). Finally, PLS-SEM is particularly effective for integrating multiple theories, which aligns with the objectives of this study, as it combines two theoretical frameworks and involves various data (Memon et al. 2021). Additionally, PLS-SEM provides a rule of thumb for estimating and assessing models, along with supporting references for further reading (Sarstedt et al. 2021).

SEM is divided into two main types: Covariance-Based SEM (CB-SEM) and Partial Least Squares SEM (PLS-SEM), also known as Variance-Based SEM (VB-SEM) (Kline, 2023). These methodologies represent second-generation statistical

techniques, which outperform first-generation methods like regression and correlation analysis in their ability to handle complex data relationships (Sarstedt et al. 2021). The PLS-SEM approach has gained popularity among researchers due to its focus on variance-based relationships, as opposed to CB-SEM (Mueller & Hancock, 2018).

3.14.3 Assumptions Underlying PLS-SEM

Normality: First assumption relates to normal distribution of data (Hair et al. 2020). Skewness and Kurtosis measure will be used to test normality of data (Tabachnick and Fidell, 2013).

Linearity: The second assumption relates to linearity of variables and the underlying constructs which will be tested using scatterplots (Pallant and Manual, 2016).

Multicollinearity: Third assumption is multicollinearity that happens when the dependent variables are highly correlated. Variance inflation factor (VIF) will be used to test and confirm multicollinearity (Hair et al. 2011). If $VIF \geq 5$, probable (critical) collinearity issues; possible collinearity when $VIF \geq 3.5$ and ideally show that $VIF < 3$.

3.14.4 Measurement Model

The measurement model in this study was based on measurement theory, where latent variables are assessed either reflectively or formatively (Hair et al. 2020). Reflective models are characterized by arrows pointing outward from the latent variable to indicators, indicating that the latent variable causes the indicators (Hair et al. 2021). In contrast, formative models involve arrows pointing inward from

indicators to the latent variable, with indicators being uncorrelated and collectively define the latent construct (Hair et al. 2020). Given the influence of all constructs on their respective indicators, the reflective model was deemed suitable for this study. The measurement model was assessed using criteria such as reliability and validity (Hair et al. 2022). The test was conducted as follows.

3.14.4.1 Indicator Reliability

Indicator reliability refers to the extent to which indicator reliably measures its corresponding latent construct (Hair et al. 2021). It was evaluated through factor loadings, which represent the correlation between the indicator and the latent variable. Factor loadings should generally exceed 0.70 to demonstrate that over 50% of the indicator's variance is explained by the construct. Indicators with factor loadings below 0.70 were considered for removal unless their retention was theoretically justified (Hair et al. 2017).

3.14.4.2 Internal consistency Reliability

Internal consistency reliability ensures that the indicators consistently measure the same latent construct (Sürücü & Maslakçi, 2020). This study used Composite Reliability (CR) and Cronbach's Alpha to measure the internal consistency of the questionnaire scale items (Hair et al. 2021). CR values should range between 0.70 and 0.95 to indicate acceptable reliability. Values below 0.70 suggest low reliability, while values above 0.95 may indicate redundancy among indicators (Purwanto, 2021). Cronbach's Alpha should exceed 0.70 to demonstrate adequate internal consistency. Values below 0.60 indicate low reliability, while values above 0.95

suggest redundancy (Hair et al. 2019). These metrics used to ensure that the measurement models were reliable and that the indicators consistently reflected the underlying construct.

3.14.4.3 Validity

Validity assesses how accurately a measurement instrument captures the constructs it is designed to measure (Pandey & Pandey 2021; Sürücü & Maslakçi 2020). In this study, validity was evaluated through several dimensions.

3.14.4.4 Face Validity

Face validity refers to the extent to which a measurement instrument appears on the surface to measure what it is intended to measure (Pandey & Pandey, 2021). In this study, face validity was assessed by consulting my supervisors and other academicians in this field. They reviewed the questionnaire items and confirmed that the indicators were appropriately measured the latent variables related to TM practices and employee quality service delivery. Their feedback was instrumental in refining the questionnaire to ensure it accurately captured the constructs under investigation.

3.14.4.5 Content Validity

The content validity refers to how well an instrument covers the content related to the variable (Ahmed & Ishtiaq, 2021). It was established by consulting subject matter expert who reviewed the questionnaire to ensure it addressed all relevant areas and research objectives (Taherdoost, 2021). Their feedback helped refine the instrument, ensuring that it accurately reflected the constructs. Additionally, a review of existing

literature confirmed that the survey items were grounded in established research theory, further supporting the content validity.

A pilot study was conducted prior to the main data collection and analysis to refine the questionnaire, ensuring clarity, relevance, and reliability. Pilot study is a small-scale preliminary investigation designed to test feasibility, time, cost, risk, and potential effectiveness before conducting full-scale research (Eldridge et al. 2016). Questionnaires were distributed to 40 government employees working in different ministries within Dodoma region in Tanzania, who were not part of the target respondents, to gather their feedback. The internal consistency reliability of the pilot study was assessed using Cronbach's alpha and composite reliability, which ranged from 0.6 to 0.95. According to Hair et al. (2021), values within this range indicate that the questionnaires are acceptable, reliable and adequate for distribution to the study participants.

3.14.4.6 Construct Validity

Construct validity evaluates whether a measurement instrument measures the concept accurately in terms of current knowledge and theory (Ahmed & Ishtiaq, 2021). Construct validity was addressed through convergent and discriminant

3.14.4.7 Convergent Validity

Convergent validity assessed the extent to which the indicators of a construct effectively measure the same concept (Purwanto, 2021). It was evaluated using the Average Variance Extracted (AVE), which measures the amount of variance

captured by the construct relative to the variance due to measurement error. Convergent validity was achieved when the AVE was 0.50 or higher, signifying that the construct accounts for at least 50% of the variance in its indicator (Hair et al. 2020). The criterion ensured that the indicators were strongly associated with their respective constructs.

3.14.4.8 Discriminant Validity

Discriminant validity assesses the extent to which the construct is distinct from one another (Hair et al. 2020). These methods ensured that the constructs in the measurement model were empirically distinct and not overlapping, thereby avoiding issues such as multicollinearity (Hair et al. 2021). The measurement model was assessed by Fornell-Larker, the traditional criteria of cross-loadings, and the latest criterion of the Heterotrait-monotrait (HTMT) ratio of correlations (Ali et al. (2018), Hair et al. (2017)). HTMT values should be below 0.90 to indicate that the constructs are distinct from one another. Values above 0.90 suggest a lack of discriminant validity (Henseler et al. 2015). Together these approaches ensure that the measurement instrument accurately captures the intended constructs and differentiates them from other constructs in the model.

3.14.4.9 Fornell-Larcker Criterion

The Fornelli and Lancker criteria compare the latent variable correlations with the square root of the AVE values in the diagonal (Sarstedt et al. 2017b). To achieve the requirements, the diagonal values of a construct should be greater than the values in its row and column (Anderson & Gerbing, (1988), Hair et al. (2014)).

3.14.4.10 Cross-loading Test Criterion

Cross-loading is the procedure for measuring discriminant validity (Garson, 2016). It is performed to ensure that no indicator is mistakenly assigned to a wrong construct in the measurement model (Henseler et al. 2016). Likewise, each block of indicators should load higher with its latent variable than indicators for other constructs (Chinn, 1998).

3.14.4.11 Heterotrait-Monotrait Ratio of Correlation (HTMT) Test Criterion

Heterotrait-Monotrait ratio of correlation (HTMT) is the most stringent measure of discriminant validity. It is construed as an estimate of the accurate correlation between two constructs if perfectly measured (Hair et al. 2017). The HTMT criterion is the mean value of the indicator correlations across constructs: the heterotrait – hetero method correlation concerning indicators' (geometric mean) correlations measuring the same construct (Sarstedt et al. 2017). Traditional methods, such as Fornell & Larker and cross-loading, are not robust enough to detect discriminant validity problems in variance-based structural Equation Modeling (Henseler et al. 2014).

Two constructs are distinct from each other if the HTMT ratio is less than one (<1) (Hair *et al.* 2019; Olya, 2017). Concurrently, an exact cut-off of the HTMT ratio of correlation is debatable as some proposed cut-off of 0.90 (Teo et al 2008) and others like Kline (2011) set the value at 0.85 (Voorhees, et al. 2016). Thus, the present study showed that discriminant validity violation is singled out when the HTMT ratio

surpasses one (Alazzabi, et al. 2020).

3.14.4.12 Common Method Bias Assessment

Common method bias occurs when variance in responses stems from the measurement method rather than the constructs being studied, potentially distorting relationships between variables (Podsakoff et al. 2003). Self-reported surveys are particularly prone to this bias, as they may artificially inflate or deflate correlations (Spector et al., 2019). To assess common method bias, full collinearity assessment method was applied by examining the Variance Inflation Factor (VIF) for all constructs in the model (Kock, 2015). A VIF values above 3.3 indicates potential common methods bias, while value exceeding 5 suggest problematic collinearity that can compromise regression estimates (Hair, 2017). Maintaining VIF values at or above 5 ensures more reliable and interpretable results.

3.14.5 Structural Model Assessment

Once the measurement models are validated, the structural model was evaluated to test the hypothesized relationships between constructs. The assessment involved examining path coefficients (β –Values), coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2) and Goodness of fit (GoF) (Hair et al. 2019). The SmartPLS 3 bootstrapping method was used to determine the strength and significance of the relationship, following established criteria (Chin, 1998).

3.14.5.1 Collinearity Testing

Collinearity refers to the degree to which predictor variables (independent) in the

structural model are correlated with each other (Hair et al. 2019). It was tested to ensure that it does not bias the regression results. High collinearity can distort the results of regression coefficients, leading to unreliable estimates of relationships between variables (Hair et al. 2021). Collinearity was assessed using Variance Inflation Factor (VIF), with values above 5 indicating problematic collinearity. However, a more conservative threshold of $VIF < 3$ is often recommended to ensure robust results, especially in exploratory study (Hair et al. 2019).

3.14.5.2 Coefficient of Determination (R^2)

The coefficient of determination (R^2) measures the proportion of variance in the dependent (endogenous) variables that is explained by the independent (exogenous) variables in the PLS-SEM model (Hair et al. 2021). R^2 values are typically interpreted as 0.75 (substantial), 0.50 (moderate), and 0.25 (weak), although acceptable thresholds may vary depending on the research context (Purwanto et al. 2021). Changes in R^2 values help assess the substantive impact of endogenous latent variables, providing insights into strengthen of the relationships within the model. For exploratory research, lower R^2 values may still be acceptable, while higher values are expected in explanatory studies (Hair et al. 2019).

3.14.5.3 Evaluation of the Effect Size (f^2)

Effect sizes (f^2) are used to measure the impact of each independent variable (exogenous) on the dependent variable (endogenous) in the structural model (Hair, 2021). These metrics are calculated for each path coefficient and indicate the degree to which the inclusion of a predictor variable enhances the model's explanatory

power (Purwanto, 2021). According to Cohen's (1988) guidelines, as cited in Sarstedt et al., (2021), f^2 values are interpreted as 0.02 (small effect), 0.15 (medium effect) and 0.35 (large effect). Effect sizes provide valuable insights into the substantive significance of the relationships within the model, complementing the statistical significance of path coefficients (Hair et al. 2021).

3.14.5.4 Evaluating of Predictive Relevance (Q^2)

Predictive relevance, measured by Q^2 (Stone-Geisser's Q^2), refers to the ability of the PLS-SEM model to predict observable outcomes based on the relationships between constructs (Hair et al. 2021). It was assessed using blindfolding procedure, which evaluates how well the model predicts the endogenous construct by omitting parts of the data and comparing the predicted values to the actual values (Chin, 1998). A Q^2 value greater than zero indicates that the model has predictive relevance, while a value less than zero suggests a lack of predictive power (Chin, 1998). Higher Q^2 values reflect greater predictive accuracy, with values of 0.02, 0.15, and 0.35 typically considered small, medium and larger predictive relevance, respectively (Purwanto, 2021).

3.14.5.5 Evaluation of Path Coefficients (β –Values)

Path coefficients (β –Values) represent the direction, strength and significance of the relationships between latent variables in the structural model (Hair et al. 2021). The significant path coefficients were determined using p-values derived from bootstrapping analysis with 5,000 resamples, ensuring robust estimates of the relationships. Path coefficients close to ± 1 indicate strong relationships, while values

near 0 suggest weak relationships (Hair et al. 2019). Additionally, the t-values obtained from bootstrapping were used to assess the statistical significance of the path coefficients, with values greater than 1.96 (at a 5% significance level) indicating significance relationships (Hair et al. 2021).

3.14.5.6 Evaluation of Moderation Effect of Financial Decision Behavior

The structural model was tested for the moderation effect of financial decision behavior on financial retirement planning. A moderating term between the moderator, financial decision behavior, and financial literacy composite of; computation capability, financial education, financial knowledge, risk attitude towards financial products, and retirement planning were created in Smart PLS-SEM. Two-stage moderation procedure as established to be effective for testing models with small samples (Becker et al. 2018).

Similarly, when the objective is to determine if the moderator has a significant effect on the hypothesized relationship or not, a two-stage approach is desirable (Hair et al. 2017). This is also universally usable whether the exogenous variables and/or moderator variable are measured reflectively or formatively (Hair et al. 2017). Bootstrapping at 5,000 with no sign changes should be performed to reduce the biasness in concluding that there is significant moderation while there was none for a better moderation effect test (Hair et al. 2017).

According to Hair et al. (2017), moderation terms may be partial or complete. A partial moderating effect occurs when the independent variable has a statistically

significant effect on the dependent variable and its moderation effect is also significant statistically (Hair et al. 2017). However, a complete moderation effect occurs when the dependent variable in the main effect is not significantly affected by the moderated independent latent variable before the moderator variable (interaction effect) is included.

3.14.5.7 Evaluation of Moderation Effect Size

The primary aim of moderator inclusion in the model was to check for a meaningful and impactful effect on the relationship between the dependent and independent variables. According to Kennedy (2018), standard thresholds of 0.005, 0.01, and 0.025 are considered small, medium and large moderation effects respectively.

3.14.5.8 Goodness of Fit (GoF) Index

To validate both measurement and structural models in PLS-SEM, it is essential to assess the Goodness of Fit (GoF) index. The GoF index is calculated as the square root of the average commonalities (AVE) and the average R^2 value, providing holistic assessment of model fit. GoF values of 0.1, 0.25 and 0.36 are typically interpreted as indicating small, moderate and large model fit, respectively (Hair et al. 2019). Additionally, a bootstrap-based test was used to assess the exact overall model fit, ensuring the robustness of the results (Schuberth et al. 2022).

3.15 Regression Equation

A regression equation can be formulated since PLS path model coefficients are similar to beta values of multiple regressions. For the present study, the regression

model tested to explain the relationship among the factors is shown in the equation below:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 (x_1 * x_5) + \beta_7 (x_2 * x_5) + \beta_8 (x_3 * x_5) + \beta_9 (x_4 * x_5) + \epsilon$$

Where: Where Y= Retirement Planning (dependent variable); β_0 = (Intercept) retirement planning extent irrespective of error term and independent variable it gives the effect on Y with the exclusion of all other variables from the model; β_1 - β_5 = Denotes a change of the dependent variable from a unit change of the respective independent variable; β_6 - β_9 = Denotes a unit change of the dependent variable from a unit change of the respective independent variable. X_1 = Computation capability; X_2 = Financial knowledge; X_3 = Financial education; X_4 = Risk attitude towards financial product; X_5 = Financial decision behavior ϵ = random error/disturbance or unexplained variation.

Figure 3.1 shows the proposed structural model, which displays manifest/indicator/observable variables in square boxes and latent/factors/unobservable variables in circles. The arrows towards the dependent variable show the correlation between the (endogenous) dependent and the independent /exogenous variables.

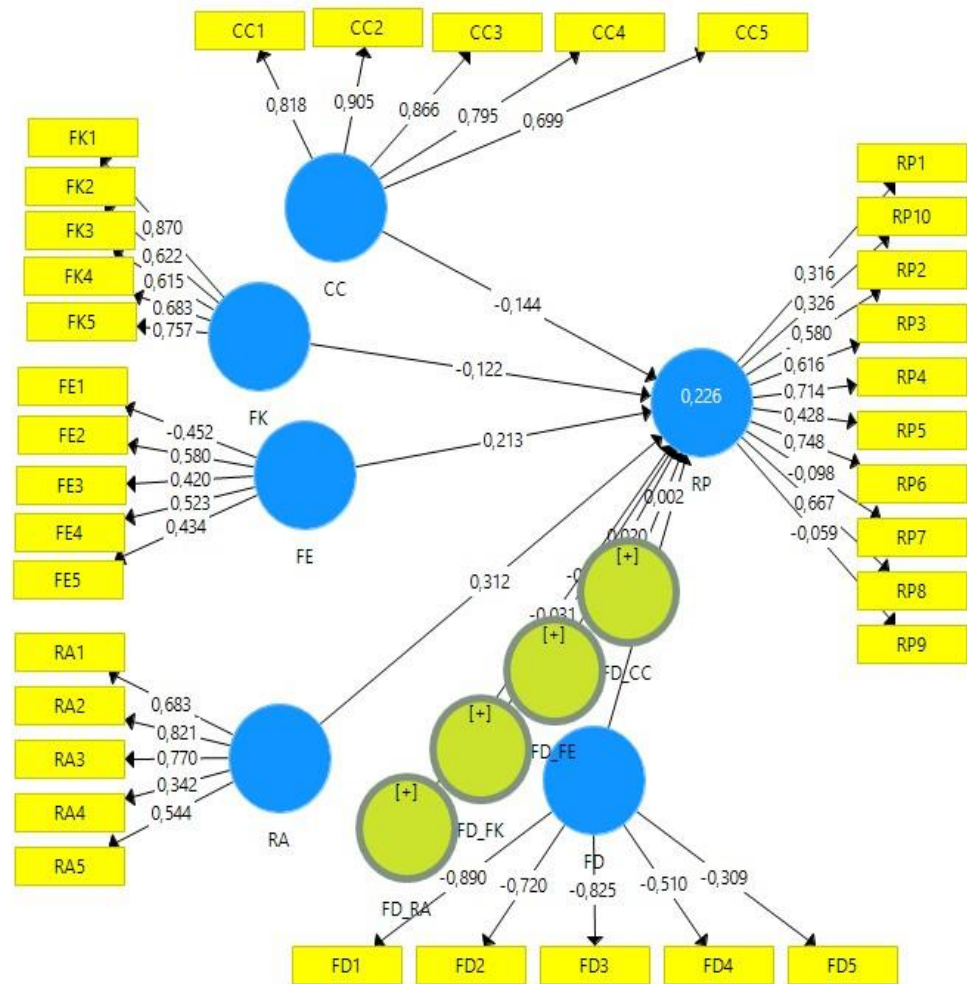


Figure 3.1: Proposed PLS –SEM Model of the Study

3.16 Ethical Considerations

Ethical considerations are crucial in conducting research, particularly when human participants are involved (Resnik, 2018). This study adhered to the ethical guidelines outlined by the Open University of Tanzania's Director of Research, Publication and Studies as well as relevant regulatory bodies, to ensure the protection of participants' rights and well-being throughout the research process.

Authorization was obtained from relevant authorities before data collection began.

Participants were provided with clear and comprehensive information about the

research purpose, the nature of their participation and their rights to withdraw at any time without penalty. This process was designed to prevent any form of coercion, ensuring that participation was entirely voluntary and aligned with ethical principles of autonomy and respect for persons (Beauchamp & Childress, 2019).

Confidentiality and anonymity were strictly maintained (Resnik, 2018). Participants' identities were protected by assigning unique codes rather than using personal identifiers and data was stored securely to prevent unauthorized access. This approach reflects best practices in research ethics, emphasizing the importance of safeguarding participants' privacy (Creswell & Creswell, 2017).

The findings of this study were reported honestly and transparently, with a commitment to avoiding manipulation or misrepresentation. All external sources were properly cited to prevent plagiarism and respect intellectual property rights, demonstrating a commitment to academic integrity as outlined by Resnik, (2018). Throughout the research process, guidance from the Open University of Tanzania's Director of Research, Publication and Studies was followed to ensure the highest ethical standards. The clearance letter from OUT is provided in Appendix VI.

CHAPTER FOUR

RESEARCH FINDINGS AND ANALYSIS

4.1 Chapter Overview

This chapter presents the data analysis and findings of the study. It begins with an overview of the pilot study responses, followed by the demographic profile of the respondents and the context of the rural public health facilities involved in the study. The chapter then details the data cleaning and model validation processes, concluding with the results of the inferential statistical analysis.

4.2 Results From the Pilot Study

The pilot study was conducted to assess the reliability, validity, and feasibility of the research instruments. As noted by Eldridge et al. (2016), pilot studies help to refine research designs, test instruments, and anticipate potential challenges before full-scale implementation. Similarly, Hulley et al. (2013) highlight that pilot studies allow researchers to adjust study designs, estimate variability in outcomes, and refine data collection methods, thereby enhancing the reliability and efficiency of the main study.

A sample of 40 respondents from study area participated in the pilot study. The respondents included government employees working in different ministries within Dodoma region. The response rate was 85%, with 34 participants fully completing the survey. Feedback from respondents indicated that the survey was easy to understand, though minor revisions were made to improve the clarity of certain questions.

Reliability testing demonstrated satisfactory results, with Cronbach's alpha for financial literacy variables exceeding the 0.70 threshold, confirming strong internal consistency (Hair et al. 2021). This indicates that the survey items consistently measured the intended constructs, ensuring the reliability of the instrument for data collection. Content validity was established through expert consultation, with specialists in human resources management reviewing the survey items for clarity, relevance and comprehensiveness (Taherdoost, 2021). Feedback from pilot study led to refinements that strengthened the alignment of the instrument with the study's objectives. Additionally, pilot testing helped identify and address any ambiguous or unclear questions, ensuring that the final instrument effectively captured the nuances of financial literacy (computation capability, financial knowledge, financial education, and risk attitude towards financial products) and retirement planning of government employees working in different ministries within Dodoma region.

The data collection process proved feasible, though logistical issues, such as limited internet access, required adaptation through the use of paper-based surveys. Preliminary descriptive statistics indicated that computation capability and risk attitude towards financial products levels were moderately high. The pilot study contributed to methodological refinements and confirmed the feasibility of scaling the study to a larger sample size for the main research.

4.3 Response Rate

The survey questionnaires targeted 547 individuals. However, only 408 responses were received by 30 March 2025. Data collection began on 30th November 2024 for five months. The questionnaires were regularly checked upon receipt by the

researcher to make sure that all questions were answered. The 408 questionnaires were determined to be relevant for valid analysis, giving a response rate was 75% (Table 4.1). The high response rate was attributed to using Swahili language which is the most preferred local language by government employees in Tanzania.

The motives of non-response by some respondents were due to sickness, but others denied on grounds of being busy, some wanted compensation, some were not interested, and others forgot to respond. Some did not respond despite many efforts to remind them through emails, calls, WhatsApp, and physical office visits. However, there is no conventional way of determining the accepted rate of return (RR). According to Baruch's (1999), RR should be 50-80% with an overall average of 55.6%. Similarly, Mellahi & Harris (2016) advice that RR should be 35 - 50%. Thus, the 75% RR was acceptable as documented in the literature.

PLS-SEM was used for analysis owing to its benefits in analyzing small sample sizes, predictive accuracy, and no assumption on data distribution (Hair et al. (2019), Wong, (2013). Therefore, the sample size of 408 was appropriate for PLS-SEM analysis.

Table 4.1: Response Rate

Detail	Size/Rate
Sampled Population	547
Distributed questionnaires	450
Questionnaires not distributed (due to absent of contacts, emails)	97
Returned questionnaires	408
Valid questionnaires	408
Questionnaires not returned	42
Response rate	75%

Source: Survey data, March 2025

4.4 Data Preparation

The questionnaires were collected and transformed through coding. The coded variables and associated data were keyed in the IBM SPSS VERSION 25 for analysis. Coding involved allocating numbers to each variable. For example, the gender variable was allocated 1 to denote male and 2 to denote female as per codebook reference (Appendix IV).

According to Gudivada et al. (2017), lack of data quality facets in various forms like incomplete, inconsistent, missing, duplicate, outdated, or inaccurate data. Therefore, data cleaning and screening are necessary for correcting outliers, missing values, and errors (Pallant, 2016). There were no invalid observations, outliers, or missing values in the study data set of 408 participants since Google Form were used to ensure questions were not skipped and SPSS was used to authenticate data cleanness.

SPSS version 25 was used for descriptive statistics to present the questionnaire item's parameter scores and respondent's characteristics. The created data file in the SPSS was saved and exported in CSV format for importation into the Smart PLS-SEM for inferential data analysis. Similarly, PLS-SEM also confirmed and verified that there was no missing data in the imported CVS format. A new project file on the effect of financial literacy on retirement planning in Tanzania was created for statistical analysis in Smart PLS-SEM version 3.2.7.

4.5 Descriptive Analysis of the Respondent's Profile

4.5.1 Respondents Demographic Characteristics

The questionnaires were circulated and collected from government employees working in different ministries in Dodoma city. The targeted respondents included government employees working in different ministries within the city of Dodoma in Tanzania having valid employment contracts with the government of the United Republic of Tanzania. Table 4.1 presents the characteristics of the respondents.

Table 4.2: Respondents Characteristics

Characteristics		No of respondents (n=408)	Valid Percent %
Gender	Male	244	59.8%
	Female	164	40.2%
Age	Between 31 and 40 years	169	41.5%
	Between 41 and 50 years	145	35.5%
	Between 51 and 60 years	92	22.5%
	Over 60 years	2	0.5%
Marital Status	Single	27	6.6%
	Married	60	14.7%
	Divorced	3	0.7%
	Living with partner	314	77.0%
	Widowed	4	1.0%
Level of education	Primary level	5	1.2%
	Secondary school level	74	18.2%
	University level	329	80.6%
Job position	Supporting staff	3	0.7%
	Middle level staff	403	98.8%
	Decision making level staff	2	0.2%
Level of income	Below TZS 270,000	15	3.7%
	Between TZS 270,000 and TZS 2,000,000	166	40.6%
	Between TZS 2,000,000 and TZS 3,000,000	208	51%
	Above TZS 4,000,000	19	4.7%
Number of dependents directly depend on you financially	Between 2 and 3 dependents	37	9.0%
	Between 3 and 4 dependents	302	74.0%
	Over 4 dependents	69	16.9%
Job experience	Below 1 year	15	3.7%

	Between 1 and 4 years	68	16.7%
	Between 5 and 14 years	169	41.4%
	Above 15 years	156	38.2%
Attendance in retirement planning seminars	Yes	57	14.0%
	No	351	86%
Retirement options	Early retirement	89	21.8%
	Normal retirement	303	74.3%
	Late retirement	16	3.6%

Source: Field Data, (2025)

Table 4.2 above reported the characteristics of the respondents. At first place, male respondents were 244(59.8%) as compared to 164(40.2%) of female. Age wise 2(5%) were aged over 60 years, 42(10.3%) below 30 years old; 92(22.5%) were between 31-40 years old, 127(31.1%) were between 41 - 50 years old. While 145(35.5%) were aged between 51– 60 years old. On marital status 3(0.7%) of the respondents were divorced, 4(1%) were widowed, 27(6.6%) were single, 60(14.7%) were married and 314(77%) were living with partners. Regarding education, 5(1.2%) were Primary school leavers, 37(9.1%) were secondary school leavers, 37(9.1%) had advanced levels, and 329(80.6%) had university level of education. On level of income 15(3.7%) are receiving monthly salary below TZS 270,000, 19(4.7%) are receiving monthly salary of above TZS 4,000,000, 62(15.2%) are receiving a monthly salary of Between TZS 2,000,000 and TZS 3,000,000, 166(40.7%) are receiving a monthly salary of between TZS 270,000 and 1,000,000 while 146(35.8%) are receiving a monthly salary of between TZS 2,000,000 and TZS 3,000,000. Majority of respondents 389(55.7%) are receiving a monthly salary of between TZS 2,000,000 and TZS 4,000,000 who can easily save now for after retirement life support. Regarding number of dependents 1(0.2%) had dependents between 1- 2,

36(8.8%) had dependents between 2-3, 69(16.9%) had dependents over 4, and 302(74%) had dependents between 3-4. Concerning job experience 15(3.7%) had job experience of below 1 year, 68(16.7%) had job experience of between 1-4 years, 77(18.9%) had job experience of between 5-9 years, 92(22.5%) had job experience of between 10-4 years and 156(38.2%) had job experience of above 15 years. Attendances in retirement planning seminar, 57(14%) of the respondents attended retirement planning seminars and the remaining 351(86%) did not attend for retirement planning seminars. Concerning which retirement option would the respondents prefer, 16(3.9%) will prefer late retirement option, 89(21.8%) will prefer early retirement option while 303(74.3%) of the respondents will prefer normal retirement option. This indicated that the majority of employees would prefer normal retirement option.

4.5.2 Descriptive Analysis of the Data

To ensure results are replicable and correct, data cleaning is necessary (Carpenter, 2018). As shown in Appendix III, the standard deviation was less than 3 for all observed variables in the present study, indicating the absence of outliers. Data was also assessed for adequacy of sample and normality for credible analysis. Kurtosis and skewness were used as univariate normality analysis to confirm the normal distribution of the data. Data signal for the normality problem when the absolute values are greater than 7 and 2 for kurtosis and skewness respectively (Kline, 2015). The result of the kurtosis and skewness in Appendix III indicated the absence of serious normality problems in the data. Thus, the data qualified for statistical analysis using PLS-SEM path modeling.

4.5.3 Sample Size Adequacy for Factor Analysis

According to Hair et al. (2008) as cited by Munianday, et al. (2022), a sample size of 100 is adequate to apply a significant loading of 0.60. Contrastingly, factor loadings in the present study were greater than 0.71, causing the deletion of indicators loading below the threshold as weak. The present study had six constructs and each latent construct had at least three indicators for sample size complementation.

According to Becker et al. (2018), KMO value were used to measure sample adequacy as follows; < 0.5- unacceptable; 0.5 - 0.6 miserable; 0.6 - 0.7- mediocre; 0.7 - 0.8 reasonable; 0.8 - 0.9- Good and ≥ 0.9 excellent. Table 4.3 indicates that the sampling adequacy had Barlett's of Sphericity of p values = 0.000 which means that they were significant, and a KMO of 0.963 which was excellent. Thus, the sample size justified the adequacy for factor analysis in smart PLS-SEM.

Table 4.3: KMO and Bartlett's Test

Kaiser-Meyer-O lkin Measure of Sampling Adequacy.	0.963
Bartlett's Test of Sphericity	Approx. Chi-Square
	Df
	Sig.
	1917.386
	408
	0.000

Source: Field Data, (2025)

4.6 Evaluation of Measurement Model

To verify the fitness of data with the theoretical model for hypothesis testing, confirmatory composite analysis. The output of parameter analysis of the model in Smart PLS-SEM version 3.2.9 is indicated in the PLS-SEM path model (Figure 4.1). The analysis indicated initial outer loadings of indicators prior to deletion of low loading less than 0.60 to establish the model as required (Awang, 2015)

Figure 4.1 Smart PLS –SEM Measurement Model

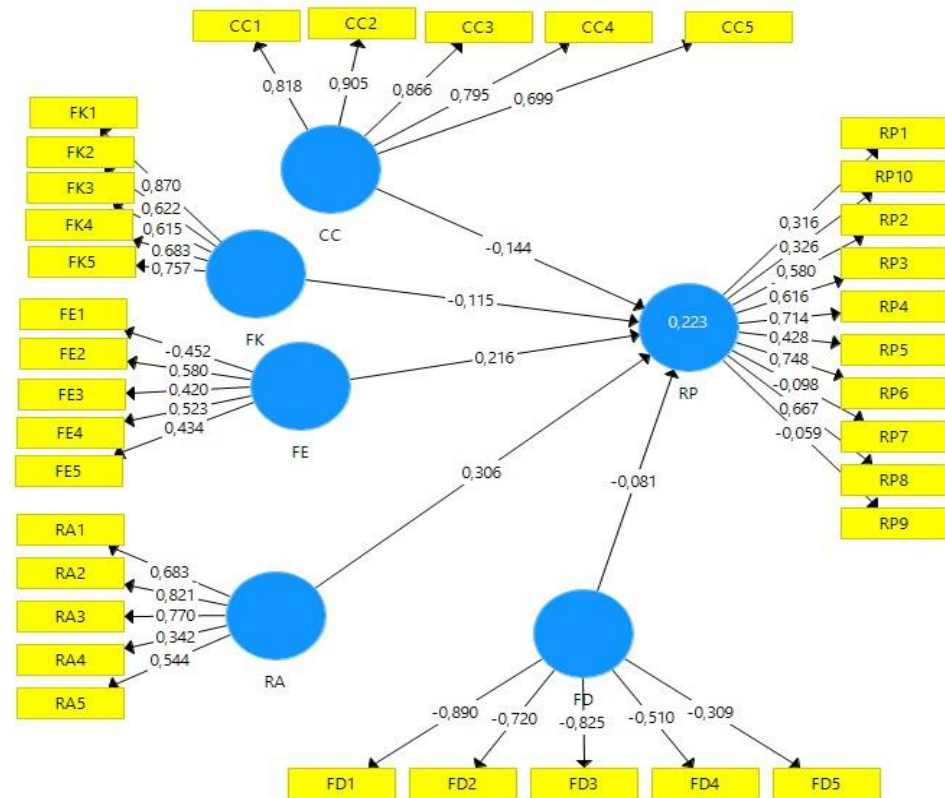


Figure 4.1: Smart PLS-SEM Measurement Model

4.6.1 Indicator Reliability

Indicator reliability was assessed by examining the indicator loadings (Outer Loadings), with values above 0.7 considered acceptable (Hair et al. 2022). This ensures that each indicator strongly correlates with its respective latent variable, confirming that the construct is being adequately measured. The indicator loading according to Figure 4.2 which confirmed the attainment of indicator reliability greater than 0.60 is presented in Table 4.4. Indicators less than 0.60 were deleted following the guidelines in section 3.16.1.1. Eleven indicators (I have never developed a retirement budget - RP1, I am expecting to moving to a cheaper area up on retirement-RP6, Involvement in my retirement plan matters to me - RP7, I am expecting to rely on my children to support me on retirement - RP8, I struggle to

prepare a retirement plan - RP9, I am expecting to continue working after retirement to earn money - RP10, I have acquired through my relatives in the family business - FE5, I prefer an investment that pays off stable interests than an investment that provide the double of interests with 50% of chance to lose the initial investment - RA4, I feel having life insurance to protect my family members is not important as it is costly - RA5, I usually budget my money before I receive my salary and other income - FK3, I can properly manage my personal finance without difficulties - FD1 and I can properly manage using available credit opportunity - FD3 were eliminated from the model because they contained low loadings of 0.426, 0.554, 0.102, 0.510, 0.056, 0.262, 0.623, 0.323, 0.353, 0.577, -0.788 and -0.875 respectively, and had no contribution to the composite reliability nor AVE. The deletion of eleven indicators increased composite reliability and AVE of their construct respectively as shown in Figure 4.2. All indicator loadings were greater than 0.600 (Table 4.4).

Table 4.4: Indicators outer Loadings

Construct/Indicator	Outer Loadings
Financial Decision Behavior	
FD_2	.677
FD_4	.713
FD_5	.666
Computation capability	
CC_1	.784
CC_2	.856
CC_3	.857
CC_4	.832
CC_5	.790
Financial Knowledge	
FK_1	.833
FK_2	.742
FK_4	.792
FK_5	.763
Retirement Planning Preparedness	
RP_2	.752
RP_3	.753
RP_4	.835
RP_6	.694
Financial Education	
FE_1	.773
FE_2	.663
FE_3	.786
FE_4	.699
Risk Attitude Towards Financial Products	
RA_1	.791
RA_2	.846
RA_3	.796

Source: Field Data, (2025)

4.6.2 Internal Consistency Reliability

Construct reliability was evaluated using Cronbach's Alpha and Composite Reliability (CR). Cronbach's Alpha assesses internal consistency, with values above 0.7 deemed acceptable (Hair et al. 2022). Composite Reliability, preferred in this

study for its consideration of indicator loadings, also requires values above 0.7 to indicate good reliability. Table 4.9 presents the construct reliability and validity statistics for the latent variables, including Cronbach's Alpha, rho_A, Composite Reliability (CR), and Average Variance Extracted (AVE). These metrics assess the internal and convergent validity of the constructs. All constructs in the study exceed the commonly accepted threshold of 0.7 for Cronbach's Alpha, affirming the reliability of the measurement model (Hair et al. 2021; Purwanto et al. 2021).

Internal consistency of the scale scores showed the reliability of the measurement model with composite reliability greater than 0.70 for all constructs (Table 4.5). Similarly, the composite reliabilities for the indices in the study were all between 0.70 and 0.95 according to the guideline in section 3.16.1.2. Thus, the block of indicators of latent variables were one-dimensional and homogeneous and the reflective model was suitable for the present study.

Table 4.5: Construct Reliability

Construct	Composite Reliability (CR)
Financial decision behavior	.746
Computation capability	.914
Financial knowledge	.863
Financial education	.821
Risk attitude towards financial products	.853
Retirement planning	.845

Source: Field Data, (2025)

4.6.3 Convergent Validity

All latent constructs reported AVE higher than the minimum value of 0.50 as per the measurement model test (Table 4.6). Thus, this confirmed the satisfactory achievement of convergent validity according to the guidelines in section 3.16.1.7.

Table 4.6: Convergent Validity

Construct	Average Variance Extracted (AVE)
Financial decision behavior	.581
Computation capability	.681
Financial knowledge	.614
Financial education	.537
Risk attitude towards financial products	.660
Retirement planning	.579

Source: Field Data, (2025)

4.6.4 Discriminant Validity Assessment Using HTMT Ratio

To prove attainment of the study criteria, the new measure of discriminant validity was tested. The findings of the HTMT ratio of correlation showed that all constructs were below 1.00 (Table 4.7) confirming the attainment of the measurement model's discriminant validity following the guideline in section 3.16.1.11.

Table 4.7: HTMT Ratio of Correlation

Construct (Latent Variable)	CC	FD	FE	FK	FL	RA
Computation capability	-					
Financial decision behavior	.525					
Financial education	.526	.584				
Financial knowledge	.839	.726	.696			
Financial literacy	.537	.622	.536	.650		
Risk attitude toward financial products	.196	.201	.339	.261	.255	
Retirement planning	.259	.224	.313	.293	.307	.451

Source: Field Data, (2025)

4.6.5 Discriminant Validity Assessment Using Fornell-Larcker Criterion

Table 4.8 presents the results of the Fornell-Larcker Criterion analysis. As shown, the square root of each construct's AVE (diagonal values) exceeds the corresponding correlations with other constructs (off-diagonal) according to the guideline in section 3.16.1.9, which indicates that the constructs are sufficiently distinct from one another. For example, the square root of the AVE for Retirement planning (RP) is 0.852, which is higher than its correlations with other Computation Capability (CC) (0.712) and Risk attitude towards financial products (RA) (0.816), further validating the discriminant validity of the model.

Table 4.8: Fornell- Larcker Discriminant Validity Criterion:

Latent Variable Correlation (LVC)							Discriminant Validity achieved?
	CC	FD	FE	FK	RA	RP	(Square root of AVE>LVC)
CC	.825						Yes
FD	.871	.982					Yes
FE	.633	.623	.728				Yes
FK	.702	.668	.822	.964			Yes
RA	.657	.772	.786	.862	.897		Yes
RP	.712	.818	.851	.823	.816	.928	Yes

Source: Field Data, (2025)

4.6.6 Discriminant Validity Assessment Using Cross-loadings Test

The attainment of discriminate validity was established using the test of cross-loadings of indicator variables on latent variables since the indicators load more with their construct than with another construct as shown in Table 4.9 according to the guideline in section 3.16.1.10.

Table 4.9: Cross-Loadings of Indicators on Constructs

Indicators	Constructs						
	CC	FD	FE	FK	FL	RA	RP
CC_1	.786	-.0365	.363	.578	.436	.014	-.155
CC_2	.858	-.0341	.359	.586	.367	.008	-.191
CC_3	.857	-.0320	.376	.558	.360	.027	-.144
CC_4	.831	-.0374	.412	.569	.398	.075	-.134
CC_5	.790	-.068	.427	.595	.451	.063	-.080
FD_1	.338	-.789	.318	.464	.460	-.091	-.025
FD_2	.295	-.619	.321	.422	.425	.016	-.007
FD_3	.397	-.874	.372	.505	.482	-.062	-.025
FD_4	.404	-.816	.465	.489	.441	-.015	-.022
FD_5	.364	-.625	.463	.475	.376	.011	-.000
FE_1	.493	-.402	.727	.598	.490	-.075	-.217
FE_2	.346	-.271	.659	.362	.264	.232	.082
FE_3	.292	-.365	.784	.418	.329	.042	.078
FE_4	.224	-.289	.728	.336	.295	.097	.045
FE_5	.188	-.219	.622	.277	.245	.151	.035
FK_1	.590	-.558	.504	.840	.595	-.155	-.182
FK_2	.510	-.381	.405	.728	.409	.005	-.096
FK_3	.336	-.267	.141	.444	.147	.078	-.077
FK_4	.593	-.386	.505	.779	.469	.066	-.103
FK_5	.470	-.456	.509	.762	.376	-.026	-.112
RA_1	.031	.051	.031	-.036	-.166	.767	.232
RA_2	-.038	.127	.067	-.092	-.179	.852	.262
RA_3	-.048	.053	.058	-.018	-.146	.793	.266
RA_4	.180	-.132	.216	.151	.095	.326	.051
RA_5	.182	-.102	.168	.134	.077	.353	.155
RP_1	-.045	-.006	-.055	-.018	-.078	.051	.426
RP_2	-.093	.005	-.037	-.095	-.117	.138	.668
RP_3	-.148	-.025	.010	-.067	-.086	.097	.675
RP_4	-.133	.011	-.015	-.084	-.182	.231	.787
RP_5	-.043	-.027	-.038	-.038	-.075	.183	.553
RP_6	-.199	.121	-.133	-.255	.284	.294	.731
RP_7	-.043	-.090	.030	.049	.057	.046	.105
RP_8	-.046	.002	.078	-.076	.018	.274	.511
RP_9	.235	-.299	.207	.173	.257	.054	.060
RP_10	.151	-.162	.295	.154	.223	.156	.265

Source: Field Data, (2025).

4.6.7 Common Method Bias Assessment

All VIF values were less than 3.3 from analysis of the full collinearity test (Table 4.10), confirming no serious cases of common method bias according to the guideline in section 3.16.1.12.

Table 4.10: Common Methods Bias: VIF - Full Collinearity Test

Construct (Latent Variable)	RA	CC	FK	FD	RP	FE
Risk attitude towards financial products (RA)	.987	-.175	-.212	1.897	.133	-.175
Computation capability (CC)	-.175	3.199	-.150	.871	2.015	2.920
Financial knowledge (FK)	-.212	-.150	.827	-.638	.205	.801
Financial decision behavior (FD)	1.897	.871	-.638	4.283	-.116	.360
Retirement planning (RP)	.133	2.015	.205	-.116	3.870	-.065
Financial education (FE)	-.175	2.920	.801	.360	-.065	3.242

Source: Field Data, (2025)

4.7 Assessment of Structural Model

4.7.1 Collinearity Assessment

The multicollinearity analysis indicated that the VIF values were all less than 5.00 (Table 4.11), confirming the structural model's lack of multicollinearity. VIF is reported in Smart PLS-SEM's inner model for multicollinearity assessment between exogenous constructs (Hair et al. 2021). Thus, multicollinearity was not a problem to invalidate the interpretation of the obtained results.

Table 4.11: VIF Values

Exogenous Variables	VIF Values
Computation Capability	2.053
Financial Knowledge	2.915
Financial Education	2.072
Risk Altitude towards Financial Product	1.135
Financial Decision Behavior	1.710

Source: Survey Data, (2025)

4.7.2 Coefficient of Determination (R^2)

Table 4.12 presents the coefficients of determination (R^2) for the structural model, assessing the variance explained in financial literacy (FL) and Retirement planning (RP). The R^2 value for FL is 0.665, suggesting that approximately 66.5% of the

variance in FL is explained by the model. The adjusted R^2 for FL is 0.663, indicating a small reduction due to the number of predictors inclusion of multiple variables in the model. For Retirement Planning (RP), the R^2 value is 0.624, meaning that 62.4% of the variance in Retirement planning delivery is explained by the model.

According to Purwanto et al. (2021), R^2 values are typically interpreted as 0.75 (substantial), 0.50 (moderate), and 0.25 (weak), although acceptable thresholds may vary depending on the research context. The FL value of R^2 of 0.665 obtained demonstrates a moderate predictive capability, indicating that the independent variables moderately contribute to explaining retirement planning preparations. The adjusted R^2 for FL is 0.663, which is very close to the R^2 value, indicating a moderate predictive capability with minimal adjustment for the number of predictors.

Table 4.12 Coefficient of Determination

Constructs	R Square	R Square Adjusted
FL	0.665	0.663
RP	0.624	0.626

Source: Field data, (2025)

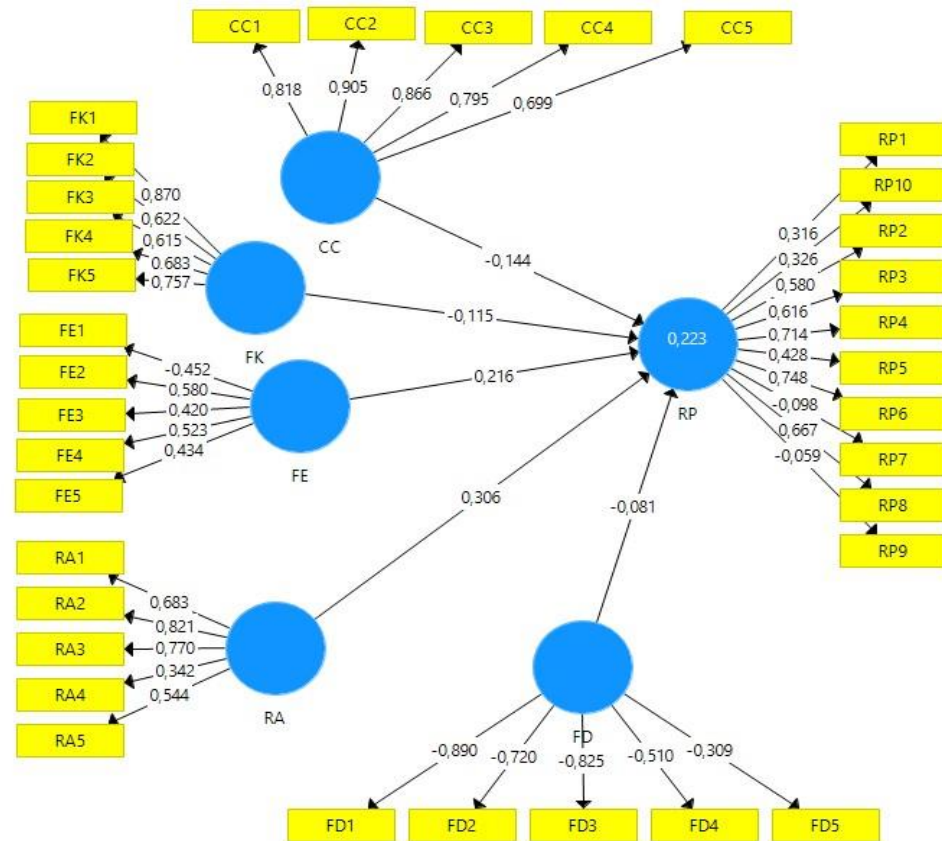


Figure 4.2: PLS-SEM Structural Model for Hypothesis Testing

4.7.3 Hypotheses Testing Procedure

Hypotheses were tested based on the structural models' path coefficient generated from the Smart PLS-SEM as presented below.

4.7.3.1 Computation Capability as a Determinant of Retirement Planning

The first objective of the study was to examine whether computational capability is a determinant of retirement planning among government employees working in different ministries within the city of Dodoma in Tanzania. The following is the corresponding hypothesis:

H1: Computation capability influences significantly and positively the retirement planning of government employees in Tanzania.

Descriptive analysis was done to test the hypothesis and establish how each observed/ indicator variable affected government employees' retirement planning as a latent variable in the PLS SEM path model. The questionnaire was on a scale of 1 to 5, where "1" denoted strongly disagree and "5" indicated strongly agree.

Table 4.13: Computation Capability Descriptive Statistics

Item	Statement	N	Min	Max	Mean	Std. Dev
1	It is easy for me to calculate interest rates on my savings, credits and investments	408	1	5	3.892	1.127
2	I can easily compute benefits due to me on retirement	408	1	5	3.846	1.162
3	I have done calculations to know how much money I will have saved for my retirement period	408	1	5	3.706	1.301
4	I know the amount of money I will need for retirement.	408	1	5	3.735	1.273
5	I know the amount of money that I should save every month to prevent financial problems during my retirement	408	1	5	3.904	1.366
	Valid N (list wise)	408				

Source: Field Data, (2025)

Table 4.13 reveals that among government employees working in various ministries in Dodoma, the indicator "I know the amount of money that I should save every month to prevent financial problems during retirement" had the strongest association

with retirement planning (Mean = 3.904). This was closely followed by "It is easy for me to calculate interest rates on my savings, credits, and investments" (Mean = 3.892). The indicators "I know the amount of money I will need for retirement" (Mean = 3.735) and "I have done calculations to know how much money I will have saved for my retirement period" (Mean = 3.706) showed a relatively lower impact, while "I can easily compute benefits due to me on retirement" had the weakest association (Mean = 2.846). Mean scores between 3.7 and 3.9 on the 5-point scale indicate majority agreement with these statements (Sullivan & Artino, 2013), and standard deviations reflect response consistency. While descriptive statistics provide this baseline understanding (Field, 2018), they cannot explain the reasons for agreement (Boateng, 2018). Further analysis using bootstrapping in PLS-SEM (5,000 resamples, two-tailed, $\alpha=0.05$) was conducted and the results is presented in Table 4.14.

Table 4.14: Computation Capability Path Statistics

Path	Original Sample	Sample Mean	Standard Deviation	T Statistics (O/STDEV)	P-Value	Result
CC->RP	.176	.158	.069	2.552	0.012	Significant
CC1 <- CC	.783	.784	.026	30.483	0.000	Significant
CC2 <- CC	.083	.856	.018	47.131	0.000	Significant
CC3 <- CC	.858	.857	.017	50.953	0.000	Significant
CC4 <- CC	.833	.832	.020	41.315	0.000	Significant
CC5 <- CC	.791	.790	.022	36.307	0.000	Significant

Source: Field Data, (2025)

Lowry and Gaskin (2014) and Chinn (1998) posit that a structural path coefficient must reach at least 0.20 to be considered both statistically significant and substantively meaningful. Analysis of government employees in Dodoma, Tanzania, revealed a path coefficient of 0.176 between computation capability and retirement planning, falling below this threshold. Consequently, despite its statistical significance ($p = 0.012$, $t = 2.552 > 1.96$), leading to the acceptance of hypothesis H₁, this weak association suggests computation capability itself had no practically meaningful impact as a determinant of retirement planning and is not deemed worthy of substantive discussion.

However, Hair et al. (2017) note a characteristic of PLS-SEM where the structural model may show a weak or insignificant relationship while the measurement model demonstrates satisfactory results. Supporting this, all individual indicators of computation capability exhibited statistically significant path coefficients exceeding the 0.20 threshold (critical ratios > 1.96 , $p < 0.05$), warranting meaningful discussion of their role (Table 4.14). Thus, while the latent construct "computation capability" showed a statistically significant but weak overall link to retirement planning, its specific constituent indicators demonstrated significant and substantial individual associations.

4.7.3.2 Financial Knowledge as a Determinant of Government Employees' Retirement Planning

Objective two of the study was to examine if financial knowledge is a determinant of government employees' retirement planning. This led to the formulation of hypothesis two below:

H₂: Financial knowledge influences positively and significantly the retirement planning of government employees in Tanzania.

Prior to hypothesis testing, descriptive analysis was performed in SPSS to indicate how each observed variable influenced retirement planning as a latent variable in the model. The results showed that indicator FK_1, I use financial knowledge to make personal financial decisions, strongly impacted retirement planning with the maximum mean score of 3.223, followed by indicator FK_2 that: I understand the available investment options for pension schemes with a mean score of 3.194 (Table 4.15). The analysis showed that indicator, FK_3 that: I usually do plan for my future income and expenses had a mean score of 3.142. Followed by an indicator, FK_4 that, I know how to calculate interest due on my investments, which had a mean score of 3.010.

Table 4.15: Financial Knowledge Descriptive Statistics

Item	Statement	N	Min	Max	Mean	Std. Dev
1	I use financial knowledge to make personal financial decision	408	1	5	3.223	1.382
2	I understand the available investment options for pension schemes	408	1	5	3.194	1.317
3	I know how to calculate interest due on my investments	408	1	5	3.010	1.319
4	I usually do plan for my future income and expenses	408	1	5	3.142	1.370
	Valid N (list wise)	408				

Source: Field Data, (2025)

The criterion was that the greater the indicator mean score, the greater its impact on retirement planning. Generally, the questions measured the construct relatively evenly with a mean score of 3.142 suggesting that all respondents were in agreement with all the statements as a measure of financial knowledge as a construct. Smart PLS-SEM path analysis was used for hypothesis testing through 5,000 bootstrapping and re-sampling was performed to verify if the path coefficient was statistically significant and positive with a critical value equal to or more than 1.96 and at a p-value of 0.05. Table 4.16 presents the results of the analysis.

Table 4.16: Financial Knowledge Path Statistics

Path	Original Sample	Sample Mean	Standard Deviation	T Statistics (O/STDEV)	P-Value	Result
FK->RP	-.038	-.032	.090	.425	0.671	Not Significant
FK1 <- FK	.832	.833	.016	52.291	0.000	Significant
FK2 <- FK	.742	.742	.036	20.761	0.000	Significant
FK4 <- FK	.790	.791	.026	30.332	0.000	Significant
FK5 <- FK	.764	.763	.033	23.440	0.000	Significant

Source: Field Data, (2025)

The result indicated that the path coefficient between financial knowledge and retirement planning had a negative coefficient value of -0.038, indicating a negative correlation between retirement planning and financial knowledge (Table 4.26). According to Lowry and Gaskin (2014) and Chinn (1998), for a meaningful discussion, a significant and substantive structural path coefficient should be at least 0.20. The path coefficient of -0.038 was far less than the threshold hence not worth further discussion. Thus, financial knowledge did not impact retirement planning as a determinant. Nevertheless, all path coefficients of indicators, suggesting that financial knowledge impacted retirement planning significantly as shown in Table 4.15.

Further analysis of the critical values of financial knowledge on retirement planning showed a p-value of 0.671 and a critical ratio of 0.425 as shown in Table 4.15. To accept a hypothesis, its p-value below 0.05, and the critical ratio should be at least

1.96, which was not achieved in the current study. Hence, hypothesis H₂ was rejected. Unexpectedly, all indicators of financial knowledge (FK_1 use financial knowledge to make personal financial decisions, FK_2= I understand the available investment options for pension schemes, FK_3= I know how to calculate interest due on my investments, and FK_4 I usually do plan for my future income and expenses) have shown were statistically significant as they had p-values of 0.000 and a critical ratio above 1.96, hence worth meaningful discussion (Table 4.15). These findings indicate the PLS-SEM characteristics, that may offer non-significant relationship in the structural model but satisfactory results in the measurement model (Hair, et al. 2017).

4.7.3.3 Financial Education as a Determinant of Retirement Planning of Government Employees in Tanzania

The third objective of the study was to examine if financial education is a determinant of retirement planning of government employees in Tanzania from which the following hypothesis 3 was formulated.

H₃: Financial education positively and significantly influences the retirement planning of government employees in Tanzania.

Descriptive statistics were performed for this construct before hypothesis testing to profile each indicator's impact on retirement planning (Table 4.17). The descriptive statistics showed that; I have acquired through formal education (Schools, Colleges and Universities) had an impact with a mean score of 2.944. Followed by I have received formal training on the management of finances with a mean score of 2.556.

Indicator of I have acquired through social media i.e. Email_ twitter Facebook_ WhatsApp_ Instagram Telegram recorded a means score of 2.373 and lastly, I have acquired formal training on financial retirement planning scored a mean of 2.270. Comparatively, all financial education indicators had a relatively equal impact on retirement planning with a mean score greater than 2.460, showing that the respondents agreed with all questions. This shows that the greater the indicators' mean score, the greater the impact it has on retirement planning.

Table 4.17: Financial Education Descriptive Statistics

Item	Statement	N	Min	Max	Mean	Std. Dev
1	I have acquired through formal education (Schools, Colleges and Universities)	408	1	5	2.944	1.556
2	I have acquired formal training on financial retirement planning	408	1	5	2.270	1.385
3	I have received formal training on the management of finances	408	1	5	2.556	1.484
4	I have acquired through social media ie. Email_ twitter Facebook_ WhatsApp_ Instagram Telegram	408	1	5	2.373	1.414
	Valid N (list wise)	408				

Source: Field Data, (2025)

Further analysis in Smart PLS-SEM on coefficient path analysis through 5,000 re-sample bootstrapping to assess the relationship's strength and direction had significance of the path in determining the effectiveness of financial education (Table 4.18).

Table 4.18: Financial Education Path Statistics

Path	Original Sample	Sample Mean	Standard Deviation	T Statistics (O/STDEV)	P-Value	Result
FE->RP	-.024	-.024	.075	.315	0.753	Not Significant
FE1 <- FE	.775	.773	.035	22.189	0.000	Significant
FE2 <- FE	.661	.663	.047	14.115	0.000	Significant
FE3 <- FE	.787	.786	.032	24.929	0.000	Significant
FE4 <- FE	.701	.699	.042	16.747	0.000	Significant

Source: Field Data, (2025)

The results showed that the path coefficient between financial education and retirement planning was negative -0.024, which indicates that the two latent constructs had a weak negative correlation (Table 4.18). According to Lowry and Gaskin (2014), for a meaningful discussion, a significant structural path coefficient should be at least 0.20. The path coefficient of -0.024 was far less than the threshold hence not worth further discussion. Thus, financial education did not significantly impact retirement planning as a determinant.

All path coefficients of indicators pointing to financial education had a significant influence (Table 4.18), which adds to the meaningful discussion. Additional analysis of critical values of a path between retirement planning and financial education indicated a p-value of 0.753 and that critical ratio was 0.315 (Table 4.18). The criteria set for a statistically significant path was that the p-value should be below 0.05 and the critical ratio should be at least 1.96. The present results indicated a p-value and a critical ratio below set targets hence financial education was not a

statistically significant determinant of retirement planning. Thus, hypothesis H₃ was rejected. Nevertheless, all indicators (FE_1, FE_2 FE_3 and FE_4) showed p-values below 0.05 and critical ratio values above 1.96 as shown in Table 4.28. This shows that all four professional proficiency indicators adequately measured the construct. Again, these findings indicate the PLS-SEM characteristics, which may offer non-significant relationship in the structural model but satisfactory results in the measurement model (Hair, et al. 2017).

4.7.3.4 Risk Attitude Towards Financial Products as a Determinant of Retirement Planning of Government Employees in Tanzania

The study objective four examined if risk attitude towards financial products is a determinant of retirement planning of government employees in Tanzania. The tested hypothesis stated as follows:

H₄: Risk attitude towards financial products influences positively and significantly retirement planning of government employees in Tanzania.

Descriptive analysis was used to profile the impact of each indicator on the retirement planning of government employees in Tanzania as shown in Table 4.19. The indicator that I cannot save or invest without an investment advisor as an intermediary indicated the highest impact on retirement planning with a mean score of 2.838, followed by I avoid investments and saving because you can lose a lot of money with them with a mean score of 2.696. In addition, the indicator, Investment options and saving options overall are far too complicated for me has the least impact on retirement planning with a mean score of 2.620. This indicates that the greater the

indicator mean score the higher its impact on retirement planning. Generally, the respondents agreed with the question that risk attitude towards financial products as determinants of retirement planning of government employees working in different ministries within the city of Dodoma in Tanzania.

Table 4.19: Risk Attitude towards Financial Products Descriptive Statistics

Item	Statement	N	Min	Max	Mean	Std. Dev
1	Investments options and saving options overall are far too complicated for me	408	1	5	2.620	1.400
2	I avoid investments and saving because you can lose a lot of money with them.	408	1	5	2.696	1.414
3	I cannot save or invest without an investment advisor as an intermediary.	408	1	5	2.838	1.433
	Valid N (list wise)	408				

Source: Field Data 2025

The findings showed that a path coefficient between risk attitude towards financial products and retirement planning was positive 0.209 (Table 4.20). According to Lowry and Gaskin (2014) a significant and substantial structural path coefficient should be at least 0.20 for a meaningful and confident discussion. The path coefficient of 0.209 was greater than the set threshold hence was significant and worth meaningful discussion. Thus, risk attitude towards financial products has a significant determinant that impact retirement planning. All path coefficients of indicators pointing to the risk attitude towards financial products have significantly affected retirement planning which adds to the meaningful discussion as provided in Table 4.20.

Further analysis of the significance level on a relationship between risk attitude towards financial products and retirement planning showed a p-value of 0.000 and a t-statistics of 3.953 (Table 4.30). The criterion was that for a statistically significant path, p-values must be equal or lower than 0.05 and t-statistics must be above the 1.96 critical ratio, which the current test achieved. Thus, hypothesis H₄ was accepted. All indicators (RA_1 Investments options and saving options overall are far too complicated for me, RA_2 I avoid investments and saving because you can lose a lot of money with them and RA_3 I cannot save or invest without an investment advisor as an intermediary) p-values=0.00<0.05 and critical ratios were above 1.96 as (Table 4.30). The results showed that all indicators were significant statistically as a measure of risk attitude towards financial products as a construct.

Table 4.20: Risk Attitude Towards Financial Products Path Statistics

Path	Original Sample	Sample Mean	Standard Deviation	T Statistics (O/STDEV)	P-Value	Result
RA->RP	.209	.200	.053	3.953	0.000	Significant
RA1 <- RA	.792	.791	.041	19.528	0.000	Significant
RA2 <- RA	.846	.846	.030	27.977	0.000	Significant
RA3 <- RA	.802	.796	.037	21.782	0.000	Significant

Source: Field Data 2025

4.7.3.5 The Moderation Effect of Financial Decision Behavior

The sixth objective of the study was to assess whether there was a moderation effect of financial decision behavior on determinants of retirement planning among government employees in Tanzania. Hypotheses 7 to 9 were generated from this objective as tested below. A two-stage moderation method was run through

bootstrapping of 5,000 re-sampling to obtain statistically significant analysis in the structural model to assess the presence of a moderation effect.

After moderation, the coefficient of determination (R^2) had a positive value of 0.581 (Figure 4.3), a critical value of $21.887 > 1.96$, and was statistically significant with a p-value of 0.000 (Table 4.21). This suggests that at 5% the moderation model fits well to explain the relationship among the constructs. The analysis revealed the moderation effect of financial decision behavior on the dependent and independent variables since R^2 was 0.574 before moderation, and changed to R^2 of 0.581 after including the moderation term and was significant statistically at 5% p-value.

Table 4.21: R^2 After Moderation Path Statistics

Endogenous/Explained Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P-Value	Result
Retirement Planning	.574	.581	.026	21.887	0.000	Significant

Source: Field Data, (2025)

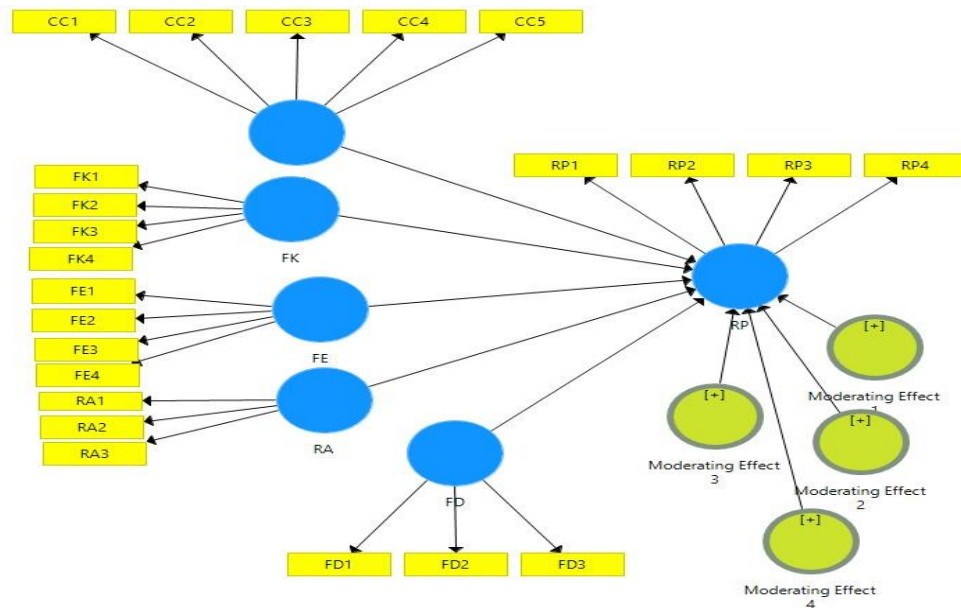


Figure 4.3: PLS-SEM Path Model-Moderation Effect Structural Model

4.7.3.6 Financial Decision Behavior Moderating Effect on Computation Capability

A moderating effect of financial decision behavior on computation capability and retirement planning of government employees in Tanzania was hypothesized in the study. The study sought to confirm the hypothesis that:

H₅: Financial decision behavior positively moderates the relationship between computation capability and retirement planning of government employees in Tanzania.

The Smart PLS-SEM path model was used for bootstrap analysis to test the hypothesis to generate statistical analysis in Table 4.22

Table 4.22: Moderation Effect on Computation Capability Path Statistics

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P-Value	Result
Moderating effect of financial decision behavior on computation capability-> Retirement Planning	.044	-.023	.126	.351	0.726	Not Significant

Source: Field Data, (2025)

The study indicated that a path coefficient of financial decision behavior moderating the relationship between computation capability and retirement planning had a value of 0.044 suggesting a weak moderating effect (Table 4.22). Thus, poor financial decision behavior weakens the relationship between computation capability and retirement planning as indicated in Figure 4.4.

According to Hair et al. (2017), the extent and sign of the path coefficient offer an avenue for interpretation and discussion of the results to summarize the phenomena offered by the moderating variable in the relationship between the two constructs. Further analysis of the significance level of the moderating effect of financial decision behavior on the relationship between retirement planning and computation capability showed a p-value of 0.726 and a t-statistic of 0.351 (Table 4.22). The criteria were that for a statistically significant path was for the p-value must be equal to or be less than 0.05 and t-statistics above or equal to 1.96 critical ratio, which the present test did not achieve. Thus, hypothesis H₆ was rejected.

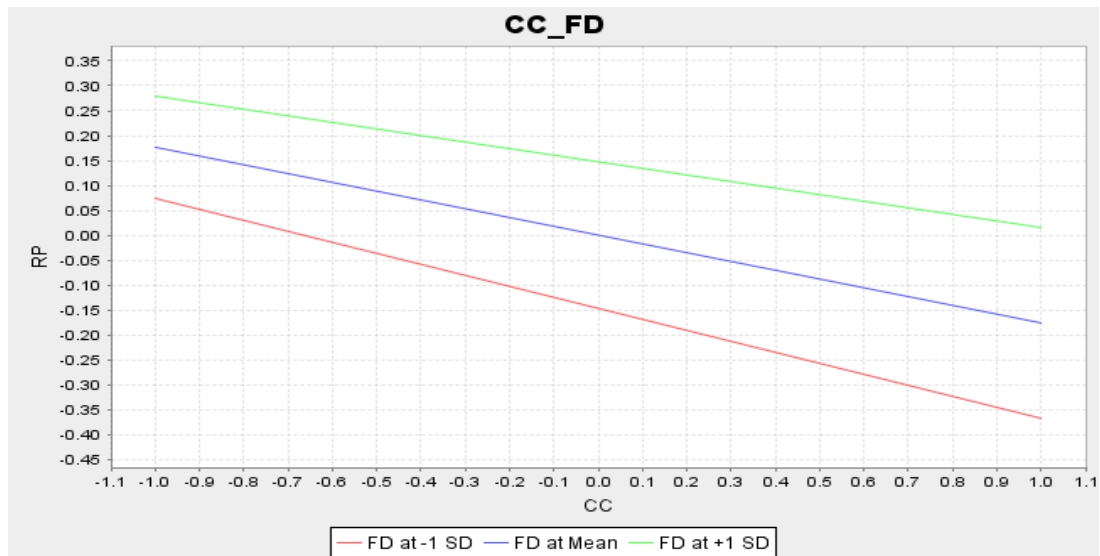


Figure 4.4: Interaction term between financial decision behavior and computation capability on retirement planning of government employees in Tanzania

Figure 4.4 indicates the interaction between computation capability and financial decision behavior (FD) on retirement planning (RP) at various levels. The middle arrow in the graph shows no moderating effect of financial decision behavior on the relationship between computation capability (CC) and retirement planning (RP). It shows a weak relationship between computation capability (CC) and retirement planning (RP). All the lines have a negative slope, suggesting that as computation capability (CC) increases, retirement planning (RP) decreases regardless of the value of the moderating effect of financial decision behavior (FD).

The green line (FD at +1 SD) is the least steep, indicating that the negative effect of computation capability (CC) on retirement planning (RP) is weaker when financial decision behavior (FD) is high. The red line (FD at -1 SD) is the steepest, suggesting

that the negative effect of computation capability (CC) on retirement planning (RP) is stronger when financial decision behavior (FD) is low, and the blue line (FD at mean) lies between the two, showing an intermediate effect.

Generally, financial decision behavior (FD) moderates the relationship between computation capability (CC) and retirement planning (RP). Specifically, higher levels of financial decision behavior (FD) (green line) reduce the strength of the negative relationship between computation capability (CC) and retirement planning (RP), while lower levels of FD (red line) amplify this negative relationship. Therefore, the influence of CC on RP becomes weaker as FD increases.

4.7.3.7 Financial Decision Behavior Moderating Effect on Financial Knowledge

The study also checked if there was a moderating effect of financial decision behavior on the relationship between financial knowledge and retirement planning of government employees in Tanzania as presented in the hypothesis below:

H₆: Financial decision behavior positively moderates the relationship between financial knowledge and retirement planning of government employees in Tanzania.

A structural path analysis of the moderating term was created in Smart PLS-SEM bootstrapping of 5,000 subsamples, 0.05 two-tailed to generate significant parameters for hypothesis testing (Table 4.23).

Table 4.23: Moderation Effect on Financial Knowledge Path Statistics

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P-Value	Result
Moderating effect of financial decision behavior on financial knowledge -> retirement planning	.020	.006	.108	.184	0.854	Not Significant

Source: Field Data, (2025)

The results showed that a path coefficient of the moderating effect of financial decision behavior on the relationship between financial knowledge and retirement planning had a value of 0.020 suggesting a weak moderating effect (Table 4.23). It suggests that poor financial decision behavior weakens the relationship between retirement planning and financial knowledge (Figure 4.5). According to Hair et al. (2017), the sign and magnitude of the path coefficient provide an avenue for interpretation and discussion of the results to summarize phenomena presented by the moderating variable in the relationship between the two constructs.

Additional analysis of the significance level of the moderating effect of financial decision behavior on the relationship between retirement planning and financial knowledge showed that a p-value was 0.85 and t-statistic of 0.184 (Table 4.23). The criteria was that for a statistically significant path was for the p-value to be equal or less than to 0.05 and t-statistic be greater than the 1.96 critical ratio, which the present test did not achieve. Thus, hypothesis H₇ was rejected.

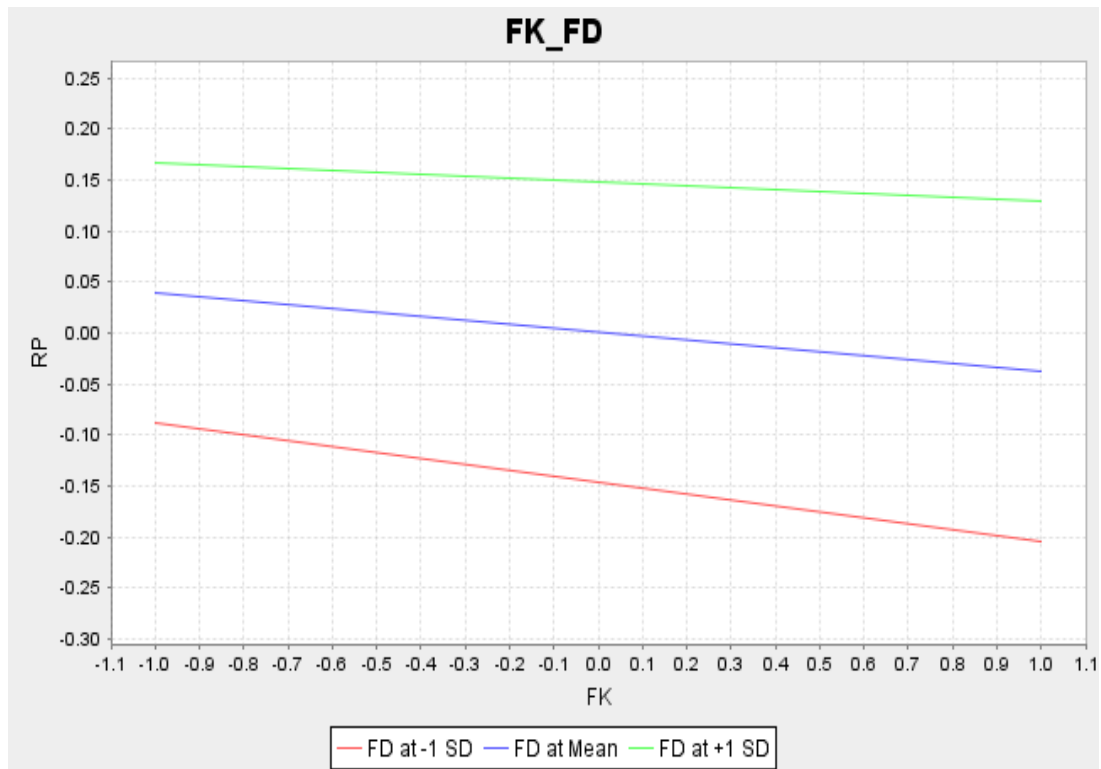


Figure 4.5: Interaction term between financial decision behavior and financial knowledge on retirement planning of government employees in Tanzania

Figure 4.5 indicates the interaction between financial decision behavior (FD) and financial knowledge (FK) on retirement planning (RP) at various levels. The middle arrow in the graph demonstrates the absence of a moderating effect of financial decision behavior (FD) on the relationship between retirement planning (RP) and financial knowledge (FK). This indicates a weak relationship between retirement planning (RP) and financial knowledge (FK). All the lines have a negative slope, suggesting that as financial knowledge (FK) increases, retirement planning (RP) decreases regardless of the value of moderating effect of financial decision behavior (FD).

There is a negative linear relationship between retirement planning (RP) and financial knowledge (FK) indicating that as financial knowledge (FK) increases, retirement planning (RP) tends to decrease. This means that higher values of financial decision behavior (FD) are associated with higher values of retirement planning (RP), regardless of the value of financial knowledge (FK). The slope of the lines is also affected by financial decision behavior (FD): the slope is steeper for higher values of financial decision behavior (FD), suggesting more negative relationship between financial knowledge (FK) and retirement planning (RP) when financial decision behavior (FD) is higher.

Generally, the moderating variable financial decision behavior (FD) weakens the negative relationship between retirement planning (RP) and financial knowledge (FK). At low levels of financial decision behavior (FD), the relationship is more negative, while at high levels of financial decision behavior (FD), the relationship becomes less negative. Financial decision behavior (FD) moderates the effect of financial knowledge (FK) on retirement planning (RP) such that higher levels of financial decision behavior (FD) reduce the negative impact of financial knowledge (FK) on retirement planning (RP).

4.7.3.8 Financial Decision Behavior Moderating Effect on Financial Education

The present study also tested if there was a moderating effect of financial decision behavior on the relationship between financial education and retirement planning of government employees in Tanzania as summarized in the hypothesis below:

H7: Financial decision behavior positively moderates the relationship between financial education and retirement planning of government employees in Tanzania.

For hypothesis testing, a structural path analysis of the moderating term was created in Smart PLS-SEM bootstrapping of 5,000 subsamples, 0.05 two-tailed to produce significant parameters as shown in Table 4.24

Table 4.24: Moderation Effect on Financial Education Path Statistics

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P-Value	Result
Moderating effect of financial decision behavior on financial education->retirement planning	.066	.114	.065	.011	0.312	Not Significant

Source: Field Data, (2025)

The results indicated that the path coefficient between the moderating effect of financial decision behavior on the relationship between financial education and retirement planning had a value of 0.066 suggesting a positive but weak moderating effect (Table 4.24). It showed also that poor financial decision behavior weakens the relationship between financial education and retirement planning as shown in Figure 4.6.

According to Hair et al. (2017), the sign and magnitude of the path coefficient enable the interpretation and discussion of the results to capture phenomena presented by the moderating variable in the relationship between the two constructs. Additional analysis of the significance level of the moderating effect of financial decision behavior on the relationship between retirement planning and financial education indicated a p-value of 0.312 and t-statistics of 0.011 (Table 4.24). The criteria were that for a statistically significant path, the p-value must be equal to or less than 0.05 and t-statistics must be greater than 1.96 critical ratio, which the present test did not achieve. Thus, hypothesis H₈ was rejected.

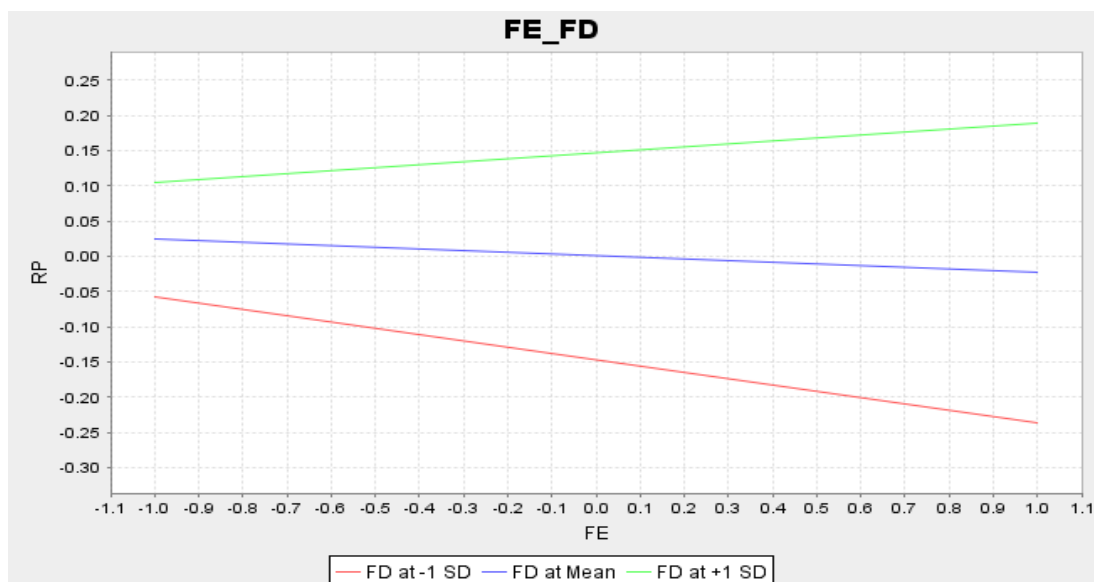


Figure 4.6: Interaction term between financial decision behavior and financial education on retirement planning of government employees in Tanzania

Figure 4.6 shows the interaction of financial decision behavior on the relationship between financial education (FK) and retirement planning (RP) at various levels. The middle arrow in the graph shows no moderating effect of financial decision behavior (FD) on the relationship between retirement planning (RP) and financial education

(FK). It indicates a normal relationship between retirement planning (RP) and financial education (FE). Nevertheless, at low interaction effect of financial decision behavior (FD) by moving one standard deviation below the mean (-SD), the slope of the arrow at the bottom is flatter suggesting that there is a weak relationship between financial education (FE) and retirement planning (RP) as result of financial decision behavior (FD) moderation effect. The direction of the relationship between financial education (FK) and retirement planning (RP) was pulled down due to the strength of the financial decision behavior (FD) moderation effect. Contrastingly, a move by one standard deviation above the mean (+SD) by the interaction effect of financial decision behavior (FD), the arrow at the top shows a steeper slope representing a positive moderating effect on the relationship between financial education and retirement planning (Hair Jr. et al. 2017). This indicates that the stronger the financial decision behavior (FD), the stronger the relationship between retirement planning (RP) and financial education (FE), and the reverse is true. Contrastingly, the moderation effect was partial since the relationship between financial education (FE) and retirement planning (RP) was significant before the interaction effect was introduced (Zainudin, 2015).

4.7.3.9 Financial Decision Behavior Moderating Effect on Risk Attitude Towards Financial Products

Lastly, the study assessed whether there was a moderating effect of financial decision behavior on the relationship between risk attitude towards financial products and retirement planning of government employees in Tanzania, which culminated in the hypothesis below:

H₈: Financial decision behavior positively moderates the relationship between risk attitude towards financial products and retirement planning of government employees in Tanzania.

Table 4.25 shows a structural model of the path analysis from smart PLS-SEM bootstrapping at 5,000 sub-samples with path statistics.

Table 4.25: Moderation Effect on Risk Attitude Towards Financial Products

Path Statistics

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P-Value	Result
Moderating effect of financial decision behavior on risk attitude towards financial products -> retirement planning	.126	.133	.050	2.488	0.013	Significant

Source: Field Data, (2025)

The results showed that the path coefficient between the moderating effect of financial decision behavior on the relationship between risk attitude towards financial products and retirement planning had a value of 0.126 suggesting the presence of a positive moderating effect (Table 4.25). Figure 4.37 shows the simple slope analysis that demonstrated that proper financial decision behavior has a strong relationship between retirement planning and risk attitude towards financial products, and the reverse is true. According to Hair et al. (2017), the magnitude and sign of the path coefficient provide an avenue for interpretation and discussion of the results on the effect of the moderating variable in the relationship between the two constructs.

Analysis of the significance level of the moderating effect of financial decision behavior on the relationship between risk attitude towards financial products and retirement planning indicated a p-value of 0.013 and t-statistics of 2.488 (Table 4.25). The criteria were that for a statistically significant path, the p-value must be equal to or less than 0.05 and t-statistics greater than the 1.96 critical ratio, which the present test achieved. Thus, hypothesis H₈ was accepted.

Figure 4.7 elaborates more on the moderation effect of the financial decision behavior (FD) on the relationship between risk attitude towards financial products (RA) and retirement planning (RP). The three lines represent different levels of FD: FD at -1 standard deviation (SD), FD at the mean, and FD at +1 SD.

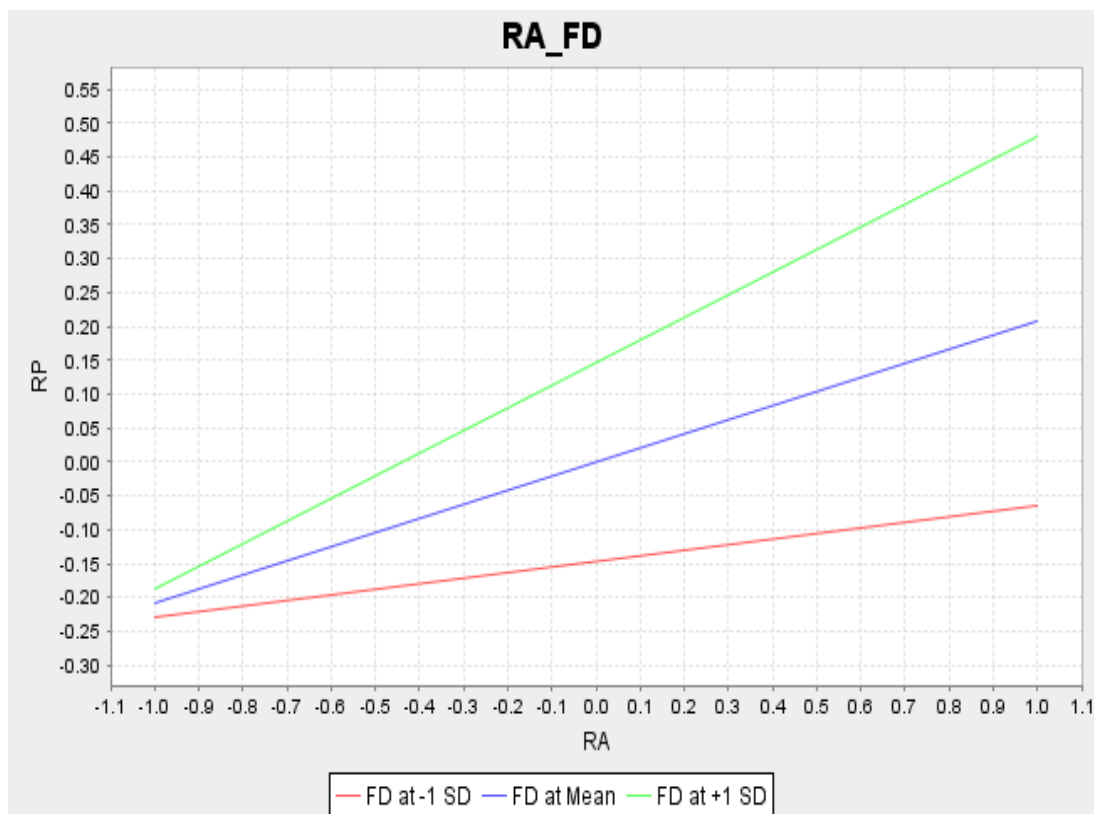


Figure 4.7: Interaction term between financial decision behavior and risk attitude towards financial products on retirement planning of government employees in Tanzania

The above figure (figure 4.7), shows a positive moderation effect of financial decision behavior (FD). As FD increases (from -1 SD to +1 SD), the positive relationship between retirement planning (RP) and risk attitude towards financial products (RA) becomes stronger. This means that the impact of risk attitude towards financial products (RA) on retirement planning (RP) is greater when the financial decision behavior (FD) is more appropriate.

Again, the Steeper Slopes representing FD at +1 SD has the steepest slope, indicating a stronger positive relationship between retirement planning (RP) and risk attitude towards financial products (RA) when financial decision behavior (FD) is at its highest level. This suggests that when the financial decision behavior (FD) is appropriate, risk attitude towards financial products (RA) becomes even more crucial for achieving effective retirement planning preparedness.

Meanwhile, the flattest Slope representing FD at -1 SD has the flattest slope, indicating a weaker positive relationship between retirement planning (RP) and risk attitude towards financial products (RA) when financial decision behavior (FD) is at its lowest level. This suggests that when financial decision behavior (FD) is not appropriate, the impact of risk attitude towards financial products (RA) on retirement planning (RP) is relatively limited.

Overall, the graph suggests that appropriate financial decision behavior (FD) can amplify the positive impact of risk attitude towards financial products (RA) on retirement planning (RP). This highlights the importance of having the right

decision-making when seeking to invest in a suitable financial product portfolio. It also emphasizes the need to choose an appropriate financial product that can generate more returns to suit retirement life.

4.8 Predictive relevance of the Structural Model

The study demonstrated a predictive relevance Q^2 score of 0.754 which is greater than zero validating that the endogenous latent variable of the study was adequately predicted by the exogenous variables of the path model (Figure 4.8). The model Q^2 of 0.0754 is a medium predictive relevance according to the guideline in section 3.16.2.8.

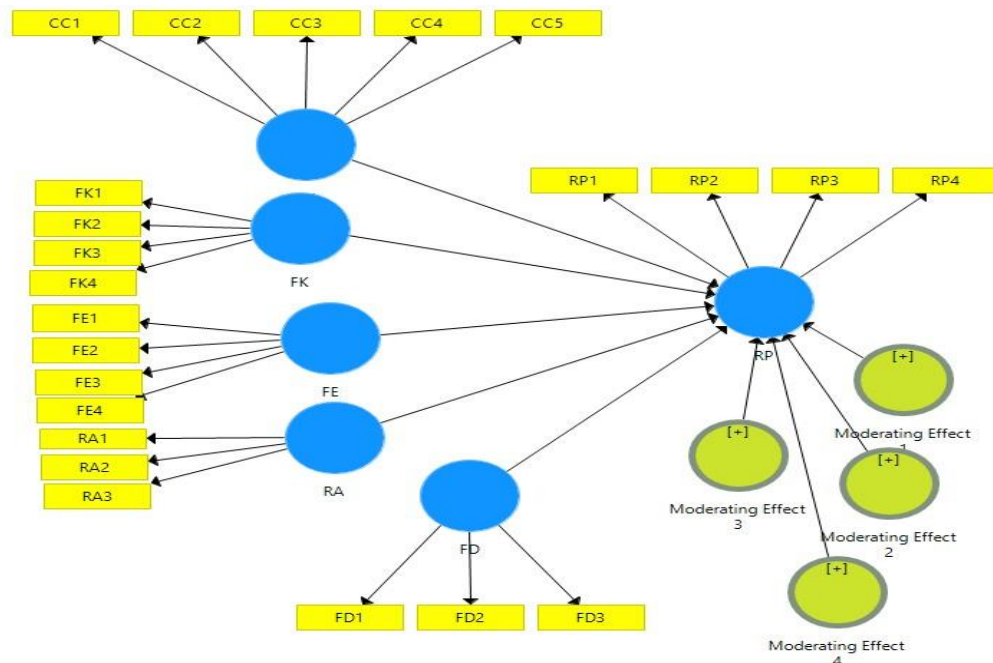


Figure 4.8: Predictive relevance of the Model

4.9 Measuring the Main Effect Size (f^2)

The Smart PLS-SEM in Table 4.28 shows the effect size of the exogenous construct on the endogenous construct. The major effects of financial decision behavior and

risk attitude towards financial products had moderate effects while computation capability had a weak effect according to the threshold in section 3.16.2.5. This concurs with the hypothesis that the three independent variables were statistically significant determinants of retirement planning. Nevertheless, financial knowledge and financial education had no real effect on retirement planning as shown in Table 4.38 and the guideline in section 3.16.2.5.

Table 4.28: Effect Size (f^2) of Exogenous Variables on Retirement Planning

Construct/Independent Variables	Effect Size (f^2)	Effect Category (Basis section 3.16.2.5)
Financial decision behavior	0.013	Weak
Computation Capability	0.018	Weak
Financial Knowledge	0.004	No effect
Financial Education	0.000	No effect
Risk Attitude Towards Financial Products	0.047	Weak

Source: Field Data 2025

4.10 Measuring the Moderation Effect Size (f^2)

Moderation (interaction term) effect size was assessed using Smart PLS-SEM as shown in Table 4.29 and Figure 4.5 according to the threshold in section 3.16.2.6. The moderation effect of financial decision behavior on the relationship between risk attitude towards financial products and retirement planning was large (Table 4.25), which was validated by the acceptance of hypothesis H_8 and the statistical significance of the path.

Table 4.29: Moderation Effect Size (f^2)

Moderation term	Effect Size (f^2)	Effect Category (Basis section 3.16.2.6)
Moderating effect of FD on CC	0.019	Medium
Moderating effect of FD on FK	0.011	Medium
Moderating effect of FD on FE	0.015	Medium
Moderating effect of FD on RA	0.029	Larger

Source: Field Data, (2025)

Key: FD: Financial decision behavior. CC= Computation capability. FK= Financial knowledge, FE= Financial education, RA= Risk attitude towards financial products

However, the moderation effect of financial decision behavior on computation capability, financial knowledge, and financial education was medium, validating the rejection of hypotheses H_6 , H_7 and H_8 and the statistical insignificance of the paths.

4.11 Goodness-of Fit Index (GOF)

Table 4.30 indicates a GOF score of 0.129 which is a medium index as per the criteria in section 3.16.2.7. The model had predictive power as confirmed by the GOF index and the empirical data fits the model adequately suggesting that the model was better than a baseline model.

Table 4.30: Goodness-of-Fit Index Computation

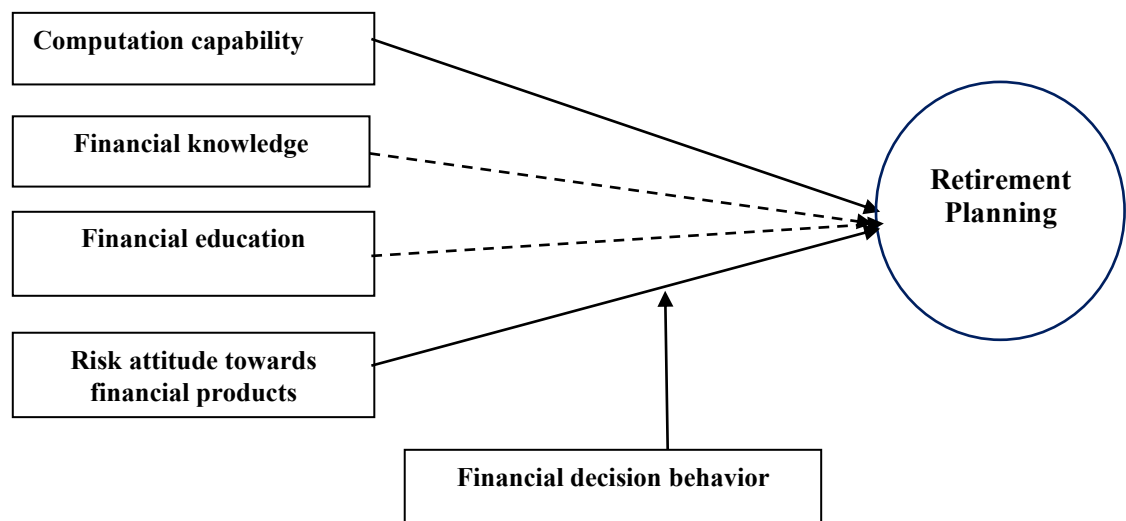
Construct	AVE	R^2
Financial decision behavior	.678	
Computation Capability	.681	
Financial Knowledge	.613	
Financial Education	.537	
Risk Attitude Towards Financial Products	.662	
Retirement Planning	.574	.163
Average Values	.624	.163
AVE x R^2	.102	
GOF= $\sqrt{\text{Average AVE} * \text{Average } R^2}$	.129	

Source: Field Data, (2025)

4.12 Hypothesized Model of the Study

Figure 4.9 indicated that computation capability and risk attitude towards financial products had positive significant relationship with retirement planning of government employees working in different ministries within Dodoma region; while financial knowledge and financial education had no significant relationship with retirement planning of government employees working in different ministries within Dodoma region. Figure 4.9 also demonstrated that financial decision behavior positively and significantly moderated the relationship between risk attitude towards financial products and retirement planning. Thus, the final conceptual model of the study is shown in Figure 4.9.

Figure 4.9: Conceptual Framework of the study



KEY:

- Supported the study Hypothesis
- - - - -→ Negated Study Hypothesis

Source: Field work data 2025

4.13 Hypothesized Model of Study

Concisely, the structural and measurement models were confirmed. The hypothesis results showed that computation capability, risk attitude towards financial products and the moderating effect of financial decision behavior on a relationship between risk attitude towards financial products and retirement planning were statistically significant. Also, financial knowledge and financial education were not significant statistically as determinants of retirement planning. The analysis confirmed the attainment of global GOF indices, which paves the way for the discussion of the findings for conclusion, implication and recommendations for further study.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter examines the results presented in chapter four. It juxtaposes the findings acquired with actual data documented by other researchers worldwide about the investigated region. The primary purpose of the study was to identify the factors of retirement planning among government employees across several ministries in Dodoma, Tanzania. The independent variables surveyed were computation capabilities, financial knowledge and education, risk attitude towards financial products and financial decision behavior and retirement planning as a dependent variable. The study additionally inspected the moderating influence of financial decision behavior on the link between the dependent and independent variables. Consequently, the results are examined in the subsequent sections.

5.2 Computation Capability

The hypothesis posited a significant influence of computation capability on retirement planning among government employees in Dodoma, Tanzania. Structural model analysis yielded a path coefficient of 0.176 between computation capability and retirement planning. While bootstrapping confirmed this relationship was statistically significant ($p = 0.012$, $t = 2.552 > 1.96$), supporting hypothesis acceptance based on the pre-set criteria ($p \leq 0.05$, $t \geq 1.96$). Lowry and Gaskin (2014) and Chinn (1998) establish that a path coefficient must reach at least 0.20 to be considered both statistically and substantively meaningful. Consequently, the coefficient of 0.176, being below this threshold, indicates that computation capability

had no practically significant impact as a determinant of retirement planning and does not warrant substantive discussion at the construct level.

However, Hair et al. (2017) note that PLS-SEM can yield a non-significant or weak relationship in the structural model while demonstrating satisfactory results in the measurement model. Consistent with this characteristic, the analysis of the measurement model revealed that all individual indicators of computation capability exhibited statistically significant path coefficients ($p = 0.000$) which is below 0.05 threshold. These significant and substantial indicator-level results warrant meaningful discussion regarding their specific role in measuring the computation capability construct and their impact on retirement planning.

Computation capability indicators were; It is easy for me to calculate interest rates on my savings, credits and investments, I can easily compute my retirement benefits, I have calculated how much money I will have set aside for my retirement period, I know how much I will need for retirement and I know the amount of money that I should save monthly to prevent financial problems during my retirement. The indicator of I know how much I should save monthly to prevent financial problems during my retirement statistically ($p=0.000$) showed that retirees were very confident about having enough money to live comfortably during their retirement years. Moreover, I understand that the sum of money required for retirement indicates that attaining financial security in retirement necessitates a certain level of financial acumen. Likewise, I can effortlessly compute interest rates on my savings, credits,

and investments, which have demonstrated a notably favorable and economically significant link between financial expertise and retirement planning.

The ability to effortlessly calculate my retirement benefits reinforces the idea that financial literacy includes both the comprehension of financial instruments and the skill to compute interest rates and retirement benefits. One reason many neglects retirement planning is their financial illiteracy, which may lead to a failure to comprehend the significance of inflation, compound interest, and risk in their assets.

The study results agree with those of different researchers that computation capability is a significant determinant of retirement planning (Farooq et al. 2021, Hamid and Loke, 2020, Ochieng et al. 2023, Di Matteo et al. 2023). The study corroborated the assertion that a high degree of computational proficiency regarding inflation and interest rates positively influences retirement planning (Lusardi et al. 2023). This aligns with the assumption that those proficient in computing are more inclined to formulate retirement plans (OECD, 2023).

The findings align with those of Safari et al. (2021), indicating that proficiency in fundamental financial mathematics is positively correlated with retirement planning. In addition, this study concurred with Kamakia (2017) who asserted that financial knowledge reflects one's comprehension of financial issues. He contended that it is evaluated by examining many facets of fundamental financial literacy, encompassing the time value of money, compound interest, deposits, inflation, diversification, interest rates, debt, and assets. The result suggested that knowledge of financial

issues like computation capability by government employees in Tanzania was statistically ($p=0.012$) a significant influence on determining retirement planning preparedness.

Employees consider computational capability essential for making decisions regarding asset allocation in pension portfolios, assessing mortgage product options, determining savings levels, and managing credit card debt. This necessitates knowledge and proficiency in calculating compound interest, assessing risk, and understanding return on assets. Individuals should also be capable of estimating the anticipated outcomes. In the absence of this capability, individuals will make suboptimal selections regarding their options.

5.3 Financial Knowledge

The study theorized that financial knowledge determines the retirement planning of government employees working in different ministries within the City of Dodoma in Tanzania. The results, however, revealed that financial knowledge was required but not statistically significant ($p=0.671$). Conversely, indicators of financial knowledge were statistically significant ($p=0.000$) as a measure of the construct and influenced retirement planning which allows for this discussion.

The findings were similar to those of Nansubuga (2018) who discovered that thinking and speaking about retirement only mentally prepares one for retirement, but does not necessarily lead to retirement preparation behaviors like financial planning. The results also concurred with those of Lusardi et al. (2020) that most

employees fail to save for retirement because of their employers' inadequate compensation packages. Retirees thus face challenges because of failure to prepare for retirement. Consequently, many people, especially those who never considered retirement as a need, occasionally seem disappointed, depressed, and frustrated when they find themselves suddenly retired. The results also concur with Okolie's (2021) findings acknowledged a concern about sudden death in service or during retirement as a challenge. He noted that the contributor's balance on their Retirement Savings Account is transferred to the beneficiary specified in the will: their children, spouse, or the administrator of their estate, or next of kin, as recognized by the Pension Act if they die before retirement. He further argued that the same rule is followed for retirees who started receiving benefits because of a planned withdrawal and the benefits are not made to the retirees' beneficiaries after death.

The findings further annulled other empirical findings that money management, the theory of pension knowledge, planned behavior predictors positively influence the aim to invest in a pension fund (Klapper and Lusardi 2023). It is therefore worthwhile to say that financial knowledge is a cornerstone of retirement planning and that it is vital when the choice of financial products is becoming more and more complex, with products easily accessible by various depositors and investors. Financial literacy is the comprehension of financial knowledge and has other dimensions, i.e, financial skills and attitude (Robb et al. 2021, Bucher-Koenen et al. 2021, Peiris 2021, Asante et al. 2024).

The study further negated the findings by Agunga (2016) and Lusadi et al. (2019) who established that in financial planning, knowledge becomes the foundation for decision-making, knowledge of financial products; risks intrinsic in financial instruments, calculation of returns will affect the results that will be attained in the future. Patrisia and Fauziah (2019) argued that access to the correct financial knowledge and skills could enhance one's financial wellbeing, which may help employees to invest and enlarge their sources of income thereby becoming financially protected. Financial knowledge mirrors one's understanding of financial matters.

5.4 Financial Education

Financial education was also hypothesized as essential for the retirement planning preparedness of government employees working in different ministries within the city of Dodoma in Tanzania. However, the findings revealed that financial education was essential but was statistically not significant ($p=0.0753$). Unexpectedly, indicators of financial knowledge were statistically significant ($p=0.000$) as a measure of the construct and influenced retirement planning which allows for this discussion.

The study result is consistent with Fanta et al. (2021) who suggested that only 32% of people in sub-Saharan Africa are financially literate as likened to 52% in high-income OECD economies. The research agrees with a study by Klapper et al. (2020) who said that in East Africa, there is a low financial literacy level, where only 30% of Kenyans, 25% of Ugandans, and 25% of Tanzanians are financially

knowledgeable. To be financially literate is to understand how to manage your money. Financial ignorance carries significant costs. Employees who don't plan for retirement face poor living conditions despite being employed during their working age. These facts validate the necessity for individual retirement plans among government employees in Tanzania.

The results impliedly negated empirical findings of other researchers who assert that those who undergo financial education training adopt a planning behavior and are more involved in preparing for wellbeing retirement (Klapper and Lusardi 2023, Bayar et al. 2020, Atkinson and Messy 2020). The result further negated empirical findings by (Mubalama and Kajingulu 2023, Kaiser and Menkhoff 2023, Kaiser and Menkhoff 2023, Amagir et al. 2022, Mbinji et al. 2022, Epaphra and Kiwia 2021) who asserted that financial literacy is important for alerting individuals on the importance of understanding several retirement savings options and proactively saving for retirement, ideally, from an early age. He further narrated that; financial literacy can give information on the features of pensions and retirement savings plans allowing the retiree an understanding of what actions to take concerning each of the choices. Today financial literacy is highly needed and beneficial because of low levels of financial literacy, inadequate savings, and high indebtedness among many households.

5.5 Risk Attitude Towards Financial Products

The study also hypothesized that risk attitude towards financial products determine the retirement planning of government employees working in different ministries

within the city of Dodoma in Tanzania. The surveyed data's findings showed that risk attitude towards financial products was indeed a statistically significant and positive ($p=0.000$) determinant of retirement planning of government employees working in different ministries within Dodoma. The findings agreed with those of other researchers that risk attitude towards financial products are a significant determinant of retirement planning (Shimizutani 2023, Uwimana 2023, Eton et al. 2021, Shimizutani et al. 2020).

The results concurred with studies by (Satria & Hutabarat 2020, Eton et al. 2021, Mwamba et al. 2022), who revealed that risk attitude towards financial products is an important ingredient of retirement planning. In a similar vein, financially literate respondents in the USA and Japan disclosed that invested in securities, stocks, and other financial products. This suggests that financially knowledgeable individuals are more aware of various financial products in the financial markets compared to their counterparts (Shimizutani et al. 2020).

Similarly, the results concurred with Ngugi and Mugo (2023), who stipulated that attitudes towards retirement products significantly affect personal retirement plans. People with positive attitudes to retirement products have a high probability of making pension financial plans. The results were also congruent with Oseifuah et al. (2023) who found that financial literacy levels significantly improved retirement planning behaviors, with understanding of interest rates, inflation, and risk diversification being key predictors. Therefore, the findings supported that, attitudes towards financial products significantly influence retirement planning.

5.6 Financial Decision Behavior Moderating Effect on Computation

Capability

The study also hypothesized that financial decision behavior significantly positively moderates the relationship between computation capability and retirement planning. The study's findings showed that financial decision behavior had a statistically insignificant ($p=0.726$) moderating impact on the relationship between computation capability and retirement planning.

The findings are similar to those of Antoni, et al. (2020) and Hastings et al. (2020) who suggested that one of the causes of inadequate preparation for retirement is the lack of financial knowledge to estimate how much they require for their future financial wellbeing and if they are saving enough. These results also agree with those of Tufano et al. (2015) and Lusardi et al. (2013) that employees who do not understand the concept of compounding interest spend more on transaction fees, incur higher interest rates on loans and run up bigger debts. They end up borrowing more and saving less (Stango et al. 2008).

Similarly, the results are similar to those of Muriithi et al. (2021) who argued that pre-retirement preparations programs in the Kenyan public service are inadequate because of employee's limited know-how on retirement life and low salaries. Likewise, in Uganda, retirees are challenged by insufficient knowledge and the lack of preparation on how to endure their postretirement life both mentally and financially (Boko, 2019). Again, retired civil servants in Tanzania face several challenges including deficient benefits, and complaints about how employees

contribute more than the estimated benefits to be received which are relatively low (Ahmed & Wang, 2018).

5.7 Financial Decision Behavior Moderating effects on Financial Knowledge

The study showed statistical insignificance ($p=0.854$) of the moderating impact of financial decision behavior on the relationship between financial knowledge and retirement planning. The findings invalidate the assertion that financial behavior affects financial capability, financial behavior is among the most significant factors that define the financial capability level (Potocki et al. 2019, Xiao, et al. 2014).

The results contradicted those of (Huston, 2010) that financial knowledge affects proper savings management, debt management, retirement planning, and other financial behaviors. The results were also inconsistent with empirical evidence that financial knowledge is linked to financial behavior (Moreland, 2018) both for the short and long term (Kim, et al. 2019) since highly educated individuals in business have a positive relationship with the probability of regular personal saving (Nguyen et al. 2019).

5.8 Financial Decision Behavior Moderating Effect on Financial Education

The results of the moderating impact of financial decision behavior on the link between financial education and retirement planning was weak and statistically insignificant ($p=0.312$). The findings established the notion that financial literacy has many advantages that are well documented in the literature; however, people rarely

get the chance to acquire it, particularly in poor nations. The absence of formal education in several nations denies people the chance to acquire important information and skills that they might practice in the future (Canfield, 2019).

The findings contradicted the findings by Chavali et.al (2021) who argued that all other financial behaviors, including saving and investing credit discipline, future orientation and financial awareness, significantly affect one's financial well-being. In a similar vein, Cibangala (2019) showed that financial knowledge significantly affects the financial wellbeing of people. Besides positive social attitudes, people from families which scored highly for financial literacy elicit better risk attitudes towards financial management and plans. They consider planning for their projects and future expenses to enhance their financial wellbeing and stability.

5.9 Financial Decision Behavior Moderating Effect on Risk Attitude Towards Financial Products

The results depicted a statistically significant ($p=0.013$) and positive moderating effect of financial decision behavior on the link between risk attitude towards financial products and retirement planning of government employees working in different ministries within the city of Dodoma in Tanzania. The result coincides with a study by Arianti, (2018) who asserts that financial behavior is a conduct linked to financial implementations. Financial literacy is essential for comprehensive financial decision-making.

Similarly, the result concurred with a study by Arlinda (2022) that financial behavior has a significant and positive influence that can moderate financial well-being.

Kamakia et al. (2017) in their research also confess that financially literate individuals have better financial results since they have more behavioral control over their finances. In line with this view, (Calcagno et al. 2014; Rahman et al. 2018) propose that individual investors should study about finance to sustainance them to make sound financial decisions and optimal investment decisions. The study findings further coincide with study findings by (Moreland, 2018) who asserted that financial knowledge is related to financial behavior both in the long and short term because individuals with high education and study level related to business relate positively with the probability of consistent personal saving (Kim et al. 2019), Nguyen et al. 2019). Higher knowledge leads to better financial behavior, which in return enhances financial capability, and control. With greater capability, one can plan financial obligations, and cash flows in much better ways. Thus, it is alleged that spending behavior also impacts financial retirement preparedness.

CHAPTER SIX

CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

6.1 Conclusion

6.1.1 Computation Capability as a Determinant of Retirement Planning

The first study objective examined the influence of computation capability on the retirement planning of government employees working in different ministries within the city of Dodoma in Tanzania. Computation capability was measured by five measures of; It is easy for me to calculate interest rates on my savings, credits and investments, I can accurately compute the benefits I am owed upon retirement. I have performed calculations to ascertain the total savings for my retirement period, the requisite funds needed for retirement, and the monthly savings necessary to avert financial difficulties during retirement. The manifest variables positively verified a statistically substantial measure of computational skill as a latent variable, which affected retirement planning. It was clearly stated that computational proficiency is essential for employees, as they must allocate assets in pension portfolios, ascertain savings levels, assess mortgage product alternatives, and manage credit card debt, necessitating knowledge and skills in calculating compound interest, understanding risk, and comprehending return on assets. Employees must also possess the ability to forecast the anticipated outcomes. In the absence of this capability, personnel will provide suboptimal conclusions regarding their options.

The result suggested that knowledge of financial issues like computation capability by government employees in Tanzania was statistically ($p=0.012$) a significant factor affecting retirement planning preparedness. The findings supported the expected

utility theory that computation capability is a component of the retirement planning of government employees in Tanzania.

6.1.2 Financial Knowledge as a Determinant of Retirement Planning

The second study objective examined financial knowledge as a factor affecting the retirement planning of government employees working in different ministries within the city of Dodoma in Tanzania. The tested hypothesis revealed that there was a positive link between financial information and retirement planning but was statistically insignificant (0.671). The assessment of this construct was conducted using the observed variables: I utilize financial know-how to make my financial decisions, I comprehend the available investment opportunities for pension schemes, I am capable of calculating the interest accrued on my investments, and I typically plan for my future income and expenditures.

The indicators were established to be statistically noteworthy measurers of financial knowledge and influenced retirement planning. Financial knowledge in making personal financial decisions is very crucial for any employee to achieve proper plans for future life. However, financial knowledge was statistically ($p=0.671$) insignificant factor for retirement planning preparedness among government employees in Tanzanian.

6.1.3 Financial Education as a Determinant of Retirement Planning

The third objective of the study was to establish if financial education is related to the retirement planning of government employees working in different ministries

within the city of Dodoma in Tanzania. Through literature and theories review, the study hypothesized that financial education positively and significantly influences the retirement planning of government employees working in different ministries within Dodoma city in Tanzania. The hypothesis test results revealed that financial education was statistically insignificant ($p=0.753$) as a determining factor of retirement planning. The construct was measured using indicators of: I have acquired through formal education (Schools, Colleges and Universities), I have acquired formal training on financial retirement planning I have received formal training on the management of finances and I have acquired through social media i.e. Email_twitter_Facebook_WhatsApp__Instagram Telegram.

The indicators statistically measured financial education as a construct and revealed a robust influence on retirement planning. However, the findings showed a critical ratio below set target and p-value ($p=0.753$) above set target thus financial education is not a statistically significant factor as a determining factor of retirement planning. It is resolved that financial education is not a determinant of retirement planning, thereby supporting the theory of planned behavior used in the study.

6.1.4 Risk Attitude Towards Financial Products as Determinant of Retirement Planning

The fourth objective of the study studied whether risk attitude towards financial products determines the retirement planning of government employees working in different ministries within the city of Dodoma in Tanzania. The study hypothesized that risk attitude towards financial products affected positively and significantly

retirement planning of government employees working in different ministries within the city of Dodoma. The findings of the hypothesis analysis exposed statistically significant ($p=0.000$) and positive influence of risk attitude towards financial products on retirement planning. Measurement of risk attitude towards financial products was done through indicator variables of: investments options and saving options overall are far too complicated for me, I avoid investments and saving because you can lose a lot of money with them and I cannot save or invest without an investment advisor as an intermediary which was established to be a statistically substantial measure of the construct and influence retirement planning. It was discovered that attitudes towards retirement products are important in personal planning for retirement. People with favorable opinions toward retirement goods can establish pension financial plans. This indicates that financially knowledgeable individuals possess more awareness of the diverse financial goods offered in the marketplace compared to their less-informed peers. An individual's risk aversion significantly influences financial decisions, including retirement savings and investment choices. The risk attitude toward financial goods is a crucial factor for retirement planning, corroborating the idea of anticipated value.

6.1.5 Moderating effect of Financial Decision Behavior on the Determinants of Retirement Planning

The fifth study objective was to show whether financial decision behavior moderates the relationship between the determinants of retirement planning of government employees working in different ministries within the city of Dodoma in Tanzania. This objective produced four hypotheses as expounded hereunder.

6.1.5.1 Moderating effect of Financial Decision Behavior on Computation Capability

The hypothesis established from the fifth objective proposes that financial decision behavior positively moderates the link between retirement planning and the computation capability of government employees working in different ministries within the city of Dodoma in Tanzania. The examination of the hypothesis demonstrated an absence of moderating influence. Poor financial decision-making behavior undermines the correlation between computational competence and retirement planning. It is determined that financial decision behavior does not moderate the association between computational capabilities and retirement planning.

6.1.5.2 Financial Decision Behavior Moderating Effect on Financial Knowledge

The study examined if financial decision behavior moderates the link between financial knowledge and retirement planning as derived from the sixth objective. The study hypothesis detailed that financial decision behavior moderates the relationship between financial knowledge and retirement planning of government employees working in different ministries within the city of Dodoma in Tanzania. The analysis of the studied hypothesis indicated a positive path coefficient, but without a moderating impact. The findings indicate that while financial decision-making behavior is impactful and affects retirement planning, it does not alter the direction or intensity of the relationship between financial know-how and retirement planning.

Possessing appropriate financial knowledge and abilities may, however, enhance an individual's economic welfare, enabling employees to invest and diversify their income sources, ultimately achieving financial security (Kamakia, 2017). It is concluded that financial decision behavior does not moderate the relationship between financial knowledge and retirement planning.

6.1.5.3 Moderating effect of Financial Decision Behavior on Financial

Education

The study also hypothesized that financial decision behavior moderates the relationship between financial education and retirement planning of government employees working in different ministries within the city of Dodoma in Tanzania. The examination of the hypothesis revealed a weak and insignificant moderating effect on the relationship between financial decision behavior and financial education on retirement planning. This demonstrates that financial decision behavior cannot change the direction or alter the strength on the relationship between financial education and retirement planning. Therefore, it is concluded that the relationship between financial education and retirement planning is not moderated by financial decision behavior.

6.1.5.4 Financial Decision Behavior Moderating Effect on Risk Attitude

Towards Financial Products

The study also hypothesized that financial decision behavior positively and significantly moderates the relationship between risk attitude towards financial products and retirement planning of government employees working in different

ministries within the city of Dodoma in Tanzania. The examination of the hypothesis showed that there was positively significant moderating effect. This implies that an appropriate financial decision behavior has a strong link between risk attitude towards financial products and retirement planning and vice versa, which supports the theory of planned behavior. The research indicates that behavioral intention in financial literacy significantly enhances the likelihood of making a financial decision or adopting a financial product (Kennedy, 2018). The findings of this study indicate that attitudes regarding financial goods are crucial in formulating personal retirement strategies. Individuals with favorable views toward financial items are very likely to establish retirement plans. The research corroborated the hypothesis of planned conduct.

In summary, the study established that computation capability and risk attitude towards financial products collectively had a statistically significant and positive impact as determinants of retirement planning of government employees in different ministries within the city of Dodoma in Tanzania. Although financial knowledge and financial education had favorable effects, they were not statistically significant as drivers of retirement planning. Financial decision behavior was shown to positively and considerably modify the connection between risk attitude towards financial goods and retirement planning. The conclusions gained offer a basis for deriving the consequences of the study, emphasizing practical, policy, and theoretical dimensions.

6.1.6 Implication of the Study

This section presents the consequences of the study based on the results, debates, and conclusions drawn. The ramifications of the study are grouped into practical, policy, and theoretical dimensions. The practical implications emphasize the study's contribution to improving financial planning readiness among government employees in Tanzania. Theoretical implications pertain to the advancement of knowledge and enhancement of hypotheses resulting from the study's methodology and conclusions. The study illustrates how the examination and implementation of policies enhance the efficacy of pension programs in Tanzania.

6.1.6.1 Practical Implications of the Study

The study indicated that effective retirement financial planning is crucial, particularly in this era of rapid changes in financial markets, technological advancements, and the emergence of new, more complex financial products available to consumers, contrasting significantly with past offerings. Concurrently, decisions concerning these financial items also impact their financial status and general well-being. Moreover, the exponential expansion of financial technology (FinTech) is transforming the financial industry in terms of payment methods, financial advisory, and investment decision-making. It is essential to comprehend the advantages of a financially informed populace for individual welfare and the national economy. The study found that computational capability, risk tolerance for financial goods, and financial decision-making behavior affect retirement planning readiness.

In this study, there were no effects of financial knowledge on retirement preparedness among government employees working in different ministries within the city of Dodoma in Tanzania. This is likely to be because of the nature of contracts of employment between the government and its employees in Tanzania. In their employment contracts there is a clause that indicates the nature and condition of their employment as permanent and pensionable. Government employees in Tanzania are thus aware that they are covered by the traditional pension scheme that is regulated by the Social Security Regulatory Authority - SSRA and they look at it as a regulatory requirement that must be complied. Empirically, financial knowledge is the basic component of financial literacy for individuals to choose financial products and services and provide knowledge for good decision-making use of it. Acquiring financial knowledge may significantly impact retirement well-being by influencing individuals' capacity to save and invest. Financial knowledge essentially denotes an individual's comprehension of financial matters. It is evaluated by examining many facets of fundamental financial literacy, including compound interest, inflation, deposits, interest rates, time value of money, diversification, debt, and assets. Financial knowledge underpins financial literacy, enabling individuals to make informed decisions and cultivate sound financial practices.

The study also has shown that financial education is partially a relevant factor for retirement planning. The government should prioritize teaching employees on income management, savings for their children's education, and retirement planning. Financial education significantly influences retirement planning. Participation in seminars, receipt of written messages, and utilization of internet resources are

identified as effective means to obtain financial education. Furthermore, employees ought to pursue financial knowledge to enhance their retirement planning.

The study findings have shown that risk attitude towards financial products is a key factor for retirement planning. The subscription to life insurance products is influenced by employees' risk attitude toward financial products. To invest in stocks, securities and other financial products requires financially literate employees. This indicates that financially educated personnel possess more awareness of the diverse financial products offered in the financial markets compared to their peers. Employees exhibiting low-risk aversion towards retirement goods are very likely to engage in retirement planning. A person's risk aversion significantly influences financial decisions, including retirement savings and investment choices.

Furthermore, the study findings revealed that financial decision behavior is the importance for retirement planning. Financial decision behavior is a conduct that is linked with financial implementations and it is crucial for sound financial decision-making. In practice, a high degree of financial literacy escorts towards better financial decisions. For financial planning, preparation for the future, budgeting of the finances, spending, purchasing attitude, investment, and saving attitude are indicators of financial decision behavior.

Lastly, the study findings were that financial decision behavior positively and significantly moderated the relationship between risk attitude towards financial products and retirement planning. Practically, employees who make the right

financial decision-making keep funds for emergencies, schedule their payment obligations, and make prudent investments in financial products, make regular savings, and set financial goals. Therefore, the moderating effect of financial decision behavior on retirement planning among government employees is a sign of higher financial knowledge that promotes better financial decision behavior. Concisely, the study highlighted pertinent factors, which practically implicate employees' retirement planning. The study established key factors for practical implications are computation capability, risk attitude towards financial products, financial decision behavior and moderating effect of financial decision behavior on the relationship between risk attitude towards financial products and retirement planning preparedness.

6.1.6.2 Policy Implications

This section presents the policy implications of the present study. The research determined that financial literacy is crucial for employees in planning for retirement. Financial literacy serves as a measure of individuals' capacity to make informed financial decisions. This capability will enhance employees' and society's financial well-being and their capacity to engage in economic activities. Consequently, the policy consequence of this study is that governmental regulators such as SSRA, together with pension scheme providers like NSSF and PSSSF, should include the identified criteria from this study in their policy evaluations to ensure reliable and efficient retirement planning. The study model identified the following factors for effective retirement planning: computational abilities, financial literacy, financial

education, risk tolerance for financial products, and financial decision-making behavior. The policy implications for the elements are as presented below.

6.1.6.3 Computation Capability Policy Implications

The study model showed that computation capability affects retirement planning. Computation capability was captured by it is easy for me to calculate interest rates on my savings, credits and investments and I can easily compute benefits due to me on retirement. It was further captured by I have done calculations to know how much money I will have saved for my retirement period; I know the amount of money I will need for retirement and I know the amount of money that I should save monthly to prevent financial problems during my retirement. The present results showed that computation capability was a critical factor for the retirement planning of government employees working in different ministries within the city of Dodoma in Tanzania. Therefore, it is vital for the government, pension scheme regulator (SSRA), and professional bodies (Tanzania Employers' Association), and pension schemes (NSSF and PSSSF) to come up with policy guidelines for appropriate formula regarding retirement benefits in Tanzania. The inputs from this study may make considerable contributions to improving retirement benefit to government employees in Tanzania.

6.1.6.4 Financial Knowledge Policy Implications

The study also established that financial knowledge did not affect retirement planning preparedness. The study observed that government employees in Tanzania are aware that retirement benefit is a regulatory requirement that needs to be

complied based on their employment contracts. The study further observed that issues like sudden death, the inadequate compensation packages are considered as challenges to retirement planning preparedness. Consequently, recognizing its significance, policymakers have to develop better-education measures to enhance employee savings within an economy. Financial literacy programs for employees should be ubiquitous, as they improve comprehension of financial situations, facilitate future financial planning, and assist in selecting the most suitable financial instruments to attain financial objectives. Enhanced financial literacy favorably impacts employees' savings, since a greater comprehension of financial situations enables them to make more educated financial choices.

6.1.6.5 Financial Education Policy Implications

The study found that financial education has no impact on the effectiveness of retirement planning although inadequate financial literacy endangers retirees' wellbeing permanently. People who have better financial education choose to save and credit more wisely. The findings indicated that the inadequate understanding the financial literacy education and financial planning will result in erroneous retirement decisions among seniors. The study identified regular training in financial education programs as essential for achieving retirement planning preparation among government employees in Tanzania. Thus, the present study presents policy implications concerning the review of training curricula in both secondary schools and higher learning institutions, organizing regular workshops and seminars on financial issues as a need for personal retirement plans to amongst government employees in Tanzania.

6.1.6.6 Risk Attitude Towards Financial Products Policy Implications

This part highlights the policy implications of the present study on risk attitudes towards financial products for retirement planning. The study found that making savings and investments using advisors as intermediaries is fundamental and technical proficiency in financial retirement planning. Similarly, familiarity with investment and saving options leads to effective financial retirement planning. Employees should get knowledge of financial goods through frequent seminars and training, familiarizing themselves with the diverse array of financial offerings accessible to them. Therefore, government, pension scheme providers and social security regulators should craft policy guidelines to ensure that employees access a range of financial products, an appropriate regular training on financial products through workshops and seminars to be more conscious of various financial products that are available in the financial markets when it comes to issues like choosing an appropriate investment portfolio.

In summary, the study policy implementations should promote financial planning behavior since it enables employees to assess their financial objectives and act accordingly to update or achieve them and this is based on employee's computation capability, financial education, financial knowledge, financial decision behavior, and risk attitude towards financial products.

6.1.7 The Study Theoretical Contribution

This section presents the theoretical implications of the present study. Crane, Husted, and Henriques (2016) articulated in their essay the fundamental elements that define a theoretical contribution, emphasizing the importance of adding to an appropriate

theory. They contended that the research should not just elucidate a singular occurrence or instance; rather, it should serve as a comprehensive instrument for disseminating information across a wider array of phenomena. Consequently, the greater the scope considered, the more substantial the theoretical contribution. Whetten (1981) emphasized in his essay on theoretical contributions that one method of adding to theory is assessing how the removal or inclusion of a specific element in the proposed model affects the established connections among the factors.

Theoretically, it was established that variables of computation capability and risk attitude towards financial products collectively determine employees' financial retirement planning preparedness. The theoretical basis of the study was grounded in the ideas of anticipated benefit and planned behavior. The empirical analysis of the conceptual framework resulted in the verified integrated model depicted in Figure 4.9, which serves as a reference for further research in financial retirement planning readiness.

A significant theoretical addition is the incorporation of the moderating influence of financial decision behavior inside the theoretical framework, as documented by the present study depicted in Figure 4.9. The moderating effect was implemented over the whole model. The moderation effect has introduced a new dimension to the study of financial retirement planning, particularly within the Tanzanian setting, which will ultimately enhance information asymmetry in the literature on financial retirement planning readiness.

The moderating effect of financial decision behavior on the association between risk attitude towards financial products and retirement planning was statistically significant ($p=0.013$). Theoretical implications refer to the applicability of a hypothesized statement or model in enhancing the theory of planned conduct, which posits that decision-making behavior involves finding possibilities, acquiring information, and evaluating alternative solutions. Prudent financial decision-making aids government personnel in evaluating options and making informed judgments regarding investments and loans concerning their financial situations. Prudent financial decision-making facilitates effective saving and expenditure strategies, evaluates costs before significant purchases, and establishes plans for retirement or other long-term savings. This indicates a correlation between financial literacy and financial decision-making behavior, which assists government personnel in making sound financial decisions about retirement.

Ultimately, the study enhances the theory of planned behavior by demonstrating that financial literacy cultivates an individual's financial habits, norms, values, and standards, therefore facilitating sound financial decision-making in daily life. Similarly, Fauziah et al. (2019) assert that financial decision-making enhances the ability to proficiently handle funds and promptly address financial problems or challenges. Muriithi et al. (2021) asserted that financial habits and standards enable individuals to make financial judgments influenced by their mentalities, values, emotions, habitual behaviors, and contextual circumstances. The study posited that comprehensible solutions for financial retirement planning enhance the application of its results and suggestions.

The study's conclusions utilized the theories of expected utility and planned behavior as multilevel frameworks to elucidate the impact of financial literacy on retirement planning among government employees across several ministries in Dodoma, Tanzania. The research enhanced the distinctiveness of the integrated theoretical framework, which incorporates several hypotheses that have been substantiated and proven, as seen in Figure 4.9.

6.1.8 Limitation of the Study and Area for Further Study

This study examined the effects of financial literacy on the retirement planning of government employees working in different ministries within the city of Dodoma in Tanzania. The research reported that computation capability, risk attitude towards financial products and moderation role of financial decision behavior as in the assessed model were crucial for retirement planning of government employees working in different ministries within the city of Dodoma in Tanzania. However, this study had several limitations, which could form a good starting point for further studies.

First of all, the study was conducted in the Dodoma region only and involved government employees working in different ministries within the city of Dodoma in Tanzania. Although it provided valuable insight into financial retirement planning among government employees working in different ministries within the city of Dodoma in Tanzania, the result cannot be generalized to all government employees in Tanzania. This is because the study depended only on the views and propositions of government employees specifically those working in different ministries within

the city of Dodoma in Tanzania. Hence, the researcher recommends that additional research should be conducted in other regions involving employees from different government departments and other sectors of the economy to broaden the insights on employees' financial retirement planning preparedness as far as Tanzania as a country is concerned.

Secondly, this study was limited to 408 sample sizes. Thus, future studies should increase the sample size to adequately represent the target population by deploying other sample strategies for obtaining the sample. The repeating of the study employing a bigger sample size would also be useful to strengthen whichever results were revealed. The present study used the direct delivery distribution of questionnaires during data collection. However, future research may consider other methods of distributing questionnaires such as e-mail, Facebook, Twitter, and or posting them through the post office. Besides that, the questionnaires were used during data collection, so future research may consider using the interview method for data collection to broaden and deepen the picture of employee's financial retirement preparedness.

Thirdly, empirical results by other scholars like those of: (Lusadi et al. 2023, Mubalama et al. 2023, Buchdadi 2020, Satria and Hutabarat 2020, Kulondwa et al. 2021), revealed that financial knowledge and financial education were important aspects as determining factors of financial retirement planning but unexpectedly, this study's results contested that in the Tanzanian context. Equally, other study factors like computation capability, risk attitude towards financial products, and financial

decision behavior were found to be statistically substantial as determinants of retirement planning. This work generates significant curiosity for subsequent research utilizing the same variables in various regions of Tanzania and abroad to ascertain whether the validated model may be repeated with analogous outcomes.

The fourth limitation was that the present study used the theories of expected utility and planned behavior to develop at testable variables. The findings might be unique and biased to these theories. It is recommended that more studies be done based on other theories like: life cycle theory (Ando & Modigliani, 1963), prospect theory (Daniel Kahneman and Amos Tversky, 1979), Permanent income theory (Friedman, 1957), The theory of resources action (Fishbein and Ajzen, 1973) and others to advance new variable besides to the one analyzed in the present study for retirement planning preparedness.

The final constraint was the utilization of Smart PLS Structural Equation Modeling (PLS-SEM) for analysis, which may yield inconsequential association in the structural model while presenting statistically significant findings in the measurement model (Hair et al. 2017). The results of this study may have been influenced by the presence of two constructs, financial knowledge and financial education, which exhibited measurement variables that were statistically significant yet had an insignificant connection within the structural model. The present study advocates for more research utilizing the same model but employing alternative statistical analysis methods.

Besides, the study used four factors to examine determinants of financial retirement planning using financial decision behavior as a moderating variable in Tanzania. It is proposed that future research may consider other factors and moderating variables to measure the employee's financial retirement planning preparedness.

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APPENDICES

APPENDIX 1 - RESEARCH QUESTIONNAIRE

THE OPEN UNIVERSITY OF TANZANIA

Dear respondent,

I am Tiberius Phillip Mlowosa, a PhD student at the Open University of Tanzania. Currently, I am conducting research titled “The effect of financial literacy on retirement planning among government employees in Tanzania: Moderating effects of financial decision behavior”. Your participation is essential to the success of this study.

Please rest assured that any information provided by you will be treated with the utmost confidentiality and solely used for academic purposes. Your honest and precise responses to the attached questionnaire will greatly contribute to the depth and significance of the research.

The target participants for this study encompass government employees working in different ministries within the city of Dodoma in Tanzania. Your cooperation is highly appreciated and I am grateful for your valuable contribution to this endeavor.

Name of

Ministry.....

SECTION A: RESPONDENT’S SOCIAL DEMOGRAPHIC INFORMATION

1. **Gender** (1) Male (2) Female
2. **Age:**
(1) Below 30 years
(3) 41 – 50 years
(5) Over 61 years
(2) 31 -40 years
(4) 51 – 60 years
3. **Marital status**
(1) Single
(3) Divorced
(5) Widowed
(2) Married
(4) Living with Partner
4. **Level of Education**
(1) Primary level
(2) Ordinary level

- | | | | |
|--------------------|----------------------|----------------------|----------------------|
| (3) Advanced level | <input type="text"/> | (4) University level | <input type="text"/> |
| (5) PGD | <input type="text"/> | (6) Master | <input type="text"/> |
| (7) PhD | <input type="text"/> | | |

5. Job position

- | | | | |
|---------------------------------|----------------------|------------------------|----------------------|
| (1) Supporting staff | <input type="text"/> | (2) Middle level staff | <input type="text"/> |
| (3) Decision making level staff | <input type="text"/> | | |

6. Indicate the range of your gross monthly family income

- | | |
|-----------------------------------|--------------------------|
| (1) Below TZS 270, 000 | [<input type="text"/>] |
| (2) TZS 270,000 – TZS 1,000,000 | [<input type="text"/>] |
| (3) TZS 1,000,000 – TZS 2,000,000 | [<input type="text"/>] |
| (4) TZS 2,000,000 – TZS 3,000,000 | [<input type="text"/>] |
| (5) Above TZS 3,000,000 | [<input type="text"/>] |

7. How many dependents directly depend on you financially?

- | | | | |
|-----------------------|----------------------|----------------------|----------------------|
| (1) Below 1 dependent | <input type="text"/> | (2) 1 - 2 dependents | <input type="text"/> |
| (3) 2 – 3 dependents | <input type="text"/> | (4) 3 – 4 dependents | <input type="text"/> |
| (5) Over 4 dependents | <input type="text"/> | | |

8. How long have you worked in the public service?

- | | | | |
|------------------|----------------------|-------------------|----------------------|
| (1) Below 1 year | <input type="text"/> | (2) 1 - 4 years | <input type="text"/> |
| (3) 5 – 9 years | <input type="text"/> | (4) 10 – 14 years | <input type="text"/> |
| (5) > 15 years | | | |

9. Have you ever attended any seminar/workshop on retirement planning in the last two years?

1. Yes [] 2. No []

10. Does the public office where you work have the option of early retirement?

1. Yes [] 2. No []

11. If the response to above question is YES which retirement option, would you take?

1. Early-retirement [] 2. Normal retirement [] 3. Late retirement []

SECTION B: LEVEL OF FINANCIAL LITERACY

13. LEVEL OF RETIREMENT PLANNING

On a scale of 1 – 5, please rate your level of agreement to each of these statements in relation to the level of retirement planning. The rating is on the following scale, 1= Strongly disagree (SD), 2=Disagree (D), 3=Neutral (N), 4=Agree (A), 5= Strongly Agree (SA)

	Factors	SD	D	N	A	SA
RP1	I have already developed a retirement budget					
RP2	I have a retirement plan in place					
RP3	I know my retirement income					
RP4	I have do save for my retirement					
RP5	I am expecting to moving to a cheaper area up on retirement					
RP6	I am able to implement my retirement plan					
RP7	Involvement in my retirement plan matters to me					
RP8	I am expecting to depend on my children on retirement					
RP9	I struggle to prepare a retirement plan					
RP10	I am expecting to continue working after retirement					

SECTION C: MEASUREMENT OF FINANCIAL LITERACY LEVEL

On a scale of 1 – 5, please rate your level of agreement with each of these statements in relation to measuring financial literacy level. The rating is on the following scale, 1= Strongly disagree (SD), 2=Disagree (D), 3=Neutral (N), 4=Agree (A), 5= Strongly Agree (SA)

	Factors	SD	D	N	A	SA
Computation Capability						
CC1	It is easy for me to calculate interest rates on my savings, credits and investments					
CC2	I can easily compute benefits due to me on retirement					
CC3	I have done calculations to know how much money I will have saved for my retirement period					
CC4	I know the amount of money I will need for retirement.					
CC5	I know the amount of money that I should save every month in order to prevent financial problems during my retirement					
Financial Knowledge						
FK1	I use financial knowledge to make personal financial decision					
FK2	I understand the available investment options for pension schemes					
FK3	I usually budget my money before I receive my salary and other income					
FK4	I know how to calculate interest due on my investments					

FK5	I usually do plan for my future income and expenses					
Financial Education						
FE1	I have acquired through formal education (Schools, Colleges and Universities)					
FE2	I have acquired formal training on financial retirement planning					
FE3	I have received formal training on the management of finances					
FE4	I have acquired through social media ie. Email_ twitter_ Facebook_ WhatsApp_ Instagram Telegram					
FE5	I have acquired through my relatives in the family business					
Risk Attitude Towards Financial Products						
RA1	I am familiar with investments options and saving options					
RA2	I prefer investments and saving because you can earn a lot of money with them.					
RA3	I normally use an investment advisor as an intermediary to save or invest in financial instruments					
RA4	I prefer an investment that pays off stable interests than an investment that provide the double of interests with 50% of chance to lose the initial investment.					
RA5	I feel having life insurance to protect my family members is very important					
Financial Decision Behavior						
FD1	I can properly manage my personal finance without difficulties					
FD2	I usually make my expenditure basing on my planned budget					
FD3	I can properly manage using available credit opportunity					
FD4	I used to make enough savings to cater for my future needs					
FD5	I have that investment behavior for short-term and long-term interest-bearing financial products					

THANK YOU FOR YOUR PARTICIPATION

Appendix – II
Summary of Empirical Literature Review

Author (s) and Tittle	Major Findings	Research gap identified
Anderson, A., Baker, F. and Robinson, D.T. (2017), “Precautionary savings, retirement planning and misperceptions of financial literacy”,	Results reveal that computation capability as a construct of financial literacy and retirement preparedness were found to be positively correlated. Individuals who have good command in computation is more likely to make plans for their retirement	The study rests on Probit model with one variable computation capability, on employees selected on Linkedin. The current study addresses this gap by investigating the case of government employees in Tanzania using five variables and one moderating variable
Atkinson and Messy (2020). The Role of Financial Education in Improving Financial Behavior, Including Retirement Savings, in Developing Countries, Including Africa	The findings revealed that financial education significantly improved financial behavior, including increased retirement savings, though challenges such as low initial financial literacy, cultural barriers, and limited access to financial products were noted.	This study focused developing countries including Africa and employed a mixed-methods approach combining quantitative and qualitative research to examine the impact of financial education on financial behavior. The current study investigated the effects of financial literacy on retirement planning of government employees in Tanzania and employed quantitative research.
Bayar et al. (2020). Financial literacy and education level risk tolerance amongst investors within Turkish at Usak University personnel.	The study results concluded that financial literacy and education level give positive impacts on financial risk tolerance amongst investors within Turkish Usak University personnel. The study finds that financial literacy and education level are proven to ease complicated financial decision making. This study was conducted in Turkish to Usak	The study dwells on ordinary least square. The current study is based on the public sector employees in Tanzania employing smart PLS SEM as a tool of data analysis, unlike the previous study, which is based in Turkish at Usak University personnel.

	University personnel.	
Di Matteo et al. (2023) investigated the drivers of retirement planning among university students in Italy.	The results reveal that theory of planned behavior predictors, pension knowledge, and money management influence positively the intention to invest in a pension fund.	The theory of planned behavior and ordinary least square step-wise multiple regression analysis is used. This research included only youth in the sample, the current study included government employees in Tanzania.
Bucher-Koenen et al. (2021). Fearless women financial literacy and stock market participation in Netherlands	Study results revealed that financial literacy, comprising financial knowledge and confidence gives an impact on individuals' stock market participation.	This study was conducted in Netherlands to Fearless women. The present study aimed at filling this gap by studying the financial retirement planning of government employees in Tanzania by employing Partial Least Square Structuring Equation Model as a method of data analysis.
Mubalama and Kajingulu (2023) on financial literacy in the Democratic Republic of Congo	Results show that financial literacy affects significantly the financial wellbeing of individuals. Apart from positive social attitudes, individuals that come from a family with a high score of financial literacy were found to have better risk attitudes towards financial plans and financial management.	This study was centered on DRC; the present study fills that gap in carrying out an investigation on government employees in Tanzania.
D'Acunto, F., Prokopczuk, M., & Weber, M. (2022). Financial education and retirement planning:	The study demonstrate that AI tools significantly enhance financial decision-making by reducing behavioral biases like present bias and loss	The current study is on financial retirement planning of government employees in Tanzania and employed smart PLS SEM.

Evidence from a randomized field experiment.	aversion, improving savings rates, and providing cost-effective, personalized advice, particularly for those with lower financial literacy. The authors conclude that AI tools have the potential to democratize access to financial guidance globally and recommend policy support, financial education, and increased consumer awareness to maximize their benefits, especially in underserved.	
Epaphra and Kiwia (2021). Financial literacy and participation in the financial markets in Arusha, Tanzania.	The study found that people with higher financial literacy, represented by financial knowledge variable as well as male and married have a better chance to invest in the financial market despite their education level. Other variables such as income level and risk attitude play significant roles to influence one's participation in the financial markets.	The author assessed the influence of financial literacy, and participation in financial market by applying logit regression model. The current study filled that gap by using Smart PLS SEM with five variables and moderating effect as constructs of retirement planning to government employees in Tanzania
Eton, M., Mwosi, F., Obote, D., & Turyehebwa, A. (2021). Financial literacy and retirement planning among informal sector workers in Uganda.	The findings revealed that higher financial literacy levels significantly improved retirement planning behaviors, with understanding of interest rates, inflation, and risk diversification being key predictors. However, many	This study involved teachers in Uganda. The present research addresses that gap by investigating financial retirement planning of government employees in Tanzania.

	teachers faced barriers such as limited access to formal financial products and relied on informal savings mechanisms.	
Klapper and Lusardi (2023) on financial literacy in emerging Asian economies	The result found that, highly educated demographics exhibit financial literacy levels comparable to those in developed nations. Their research also indicated that within these specific, educated cohorts, gender disparities in financial literacy were not statistically significant. Furthermore, the study reinforced the link between financial knowledge and investment behavior, showing that higher literacy is correlated with a greater propensity to invest in higher-risk, higher-return assets like equities. While such findings provide insights into specific professional and high-income groups in other regions, a gap remains regarding the broader population of public sector employees in different contexts.	This study targeted legal community's financial literacy and was conducted emerging Asian economies. The current study addresses this gap by investigating the case of government employees in Tanzania by employing smart PLS SEM as a tool for data analysis
Farooq et al. (2021). The influence of financial literacy, financial attitude, and parental financial socialization on prudent	The conclusion from the study reveals that financial literacy, financial attitude, and parental financial socialization give a	The author assessed the influence of financial literacy, financial attitude, and parental financial socialization on prudent

financial management practices among youth in Pakistan	positive impact on prudent financial management practices significantly.	financial management practices among youth in Pakistan. The current study filled that gap by using Smart PLS SEM with five variables and moderating effect as constructs of retirement planning to government employees in Tanzania
Hamid and Loke (2020). Correlation between financial literacy, money management skill, socioeconomic variables, overspending and impulsiveness in credit card repayment decisions among credit card users in Malaysia.	From the study, financial literacy and money management skill show positive significance in decision-making amongst credit card holders. Whereas socioeconomic variables namely ethnicity, marital status, education, income, and the number of credit cards also show significance in credit card repayment decisions.	This study was centered on retirement planning and pension funds participation in Russia. The current study focuses on an underdeveloped country, Tanzania and includes five constructs of financial literacy: financial education, financial knowledge, computation capability, risk attitude towards financial products and financial decision behavior.
Amagir et al. (2022) investigated financial literacy related disparities in a group of middle-income countries by identifying financial literacy levels	The study reveals that groups with lower financial literacy scores are women, younger adults, and individuals with lower educational attainment. In addition, the quality of education also positively affects financial literacy, influenced not only by the years of education possessed by respective individuals but the quality of education as well.	This research investigated financial literacy related disparities in a group of middle-income countries by identifying financial literacy levels. This study was conducted in groups of middle-income countries of Colombia, Lebanon, Mexico, Turkey, and Uruguay. The current study is on financial retirement planning of government employees in Tanzania
Peiris (2021). The influence of financial	The study concludes that	This study was on savings

literacy on savings behavior amongst employed individuals in Sri Lanka.	financial literacy plays a significantly positive impact on savings behavior. Hence, the finding suggests the promotion towards knowledge of the financial system in order to support increasing positive savings behavior.	behavior and was carried out in Sri Lanka by employing logit regression analysis model. The current study is on financial retirement planning of government employees in Tanzania by employing smart PLS SEM.
Ochieng, C. M., & Were, M. (2023). Financial Literacy and Retirement Planning Among Kenyan Millennials	The findings revealed that higher financial literacy levels significantly improved retirement planning behaviors, with understanding of interest rates, inflation, and risk diversification being key predictors. However, many millennials prioritized short-term financial goals over long-term savings, and those with access to digital financial tools were more likely to engage in retirement planning	This study was carried out in Kenya involving Kenyan Millennials using regression analysis to measure the financial literacy on retirement planning. The present study aimed at filling this gap by studying the financial retirement planning of government employees in Tanzania by employing smart PLS SEM to investigate financial retirement planning.
Uwimana (2023) examined the role of financial literacy in retirement planning in Rwanda.	The results affirmed that limited financial knowledge, skills, and confidence among Rwandans are directly associated with poor financial decision-making and planning	The study examined the role of financial literacy in retirement planning in Rwanda and employed multiple regression analysis, with data from 64 respondents. The present study aimed at filling this gap by studying the financial retirement planning of government employees in Tanzania by employing smart PLS-SEM to investigate financial

		retirement planning.
Oseifuah, E. K., Gyekye, A. B., & Sarpong, E. (2023). The role of financial literacy in retirement planning among informal sector workers in Ghana.	The findings revealed that higher financial literacy levels significantly improved retirement planning behaviors, with understanding of interest rates, inflation, and risk diversification being key predictors. However, behavioral factors such as procrastination and low trust in pension systems were significant barriers to effective retirement planning.	This study involved Ghanaian Civil Servants. The present research addresses that gap by investigating financial retirement planning of government employees in Tanzania.
Asante et al. (2024) investigated the significance of financial literacy, encompassing the dimensions of knowledge, attitude, and awareness, on the success of small and medium-sized enterprises (SMEs) in Ghana.	The study concluded that all three aspects of financial literacy had a significant positive impact on both the financial and non-financial performance of the enterprises.	This study was conducted to among SME managers in Ghana. The present study aimed at filling this gap by studying the financial retirement planning of government employees in Tanzania.
Klapper, L., & Lusardi, A. (2020). Financial literacy and financial resilience: Evidence from around the world. <i>Financial Planning Review Resilience: Evidence from Around the World</i>	The study results revealed that Sub-Saharan Africa has one of the lowest financial literacy rates globally, with only 24% of adults being financially literate, significantly below the global average of 33%. The region exhibits a pronounced gender gap, with women being less financially literate than men, and stark disparities between urban and rural areas, where access to education and financial services is limited. Countries like South Africa show relatively higher	This study gathered evidence around the World. The current study filled that gap by studying the effects of financial literacy on retirement planning of government employees in Tanzania.

	literacy rates (42%), while others, such as Somalia and Chad, fall below 15%. The study highlights that low financial literacy in Sub-Saharan Africa undermines financial resilience, leaving individuals ill-prepared to manage emergencies or plan for the future.	
Klapper and Lusardi (2023) a study on financial literacy and financial resilience: evidence from the World,".	Sub-Saharan Africa continues to have one of the world's lowest financial literacy rates, with only 27% of adults considered financially literate. This figure remains significantly below the global average of 35% and starkly contrasts with rates in advanced economies, which often exceed 50%. The region exhibits a persistent and pronounced gender gap, with 23% of women compared to 31% of men being financially literate. Significant disparities also exist between urban and rural areas, where access to formal education and financial services is limited.	This study was conducted around the World. The current study filled that gap by using Smart PLS SEM and used five variables with a moderator as constructs of retirement planning to government employees in Tanzania
Mbinji, M., Kiprop, S., & Cherotich, R. (2022). The role of financial education in improving retirement preparedness among informal sector workers in Kenya.	The findings revealed that financial education significantly improved retirement preparedness, with participants showing increased savings behavior and participation in informal savings groups, though challenges such as low income, irregular cash flows, and limited access to formal financial products persisted.	This study was conducted in Kenya involving Informal Sector Workers by employing regression analysis. The current study investigated the effects of financial literacy on retirement planning of government employees in Tanzania employing smart PLS SEMI.

Mwamba, J. W., Muteba Mwamba, J. W., & Kalonda-Kanyama, O. (2022). The impact of financial education on retirement planning in the Democratic Republic of Congo.	The findings revealed that higher financial literacy levels significantly improved retirement planning behaviors, with understanding of interest rates, inflation, and risk diversification being key predictors. However, limited access to formal financial products and reliance on informal savings mechanisms were significant barriers to effective retirement planning.	This study involved Zambian Public Sector Employees and employed multiple regression analysis as a tool for data analysis. The present research addresses that gap by investigating financial retirement planning of government employees in Tanzania by employing smart PLS SEM as a method of data analysis.
Ngugi, K., & Mugo, R. (2023). Risk attitudes and participation in pension schemes among informal sector workers in Kenya.	The findings revealed that risk-averse individuals were less likely to participate in formal pension schemes, with barriers such as low income, irregular cash flows, and limited access to information further hindering participation, particularly among women.	This study involved Informal Sector Workers in Kenya. The present research addresses that gap by investigating financial retirement planning of government employees in Tanzania.
Satria, A. and Hutabarat, S. (2020), "Analysis the effect of financial literacy on financial planning for retirement (Case study of lecturers and administrative staffs in universities Indonesia)".	The results from the study show that attitudes towards retirement products are significant in making personal plans for retirement. Individuals with positive attitudes for retirement products have a high probability to make pension financial plans.	The study applied linear regression model using a sample of 120 University students in Indonesia. The current study filled that gap by using Smart PLS SEM and used five variables with a moderator as constructs of retirement planning to government employees in Tanzania
Senda et al. (2020). The effect of financial literacy level and demographic variables on investment decisions amongst government employees of	The study found that financial literacy does not explain investment decisions of real assets and financial assets. The study also reveals that only age, income, and investment	This study employed multiple regression analysis to government employees of Kalibawang Community Health Centre, Yogyakarta. The present research

Kalibawang Community Health Centre, Yogyakarta.	experience show a correlation with those investment decisions studied. Whereas education and gender do not show significance in their relations with investment decisions.	addresses that gap by investigating financial retirement planning of government employees in Tanzania by employing smart PLS SEM as a tool of data analysis
Shimizutani, S., & Yamada, H. (2020). Financial literacy of middle-aged and older Individuals: Comparison of Japan and the United States. The Journal of the Economics of Ageing.	The results show that respondents were able to invest in stocks, securities and other financial products.	This study was conducted in the United States of America and Japan. The current study has filled that gap as it was conducted to government employees in Tanzania.
Tuffour, J. K., Amoako, A. A., & Amartey, E. O. (2022). Assessing the effect of financial literacy among managers on the performance of small-scale enterprises.	The study concludes that all three aspects of financial literacy, namely knowledge, attitude, and awareness reveal significant impacts on enterprises' performance for both financial and non-financial components examined in the study.	This study was conducted to managers on the performance of small-scale enterprises in Ghana by using three aspects of knowledge, attitude and awareness. The current study filled that gap by using five variables of computation capability, financial knowledge, financial education, risk attitude towards financial products and financial decision behavior on retirement planning of government employees in Tanzania
The World Bank Report (2023), titled Addressing Retirement Challenges in Sub-Saharan Africa: The Role of Financial Education	The findings revealed significant retirement challenges, such as low financial literacy, limited access to formal financial services, and cultural barriers, but highlighted the positive impact of financial education in	this study focused Sub-Saharan Africa, and employed a mixed-methods approach combining quantitative and qualitative research; the current research filled that gap by investigating government

	improving savings behavior and retirement planning when tailored to local contexts	employees in Tanzania employing quantitative approach through smart PLS SEM as a method of data analysis
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Appendix – III

Descriptive Statistics for Mean, Standard Deviation, Skewness and Kurtosis

Indicator	N	Min	Max	Mean	Std Dev	Skewness		Kurtosis	
	Statistics	Statistics	Statistics	Statistics	Statistics	Statistics	Std Error	Statistics	Std Error
RP1	408	1	5	3.46	1.387	-.543	.121	-1.020	.241
RP2	408	1	5	3.18	1.394	-.209	.121	-1.327	.241
RP3	408	1	5	2.96	1.381	.032	.121	-1.340	.241
RP4	408	1	5	3.02	1.393	.063	.121	-1.361	.241
RP5	408	1	5	3.20	1.367	-.296	.121	-1.180	.241
RP6	408	1	5	2.89	1.465	.084	.121	-1.437	.241
RP7	408	1	5	3.82	1.413	-.926	.121	-.549	.241
RP8	408	1	5	2.43	1.487	.621	.121	-1.112	.241
RP9	408	1	5	3.54	1.313	-.663	.121	-.745	.241
RP10	408	1	5	2.90	1.483	.141	.121	-1.436	.241
CC1	408	1	5	2.89	1.419	-.020	.121	-1.355	.241
CC2	408	1	5	2.85	1.364	.013	.121	-1.315	.241
CC3	408	1	5	2.71	1.303	.143	.121	-1.184	.241
CC4	408	1	5	2.74	1.275	.013	.121	-1.101	.241
CC5	408	1	5	2.90	1.368	.011	.121	-1.289	.241
FK1	408	1	5	3.22	1.383	-.254	.121	-1.270	.241
FK2	408	1	5	3.19	1.319	-.270	.121	-1.150	.241
FK3	408	1	5	3.48	1.379	-.570	.121	-.940	.241
FK4	408	1	5	3.01	1.321	-.012	.121	-1.172	.241
FK5	408	1	5	3.14	1.372	-.178	.121	-1.285	.241
FE1	407	1	5	2.94	1.559	.024	.121	-1.561	.241
FE2	408	1	5	2.27	1.386	.815	.121	-.698	.241

FE3	408	1	5	2.56	1.486	.416	.121	-1.313	.241
FE4	408	1	5	2.37	1.415	.585	.121	-1.084	.241
FE5	408	1	5	2.52	1.404	.431	.121	-1.217	.241
RA1	408	1	5	2.62	1.402	.327	.121	-1.269	.241
RA2	408	1	5	2.70	1.416	.320	.121	-1.279	.241
RA3	408	1	5	2.84	1.434	.090	.121	-1.407	.241
RA4	408	1	5	3.10	1.471	-.202	.121	-1.374	.241
RA5	408	1	5	2.50	1.539	.478	.121	-1.335	.241
FD1	408	1	5	3.83	1.253	-.963	.121	-.146	.241
FD2	408	1	5	3.84	1.187	-.933	.121	-.096	.241
FD3	408	1	5	3.44	1.329	-.440	.121	-1.038	.241
FD4	408	1	5	3.17	1.407	-.068	.121	-1.392	.241
FD5	408	1	5	2.93	1.502	.082	.121	-1.487	.241
Valid N (list wise)	408								

Source: Field data 2025

Appendix – IV

List of Collected Questionnaires from Ministries in Tanzania Mainland

S/N	Name of Ministry	Questionnaires distributed	Questionnaires collected	Region
1	President's Office Public Service Management	22	10	Dodoma
2	President's Office Regional Administration -TAMISEMI	22	16	Dodoma
3	President's Office Planning and Investment	22	17	Dodoma
4	Vice Presidents Office Union and Environment	22	18	Dodoma
5	Prime Minister's Office Labour, Youth, Employment and Persons with Disability	22	20	Dodoma
6	Ministry of Community Development, Gender and Special Groups	22	20	Dodoma
7	Ministry of Lands, Housing and Human Settlement	22	15	Dodoma
8	Ministry of Education, Science and Technology	22	20	Dodoma
9	Ministry of Finance	22	15	Dodoma
10	Ministry of Culture, Arts and Sports	22	14	Dodoma
11	Ministry of Agriculture	22	14	Dodoma
12	Ministry of Water	22	17	Dodoma
13	Ministry of Natural Resources and Tourism	22	17	Dodoma
14	Ministry of Home Affairs	22	16	Dodoma

15	Ministry of Foreign Affairs and East African Cooperation	22	12	Dodoma
16	Ministry of Livestock and Fisheries	22	20	Dodoma
17	Ministry of Works	22	18	Dodoma
18	Ministry of Transport	22	15	Dodoma
19	Ministry of Energy	22	18	Dodoma
20	Ministry of Constitutional and Legal Affairs	22	18	Dodoma
21	Ministry of Minerals	22	18	Dodoma
22	Ministry of industry and Trade	22	18	Dodoma
23	Ministry of Health	22	22	Dodoma
24	Ministry of Information and Communication Technology	22	20	Dodoma
25	Ministry of Defense and National Service	16	-	Dodoma
		544	408	Dodoma

Source: Fieldwork, (2025)

Appendix – V Code book of questionnaire responses

Variable	SPSS Variable name	Coding instructions
Identification number	ID	Number assigned in coded survey questionnaire
Gender	Gender	1=Males 2=Female
Age	Age	1=<30 2=31-40 3=41-50 4=51-60 5=>61
Marital status	Marital status	1=Single 2=Married 3=Divorced 4=Living with partner 5=Widowed
Level of education	Education	1= Primary education 2=Ordinary level 3=Advanced level 4=University degree 5=Post graduate Diploma 6=Master 7= PhD
Job position	Job position	1=Supporting staffs 2=Middle level cadres 3=Decision making cadres
Level of income	Income	1=< TZS 270,000 2=TZS 270,000-TZS1,000,000 3=TZS 1,000,000-TZS2,000,000 4=TZS2,000,000-TZS3,000,000 5=>TZS 3,000,000

Working experience	Work experience	1=<1 year 2=1-4 years 3=5-9 years 4=10-14 years 5=>15 years
How any dependents	Number of dependents	1=<1 dependent 2=1-2 dependents 3=2-3 dependents 4=3-4 dependents 5=>4 dependents
Attended any retirement seminar	Retirement seminar attendance	1=Yes 2=No
Options for early retirement	Retirement option	1=Yes 2=No
If the answer is yes	Choice of retirement option	1=Early retirement 2=Normal retirement 3=Late retirement
Indicator variables	Rating statement from 13 to 15	Enter circled number 1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Source: Fieldwork, (2025)

Appendix – VI

Research Clearance Letter

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

THE OPEN UNIVERSITY OF TANZANIA



Ref. No OUT/ PG202101185

3rd. September 2024

Permanent Secretary,
Ministry of Community Development, Gender,
Elderly and Children,
P.O. Box 573,
DODOMA.

Dear Permanent Secretary,

RE: RESEARCH CLEARANCE FOR MR. TIBERIUS PHILIP MLOWOSA, REG
NO: PG202101185

2. The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice

No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1st January 2007. In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

3. To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Mr. Tiberius Phillip Mlowosa, Reg. No: PG202101185**), pursuing PhD. We hereby grant this clearance to conduct research titled **"The Effects of Financial Literacy on Retirement Planning of Government Employees in Tanzania: Moderating Effects of Financial Decision Behavior"**. He will collect his data at your Ministry from 4th September 2024 to 31st March 2025.

4. In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P. O. Box 23409, Dar es Salaam. Tel: 022-2-2668820. We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,

THE OPEN UNIVERSITY OF TANZANIA



Prof. Magreth S. Bushesha

For: VICE CHANCELLOR

Kinondoni Biafra, Kawawa Road; P.O 23409; Dar es Salaam; Tel: +255 22 2668 445; E-Mail: vc@out.ac.tz | Website: www.out.ac.tz

Appendix – VI

PUBLISHED PEER REVIEWED PAPERS

1. Financial Retirement Planning of Government Employees in Tanzania: Moderating Effect of Financial Decision Behavior. *International Journal of Research in Business and Social Science* (2147- 4478)
2. Factors Determining Financial Retirement Planning of Government Employees: Experience from Tanzania. *International Journal of Finance* (ISSN: 2520-0852), DOI: 10.47941/ijf.
3. Manuscript: Submitted in a disc.