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Financial literacy, financial information, and financial well-being: Evidence from Ghana rural households

By:

Peter Kwame Kuutol

(222125099)

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School of Accounting, Economics & Finance

College of Law and Management Studies

Supervisors:

Professor Josue Mbonigaba

Professor Rufaro Garidzirai

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Dedication

This thesis is dedicated to my beautiful wife, Grace Dakura and our children.

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Abstract

Background: Financial information is expected to enhance financial literacy, financial decision-making, and household well-being. However, in Ghana's Upper West Region (UWR), several challenges—including low financial literacy, high poverty levels, sociocultural influences, and the marginalization of women in financial matters—may cause households to disregard financial information when addressing pressing sociocultural concerns. Additionally, the growing exposure of rural populations to digitalization and financial literacy programs raises questions about how different types of financial information influence the relationship between financial literacy and financial well-being. This thesis deeply explores this issue, considering this context's enabling and limiting factors.

Objectives: The thesis provides a detailed analysis of how various types of information influence the relationship between financial literacy and financial well-being in this context. It starts by 1) examining how financial literacy influences financial well-being as a preliminary inquiry and 2) investigating the role of crude financial information in shaping financial decisions. These analyses are followed by an assessment of how 3) the levels, 4) patterns, and 5) sources of financial information mediate this relationship. Finally, the thesis evaluates 6) whether the findings vary when male dominance is moderated, ensuring that both men and women have an equal voice in responding to the questions in this thesis.

Methods: A mixed-methods approach was employed, integrating quantitative and qualitative analyses to address the research objectives. The quantitative component focused on Objectives 1 to 5, while the qualitative component provided more profound insights into Objective 6. For the quantitative analysis, cross-sectional data were collected through a survey of 663 randomly selected household heads in the UWR. A hierarchical reflective-reflective measurement model within Structural Equation Modeling–Partial Least Squares (SEM-PLS) was used to examine the mediating role of financial information. For the qualitative analysis, 12 household heads—equally represented by gender (six male-headed and six female-headed households)—were interviewed. Content analysis was used to analyze qualitative data, allowing for a richer understanding of financial decision-making behaviours and gender dynamics.

Findings: From the quantitative analysis, the study revealed that financial literacy 1) positively influences financial well-being, with a more significant effect on men than women, but with a similar impact regardless of formal education status, 2) has a significant positive impact on various dimensions of financial information, including consumption, level, pattern, and source. Additionally, the study found that the extent of financial information consumption, the advanced status of financial information received, and recent patterns of financial information-seeking mediate(enhance) the effect of financial literacy on financial well-being in rural households in the UWR. These results are robust across genders, financial products, and formal education status. However, financial information sources did not strengthen the impact of financial literacy on financial well-being in the region.

From the qualitative analyses, the study reveals that financial literacy influences financial well-being, regardless of gender. Women tend to make non-financially sound decisions in specific sociocultural contexts involving burials and weddings. Both men and women with similar financial literacy levels tend to make similar decisions on resource management efficiency, risk-taking, and investment.

Policy implications: The findings highlight financial information's crucial role in enhancing financial literacy programs' effectiveness regardless of sociocultural context barriers. Reliable access to such information empowers women and promotes inclusive development. Policymakers should prioritize ensuring accessible, credible financial information for rural populations to support financial well-being.

Contribution to knowledge: This study contributes to financial literacy research by examining how financial information influences the link between financial literacy and financial well-being in rural Ghana, where sociocultural norms hinder rational financial decisions. It is the first to provide a detailed mixed-methods approach to distinguish the mediating role of financial information in studied relationships across gender, financial products, and educational status in a context where sociocultural context entails financial commitments likely to obstruct personally beneficial financial decision-making. Other conttibution to knowledge are detailed in the thesis.

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List of Abbreviations

AVE	Average Variance Extracted
CFSI	Center for Financial Service Innovations
CBT	Consumer Behavior Theory
CFPB	Consumer Financial Protection Bureau
FMST	Family Management System Theory
FI	Financial Information
FIC	Financial Information Consumption
FIL	Financial Information Level
FIP	Financial Information Pattern
FIS	Financial Information Source
FL	Financial Literacy
FLS	Financial Literacy Sensitization
FWB	Financial Well-being
GSS	Ghana Statistical Service
GoG	Government of Ghana
GDP	Gross Domestic Product
GIFEC	Ghana Investment Fund and Electronic Communication
HT	Heuristic Theory
HTMT	Heterotriat-monotrait
HOC	Higher Order Construct
HPC	Housing and Population Census
IFDFW	InCharge Financial Distress/Financial Well-being
LCH	Life Cycle Hypothesis
LOC	Lower Order Construct
MGA	Multi-Group Analysis
MMS	Mobile Money Service
NFIDS	National Financial Inclusion and Development Strategy
NGOs	Non-Governmental Organizations

OLS	Ordinary Least Square
PLS	Partial Least Square
PT	Prospect Theory
RCC	Regional Coordinating Council
RDT	Resource Dependency Theory
SEM	Structural Equation Model
SEM-PLS	Structural Equation Model- Partial Least Square
SET	Social Exchange Theory
SGA	Sub-group analysis
SPSS	Statistical Package for the Social Sciences
SDGs	Sustainable Development Goals
SMS	Short Message Service
USSD	Unstructured Supplementary Service Data
UWR	Upper West Region
VIF	Variance Inflation Factor

CHAPTER ONE: INTRODUCTION

1.1 Introduction

This thesis examines how financial information mediates the relationship between financial literacy and financial well-being in rural Ghanaian households, specifically within the Upper West Region (UWR). In this setting, household dynamics and sociocultural factors are expected to limit the objective application of financial literacy and the effective use of financial information. Households in these areas often face lower overall literacy levels, including financial literacy, and experience frequent changes in household composition due to the mobility of extended family members. Furthermore, decisions regarding household finances are predominantly made by males. Against this socioeconomic backdrop, there is a growing trend of rural households accessing financial information through the Internet, mobile technology, and family members living in urban areas. These urban connections and access to literacy programs and remittances gradually link rural households to broader financial networks. This increasing access to financial information and literacy creates opportunities to improve their understanding of using financial information to enhance financial well-being.

Given these complex dynamics and the diverse financial information available to rural households, a critical empirical question emerges. How does increased access to information and financial literacy education benefit this population? Addressing this question requires understanding how different types of financial information enhance financial literacy's impact on these households' financial well-being. This thesis aims to investigate how various forms of financial information—its consumption, level, patterns, and sources—mediate the impact of financial literacy on financial well-being.

This chapter introduces the key aspects of the research problem and provides an overview of the research questions addressed in this thesis. Section 1.2 presents the rationale and key aspects of the problem for focusing on rural areas, particularly the rural areas in the Upper West Region of Ghana. Section 1.3 outlines the research problem and questions guiding the study. Section 1.4 defines and conceptualizes the key terms used throughout the thesis. Section 1.5 provides a brief description of the methodology employed in the research. Section 1.6 discusses the significance of the study, while Section 1.7 explores the theoretical framework underpinning the research. Section 1.8 highlights the study's contributions to knowledge, and Section 1.9 outlines the thesis structure.

1.2 Why the focus on Ghana's rural UWR

Low income continues to be a widespread issue among Ghana's rural households, greatly exacerbating these groups' vulnerability. Agriculture, the foundation of rural economies, is predominantly subsistence-oriented, marked by poor productivity, restricted access to modern technologies, and constrained market opportunities. These circumstances yield erratic and inadequate income, confining numerous rural households into financial distress. Impoverished households face difficulties in obtaining education and healthcare. The absence of varied income streams exacerbates the issue. Excessive dependence on rain-fed agriculture renders rural communities particularly vulnerable to the effects of climate change, including unpredictable rainfall and droughts. This volatility frequently leads to inadequate harvests and diminished income. Moreover, restricted access to financial services, including loan and savings programs, impedes rural households' capacity to invest in income-generating activities or recover from economic disruptions.

Like other rural regions in Ghana, rural households in UWR often face significant challenges, including widespread poverty, low literacy rates, and complex household dynamics, such as male dominance, intra-household mobility, and large households. Sociocultural practices in the region also include a substantial financial contribution to community events such as weddings and funerals and the support of extended family members beyond the household decision-making unit. In contrast, the Ghana Demand Side Survey Report (2021) highlights significant progress in financial inclusion in rural areas. Access to financial services, including mobile money, credit, and savings (both formal and through savings clubs), increased from 51% in 2017 to 92% in 2021, compared to a national average of 96% in 2021 (GoG, 2021). Rural areas have also benefited from financial literacy education programs that enhance financial decision-making.

However, it remains unclear how the increase in access to financial education programs has benefited rural households, given the persistent challenges of poverty and low literacy and the likelihood that sociocultural context might overshadow objective financial decision-making beneficial to household well-being and whether the flow of financial information in the area has been empowering. Rural areas account for over 80% of the country's poverty rate (GSS, 2017), indicating that many households have limited resources. These constraints and low financial literacy may prevent them from fully maximizing the benefits of improved financial access. These factors limit the likelihood of making sound financial decisions that will enhance financial well-being, emphasizing the need for further investigation in areas like these to promote inclusive development.

The focus on UWR stems from its unique characteristics, which makes it an intriguing case for investigation. Notably, the UWR has a multidimensional poverty rate of 66%, significantly higher than Ghana's national average of 45.6% (GSS, 2020), making it the poorest region in the country (GSS, 2015). Despite increased access to financial information, the area has high poverty levels and low financial literacy. Since the 2015 GSS report, the government has introduced financial literacy programs to address these challenges (Koomson et al., 2022). The UWR Regional Coordinating Council Report 2021 highlights those interventions from the government, NGOs, and development partners that have ensured that every community in the region has received some form of financial education. The region's households have been exposed to different types of financial information thanks to the advent of the Internet and mobile technology.

Furthermore, UWR households are typically large, with five to seven members, and are predominantly male-headed. High household mobility generates significant remittances contributing to the local economy and connecting relatives to financial networks and opportunities. All these circumstances underscore the need for a formal analysis to explore the interplay between financial literacy, access to financial information, and financial well-being in the region because it is not evident how sociocultural financial-related pressures affect the usage of financial information in beneficial decision-making in the context of low financial literacy level. The current literature points to limited yet relevant evidence in this respect (Ofori-Acquah et al., 2022; Twumasi et al., 2022a). The following sections provide details of this problematic situation.

1.2.1 UWR Rural household characteristics and dynamics

Generally, households make financial decisions (Lubis, 2020), but their financial and social characteristics may affect these decisions. First, gender roles and societal norms affect power dynamics and decision-making authority in rural households in UWR. Men are traditionally household heads and have significant decision-making power, notably in financial matters (Adam et al., 2022; Adjei & Chan, 2023; Sikweyiya et al., 2020). Women have less decision-making power and are expected to prioritize domestic duties and childcare (Adam et al., 2022; Arku & Arku, 2009; Sikweyiya et al., 2020). However, this relationship changes as women's voices become recognized in households' decision-making power (Zing & Shishkina, 2024). Despite this change, gender inequality in household financial decision-making persists (Azumah et al., 2023). Men invest in real estate, cattle, and machinery, while women focus on food and education. Women often make only small financial decisions like managing family finances. Men make major financial decisions, including income-producing investments.

Second, household dynamics strongly impact financial decisions and outcomes(Adjei & Chan, 2023; Asiamah et al., 2021). UWR typically has larger households with an average of 7 members and knows a lot of intra-household mobilities of relative and intra-household financial support in funerals, weddings, and schooling (Adu-Gyamfi et al., 2020; Jack et al., 2020). Sometimes, social events are so expensive that they require taking loans (Gariba, 2024). Intrahousehold mobility and support often strain households' financial resources, affecting financial allocations and decision-making for increased well-being. Households with children and elderly may struggle to allocate resources properly, forcing trade-offs between immediate needs and long-term financial goals. This can reduce savings and investment and increase informal loan and financial assistance use. Households may also benefit from financial support through remittance and financial advisers on using finance from well-informed members working in urban settings. Remittance-sending household members usually work in wealthier environments and may have more financial exposure and influence financial decisions. They may encourage household members to save in banks or mobile money by offering higher-security and higher-return savings options. These contexts and cultural settings may imply differing financial priorities and risk tolerance across households in UWR, affecting how households use financial information and literacy to make sound decisions.

1.2.2 Financial information and its characteristics

Households in the UWR are exposed to various financial information that could enhance their ability to apply financial literacy skills. However, it remains unclear which specific characteristics of information are most effective in achieving this goal. Information can be characterized by its broadness of consumption, sources, levels, and patterns. Yet, little is known about how these attributes influence the role of financial literacy in improving financial well-being among UWR households. Given the diversity in information types and characteristics, it is crucial to investigate how different information features—such as the source of information, broadness of consumption, patterns of information, and levels of information—interact to enhance financial literacy and decision-making. Understanding these dynamics will provide valuable insights into optimizing financial information to support household financial well-being in this unique context.

1.2.3 Financial information and financial literacy

Financial information is expected to enhance the practical application of financial literacy, enabling households to achieve better financial outcomes (Dewi et al., 2020). Well-informed households with adequate literacy levels are more likely to analyze financial options and make sound decisions. However, in the Upper West Region (UWR), social factors and household constraints may limit the use of financial information for beneficial purposes, compounded by generally low literacy levels (Twumasi et al., 2022b). While literacy programs aim to address these gaps, it remains unclear whether they effectively equip individuals or households to utilize financial information as intended. This suggests empirical evidence from a non-rural context may not fully apply to UWR because of the region's unique features. Thus, it is critical to investigate the role of financial information and its interaction with financial literacy in this setting.

1.2.4 Financial decision and well-being

While a well-informed, financially literate individual is expected to make sound financial decisions contributing to financial well-being, this may not necessarily hold true in the UWR. As outlined in previous sections, households in this context may make decisions not guided by financial information, often due to social pressures, norms, and cultural influences. This raises the question of whether the financial information available effectively informs financial literacy in a way that leads to decisions promoting financial well-being. Therefore, further investigation is needed to understand how financial information supports literacy and contributes to better decision-making in this unique context.

1.2.5 Financial literacy, information and policy

The Upper West Region (UWR) has implemented policies like financial literacy education to foster inclusive development (Forkuor & Korah, 2023). However, a critical question remains: do these policies require additional support in disseminating financial information within this community? Specifically, it is unclear whether and how financial information effectively supports financial literacy education policies to enable the application of financial knowledge for improved well-being. Evidence is needed to inform policy in the UWR, as the sociocultural context and low financial literacy levels may diminish the role of financial information in enhancing financial literacy to achieve well-being.

1.2.6 Digitalization and Rural UWR Ghana

Digitalization has transformed the rural Ghanaian economy by enhancing access to financial information (Ayakwah et al., 2021). However, the low literacy levels prevalent in rural UWR areas raise critical empirical questions about whether households can effectively navigate the complexities of the digital world (Anane & Nie, 2022). Limited literacy may leave household members vulnerable to digital disinformation, fraud, and exploitation, which they might mistakenly perceive as reliable financial information. This can lead to detrimental outcomes and ill-informed financial decision-making, such as investing in fraudulent schemes or incurring unsustainable debt, with severe consequences for their financial well-being, hence the need for this investigation to ensuring that digitalization serves as a tool for empowerment rather than a source of risk.

1.3 Problem statement, research objectives, and research questions

Financial information is expected to enhance financial literacy's role in well-being by facilitating sound financial decision-making. However, in the UWR, this potential may be unrealized due to low financial literacy and complex household financial decision-making processes that often marginalize women and sociocultural households’ context, which might overshadow sound financial decision-making. Despite recent increases in digitalization, financial literacy programs, and household exposure to diverse types of financial information, it is unclear whether financial information fulfils its expected role in this context by enhancing the role of financial literacy. Additionally, the varying mediating effects of different types of financial information on decision-making remain under-explored. Therefore, it is crucial to understand the role and characteristics of financial information in improving financial well-being through its influence on financial literacy and, thus, financial decision-making.

First, examining how financial literacy influences financial decision-making in Ghana is essential. Second, it is important to investigate the role of crude financial information sufficiency in shaping financial decisions. Third, it is important to explore how varying levels of financial information exposure (basic, intermediate, and advanced) mediate the relationship between financial literacy and well-being. Fourth, assessing how different patterns of seeking financial information affect financial well-being at specific levels of financial literacy is crucial. Fifth, it is essential to determine whether the sources of financial information influence the relationship between financial literacy and financial well-being among rural Ghanaian households. Finally, in the context of male dominance in household financial matters, evaluating whether the findings differ when men's and women's perspectives on financial information, financial literacy, and financial well-being are contemplated and contrasted is essential.

Based on this research problem, the study seeks to answer the following questions.

1. What is the effect of financial literacy on financial well-being among Ghanaian rural households?
2. How does financial information consumption affect the relationship between financial literacy and financial well-being among Ghanaian rural households?
3. How does financial information level mediate the link between financial literacy and financial well-being among Ghanaian rural households?
4. How do financial information patterns mediate the relationship in these households?
5. Do the sources of financial information matter in the relationship between financial literacy and financial well-being among Ghanaian rural households?
6. Do the results remain the same when females are accorded the same voice in financial decision-making?

1.4 Conceptualization of key construct in the research

The following key construct of this study are defined as follows:

Financial information refers to financial data and records about a household business or individual income, expenses, assets, liabilities, and general financial situation. Daily living expenses, future needs planning, financial well-being evaluation, and debt management decisions are all made using this data.

Financial information characteristics refer to basic features of financial data that make it relevant, dependable, and helpful in making decisions. Financial data that people receive can have different features and types, such as levels, patterns, or sources of information. In this study, characteristics and dimensions are used interchangeably.

Financial literacy is understanding financial conditions and concepts and appropriately transforming that knowledge into behaviour (Kumari & Harikrishnan, 2021). For this study, financial knowledge and financial literacy are used interchangeably.

Financial well-being is being financially healthy, happy, and free from financial worries (Joo, 2008). An informed financial decision is a proxy for well-being since a well-informed financial decision leads to financial benefits.

Financial information consumption is acquiring financial information to use in financial decisions. This information can be sufficiently or insufficiently beneficial in helping to make well-informed financial choices. This information may come from market trends, consumption information, and economic indicators.

Financial information level refers to the degree and complexity of financial information individuals and households receive. The information level can be classified as basic, intermediate, or advanced. The more advanced the information is, the more beneficial it is, but its benefit also depends on the level of financial literacy to discern it.

Financial information pattern is defined based on individual financial information-seeking behaviour. Individuals may have decreased information-seeking behaviour, kept it constant, and increased it during financial decision-making. This, in turn, can affect whether their decision is sound.

Financial information source refers to a place, people, and location where information is obtained and used for financial decision-making. Financial information can come from different sources, such as peers, government, financial advisors, and social media.

1.5 Research Methodology

Due to the challenges in measuring the key constructs, conducting the mediation analysis, and ensuring equal weighting between males and females, the study used a mixed method. For the quantitative analysis, the study employed structural equation modelling. Content analysis in qualitative analysis was used to assess whether the findings remain robust when females are given equal voices. The analysis evaluated differences in usual financial activities for women and men with similarities and differences in education, financial literacy education, and financial behaviour changes when exposed to financial information to gain more insights and inform policymakers. This analysis was necessary because the quantitative analysis was based on the current rural Ghanaian context, where males typically dominate as heads of households, and data collection resulted in 96% of households interviewed being headed by males. Average numbers and predictions, in this case, would capture the male perspective while the female voice is ignored. Yet females are important societal members to consider when designing development policies such as financial literacy policies.

1.6 significance of the study

Sustainable Development Goal (SDG) 4 regards Quality Education, which underscores lifelong learning and financial literacy as tools for economic empowerment. Effective policymaking in this domain can substantially enhance financial well-being by advancing financial literacy initiatives, augmenting access to financial information, and cultivating a culture of financial inclusion. Furthermore, enhancing financial literacy via policy-driven initiatives such as incorporating financial information and cultivating community-based financial advisory services can close the divide between knowledge and action, thus elevating financial well-being. This study's evidence can guide policymakers in the integration of financial literacy into educational curricula, the development of accessible financial information systems, and the implementation of policies that foster financial stability and security, thereby aiding in the attainment of Sustainable Development Goal 1 (No Poverty) and Goal 8 (Decent Work and Economic Growth) and fostering greater financial well-being in households and communities.

1.7 Brief review of the theories underpinning the study

Three main theories explain this study's link. The theories are prospect theory (PT), resource dependency theory (RDT), and life cycle hypothesis (LCH). Prospect theory, developed by Kahneman and Tversky (1979), is crucial in financial decision-making as it explains how people perceive gains and losses asymmetrically. RDT recognizes that organizations, including households, need outside resources to survive. This study uses RDT to determine how often households utilize external financial information to make decisions. The LCH suggests that financial conduct and needs change over time, and these changes in consumption and savings determine financial well-being. Using PT, RDT, and LCH, the study investigates how various dimensions of financial information interact with financial literacy to affect well-being at different phases of life.

1.8 Contribution to Knowledge

This study offers several significant contributions to the field of financial literacy research. First, it examines the influence of financial information on the correlation between financial literacy and financial well-being in a rural context, where sociocultural norms frequently obstruct rational financial decision-making. This is especially important in rural Ghana, where traditional customs and cultural beliefs may affect financial decisions. This study offers significant insights into the constraints and potential for enhancing financial well-being in rural contexts by analyzing this link.

Secondly, this study's qualitative research approach significantly challenges the predominance of male financial decision-making in the region by integrating both male and female views. This method acknowledges that women are integral to household financial management. However, their perspectives are frequently overlooked in financial decision-making processes. The study incorporates both male and female perspectives, offering a more nuanced comprehension of the intricate aspects affecting financial literacy and financial well-being in rural Ghana. Integrating qualitative and quantitative methodologies enriches the analysis, yielding a more profound and comprehensive understanding of the issue and its policy ramifications.

Finally, this study is the first to investigate comprehensively the mediation of different dimensions of information in the relationship between financial literacy and financial well-being in rural Ghana, employing a mixed-methods methodology. This provides new insights into the interaction between financial literacy and financial information in fostering financial well-being in this environment.

1.9 Thesis outline

To achieve the objectives of the study, this thesis is organized into eight chapters as follows: **Chapter One** has provided context and rationale, background to the study, the problem under investigation, the research objectives and questions, a brief description of the methodology, the contribution to knowledge, and an outline of the chapters. **Chapter Two** reviews the literature to describe and explain the theories underpinning the study. **Chapter three** presents the empirical literature. **Chapter four presents** the methodological approach employed to examine and find answers to the research questions. This includes the research approach and design, sampling and sample size, the study population, the tools and procedures employed for data collection and analysis, and the operationalization of the variables. **Chapter five** presents, analyzes, and interprets the study's results in line with its objectives (Quantitative). **Chapter six** presents, analyses, and interprets the study's results in line with its objectives (Qualitative). **Chapter seven** discusses the results pertaining to the research objectives and their implications and limitations for future research. **Chapter eight** provides a summary of the study and presents conclusions and contributions.

1.10 Chapter Summary

This chapter introduced the study and highlighted the research problem underpinning the investigation. The chapter highlighted the motivation for focusing on the UWR because of its unique features and defined objectives to clarify and understand the problem. It provided a brief overview of the methodology employed, the study's significance and contribution to knowledge, and an outline of the thesis. Having set out the case for investigation, the next chapter reviews the study's theoretical, contextualization, and empirical literature.

CHAPTER TWO: Context of the study, theory, and empirical literature

2.1 Introduction

This chapter first details the Ghanaian context and aspects of the study problem. It further discusses the theoretical and conceptual review of the study. Section 2.2 discusses Ghana's context. Section 2.3 discusses definitions and measurement of the study's key concepts; section 2.4 highlights the study's theoretical underpinnings and the links between the theories. Section 2.5 presents the conceptual framework that was developed.

2.2 Ghanaian rural context and aspects of the study

Since independence, Ghana's economy has grown significantly, with GDP per capita rising from $253.4 in 2000 to $2238.2 in 2023 (World-Bank, 2023). This increase is indicative of the nation's economic health. However, this progress has not been dispersed equally (Unicef, 2016), suggesting inequality in financial well-being. Specifically, rural populations are trailing behind urban ones.

The rural sector is predominantly based on the agricultural sector, but the employment share declined from 44% in 2012 to 40% in 2022 (Statisca, 2022b). Approximately 50% of employment in Ghana's rural areas is in the primary sector, whose GDP share has steadily dropped from 22% in 2012 to 20% in 2022 (Statisca, 2022a). Over time, the declining employment in the secondary sector indicates 19% in 2012 to 14% in 2022 (Statisca, 2022b). This decrease in income necessitates the search to manage the remaining income better. The low income is worsened by increasing inflation, from 10% in 2021 to 38% in 2023 (Statisca, 2024). Furthermore, Ghana's financial literacy rate of 27% (Sarpong-Kumankoma et al., 2023) is low compared to other African nations with similar socioeconomic development, such as Kenya (38%) and Botswana (52%) (Klapper et al., 2015), with much evidence of rural Ghana financial literacy. Still, it has been found that rural areas have even lower literacy rates of around 12-13% (Szafrańska, 2019), implying that inflation, lower income and relatively less literate people in rural areas suffer more loss of purchasing power, affecting their financial well-being.

Although concepts such as creating wealth, investment, and savings among rural communities are not the same as those in formal economies, rural communities in Ghana are actively involved in these transactions. For example, raising livestock can be considered an investment and wealth-building. Households are also engaged in savings clubs where they can also borrow money. The 2021 Ghana Demand Side Survey Report (GoG, 2021) indicates that access to financial services—such as mobile money, credit, and savings in various forms, including savings clubs—has increased in rural Ghana. However, this catch-up with urban financial access may not necessarily be beneficial, as increased access without adequate financial literacy could lead to financial product misuse, poor financial planning, and greater vulnerability to fraud. Financial technology, particularly mobile money, has been rural Ghana's primary driver of formal financial service access. However, access to diverse financial products, such as formal savings and investment opportunities, remains limited.

Additionally, financial decision-making in Ghanaian households is primarily dominated by men, which poses challenges for inclusive financial development. Therefore, disseminating financial literacy and information is crucial for achieving broader financial inclusion. Furthermore, Ghanaian households often allocate financial resources to social events such as weddings and funerals, which may counteract the potential benefits of financial literacy and information in promoting sound investment and savings decisions. These aspects of the issue are explored in detail in this chapter.

2.2.1 Household characteristics in rural Ghana

Household dynamics are crucial in financial decision-making (Adjei & Chan, 2023; Asiamah et al., 2021), often influenced by traditional family structures and responsibilities in rural Ghana (Arku & Arku, 2009). Extended family arrangements are standard in many rural communities, with parents, children, grandparents, cousins, or in-laws living together. This intergenerational living structure requires decision-making through consensus to promote overall financial well-being. However, elders typically hold significant authority in these decisions (Braimah & Rosenberg, 2021). When elders prioritize certain expenditures over others, younger family members may face challenges in pursuing personal investments, potentially limiting their individual financial growth.

The size of a household strongly impacts financial decisions in rural Ghana (Asiamah et al., 2021; Twumasi et al., 2022a; Twumasi et al., 2021), where prominent families are prevalent. Large households frequently necessitate considerable expenditures for fundamental requirements, including sustenance, education, and healthcare, thus exerting pressure on financial assets(Twumasi et al., 2021). An enormous household may encompass additional income earners, such as parents and older children who are employed, yet the augmented number of dependents might result in rapid depletion of income (Asiamah et al., 2021; Twumasi et al., 2021). The elevated dependency ratio affects the household's capacity to save or invest, as discretionary income is generally reduced. In bigger households, financial decisions prioritize current demands, diminishing the capacity for long-term planning or investment opportunities that could enhance financial security (Arku & Arku, 2009). Rural households can typically include up to 6 members, according to the 2021 Population and Housing Census (PHC) (GSS, 2021)

Inter-household mobility, defined as the relocation of persons among households, significantly influences financial decision-making in rural Ghana. In rural UWR, this movement is frequently seasonal and associated with migration for employment, education, or matrimony, wherein persons relocate either temporarily or permanently. During agricultural off-seasons, certain household members, particularly young males, travel to urban regions for improved earnings prospects. Although these remittances may offer essential financial assistance, mobility may disrupt household financial planning, rendering income irregular and challenging to predict. Decisions regarding savings and investments frequently hinge on the timing and reliability of remittances, indicating unstable income streams that can jeopardize financial security.

Moreover, home dynamics in rural Ghana frequently involve shared responsibility and interdependence among rural households. For example, neighbouring households may consolidate resources to acquire agricultural equipment or jointly fund community initiatives. These arrangements, however, also establish a societal duty to distribute wealth and aid during others' financial hardships, even at the expense of personal resources, which can profoundly influence financial decision-making that advances personal financial well-being.

Ultimately, gender roles within the household significantly impact financial decision-making (Adam et al., 2022; Adjei & Chan, 2023; Arku & Arku, 2009). In rural Ghana, financial authority typically resides with men, who are generally the principal earners and decision-makers (Adjei & Chan, 2023; Sikweyiya et al., 2020). Women frequently oversee household finances and actively participate in "*susu*", informal savings and credit clubs that provide financial support for their households (Arku & Arku, 2009). *Susu* is a traditional savings program in West Africa, especially in Ghana and Nigeria. These gendered roles influence income distribution and the degree to which women can autonomously make financial decisions. Women's involvement in savings groups can enhance household financial resilience (Adam et al., 2022; Arku & Arku, 2009; Gumbo et al., 2023); yet, such contributions frequently remain subordinate to male decision-making, so constraining women's financial empowerment and the variety of financial strategies inside the home.

2.2.2 Financial information characteristics in rural Ghana

Financial information flow in rural households

Households in Ghana access financial information in various ways. In UWR, households obtain financial information via formal and informal channels. Formal channels comprise banks, microfinance institutions, governmental programs, and NGOs. Financial institutions and microfinance entities frequently disseminate information via client engagements and workshops on savings, loans, investment, and insurance. Government initiatives fostering financial inclusion provide information through district offices, community engagements, and local radio broadcasts. NGO's development initiatives are vital in instructing households on financial planning, savings, and credit, budgeting, and planning through community engagement. Moreover, mobile money agents disseminate through the interpretation of alerts regarding transactions, loan offerings, savings, insurance, and pension services via SMS and mobile applications, enhancing the accessibility of financial information, even in rural areas.

Informal methods of obtaining financial information are equally significant in the region. Traditional *susu* savings and group organizations serve as a fundamental source of information regarding saving and borrowing options and financial planning. Community gatherings and informal interactions are crucial, with local leaders and peers serving as reliable sources of information and education on subjects. Marketplaces present an alternative platform where traders and informal lenders furnish financial insights and support. Local radio stations, transmitting in regional dialects, provide financial literacy for a wider audience by addressing subjects such as savings, loans, budgeting, etc.

Classification of financial information flowing to UWR households

In this context, this study categorizes financial information into levels of information, patterns of information, and sources of information. Information regarding financial products and services, both formal and informal, aimed at making financial decisions is obtained via workshops, radio broadcasts, peer conversations, or mobile applications. Urgent economic needs predominantly influence the consumption of financial information in rural Ghana (Twumasi et al., 2022a), including crop sales, credit availability, and household budgeting. Given the prevalence of agriculture, households frequently seek information regarding commodity prices and seasonal loan alternatives.

The availability of financial information to rural Ghanaians often fluctuates based on literacy rates (Sokey & Adisah-Atta, 2017), access to digital resources (Anane & Nie, 2022), and broader socioeconomic conditions. Financial information can be categorized into three levels. The level of financial information can be basic- Understanding mobile money services and *susu* savings; intermediate- Awareness and comprehension of loans, interest rates, and credit terms. And advanced-. Knowledge of financial planning, investments, and wealth management strategies. With the advent of financial technology, many rural households with basic financial information are expected to improve, including market prices and basic financial products and services, which will lead to improved financial decision-making.

Advanced financial information, such as credit risk evaluations, insurance offerings, or investment alternatives, is generally inaccessible to many rural residents due to restricted access and expertise (Benami & Carter, 2021). However, with the emergence of mobile money technology, such information is progressively reaching rural settings. Initiatives to improve financial literacy, such as those offered by entities like Ghana Investment Fund and Electronic Communication (GIFEC), telcos, and microfinance institutions, seek to elevate financial knowledge within rural communities. For instance, telecommunications companies such as MTN and Telecel provide mobile financial services, including mobile money, which guide consumers' financial literacy and educational resources. Microfinance organizations, such as Sinapi Aba and Opportunity International, provide financial education training programs, workshops, and community outreach efforts that educate rural inhabitants in fundamental financial concepts, including budgeting, saving, investing, and loaning opportunities. This facilitates access to and utilization of increasingly sophisticated financial instruments over time.

*Economic, social and seasonal dynamics influence the flow of financial information pattern*s. Financial information pattern is classified as increasing, stable, or decreasing, reflecting variations in income, savings, and expenditures over time. A rising pattern denotes a steady or quick improvement of financial information, frequently observed in prosperous agricultural seasons, flourishing local enterprises, or remittances from urban relatives. A stable pattern signifies financial information stability, characterized by largely unchanging income and expense information, typically seen among pensioners or persons with reliable, predictable earnings, such as educators or *susu* collectors. A decreasing pattern indicates information deterioration attributable to causes such as inadequate or health crises. These patterns of information affect household decision-making, engagement in communal initiatives, and involvement in savings programs such as *susu* groups, which are essential for financial resilience in rural Ghana. Financial knowledge originates from formal institutions or community leaders and is disseminated through informal networks. The intensity of financial information seeking is linked to agricultural cycles (Appiah-Twumasi et al., 2022). Seasonal trends in information-seeking behaviour impact the demand for financial products, resulting in increased demand for loans during agricultural or trading periods.

Information sources include formal entities such as financial institutions, government agents, NGOs, and informal ones, including *susu* groups and community meetings, with local media serving a vital function in bridging disparities. Financial information in the UWR is comprised of both formal and informal sources. Informal sources, including local merchants, peers, family members, and community leaders, are conventionally considered reliable and extensively utilized, although they may not consistently offer precise or exhaustive financial information. Formal sources of financial information include digitalization initiatives, which have made mobile phones indispensable for linking rural households to formal banking institutions. Mobile money services (MTN Mobile Money, Telecel Cash) have become significant sources of financial information, allowing users to check balances, move monies, and obtain microloans with a simple code. Other formal sources of information come from NGOs, microfinance institutions, and agricultural cooperatives, which provide accurate information regarding loans, savings, insurance, and pension products specifically designed for rural regions. Similarly, Governments, NGOs, and financial advisors from both formal and informal financial sectors are enhancing the accessibility of financial services, yet infrastructural and literacy obstacles constrain adoption in rural areas.

The usefulness of financial information in the sociocultural context of UWR

The financial information households access in the UWR can enhance financial literacy in several ways. Access to financial information empowers consumers to make informed choices regarding financial products and services(Sharma et al., 2023), resulting in enhanced financial decision-making. Financial information aids households in comprehending and accessing formal financial services (Twumasi et al., 2022a), hence diminishing dependence on informal and frequently costly alternatives(Atta-Ankomah et al., 2024). Moreover, by obtaining financial information, households can enhance their financial management and health(Atta-Ankomah & Asante-Addo, 2024). Furthermore, access to accurate financial information would help rural households make better financial decisions, enhancing their economic and financial well-being and promoting rural development. However, the role of information in the link between financial literacy and financial well-being is unknown in the Ghanaian rural contexts. To inform policy it is necessary to obtain an understanding of these dimensions of financial information.

2.2.3 Factors affecting the effectiveness of financial information

The lack of formal education significantly impedes the capacity of financial information to enhance financial literacy among households in Ghana (Karakara et al., 2022). Many rural households possess minimal formal education, hindering the ability to understand and utilize financial information. In the absence of a school-related foundation in numeracy and literacy, households may find it challenging to understand financial concepts, including interest rates, savings, loan terms, and investments, when they receive information regarding these. This restricted understanding may result in sub-optimal financial decision-making, even when households are exposed to financial information.

Insufficient financial inclusion is an additional factor that can impede the effectiveness of financial information in enhancing financial literacy among rural households in Ghana (Twumasi et al., 2021). Rural residents encounter restricted access to formal financial services, including banks and microfinance firms (GoG, 2021). This hinders the ability to put into practice the financial information on products and services. In the absence of conventional financial services, households may use the acquired information on informal financial mechanisms, such as moneylenders and *susu* and savings clubs, which may not be as effective as it was in the formal financial sector.

Cultural and social obstacles may hinder the effectiveness of financial information (Agyemang et al., 2021) in enhancing financial literacy. Due to existing social and communal responsibilities, financial information may be less pertinent in specific sociocultural contexts, especially in rural Ghana. In many societies, engagement in social events like festivals, funerals, and weddings is firmly entrenched, frequently necessitating substantial financial donations irrespective of an individual's economic circumstances. The significant societal expectation to help extended family members may compel people to prioritize immediate social obligations above long-term financial goals. This dynamic may lead to the neglect of financial information, as judgments are influenced more by social cohesion than by economic prudence.

Restricted access to technology is another problem that can impede the role of financial information (Abdulai et al., 2023; Ayakwah et al., 2021) in enhancing financial literacy in rural Ghana. Although there has been some increase in the recent past, rural households frequently experience restricted access to technology, including smartphones, computers, and internet connectivity (GSS, 2021). This hinders access to financial information, online banking services, and other digital financial tools essential for sound financial management.

Language barriers may impede the effectiveness of financial information in improving financial literacy among rural communities in Ghana. Numerous rural households communicate in local languages, complicating their access to financial information usually presented in English. The language barrier may restrict households' capacity to comprehend and utilize financial information, potentially adversely affecting their financial well-being.

2.2.4 Financial decision-making and well-being

The interplay among financial information, financial literacy, and financial decision-making is intricate, especially in the UWR of Ghana. Although it is commonly believed that knowledgeable, financially literate persons make prudent financial decisions that enhance their well-being(Matey, 2021; Ofori-Acquah et al., 2022), this assumption may not be applicable in the UWR. As previously noted, households in this region frequently make financial decisions influenced more by social pressures, customs, and cultural factors than by financial knowledge (Arku & Arku, 2009). Thus, the efficacy of financial information in promoting financial literacy and facilitating improved financial decision-making inside the UWR remains uncertain. Although financial information is generally accessible, households in this region will likely fully utilize it to guide their financial decisions for their well-being due to low literacy rates.

Social pressures usually emerge as community expectations and obligations pushing households into decisions that are not personally profitable. In the UWR, community members may prioritize social connections and collective welfare above personal financial objectives. This compels households to direct their constrained financial resources towards social responsibilities, such as participating in community activities such as funerals and weddings or aiding extended family members, instead of investing in their financial prospects. The notion of communalism is profoundly embedded in the region's cultural fabric (Opoku et al., 2025). Furthermore, in the UWR, conventional conceptions regarding money and wealth might affect households' perspectives on saving, investing, and borrowing. Some households may perceive saving as "hoarding" or "greed" rather than a judicious financial strategy. Cultural influences such as making the most of today can impact households' perceptions of risk and uncertainty, prompting them to choose short-term advantages over long-term financial security.

2.2.5 Policy on financial literacy and information

Over the years, the government of Ghana has instituted multiple efforts and policies to advance financial literacy and information, augment the population's understanding of financial services and products, manage personal finances, and enhance overall financial well-being. Pursuing financial literacy education policy implementation in Ghana's UWR represents progress toward promoting inclusive development. The effectiveness of these programs depends on disseminating financial information throughout the communities and its alignment with the region's sociocultural setting and literacy levels. Although financial literacy education seeks to empower people with the knowledge and skills necessary for informed financial decision-making (Riitsalu et al., 2024), these programs must be accompanied by effectively disseminating financial information.

A primary worry is the disparity between the presentation of financial information and the sociocultural realities of the region. Numerous rural households depend on informal networks, verbal communication, and conventional practices (GoG, 2021); nonetheless, a significant portion of financial information is conveyed through formal workshops, written resources, or digital platforms (Ofori-Acquah et al., 2022), which may not effectively engage the intended audience. For example, complex financial terminology or abstract ideas conveyed in unfamiliar languages or formats may not captivate persons with minimal literacy skills. Consequently, the anticipated results of financial literacy education, namely enhanced savings behaviour, prudent borrowing, and effective financial planning, may fail to manifest.

Moreover, inadequate financial literacy in the region may restrict the use of financial information, disabling the current policy's effectiveness on financial literacy. Households may find it challenging to convert theoretical knowledge into practical actions, such as budget management, loan term assessment, or investment in productive assets. Sociocultural traditions, including the pre-eminence of elders or men in financial decision-making, may inhibit specific groups, particularly women (Adjei & Chan, 2023), from fully engaging in or reaping the benefits of financial education programs. These dynamics highlight the necessity for policies that distribute financial information and tackle the structural and cultural obstacles that hinder its application.

2.3 Definitions and Concepts Measurements

For a better understanding of subsequent analysis, it is worth defining the concepts used in this study and the measurement used for these concepts where applicable. This section focuses on the four main concepts: household, financial literacy, financial well-being, and financial information. These concepts have received varied definitions in the literature depending on the context.

2.3.1 Household

There is no universal definition for the term “household.” Beaman and Dillon (2012) noted the difficulty in coming up with an unambiguous, consistent, and universal definition for "household"; instead, the definition is driven by the purposes of sampling, data collection, and analysis. In a broader sense, households can vary significantly based on factors such as culture, socioeconomic status, frequency of labour migration, and more (Casimir & Tobi, 2011). Researchers defined and operationalized households for the study due to the wide range of household forms and dynamics; hence, a clear definition or detailed description is required. Some of the definitions noted in the literature are presented below:

Bailey et al. (2004) *“….. dual-earner networks of connections between partners, their families, friends, and places of work (1618).”*

Casimir and Tobi (2011) *“….a single person or group of persons who share resources, activities and expenditures on a regular basis for a specified period of time”(504).*

Bhattacharjee (2019) *“…..a group of individuals, typically family members, who live and cook together and share common funds” (167).*

Ghana Housing and Population Census (HPC) 2021 *“…. a person or a group of two or more persons (related or unrelated) who live together, share housekeeping arrangements (eating and sleeping) and recognize one person as the head” (24).*

These definitions have one thing in common: a household is any individual or group of individuals (partners, single individuals, or groups of individuals, family) who share something (networks, food, an address, or living quarters). However, there are also disparities, such as recognizing one person as head, dual-earner and sharing common funds. Beaman and Dillon (2012) observed that standard definitions of a household typically involve some combination of keywords about everyday food intake, residency restrictions, and the blending of decisions about output or revenue. Other studies have used headship, age, family composition, employment situation, and place of residence, among others, as a definition and measure of household. Casimir and Tobi (2011) proposed that shared resources, activities, and expenses must be clearly defined when using a household as a study object. This sharing should occur regularly. These salient features, such as social clubs, distinguish the household from the family, scientifically making the household a distinct and intriguing social construct.

The household notion is very ambiguous in many African contexts, like Ghana. In surveys of households, economists are coming to terms with the fact that households are dynamic and changeable (Beaman & Dillon, 2012), especially in rural settings. The living arrangements of people in many developing nations are highly complicated, with households being seen as both units of production and consumption.

In Ghana's Upper West Region (UWR), household structures are complex, reflecting broader patterns across Ghana and the Sahel region. Social and familial interactions often occur within compounds or concessions—shared spaces enclosed by a single wall—where nuclear and extended family members may live nearby. Extended families sometimes occupy multiple adjacent concessions with less defined boundaries. Within these settings, household members often collaborate on daily tasks such as food preparation, sanitation, and housekeeping, benefiting from shared responsibilities and economies of scale. The 2021 Ghana Housing and Population Census (HPC) definition of a household is adopted to guide this study. According to this definition, a household consists of a group of individuals—related or unrelated—who live together under one roof and are overseen by a household head whose authority is recognized by all. Typical households may include a head, spouse(s), unmarried children, relatives, or even unrelated individuals. Some households may consist of just a single person or a parent with children. This working definition is well-suited to capturing the diverse and fluid household arrangements observed in rural Ghana, and it provides a practical basis for analyzing financial decision-making at the household level.

Another area of concern in household studies is operationalizing household-level measurement. Researchers have used several means to measure household-level related variables. Some studies use data from the household head household level variables Fort et al. (2016), Gray (2013) Mahmud and Riley (2021). Goso et al. (2022) operationalized household with husband-and-wife joint decision-making. Thus, household-level variables can be measured using the head or multiple household members.

In this study, a household is defined as a group of individuals led by a household head who collectively contribute to economic and financial decisions. While financial consultations may occur among members, the head ultimately communicates and finalizes decisions, as reflected during research interviews. This approach aligns with the communal nature of Ghanaian households, where income from agriculture, remittances, and informal trade is typically pooled to support shared needs.

Traditional gender norms influence financial roles within the household—men often handle major transactions, while women manage routine expenses. Households commonly extend beyond the nuclear family to include relatives, dependents, and non-relatives, forming a cooperative unit with broad economic and social responsibilities. These responsibilities shape the head's decisions and priorities.

By adopting this framework, the study captures the nuanced dynamics of resource sharing and financial decision-making, ensuring that measures of financial well-being reflect the realities of rural Ghanaian households.

2.3.2 Financial Literacy

Debate continues on the definition, measurement, and theoretical underpinnings of financial literacy (Huston, 2010; Zait & Bertea, 2015), with the context in which studies have been conducted influencing such definitions. Understanding how past researchers have defined financial literacy provides a more nuanced understanding of the concept and the development stages it has gone through to the point of empirical testing. Financial literacy means different things to researchers (Kimiyaghalam & Safari, 2015; Zait & Bertea, 2015). While some favour a narrow or basic definition, others have proposed broader definitions (Brüggen et al., 2017). Furthermore, the vagueness of this concept has led to different definitions (Priyadharshini, 2017). Financial literacy means having financial knowledge about essential financial matters (Lusardi et al., 2017).

Huston (2010) comprehensive review of the literature indicates that previous studies have not clearly defined financial literacy. Kamakia et al. (2017) concur and note that no standard definition exists. There is thus no universal consensus on its meaning (Goyal & Kumar, 2021; Huston, 2010; Kamakia et al., 2017; Sehrawat et al., 2021), with different researchers offering different definitions (Goyal & Kumar, 2021; Kamakia et al., 2017; Remund, 2010; Xue et al., 2019).

On the one hand, some researchers regard financial literacy as a broad concept that encompasses an understanding of economic conditions and circumstances that affect household decisions (Ansari et al., 2022; Goyal & Kumar, 2021; Huston, 2010; Warmath & Zimmerman, 2019; Xue et al., 2019) based on expectations and experiences. On the other, it has been described as specific to money management: investing, savings, budgeting, and other financial matters (Ouachani et al., 2021; Priyadharshini, 2017; Remund, 2010). As suggested by Warmath and Zimmerman (2019), myopic conceptualization is a limiting factor that slows down financial literacy development.

Noctor et al. (1992), who was among the early researchers who defined financial literacy, stated that it involves making informed financial decisions based on financial knowledge. They added that financial education is central to acquiring and applying financial knowledge to make sound financial decisions. This suggests that financial literacy is achieved by acquiring financial knowledge and, second, having the ability to use such knowledge to make appropriate financial decisions and manage a household’s money. Based on an extensive review of various concepts relating to financial literacy, Mason and Wilson (2000) expanded Noctor et al.’s definition. They defined financial literacy as "*an individual's ability to obtain, understand and evaluate the relevant information necessary to make decisions with an awareness of the likely financial consequences*" (31). This definition recognizes how knowledge is obtained and the use of information to be aware of household decisions' financial implications. The significance of financial information was also recognized by Lusardi and Mitchell (2014), who defined it as the "*ability to process economic information and make informed financial decisions about financial planning, wealth accumulation, pensions, and debt"* (2).

Remund (2010) defined financial literacy as *"… a measure of the degree to which one understands key financial concepts and possesses the ability and confidence to manage personal finances through the appropriate, short-term decision making and sound, long-range financial planning, while mindful of the events and changing economic conditions"* (284). Zait and Bertea (2015) expanded definition held that financial literacy comprises financial knowledge (knowledge about financial products and concepts), financial ability (use of knowledge and capacity to effectively control and manage financial resources and engage in financial activities), financial communication (communication concerning financial matters and concepts), financial behaviour (actual usage of financial products and instruments), and financial confidence (trust in one's financial abilities, knowledge, and skills to manage financial matters). They additionally divided their definition into two sections, i.e., objective and subjective. The initial two variables focus on thoroughly comprehending financial issues and using financial data to influence financial decisions (subjective). The subsequent three pertain to the application of acquired knowledge (objective). Zait and Bertea (2015) contended that these five aspects of financial literacy must be operationalized to assess the concept, but they generally fall under objective or subjective measurement.

Basic definitions of financial literacy include the ability to read and analyze information, communicate it, and manage one's finances, all of which affect one's material well-being (Huston, 2010). Lusardi and Mitchell (2007) defined financial literacy as the primary economic concept for sensible saving and investment decisions. In a later study, they expanded their definition to include the type of knowledge one should obtain to make proper and effective decisions. (Lusardi, 2008) defined financial literacy as a fundamental understanding of money-related factors, such as how compound interest works, how nominal and real prices differ, and how risk diversification works. Based on this definition, financial literacy was clarified as the ability to appreciate and make economic decisions on various financial issues and administer one's finances (Servon & Kaestner, 2008). Lusardi (2008) departed from Mason and Wilson's broad definition of financial literacy and limited it to three basic financial concepts that could undergo empirical testing. Lusardi and Mitchell (2014) included economic information. This implies that households should be able to process financial information to make informed decisions beyond obtaining financial knowledge.

Another group of scholars defined financial literacy as using financial skills and knowledge to effectively manage financial assets for future or long-term financial stability (Philippas & Avdoulas, 2020; Rahman et al., 2021; Schwab et al., 2009). The critical element that differentiates their definition from earlier is their recognition of financial well-being. Yet another school of thought regards financial literacy as a set of abilities that assists economic agents in making wise financial decisions (Alshebami & Al Marri, 2022). Noting the ongoing complexities in the financial market, (Mandell & Klein, 2007) proposed that financial literacy relates to one's ability to evaluate modern and complex financial products that enable well-informed decisions on financial products that promote one's long-term interests.

Beyond financial knowledge, skills, and information, making plans for the future and responding to economic and financial events is an essential element of financial literacy (Mason & Wilson, 2000; Philippas & Avdoulas, 2020; Rahman et al., 2021; Remund, 2010). Other scholars focus solely on financial ability and behaviour (Fernandes et al., 2014; Zait & Bertea, 2015). Morgan and Long (2020) pointed out that given the multidimensional nature of financial literacy, it not only reflects financial knowledge but includes attitude, skills, and actual behaviour. As such, Balasubramnian and Sargent (2020) define financial literacy as an appreciation of financial matters and a willingness to apply the skills set acquired through knowledge to make better financial decisions, advance economic growth, and improve individual financial well-being. Fernandes et al. (2014) define financial literacy in terms of variables such as financial knowledge, financial behavior, and financial ability. Thus, financial literacy appears to be a process or a means to an end. This infers knowledge acquisition, the ability to apply knowledge, the use of information, and changes in behavior, among others.

In contrast, some studies dissociate financial literacy from financial education and decision-making. At the same time, some regard it as a process where financial knowledge emanates from financial education to drive financial decision-making (Ouachani et al., 2021). For instance, Huston (2010) did not associate financial knowledge with the dimensions of financial decision-making; however, she believed that the measure of financial literacy should simultaneously incorporate both dimensions. Thus, financial literacy involves a household's ability to make reasonable decisions based on the ability to apply knowledge to manage personal finances.

Table 2. 1a: Conceptualization of the Term Financial Literacy

Authors	**Year**	**Definition**
Noctor et al.	1992	The capacity to use financial knowledge and information to manage money and make appropriate economic decisions.
Mason & Wilson	2000	The capacity of a household or an individual to gather, comprehend, and assess the pertinent information required to make decisions while considering the potential financial ramifications.
Lusardi & Mitchell	2007	To make wise selections in relation to investments and savings, one must understand basic economic principles.
Mandell & Klein	2007	Ability to evaluate modern and complex financial products that promote well-informed decisions and informed choices of financial products that serve the long-term interests of the decision-maker.

Table 2. 2b: Conceptualization of the Term Financial Literacy

Authors	Year	Definition
Lusardi	2008c	Familiarity with fundamental financial ideas, such as how compound interest works, how nominal and real values differ, and how risk diversification works.
Servon & Kaestner	2008	Ability to appreciate and make economic decisions on various financial issues and administer finances.
Remund	2010	The extent to which a person is aware of critical financial ideas is capable of handling their finances confidently and making wise short- and long-term decisions while keeping an eye on events and shifting market conditions.
Huston	2010	The ability to read and analyze information, communicate it, and manage one's finances affects well-being.
Lusardi & Mitchell	2014	Capacity to analyze economic information and decide wisely on debt, pensions, asset building, and financial planning.
Zait & Bertea	2015	Financial literacy includes financial knowledge, financial ability, financial communication, financial behaviour, and financial confidence.
Philippas & Avdoulas	2020	The capacity to successfully apply financial knowledge and abilities to manage resources for long-term financial well-being.
Balasubramnian and Sargent	2020	Financial literacy is the appreciation of financial matters and the willingness to apply the skills acquired through knowledge to make better financial decisions, advance economic growth, and improve individual financial well-being.
Ouachani et al.	2021	Financial literacy is a process whereby financial knowledge emanates from financial education to drive financial decision-making.

Source: Own Compilation

Among the definitions, three stand out as consistent. These definitions apply to rural Ghanaian homes. The concept of financial literacy proposed by Noctor et al. and reinforced by others is particularly relevant to Ghanaian rural communities. People must obtain, understand, and evaluate information about managing cash flows, investing in agriculture, and seeking financing. This definition underlines how critical financial literacy is for households to overcome these challenges. Ghanaian rural homes may need to compare fertilizer types, pricing, and benefits to choose one. Before obtaining the service or product, they may also need to research other lending choices, insurance and saving opportunities presented by the informal and formal sectors, especially mobile money technology. The term could, however, need to be modified to consider the particular difficulties Ghanaian rural households experience. For instance, people may find it more difficult to find, comprehend, and assess pertinent information if they have limited access to financial information, education, or literacy.

Furthermore, cultural and societal variables could affect financial decisions in rural Ghanaian households. Therefore, the definition might need to be expanded to consider these things. Moreover, the description assumes financial sophistication, which may not hold for rural households with no formal education or background in finance.

Measurement of financial literacy

Recently, the measurement of financial literacy has turned attention to the household level. However, most household-level measurements are derived from the principles of individual-level measurements. Measurement of financial literacy has two dimensions, objective and subjective, at the individual level, and the same trend appears at the household level. Some previous studies measured financial literacy at the household level objectively (Behrman et al., 2012; Dinkova et al., 2021; Huston, 2010; Twumasi et al., 2022a; Twumasi et al., 2021), while others employed subjective measures (Amidu et al., 2021; Chetioui et al., 2024). These studies used one household member as a proxy for the household. To be considered financially literate, households should have a solid understanding of key financial concepts and numeracy skills (Méndez-Prado et al., 2023). This includes simple and compound interest, return and risk, and inflation (Atkinson & Messy, 2012; Lusardi & Mitchell, 2011). Similarly, Sehrawat et al. (2021) measured financial literacy objectively to capture credit aversion, monitoring, product choices, spending attitudes, planning, saving, and informed decisions in their investigation of the path to financial well-being in India. They focused on the participants' financial behaviour towards specific finance topics.

While there is consistency in the measurement of the variable, variation exists. For example, Koomson et al. (2022) investigated household financial literacy and asset accumulation in Ghana and measured financial literacy as savings and account holding accumulation. They noted the importance of these two variables in rural Ghana's household financial literacy space. Twumasi et al. (2022a) and Sekita (2013), in measuring household financial literacy in Ghana and Japan, respectively adopted and modified Lusardi and Mitchell (2011) questions to measure household financial literacy. Luo et al. (2023) analyzed household financial literacy in China, measuring financial knowledge, behaviour, attitude, and skills.

Furthermore, Grohmann and Schoofs (2021) adapted a version of the Lusardi and Mitchell (2011) questions, further refined by Cole et al. (2011), which was used to assess household financial literacy. This approach focuses on numeracy abilities for calculating financial trade-offs. Fort et al. (2016) in Italy adopted Lusardi and Mitchell (2011) measurement model to measure household financial literacy using household head. Admittedly, the measurement of household financial literacy appears to be focused on significant decision-makers in a household, necessitating the measurement's adoption from an individual level.

Previous studies focused on specific dimensions of financial concepts to measure or evaluate respondents' perceptions. Lusardi et al. (2014) described subjective self-assessment of financial literacy as "perceived," suggesting that subjective measures of financial literacy are not merely a proxy for objective or actual financial literacy. A considerable mismatch exists between the results of studies that have used objective (actual) and subjective (perceived) measures. While some studies combined objective and subjective measures of the concept at the lower order construct (Vieira et al., 2020), we must categorize them properly to build higher order to realize the actual combined effect. Therefore, in this study, objective financial literacy is obtained based on an observable understanding of the financial concept, while subjective is a self-perceived measure of understanding the financial concept.

The study measured financial literacy by integrating both subjective and objective assessment to produce a composite indicator of financial literacy. Integrating subjective and objective financial literacy assessments yields a more thorough comprehension of households' financial circumstances, facilitating the capture of actual knowledge and perceived financial wellness, thereby enabling more insights and targeted interventions. The failure to integrate subjective and objective measurements of financial literacy may result in a partial understanding and erroneous findings, hence diminishing the efficacy of research and the proposed interventions resulting from the study.

Applicability in Ghana

Given that rural households might not make complicated financial decisions, this study adopted the objective measures of financial literacy used by Lusardi and Mitchell (2011) and Vieira et al. (2020). Lusardi and Mitchell (2011) focused on understanding the investment rate, savings, and risk diversification among research subjects. Vieira et al. (2020) added an assessment of the level of understanding of the time value of money. The measurement of the literacy of the households was conceptualized as the financial literacy of the head, as has been the case in previous studies. This is more relevant in the case of Ghana because, in most cases, the head makes financial decisions, and in most cases, these are informed by inputs from the household members. The first two questions posed by these researchers measured the capacity to do simple mathematical calculations in everyday life. The third measured understanding of inflation, the fourth was knowledge of risk diversification, and the last was the time value of money.

It is important to note that regardless of any measurements, there are benefits and drawbacks to measuring financial literacy in Ghana's rural areas. Using the metrics of savings rate, rate of investment, risk diversification, inflation, and time value of money as proposed by Lusardi and Mitchell (2011) and Vieira et al. (2020) comes with its own challenges and benefits for the context of the study. Rural Ghana faces limited investment opportunities due to poor access to financial markets and institutions. Traditional assets like livestock, land, and farming tools are often used. However, mobile money technology is changing this narrative, allowing households to participate in the financial market. Apps enable access to microinsurance products, such as crop insurance and health coverage, and allow residents to allocate funds to basic financial instruments like pensions, mutual funds, loans, and savings via mobile wallets. Assessing households' potential return on investment could be relevant in policy formulation, especially in rural areas where informal savings mechanisms are prevalent.

2.3.3 Financial Well-being

Well-being is a multi-faceted concept (Rea et al., 2019; Sorgente & Lanz, 2017; Taft et al., 2013). However, financial well-being is recognized as a constituent of well-being (Campbell et al., 1976; Rea et al., 2019). Furthermore, it has become a major focus of financial studies since the end of the global financial crisis. It has thus stimulated political and social action (Sorgente & Lanz, 2017) in consumer decision-making, financial planning, counselling, service marketing and psychology (Brüggen et al., 2017). Khakimovna (2024), Soomro et al. (2024) and the CFPB (2015) emphasize that the end goal of financial education is financial well-being. Overall, life and financial satisfaction have been referred to as financial well-being (Lee et al., 2020). Until Easterlin (1974) pointed out the importance of subjective perceptions of financial well-being, it was only associated with income at the macro level and/or an objective financial situation (Mahendru, 2020). Since then, the concept of financial well-being has received considerable attention in wellness-associated research to cover areas such as employment issues, financial strain, and risk management issues at the micro level.

Contemporary financial well-being definitions span objective and subjective measures (Brüggen et al., 2017; Sorgente & Lanz, 2017, 2019). On the one hand, financial well-being has been broadly defined as a function of personal characteristics, perceived attributes, objective attributes (Rea et al., 2019), and evaluation attributes of the financial domain(Porter & Garman, 1993). Thus, Joo (1998) acknowledged the multidimensional and comprehensive nature of financial well-being, which combines financial satisfaction, financial attitude, objectively assessing one’s financial status and behaviour that cannot be evaluated using a single measure (Brüggen et al., 2017; Lee et al., 2020). Such studies only measure financial well-being for objective variables such as saving, investment, financial ratios, financial behaviour, and debt [See, for instance, (Curtis et al., 2017; Hsu et al., 2015; Rutherford & Fox, 2010)].

On the other hand, some researchers have embraced a more subjective approach to define and measure this concept (Lee et al., 2020; Xiao et al., 2014; Xue et al., 2020). Mokhtar et al. (2015) defined financial well-being as an abstract concept explaining a family's and individual's financial situation. They argue that financial well-being is an imaginary or perceived financial situation. Other researchers defined financial well-being as an individual state of mind that measures satisfaction with one's financial matters and situation (Hira & Mugenda, 1998; Lee et al., 2020; Muleke & Muriithi, 2013). Vlaev and Elliott (2014) argue that theoretical financial well-being implies a sense of security and adequacy of financial resources in the present and the future. Other researchers have adopted this approach(Kempson et al., 2017; Kempson & Poppe, 2018).

Brüggen et al. (2017) define financial well-being as *"the perception of being able to sustain current and anticipated desired living standards and financial freedom"* (7). This definition is more subjective and relies on individual perceptions to assess a person's financial state. They grouped the definitions in the literature into three categories: subjective, objective, and subjective and objective. Recognizing the concept's composite nature could contribute to assessing financial status (Lee et al., 2020). The Center for Financial Service Innovation (CFSI) defined financial well-being as *"the smooth and effective management of one's day-to-day financial life; resilience in the face of inevitable ups and downs; and the capacity to seize opportunities that will lead to future financial security and mobility"* (3). The USA's Consumer Financial Protection Bureau (CFPB) (2015) adopted a standard yet broad definition of financial well-being, stating that it relates to financial freedom and security in relation to current and future choices. It includes individuals' ability to manage their daily finances, including the ability to withstand financial setbacks and the financial flexibility to make decisions that help them achieve their financial goals. The CFPB's description implies that individuals should be able to comfortably meet current and future financial obligations and make financial choices that improve their standard of living. This broad definition makes the concept of financial well-being more meaningful because households with the same level of finance, income, debt, financial security, financial freedom, and experiences may exhibit different levels of financial well-being.

To allow it to be empirically tested, Joo (2008) built on his earlier definition of financial well-being Joo (1998) to describe it as being financially healthy, happy, and free from worry. Therefore, households' and individuals' financial well-being involves how healthy today's and tomorrow's financial situation is. In other words, with financial transactions happening smoothly, how satisfied are they with their current financial situation(happiness), and are they sure that their financial situation will continue to be the same or better in the future(no worries)? Breen (1991) assumed that financial well-being involves accumulating significant and sufficient assets, wealth, and income with the right mix of financial products and services. A more specific definition of financial well-being was provided by the CFPB (2015), namely, that it describes the state of a person's current finances that enables them to fulfil current and future financial commitments, feel confident about their financial future, and make financial decisions that allow them to enjoy life. Joo (2008) stated that perceived adequacy and agreement on income distribution and total income define financial well-being. This study defines financial well-being (Joo, 2008) as being financially healthy, happy, and worry-free.

To varied degrees, the definitions of financial well-being offered by CFSI, Joo (2008), Brüggen et al. (2017), and CFPB from different contexts can be applicable in the Ghanaian rural household environment. Ghanaian rural households' goals align with their emphasis on financial freedom, security, resilience, and efficient resource management. The definitions, however, do not adequately convey the particular difficulties rural households face in Ghana, such as their restricted access to financial services, erratic income sources, and susceptibility to outside shocks.

The definitions make assumptions about financial security, financial literacy, and access to financial services that may not hold in Ghana's rural areas. Furthermore, they may not adequately consider rural households' collective financial experiences and goals, which are frequently anchored in community and social networks, in favour of concentrating on individual financial decision-making. Consequently, even while the definitions offer a helpful place to start, it could be necessary to expand or modify them to more accurately reflect the complexity of financial well-being in rural Ghanaian households. The definition of financial well-being at the individual level still holds in most cases for Ghanaian households.

To ensure a more relevant and contextual assessment of financial well-being in rural Ghana, this study measures objective financial well-being using Comerton-Forde et al. (2022) proposed measures through savings, spending, and payment levels. Unlike many traditional measures, such as those of Baek and DeVaney (2004), which used financial ratios to assume structured income flows and access to formal banking, this misrepresents rural settings in Ghana. The objective measurement reflects tangible aspects of financial behaviour, making the study more inclusive for non-financial institution participants. The study includes subjective financial well-being, utilizing the IFDFW scale created by Prawitz et al. (2006), which evaluates financial distress and security views. This is especially significant in rural Ghana, where financial stability encompasses not only income and savings but also social responsibilities, resilience, and the perceived capacity to fulfil future obligations, which reflects local realities.

Notwithstanding obstacles associated with the measurements selected, they are the most suitable for rural Ghana. They encompass concrete financial actions and subjective viewpoints, mirroring local circumstances where formal financial systems are scarce. Integrating objective data, which may lack precision, and subjective assessments, potentially swayed by emotions, ensures a practical, culturally relevant, and holistic approach. This dual paradigm offers a pragmatic assessment of financial well-being albeit its intrinsic limits within the context of the study. Similarly, subjective and objective assessments were integrated as a higher-order construct to measure financial well-being and produce a composite indicator.

Table 2. 3: Conceptualization of the Term Financial Well-being

Authors	Year	Definition
Breen	1991	The accumulated significant and sufficient assets, wealth, and income with the right mix of financial products and services.
Hira & Mugenda	1998	An individual's state of mind is about satisfaction with one's financial matters and situation.
Joo	2008	Financial well-being means being financially healthy, happy, and free from worry.
Vlaev & Elliott	2014	Financial well-being is the security and adequacy of financial resources in the present and the future.
Mokhtar et al.	2015	Financial well-being is a household or individual's imaginary or perceived financial situation.
Brüggen et al.	2017	The perception of maintaining one's current standard of living and one's future aspirations for financial freedom.
Center for Financial Service Innovation (CFSI)	Unknown	The capacity to seize opportunities that result in future financial mobility and security, the ability to bounce back from inevitable setbacks, and the ability to handle one's everyday finances effectively and efficiently.
Consumer Financial Protection Bureau (CFPB)	2015	The degree to which people control their daily finances can help them withstand financial shocks and make decisions that help them achieve their financial objectives.

Source: Own Compilation

2.3.4 Financial Information

Financial information has also been defined in different ways based on the characteristics of the financial information considered in the investigation. Some researchers have adopted a broad view of information to include all relevant aspects of the information process. Choo (2006) defined information as people and households acquiring, processing, and utilizing data to achieve specific objectives or fulfil their desire for information. The researcher noted that multiple dynamic and active processes integrate various sources of information to develop a comprehensive appreciation of a subject Choo (2006). Similarly, information was defined by Marchionini (1995) as the "..*process of extracting, analyzing and utilizing data from various sources to make sense of the world around us*". This process involves acquiring, interpreting, and applying information for decision-making and solving problems. Marchionini (1995) and Choo (2006) definitions of information are similar as they were both concerned with processing information to achieve a desired goal, and one such goal is financial well-being.

Spink and Cole (2006) defined information as how individuals interact to acquire knowledge, solve problems, and make decisions. However, they recognized that information is a process that entails a range of cognitive, behavioural (perception, attention, comprehension, memory evaluation, and use) and affective activities. Therefore, information uses channels and means to interact with others (Bawden & Robinson, 2012). Information entails household critical analysis, thinking, and evaluation that assist in making decisions that improve life. Case and Given (2016) defined information consumption as actively seeking and engaging with information, evaluating its credibility and relevance, and integrating it into existing knowledge and understanding. They contended that it is an ongoing process of learning to adapt, which helps people to navigate the ever-changing world of information.

Responsible financial information consumption is difficult to define (Barbić et al., 2019). Thus, a comprehensive measure of financial information was proposed to include activities relating to saving, investment, credit use, consumption management, and insurance (Dew & Xiao, 2011). Dew and Xiao (2011) defined and measured financial information behaviour as shopping and purchasing activities. Barbić et al. (2019) expanded the definition to include responsible decision-making. They asserted that financial information is not just about behaviour but about making responsible decisions that inform consumption. Modelling financial information behaviour recognizes that behavioural activities can shape financial information to impact financial well-being and security.

Like Albert Maslow's hierarchy of needs, financial information can be presented as layers of human or household information needs in a pyramid (Barbić et al., 2019). Maslow placed basic existential needs at the bottom of the pyramid, followed by achievement, prestige and social standing, with self-actualization at the top. Likewise, financial information is formed by an existential need (consumption) at the bottom of the pyramid, as everyone directly or indirectly consumes financial information, followed by the level of information achievement as in the social standing of the usage of financial information, and the sources of the correct information that actualize the need daily.

Table 2. 4: Conceptualization of the Term Financial Information

Authors	Year	Definition
Marchionini	1995	The process of extracting, analyzing, and utilizing information from various sources to make sense of the world around us. This process relates to acquiring, interpreting, and applying data for decision-making and solving problems that benefit the present and future.
Choo	2006	The process by which individuals and households gather, analyze, and apply information to accomplish particular goals or satisfy their information needs is known as information consumption.
Dew & Xiao	2011	Define financial information as the behaviour towards shopping and purchasing activities.
Case & Given	2016	Information means actively seeking and engaging, evaluating its credibility and relevance, and integrating it into existing knowledge and understanding.
Barbić et al.	2019	Financial information includes shopping, purchasing activities, and responsible decision-making to improve the future.

Source: Own Compilation

It is important to note that information theories being examined have multiple applications in rural Ghana. Rural households in Ghana process information to better their financial situation. This can be applied to Choo's (2006) definition of information as obtaining, processing, and using information to achieve specified objectives. For rural households that need to make sense of financial data to make decisions, Marchionini's (1995) definition of information as a process of gathering, evaluating, and applying data to make sense of the world can also be applied. Information theories can be used in a variety of ways in rural Ghana. Programs for financial literacy can be created with the unique requirements and environments of rural households in mind. Mobile devices and community-based projects can be used to provide access to financial services and information. The theories assume easy accessibility and availability of information at all times. However, It is crucial to note that these definitions need to be modified for the unique circumstances of Ghanaian rural household settings, where there might not be as much access to financial services and information. Cultural and socioeconomic issues may also influence how rural households or household members engage with and utilize financial information. Thus, a culturally sensitive and context-specific strategy is required to apply these theories effectively in Ghanaian rural settings.

In summary, previous studies defined information as data that has been processed, organized, or structured to impart meaning or context, rendering it beneficial for decision-making, learning, or comprehension. It encompasses insights or particulars that communicate a message, mitigate ambiguity, or assist in resolving inquiries. This process may lead to consumption, change the level, change pattern, and obtaining various sources of information. Researchers have thus defined information based on the characteristics. Based on these observations and the study context, this study defined financial information as the acquisition process to remain knowledgeable and make sound decisions under changing conditions by increasing the level and pattern of beneficial information and seeking information sources relevant to the Household's needs.

2.4 Theoretical Underpinnings of the Study

The theoretical perspective that supports the link between financial literacy and financial well-being emanates from different theories, including the Prospect Theory (PT), Heuristic

Theory (HT), Consumer Behavior Theory (CBT), Social Exchange Theory (SET), and Family Management System Theory (FMST), to name but a few. However, the PT has been most commonly used and was the most appropriate for this study as it describes the process of individual decision-making and how it affects financial well-being. Given that a single theory is unlikely to provide a holistic explanation of a phenomenon (Hillman & Dalziel, 2003), Resource Dependency Theory (RDT) and the Life Cycle Hypothesis (LCH) were also used in this study.

2.4.1 Prospect Theory (PT)

Prospect Theory offers a framework to comprehend how individuals interpret and react to financial gains and losses, and financial literacy significantly impacts these attitudes and actions. The theory proposes that people make financial decisions at different satisfaction levels or rationality to obtain the desired financial well-being based on the information at the disposal of the decision-maker. The same is true for the household level.

The PT is one of the critical theories in behavioural sciences research relative to financial decision-making (Ruggeri et al., 2020). It questioned the viability of the well-known Expected Utility Theory, which is primarily used in risk decision-making (Rasool & Ullah, 2020). This framework is popularly accepted as a normative model of rational choice. However, the PT suggests that people do not value losses and gains in making decisions; rather, they value losses and gains related to the reference points (Kahneman & Tversky, 1979). It adds that people do not always make rational decisions when psychological factors are involved, particularly under pressure. The theory demonstrated that the Expected Utility Theory model(Tversky & Kahneman, 1981) was inconsistent and inadequate in explaining how people make decisions (Kahneman & Tversky, 2013) to achieve financial well-being.

The PT describes individuals' various life choices and suggests that making decisions involves risk (Barberis, 2013), with people generally relying on a limited number of experimental principles. Editing and evaluating are the two phases of decision-making in the PT. The editing stage's primary function is to collect and organize information and pretreatment (i.e., the information stage). In the evaluation stage, individuals value and choose each edited prospect necessary to achieve the best decision-making (i.e., the decision stage) for the present and the future. The PT further states that carriers' utility changes occur not at the final stage but in the existing state of affairs. However, the final state and the existing state are interdependent. Therefore, consideration should be given to utility (value) as a function of the reference point (state of affairs) and the magnitude of change, i.e., positive or negative.

In the context of this study, behavioural differences and decision differences in households are emphasized by prospect theorists when questioning the rational choices model (Akims & Jagongo, 2017). Therefore, a household's inclination to secure their financial future is about what they know and what information they seek from their knowledge to improve their financial future. Thus, financial well-being depends on financial knowledge and information (Harahap et al., 2022) to influence choices. Households with lower levels of financial literacy may ignore financial information relevant to securing their current and future financial well-being due to ill-informed, inappropriate financial information (Bateman et al., 2015).

Prospect Theory is pertinent and clarifies how households' decision-making under uncertainty and perceptions of gains and losses moulded by financial insight can affect financial behaviour and outcomes, as evidenced by studies such as Kahneman and Tversky's seminal research and its subsequent applications in behavioural finance. Several studies have used this theory to explain how financial literacy influences financial well-being either directly or indirectly (Bateman et al., 2015; Harahap et al., 2022; Riitsalu & Murakas, 2019; Sehrawat et al., 2021; Xue et al., 2020) and how decisions are made. They argue that financial literacy is a pivotal component of financial decision-making (Bianchi, 2018) in achieving financial well-being, but not without consuming financial information. However, previous empirical studies appear to have omitted a critical component of the decision-making process: the information component. The expectation is that financial literacy provides all sorts of information for the consumer to process based on their needs, as noted in the PT.

Similarly, financial literacy enables understanding the financial information to which households are exposed. The current study holds that financial literacy brings clarity to information consumed by households from all dimensions, allowing them to process this information to make decisions that have far-reaching consequences for their financial well-being. However, this aspect of the information process has not been appropriately analyzed relative to this relationship, which is a critical component of achieving financial well-being. Researchers have assumed that information dimensions are practical without empirical testing. This limitation is due to the non-recognition of information as a significant component of the PT to empirically explain financial well-being.

2.4.2 Resource Dependence Theory (RDT)

The RDT can be employed to understand how financial literacy affects people's access to, use, and dependence on financial resources such as information. An individual's capacity to access more advantageous financial resources, reduce exposure to high-cost options, efficiently use resources, diversify their financial portfolio, and exert more influence on their financial well-being depends on the level of financial literacy. As a result, those more financially literate are more likely to be resilient and attain higher levels of financial well-being. The theory posits that financial knowledge depends on information as a path through which financial literacy affects the financial future. The level of financial literacy depends on the financial information obtained, which involves decisions that impact future financial behaviour.

The RDT was proposed by Pfeffer and Salancik (1978) in their study of the external control of organizations (resource acquisition's impact on organizational behaviour). It gained public awareness and became widely accepted for academic discussions. The theory is based on the principle that an organization, such as a business, family, or household, must transact with other organizations and actors within its environment to acquire the resources necessary for survival. A fundamental assumption of the RDT is that critical resources determine organizations' actions and that resource dependence can explain organizational behaviour. Therefore, to understand an organization's contextual behaviour, the ecology of that organization should be understood. Behaviour includes decision-making and actions, including non-decision-making (Friedrichs, 2023) and the outcome of actions and decision-making (Nienhüser, 2008). Behavioural differences in an organization emanate from different management decisions anchored on internal and external agents controlling critical resources. Those who hold and directly use critical resources have power, and such power influences behavior (Pfeffer, 1992). The RDT recognized the importance of the organizational environment in determining its behaviour to achieve high-performance levels. The key to organizational survival is thus acquiring and maintaining the resources critical to survival (Pfeffer & Salancik, 1978).

Several studies have employed the RDT to explain the many business elements that impact sustainable growth, such as corporate behaviour, managerial practice, corporate failures, board functions and composition, and corporate governance (Oliveira et al., 2022; Poletti-Hughes & Martinez Garcia, 2022), to name but a few. The theory has influenced finance, economics, and the managerial field, but more at the corporate level. Previous studies have also used the RDT to focus on a corporate organization's relationship with the external environment regarding timely strategic decisions (Oliveira et al., 2022).

The RDT sees the individual's role as focusing on gaining critical resources such as financial literacy and information to help households improve their financial well-being. It, therefore, regards information as a crucial resource that individual households should obtain from their environment to gain a competitive advantage, which will influence their financial actions. Nonetheless, the theory has been more frequently applied to corporate organizations rather than individuals and households influenced by their environment. The information they have access to to make decisions is critical in determining their life expectations. A lack of access to this information could result in financial decisions that negatively affect financial well-being. Just as a corporate organization can control resources and power, so can households to promote decision-making that enhances financial well-being.

2.4.3 Life Cycle Hypothesis (LCH)

The LCH and financial literacy are strongly related because financial literacy enables people to make wise financial decisions consistent with the theory's guiding principles of smoothing consumption over one's lifetime. According to the LCH, people who are more financially literate can better manage their income, formulate a retirement plan, manage their debt, set up emergency funds, and make wise investment selections, all of which eventually contribute to their financial well-being. The LCH posits that individuals plan their spending throughout their lives, considering their income needs in the future. Individual smooth consumption is based on the level of financial literacy and information available to influence future consumption expectations and obtain the desired financial future.

Modigliani and Brumberg (1954) developed this theory at the heart of consumption and saving behaviour studies. It is grounded in common sense observation that households' decisions are not only based on current savings and consumption but also on future circumstances relative to saving for a better standard of living. Current age and financial resources available throughout a lifetime impact spending (Ando & Modigliani, 1963). The LCH holds that people consider their future income and circumstances before making saving and consumption decisions. Households are motivated to save based on expected financial status at retirement age and expected returns on savings. They thus save to ensure their future financial well-being (Brüggen et al., 2017) and independence.

The primary assumption of the LCH is that people save when they earn a high income and borrow when they earn a low amount. Thus, individuals typically accumulate assets during the early years of their careers, using them for retirement and reducing their savings (Ando & Modigliani, 1963). Those who do not retire dis-save at an advanced age (Danziger et al., 1982). The theory adds that people adjust their consumption and saving patterns throughout their lifetime in a way that enables them to control their spending during their entire financial existence. Household financial well-being is disturbed by loss of income. Consequently, financial literacy leads to quality financial information consumption that enhances financial well-being. According to Kengatharan et al. (2020), the convergence of the life-cycle consumption model and behavioural life-cycle highlights the overriding significance of financial management (financial literacy and information) in achieving the desired goal of financial well-being in the future.

This LCH predicts how financial literacy and information affect household financial well-being. Studies have observed that financial well-being changes over the lifetime (Bufe et al., 2019; Leskinen & Raijas, 2006; Lusardi et al., 2015) based on financial education (Lusardi et al., 2015) to smooth marginal utility, as the model predicts (Hall, 1978).

Macroeconomic and technological factors and financial markets could cause changes to financial well-being over time (She et al., 2022) based on information. This implies that financial literacy enters the model by accessing dimensions of financial information and expected returns to meet future income needs (Jappelli & Padula, 2017). A higher financial literacy level reflects a higher household financial information rate.

Conversely, less financially literate households are less likely to access adequate financial information that offers investment opportunities to safeguard financial well-being in the future (Dinkova et al., 2021). Klapper et al. (2015) found that the financial literacy-age relationship has a reversed U-shape, suggesting that sustaining growth, financial literacy, and financial information are vital to protect people's financial well-being throughout their lifetime. This consumption could peak and decline in old age if information about financial well-being becomes less needed. As people gain more knowledge, they become concerned and seek more financial information that can guarantee their future financial security.

2.4.4 Contextualizing the Theories in Rural Ghana

Contextualizing the theories, households may resort to riskier recovery practices in Ghana's rural areas during economic shocks like crop failure, illness, or unforeseen expenses. For example, they can take out high-interest loans or sell off key assets like animals or land to cope with an unexpected financial crisis. This conduct is consistent with the PT's finding that people take more risks when there is a chance of profit but fewer risks when there is a chance of loss. Financially troubled households may take a chance on riskier investments (such as high-interest loans) because they believe they are losing money and want to stop things from worsening. Prospect Theory is highly pertinent to Ghanaian rural households' decision-making processes. It provides a behavioural and psychological framework to comprehend how these households deal with risk, uncertainty, and resource limitations. In particular, loss aversion, risk aversion, and the significance of decision framing play a key role in understanding why rural families may be resistant to change, wary of new technology, or reluctant to take out loans or insurance policies, even when doing so could prove advantageous in the long run.

Even though PT clarifies how people make decisions independently, it must also be understood in rural Ghana's larger social, economic, and cultural context. Decisions are often made jointly in households and communities, influenced by social norms and traditions. However, the Prospect Theory's description of the psychological components of decision-making—particularly loss aversion—is essential to comprehending how rural households react to possibilities and hazards.

Similarly, the RDT holds that because organizations depend on external sources to acquire vital resources, their environments impact them. To comprehend how rural households in Ghana engage with and depend on external players (markets, institutions, NGOs, and the government) for their livelihoods, this concept of dependency on external resources can be applied to the setting of rural households. For instance, NGOs assist many rural families, especially in literacy, education, and agricultural development. NGOs frequently offer essential services like education programs, general literacy, financial literacy, and agricultural extension services. When households cannot produce or obtain these services independently, they depend on NGOs for essential resources. As RDT would predict, the cessation or curtailment of NGO activity can cause a resource crisis, emphasizing the power disparity in the partnership.

The resource dependency theory is extremely applicable to Ghanaian rural households, given that they rely on various external resources—including markets, financial institutions, government programs, agricultural inputs, and non-governmental organizations—for their survival and subsistence. RDT provides insights into the dynamics of power imbalance and reliance, which aid in explaining Ghanaian rural households' vulnerabilities and adaptive measures.

The Life Cycle Hypothesis (LCH) helps analyze a person's lifetime savings and spending patterns. Its applicability in Ghana's rural areas, with its largely subsistence-based agricultural economy, informal savings networks, and robust family-based social networks, calls for some thought, nevertheless. Rural Ghana's distinct economic and social frameworks offer opportunities and obstacles to using LCH. For example, in the LCH, households must save a portion of their income during their working years for use in retirement (old age). Formal savings accounts in banks or pensions are less prevalent in rural Ghana. Rather, they save through informal means like *Susu* (cycling savings clubs), animals, or food that has been kept in storage and until recent children's education as means of insurance. While these mechanisms provide some level of saving, they are frequently meant for short-term or emergency use rather than for old-age dissaving, as projected by the LCH.

Notwithstanding LCH's emphasis on financial planning for future consumption, this might be relevant in the rural household in Ghana, especially in regions where rural households are starting to enter the formal economy, have easier access to financial services, and are investing in children's education as potential future wage earners is essential. These characteristics are present in UWR rural areas. In these situations, a modified LCH that accounts for social support networks and informal savings might reflect rural households' financial behaviour in Ghana more accurately. This was observed in Twumasi et al. (2022b) studies in Ghana as they noted that households typically set aside a portion of their income during their working years for usage later in their lives, using the life cycle hypothesis theory in their research.

The life cycle hypothesis, resource dependency theory, and prospect theory combined offer a multifaceted perspective on Ghanaian rural households' financial well-being. Various behavioural factors influence rural households' financial decisions, including intertemporal spending issues, external resource limits, and risk and loss aversion. When taken as a whole, these theories help to explain the path toward rural household financial well-being.

2.4.5 Combining the Theories

Kamakia et al. (2017) questioned the capacity of the PT as a single theory to explain all dimensions of financial literacy concerning financial well-being. This could be due to the theory's narrow assumptions that are insufficient for financial literacy to explain financial well-being. This limitation of studies based on single theories has prompted several researchers in financial literacy to call for the development of an alternative, complementary theoretical and conceptual framework that may better explain this phenomenon. Hillman and Dalziel (2003) suggested that no single theory is comprehensive enough to explain various subject dimensions; instead, it should be viewed through a multi-theoretical lens. Furthermore, recent empirical studies have pointed to a shift from seeking to trace a conventional direct relationship between financial literacy and financial well-being to increased interest in mediation- or moderation-based research (Richardson et al., 2022; Riitsalu & Murakas, 2019; Sehrawat et al., 2021; Xue et al., 2020). Indeed, mediators play a crucial role in understanding financial literacy's impact on financial well-being.

In line with this trend, the current study employed the RDT and the LCH in addition to the PT. These theories identify three key factors, i.e., knowledge, information, and well-being. Theoretically, individuals acting rationally are dependent on information resources. The PT is concerned with rationality in households' choices and preferences; this assumes that rationality is born from financial literacy. The RDT focuses on the information necessary for decision-making. Lastly, the LCH is interested in how financial well-being will be achieved, which depends on the PT and RDT.

Therefore, combining these three theoretical views under one umbrella to develop a comprehensive theoretical framework significantly contributes to the literature. It could also be instrumental in addressing the theoretical weakness introduced when one theory is preferred over others based on the researcher's judgment. The link between the theories is illustrated in Figure 2.1 below.

Figure 2.1: Link between the Theories

Source: Own Compilation

As detailed in Figure 3.1, the study conceptualized input as PT (financial literacy), the throughput of RDT (consumption, level, pattern, and source) and its final output (financial well-being). The model proposes that given the socioeconomic environment, a high level of financial literacy is expected to influence information-seeking on financial matters, positively affecting financial well-being.

2.5 Conceptual Framework

The study's conceptual model was rooted in the PT developed by Kahneman and Tversky (1979). It provided an integrated framework leading to financial well-being through financial literacy without discounting financial information dimensions as mediators.

The theoretical framework developed by Joo (2008) provided the foundation to construct a conceptual model for this investigation. The study conceptualized input or resources for throughput (financial information dimensions) as a financial literacy component. The financial information dimensions as throughput were measured in four areas, i.e., general financial information consumption, level of financial information, the pattern of financial information, and sources of financial information. Each variable had indicators that measured the constructs into objective and subjective measures. The output component was characterized as financial well-being.

The model proposed that, given any socio-economic environment, households with a high level of financial literacy and positive psychological factors are expected to consume financial information effectively, with socio-demographic variables also expected to play a role. The study assumed that financial literacy should affect financial information dimensions influencing financial well-being.

The conceptual model shares some elements with the frameworks proposed by Sehrawat et al. (2021), Mahendru (2020), and (Kempson et al., 2017). These studies conceptualize financial well-being as the product of financial behaviour and resources. Their models account for skills, attitudes, knowledge, and psychological traits not as direct influencers of financial well-being but through financial behavior because psychological traits reflect and affect perceptions of financial well-being. Similarly, this study developed a conceptual model that regards financial information dimensions as a mediator since, as noted by previous studies, financial literacy dimensions cannot directly affect financial well-being.

Socio-demographic characteristics and psychological factors are believed to shape households' available choices and how they perceive their well-being (Sehrawat et al., 2021). Therefore, these variables were employed as the study's control variables. Studies have shown that socio-demographic characteristics modulate the link between financial literacy and financial well-being (Kempson et al., 2017; Mahendru, 2020; Sehrawat et al., 2021). Thus, psychological factors and socio-demographic characteristics were considered in each relationship as moderators that can influence the direction and the relationship proposed in the constructs. The conceptual model developed for this study is presented in Figure 2.2 below.

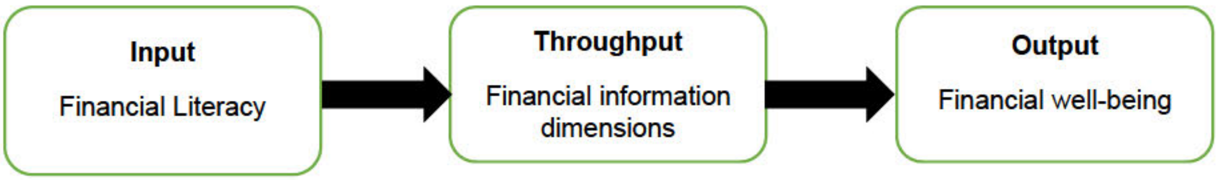


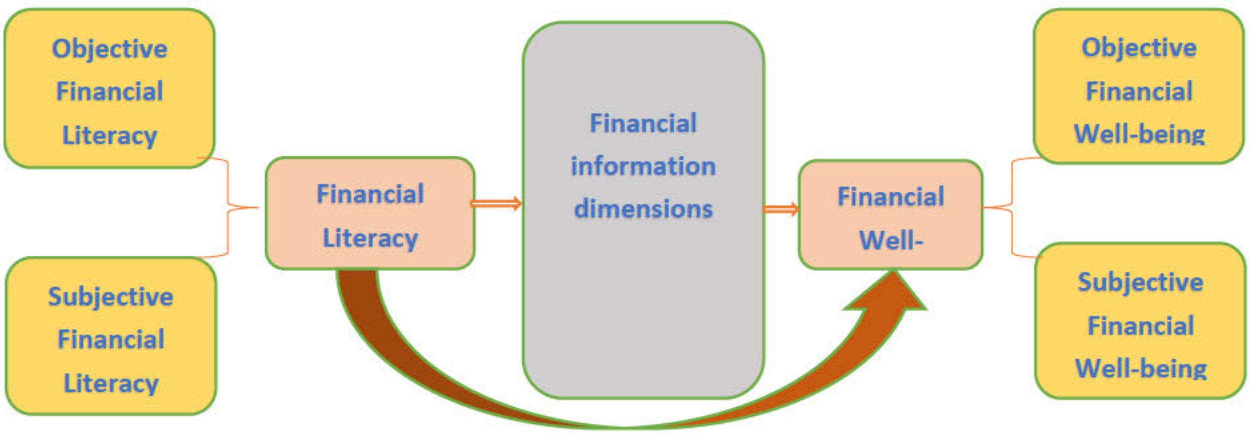
Figure 2.2: Conceptual Model Baseline

Source: Own Compilation

Previous empirical studies focused on subjective or objective measures of financial literacy and financial well-being, depending on the context in which the research was conducted (Brüggen et al., 2017). Sehrawat et al. (2021) conceptualized financial literacy subjectively while objectively conceptualizing financial well-being. Kempson et al. (2017) did not explicitly differentiate between subjective and objective situations of financial well-being. Fan and Henager (2022) considered financial literacy both subjectively and objectively but only measured financial well-being subjectively. The only known study that simultaneously evaluated objective and subjective financial literacy and financial well-being situations is that by Porto and Xiao (2022). Some studies have only conceptualized financial well-being subjectively (Mahendru, 2020; Riitsalu & Van Raaij, 2022), while the counter variable is mixed or objective.

Based on the contention that conceptualizing financial literacy subjectively to match an objective financial well-being situation to examine relationships could be problematic, the reverse is also true. It could lead to misalignment and bring about inconsistencies and challenges in drawing valuable conclusions from the data. In addition, measurement bias could distort the subjective variable's reliability and accuracy, making it more challenging to establish a cause-and-effect link with objectively measured variables. Therefore, to address these issues in previous studies, this study conceptualized both financial literacy and financial well-being objectively and subjectively. This could address the lack of consensus on the relationships observed in earlier studies.

This conceptual choice was also based on the notion that triangulation of objective and subjective data from various sources could enrich the reliability and validity of the findings of the empirical investigation. The model is unique because it could be the first to combine subjective and objective measures to analyze the factors mediating the link between financial literacy and financial well-being. Both endogenous and exogenous variables were modelled to be measured in objective and objective terms. The expanded conceptualized framework is presented in Figure 2.3 below.



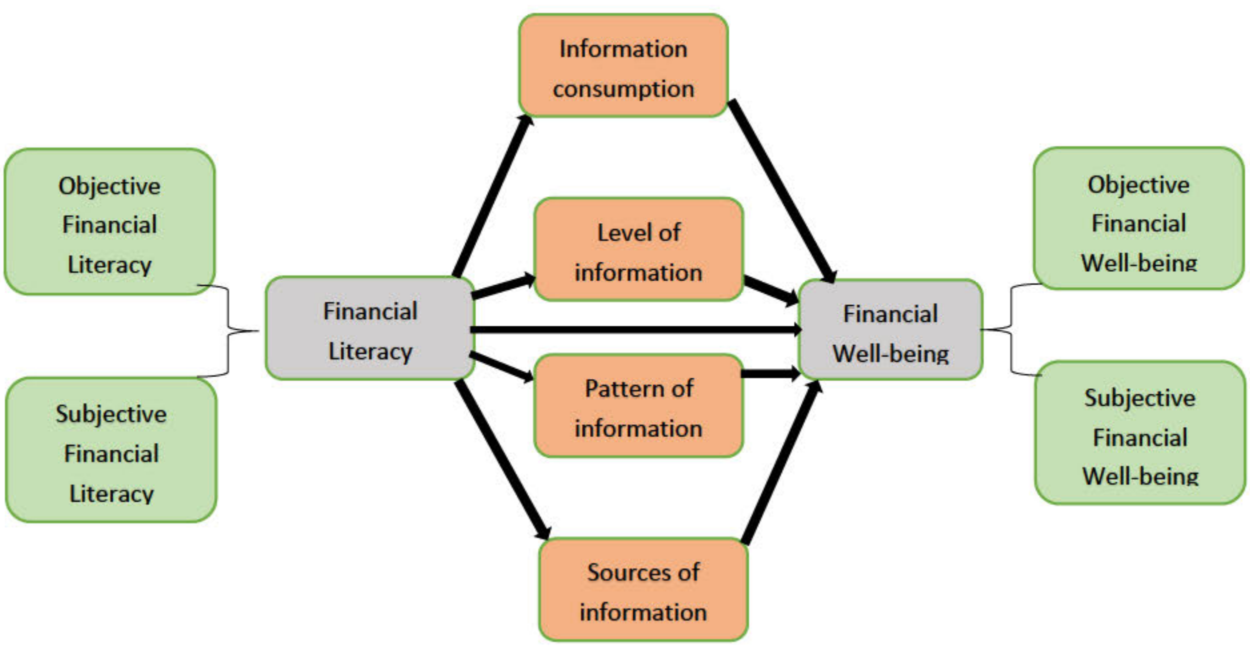


Figure 2.3: Broader Conceptual Framework

Source: Own Compilation

All relationships were expected to be positive except for sources of information on financial well-being, where, depending on the sources, it could portray positive (external sources) or negative (internal sources) relationships.

Chapter Summary

This chapter provided the socioeconomic and sociocultural context of Ghana's Upper West Region to help interpret the study’s findings. It also outlined the theoretical foundations and framework guiding the research. The next chapter presents a review of the empirical literature.

CHAPTER THREE: Empirical Literature and Contributions

3.1 Introduction

This chapter examines empirical literature related to the current thesis and highlights the study's contribution to the current body of knowledge. Section 3.2 reviews the literature about the relationship between financial literacy and financial well-being, section 3.3 discusses the literature about the mediating role of financial information, section 3.4 identifies the research gaps this study aimed to fill, and 3.5 presents a chapter summary.

3.2 Financial Literacy and Financial Well-being

A review of the household literature shows that generally, there is agreement on how financial literacy impacts household financial well-being (Sconti, 2024), even though there is still contradictory evidence. Recent years have witnessed exponential growth in studies examining the link between financial literacy and financial well-being worldwide. However, most have focused on advanced economies. While the majority findings favour positive relationships, the minority is aligned to negative ones.

3.2.1 Global perspective

Numerous researches highlight the direct and indirect positive link between financial literacy and financial well-being. For instance, Rutherford and Fox (2010) assert that the financial understanding of young adults' household substantially impacts their financial satisfaction, conduct, and overall well-being. Likewise, Chu et al. (2017) demonstrate that enhanced financial literacy enables households to make superior investment decisions and attain favourable returns. Karki et al. (2024) emphasize that financial literacy enhances financial well-being by alleviating financial stress, which mediates financial literacy and financial well-being (Zhang & Chatterjee, 2023). These findings repeatedly indicate that financial literacy is crucial in improving financial security and well-being.

Additionally, research by Zhang and Chatterjee (2023) and Korankye and Pearson (2023) highlights financial stress as a key factor. Their findings suggest that while effective financial management can enhance financial well-being, it can also contribute to stress.

Zhang and Chatterjee (2023) discovered that although financial literacy helps alleviate stress, elevated financial stress diminishes its beneficial effects on financial well-being. Korankye and Pearson (2023) assert that managing household finances might elevate stress levels, highlighting the necessity for financial literacy programs that incorporate psychological stress management. The results indicate that enhancements in well-being from financial knowledge may necessitate efforts to mitigate financial stress, particularly for marginalized populations.

Numerous studies have demonstrated that financial inclusion, which in some cases is facilitated by financial literacy, substantially affects socioeconomic well-being. Ranabhat et al. (2022) indicate that Nepal's banking and credit access favourably influences social and economic well-being. Wang et al. (2022) demonstrate that financial literacy, combined with financial inclusion, helps reduce poverty in China by encouraging participation in market activities and entrepreneurship. Their findings indicate that financial literacy lowers households' likelihood of relative poverty. Additionally, guiding households in setting realistic expectations for returns on risky financial assets can support diversified asset allocation, enhance satisfaction with investment decisions (Xu, 2024), and improve overall financial well-being (Som, 2024). These findings indicate that financial literacy and access to financial information can potentiate economic progress and enhance household financial well-being.

The influence of financial literacy on well-being varies considerably across different cultural and socioeconomic situations, as evidenced by studies conducted in Malaysia, Spain, and Italy. Mahdzan et al. (2023) and Mahdzan et al. (2020) found that general financial literacy education in Malaysia was less effective for low-income households and, in some cases, even negatively correlated with financial well-being. Fernandes et al. (2014) observed that higher financial literacy was linked to greater household resilience against financial vulnerability in Spain. Similarly, Sconti (2024) found that in Italy, financial literacy improved households' ability to manage their finances effectively, leading to better financial well-being. The disparities indicate that financial literacy programs should be tailored to align with cultural norms and socioeconomic frameworks, especially for economically disadvantaged populations.

While most recent studies focused on individual-level relationships, there is limited evidence at the household level. At the household level, the inconsistent findings in previous studies could be due to the different measurements used to measure financial literacy or household financial well-being, as the concepts present varied measurements (Gumbo et al., 2023). While some studies assessed the impact of self-perceived financial literacy on self-perceived well-being, in other words, subjective measures (Chetioui et al., 2024; Dinkova et al., 2021; Mansor et al., 2022; Munisamy et al., 2022; Permana & Lutfi, 2022), other examined observed the effect financial literacy on self-perceived well being, in other words, objective-to-subjective assessment (Amidu et al., 2021; Chipunza & Fanta, 2024; Korankye & Pearson, 2023; Sconti, 2024; Wang et al., 2022). A further group of researchers used objective-to-objective measures (Chu et al., 2017; Koomson et al., 2021; Koomson et al., 2022; Rutherford & Fox, 2010), while some combine subjective and objective in the one leg of the relationship (Fernández-López et al., 2023; Zhang & Chatterjee, 2023). This study seeks to add to this literature by assessing the effect of combined subjective and objective financial literacy on well-being at the household level. This approach is essential as it will provide nuanced results and facilitate the understanding of prior findings that had not combined these measures.

Cultural and demographic differences could also explain the diverse results. Furthermore, several variables have been used as a proxy for financial literacy or financial well-being. However, the most common are financial knowledge and skills (Chu et al., 2017; Dinkova et al., 2021; Korankye & Pearson, 2023; Permana & Lutfi, 2022; Som, 2024; Wang et al., 2022; Zhang & Chatterjee, 2023) and financial satisfaction (Korankye & Pearson, 2023; Mahdzan et al., 2020; Som, 2024) as a proxy for financial literacy and well-being, respectively. Financial literacy is often measured through proxies such as financial education, behaviour, management activities, attitude, and credit card literacy. In contrast, financial well-being is assessed through consumption, investment returns, financial position, and spending management. Most research on financial literacy and well-being focuses on developed regions, though interest is growing among Asian researchers. Studies in Africa emphasize general household well-being but often overlook financial well-being, a key aspect of welfare that impacts living standards. Addressing this gap is crucial for understanding financial stability and its broader socioeconomic effects.

3.2.2 Africa perspective

For instance, in the African rural household context, Mbukanma et al. (2020) illustrate that financial literacy enhances household saving behaviour, indicating that a robust comprehension of financial knowledge positively affects saving capacity and elevates overall financial well-being in South Africa. Twumasi et al. (2022a) assert that financial literacy influences household saving behaviour, with social networks serving as a moderating factor, highlighting the significance of social elements in rural household saving practices. These studies demonstrate that financial literacy can enable households to make proactive financial decisions. Gumbo et al. (2023) investigate financial literacy among women in agriculture in Zimbabwe, showing that women possessing financial competencies experience enhanced household financial well-being and resilience. This is especially significant in rural areas, where women frequently oversee household money and may lack formal financial education. Koomson et al. (2021) advocate for incorporating women's empowerment into financial literacy programs, as this integration markedly improves household welfare and consumption. This indicates that literacy initiatives targeting women may produce more significant outcomes for household welfare.

Furthermore, some studies demonstrate that financial literacy affects asset accumulation and formal financial inclusion. Financial literacy is especially advantageous for savings and asset accumulation (Chipunza & Fanta, 2024; Koomson et al., 2022) and is essential for economic stability in financially vulnerable households. These findings corroborate Amidu et al. (2021), who assert that financial literacy amplifies the effect of savings on sustainable livelihoods. Koomson et al. (2021) evaluate the influence of financial literacy training on household consumption and asset accumulation, revealing that the effect is particularly significant among younger and female-headed families. This indicates that the enduring design of financial literacy initiatives could significantly improve household spending and well-being. Matey (2021) identifies a favorable correlation between financial literacy and stability, although this does not directly influence financial well-being. Financial literacy facilitates improved micro and macroeconomic decision-making of household.

Research conducted by Sakyi-Nyarko et al. (2022) and Twumasi et al. (2022b) underscores the role of access to financial services in enhancing financial well-being through the improvement of cash flow and income stability. Their research indicates that financially integrated households can more effectively manage cash income and attain enhanced financial well-being. Chetioui et al. (2024) found that financial literacy mitigates financial vulnerability by fostering positive financial attitudes and actions. Oquaye et al. (2022) investigate the impact of financial self-efficacy, highlighting its promotion of constructive financial conduct that subsequently affects financial well-being. This research indicates that in addition to financial literacy, psychological characteristics such as self-efficacy may significantly influence financial well-being by motivating households to adopt proactive financial behavior, particularly in times of economic stress.

While the relationship between financial literacy and financial well-being has received relatively significant attention in other parts of the world, very few studies have examined this relationship in Africa, particularly sub-Saharan Africa. Existing research on Ghana focuses on affluent settings or has mixed data. This is also true globally, with minimal attention paid to unique datasets from rural settings (Sehrawat et al., 2021). Furthermore, previous studies in Ghana examined the determinants of financial literacy and level of financial literacy (Méndez-Prado et al., 2023; Oseifuah et al., 2018), or financial well-being relative to determinants, impact on investments, economic stability, and financial distress (Karakara et al., 2022; Matey, 2021; Matey et al., 2021; Oquaye et al., 2022; Sarpong-Kumankoma et al., 2023). Very few investigate the link between financial literacy and the dimensions of financial well-being (Karakara et al., 2022; Oquaye et al., 2022; Sarpong-Kumankoma, 2023) and those that do so focus on urban populations. In the Africa spectrum, the household investigation is mainly on financial inclusion as promotor of household well-being, as the case is now, we need financial literacy to be properly included.

In summary, while global empirical findings on the relationship between financial literacy and well-being have been mixed (Tahir et al., 2021), the situation in Ghana appears to be broadly consistent in urban settings. However, a rural setting may present different findings. Rural communities present unique economic, social, and cultural (norms and attitudes) contexts that could influence money management, as explained in the introduction chapters, where they could overlook beneficial financial decisions in favour of community financial commitment. Rural households may also have limited access to financial services and resources, impacting financial literacy and the ability to make informed financial decisions. Therefore, investigating the relationship between financial literacy and financial well-being in rural areas could provide new insights into how these factors interact in different economic and sociocultural contexts. The current study contributes to this endeavour by providing evidence from the African continent, specifically in a rural setting in Ghana, to enrich the debate on this issue and establish how the relationship between financial literacy and financial well-being differs in urban and rural settings.

3.3 Mediating role of financial information

Higher levels of financial literacy are expected to promote financial satisfaction (Koomson et al., 2022; Limbu & Sato, 2019; Zhang & Chatterjee, 2023). Chu et al. (2017) argued that households with advanced financial knowledge and skills will likely choose appropriate financial products and services that meet their financial goals and select profitable investment strategies (Kramer, 2016) relevant to their current and future lives. This is expected to increase financial returns and well-being (Xue et al., 2020).

Households must be financially literate to make informed financial decisions regarding financial resources (Fong et al., 2021). However, exposure to financial opportunities is a prerequisite for the effectiveness of financial literacy (Klapper & Lusardi, 2020). This implies that for households to put their financial knowledge to use, they must have access to financial products and information. For example, it is found that household can manage their finances, save money, and conduct transactions when they have a bank account (Twumasi et al., 2022a).

While there is consensus that financial literacy should lead to enhanced financial well-being (Limbu & Sato, 2019; Musah et al., 2022), there are varying findings on their relationship (Tahir et al., 2021; Xue et al., 2020). This is because the mechanism through which financial literacy might affect financial well-being is inconsistent across different contexts (Xue et al., 2020). As noted earlier, some studies have observed the relationship at the to be positive (Chetioui et al., 2024; Chu et al., 2017; Dinkova et al., 2021; Fernández-López et al., 2023; Gumbo et al., 2023; Matey, 2021; Munisamy et al., 2022; Rutherford & Fox, 2010; Sconti, 2024; Xu, 2024), while others reported a weak association (Riitsalu & Murakas, 2019), and no association (Galapon & Bool, 2022; Shim et al., 2009; Utkarsh et al., 2020).

Furthermore, some researchers have argued that financial literacy alone may not lead to financial well-being(Limbu & Sato, 2019; Xue et al., 2020), while others noted that country-specific characteristics (Gontarek & Belghitar, 2018) or intervening variables might explain the mixed findings. Tahir et al. (2021) identified the lack of explanation for diverging findings as a gap in the empirical literature. Due to limited financial sector development and financial inclusion in rural African settings, the mediating role in the link becomes more striking as it helps to understand the relationship and shape policy formulation.

Financial literacy, thus, might not lead to financial well-being unless it passes through a mechanism. Several studies have applied mediating factors to explain the relationship using variables such as financial inclusion (Amidu et al., 2021; Chipunza & Fanta, 2024; Sehrawat et al., 2021; Selvia et al., 2021; Twumasi et al., 2022a), financial behavior (Grable & Joo, 2003; Hasibuan et al., 2018; Ianole-Calin et al., 2020; Sehrawat et al., 2021), psychological factors (Sehrawat et al., 2021), the social-economic environment (Mahendru et al., 2022; Riitsalu & Murakas, 2019; Twumasi et al., 2022a), financial education (Ianole-Calin et al., 2020; Riitsalu & Murakas, 2019), consumption and consumption needs (Xue et al., 2020), propensity to plan (Lee et al., 2020), and time perspective (Ponchio et al., 2019). While empirical studies have shown that intervening variables influence the link, financial information dimensions are less subject to investigation.

Furthermore, the financial literacy-financial well-being nexus in rural households is an under-researched issue in Africa (Twumasi et al., 2022b) and developing countries in other parts of the world (Sehrawat et al., 2021), especially when it comes to mediating factors. Adam et al. (2017) and Xue et al. (2020) suggested that although the direct relationship is significant, understanding it through a mechanism is crucial for holistic comprehension. Again, the decision to be financially literate is not automatic but might be influenced by antecedents expected to shape financial well-being. Evidence from advanced, developing, and emerging economies seems to support a direct relationship partly; however, these studies used data from urban areas or mixed urban and rural data. Their conclusions might thus not be applicable in rural areas; hence the need to examine the role of mediating factors in such areas especially at the household level.

3.3.1 Financial Information Consumption

One way to investigate financial information is to examine how households' access to information impacts their financial well-being. Lusardi et al. (2017) argued that people must manage their financial well-being during work and retirement. This has become more important due to the shift from defined benefit pensions to defined contribution plans. This is also true for households. However, the financial market is becoming too complex for the average global citizen to comprehend. The need for financial information consumption is thus growing.

Experience with financial information consumption is highly relevant to expectations of financial well-being (Keister & Wei, 2023). Financial information consumption is how households interact with information to acquire knowledge, solve problems, and make decisions (Spink & Cole, 2006). Financial information differs from financial literacy in that it refers to available information on products and services, while financial literacy is a stock of knowledge on managing finances. Thus, financial information consumption is crucial for achieving and maintaining desired financial goals (Pahlevan Sharif & Naghavi, 2020). Tchamyou (2019) argues that inadequate financial information consumption among the financially literate may lead to inappropriate financial decisions, thereby failing to influence financial well-being. Financial information consumption promotes rational financial behaviour (Ching et al., 2022). Similarly, financial information is necessary to manage and evaluate financial well-being (Cao & Liu, 2017) and run one's day-to-day business affairs (Cooke, 2017).

It has been found that understanding information on financial products and services and personal finances is crucial to decision-making (Barbić et al., 2019). Kumar and Ahuja (2024) found that sound information about financial products and services improves the ability to manage finances. Baker et al. (2020) also posit that information consumption is necessary for financial well-being. Naveed et al. (2021) demonstrated that information on firms influences investors' perceptions of financial well-being. Lusardi et al. (2019) argued that failure to consume requisite information may cause depletion of financial wealth and lead to struggles later in life. Similarly, in another study in Nigeria, Obi-Anike et al. (2023) found that information consumption was positively linked to financial decision-making, leading to financial well-being. The discussion suggests that financial information consumption influences household financial well-being. Thus, financial information consumption is expected to positively affect financial well-being in rural settings.

Research suggests a strong link between financial literacy and financial information consumption (Asandimitra & Kautsar, 2019; Pahlevan Sharif & Naghavi, 2020). Financial literacy enhances individuals' ability to seek and process financial information (Cao & Liu, 2017; Lin et al., 2017), ultimately influencing household financial decisions. For instance, Fort et al. (2016) found a positive relationship between financial literacy and financial information availability for household consumption. Similarly, Lin et al. (2017) also demonstrated that financial literacy is critical to financial information consumption. Barbić et al. (2019) highlighted that financial literacy encourages individuals to seek information on financial products. These findings underscore financial literacy as a key factor in financial information consumption, suggesting that individuals with higher financial literacy are likelier to engage with and utilize financial information effectively.

Studies further argued that financial literacy alone might not ensure sound financial decisions (Mian, 2014). Without access to relevant financial information, even financially literate individuals may struggle to make informed choices. Conversely, financial literacy enables individuals to evaluate and consume financial information, which is essential for sound decision-making and improved financial well-being. Hilgert et al. (2003) found that many households lack sufficient financial knowledge to understand financial products, such as bonds, stocks, and mutual funds, which can negatively impact financial well-being. While Lusardi et al. (2017) acknowledged that some degree of financial ignorance is inevitable, they emphasized that a solid understanding of financial systems enhances individuals' ability to manage their finances effectively, ultimately improving their financial well-being.

Financial literacy and information investment are crucial for household financial well-being (Lusardi et al., 2017). Pérez et al. (2005) found that financial transparency positively influences financial well-being, while Lusardi et al. (2019) argued that failure to consume requisite information may cause depletion of financial wealth and lead to struggles later in life. Lusardi (2008) suggested that a lack of financial information affects households' ability to save, borrow, secure a better life, and enhance financial well-being. Conversely, informed individuals are likelier to make better financial decisions, leading to greater financial satisfaction (Ching et al., 2022). Transparent financial information reduces anxiety, enhances financial security, and contributes to financial well-being (Losada-Otálora & Alkire, 2019) and may reduce anxiety, increase financial security, and improve financial well-being. Lusardi and Mitchell (2007) and Huston (2010) further confirmed that access to financial information strengthens the relationship between financial literacy and financial well-being, highlighting its critical role in financial decision-making and long-term financial stability.

Previous studies that examined mediating factors in the relationship between financial literacy and financial well-being mainly focused on responsible consumption behaviour (Barbić et al., 2019), food consumption(Adapa, 2018; Koomson et al., 2021), non-food consumption (Koomson et al., 2021), and actual consumption needs (Xue et al., 2020). Financial information consumption, which could also change households' behaviour to improve well-being (Taylor et al., 2011), has not been the focus of previous research. Furthermore, empirical evidence is lacking on using financial information consumption to explain the relationship between financial literacy and financial well-being. While financial literacy promotes the achievement of financial goals, there is a need to understand financial information.

Clark et al. (2006) noted the importance of information in the relationship between retirement plans and savings. Conrad et al. (2022) demonstrated that the information households consume informs their monetary policies and decisions. Their assertion denotes that a given financial knowledge drives financial information consumption to improve retirement savings decisions. Twumasi et al. (2022a) observed the profound mediating role of access to financial services in the relationship between financial literacy and household income. But access comes when financial information is consumed. Therefore, financial information consumption can mediate the relationship between financial literacy and rural household financial well-being.

3.3.2 Financial information level

The Role of Financial Information Level in Financial Well-Being

One critical but underexplored dimension of financial information is its level, which refers to the extent of access to information on financial products and opportunities. The level of information can be basic, intermediate, or advanced (Ching et al., 2022). Few studies have examined how consumer behaviour is influenced by different levels of financial information consumption in decision-making (Kim et al., 2022). Prior research suggests that financial literacy influences how consumers assess the accuracy of financial information(Kienzler et al., 2022) and that the complexity of financial markets often determines the level of financial information required(Lusardi et al., 2017). A higher level of financial information could be achieved through financial literacy (Obi-Anike et al., 2023), as households' financial literacy shapes their financial behaviour toward information consumption (Houghton & Sheehan, 2000). To effectively apply financial knowledge and make well-informed decisions, households must access sufficient financial information(Fernandes et al., 2014; Shim et al., 2012). This suggests that financial literacy influences the level of financial information a household consumes, which in turn affects financial decision-making. Consequently, financial literacy and financial information level are expected to have a positive relationship.

The Dual Impact of Financial Information

Prior studies have shown that financial information can have a dual impact on financial well-being. The effect of information can be either negative or positive, depending on the environment (Dessaint et al., 2024). While increased access to financial information can improve financial decision-making and savings behaviour (Summers et al. (2005), excessive information consumption can result in information overload, discouraging effective financial management (Li et al., 2024). Therefore, understanding how financial information level impacts financial well-being requires consideration of its attributes—whether basic, intermediate, or advanced—and its contextual influence.

Financial Information and Financial Literacy

Several studies have explored the relationship between financial information level and financial literacy (Kienzler et al., 2022; Kim et al., 2022; Lusardi et al., 2017). Kim et al. (2022) explored consumer behaviour to understand the financial information level in decision-making and how the level of information consumption may help people secure a financial future. Kienzler et al. (2022) assessed how financial information level influences consumer judgment about the accuracy of financial information. Lusardi et al. (2017) investigated how financial information level assisted in understanding the complexities of the financial markets. Ching et al. (2022) examined how information consumption leads to an inclination toward sustainable decision-making, ultimately contributing to financial well-being.

At the household level, information analysis is associated with financial literacy. (Ward & Lynch Jr, 2019). Dinkova et al. (2021) found a positive relationship between information consumption and financial literacy but failed to establish any relationship between financial literacy and information consumption growth. Meng (2023) concluded that consumers with higher digital financial capabilities were positively associated with information consumption and social interaction. He added that consumers' ability to improve their digital financial capabilities enhances their financial well-being in this era of digitization. Equally, Van Rooij et al. (2011) asserted that independent, adequate financial knowledge changes financial stock market participation with the level of financial information. This indicates that for individuals to apply financial knowledge and be well-informed, they must have access to reliable, comprehensible, and pertinent financial information (Fernandes et al., 2014; Robb & Woodyard, 2011; Shim et al., 2012). Thus, lower or higher financial needs and knowledge predict how financial information leads to financial well-being (Angrisani et al., 2023) through its effects on financial decision-making (Fan, 2020).

Financial Information as a Mediator in Financial Well-Being

Engelbrecht (2011) emphasized that financial competence requires both the ability to act and the opportunity to act, which is facilitated by access to financial information from institutions and products. Thus, combining financial competence with access to higher-level financial information enhances household financial well-being. Fort et al. (2016) highlighted that beyond financial literacy, access to higher levels of financial information improves household financial assets and promotes financial well-being. Similarly, Goso et al. (2022) found that improved household financial information improves financial well-being. This suggests that financial information level likely mediates the relationship between financial literacy and financial well-being.

Research Gaps and the Need for Further Study

Despite the importance of the financial information level, its role as a mediator between financial literacy and financial well-being remains unexplored, mainly at both global and national levels. There is limited research on how changes in financial information levels influence household financial well-being. Most studies have focused on financial information consumption rather than financial information level (Ching et al., 2022; Lee et al., 2017), mainly in urban settings. However, rural households may face different financial information dynamics, so exploring how financial information levels impact financial well-being in these communities is crucial. Understanding these differences could provide new insights into the role of financial information in financial literacy and well-being.

3.3.3 Financial information pattern

Classical economic theory demonstrates that informed consumers adopt responsible behaviour patterns (Modigliani & Brumberg, 1954). In an ideal world, households use information to perfect their decision-making. However, information may not be as straightforward as the link between financial literacy and financial well-being. Financial literacy is an input in financial information behaviour (Barbić et al., 2019). Information and information-seeking shape behaviour change (Ching et al., 2022; Gardner & Stern, 1996).

Information-seeking and failing to seek information determine information patterns (Cooke, 2017). Households have unique resources and capabilities to source information, gain a competitive advantage, and maintain or change information patterns that influence financial decision-making.

Information through any means effectively changes information patterns (Gardner & Stern, 1996). Knowledge may lead to information behaviour change that influences a consumer's future. Similarly, information literacy drives information patterns for financial decision-making (Case & Given, 2016). Information behaviour is driven by the marginal benefit of consuming or not consuming (Fan & Chatterjee, 2017). Financial education is observed to directly affect financial behaviour and favourable information (Hilgert et al., 2003). Therefore, financial information behaviour can be changed through knowledge of financial products, services, and personal finances.

Kou et al. (2021) highlighted the importance of financial information in predicting bankruptcy, while Duréndez et al. (2023) noted that financial literacy is a critical variable to understanding financial information that shapes perspectives. These scholars recommended promoting financial education, including financial literacy and information, to minimize bankruptcy levels. Xiao et al. (2011) suggested that subjective financial knowledge could increase through college and high school information patterns. These internal sources of financial information can reduce risky behaviour and safeguard financial well-being (Fan & Chatterjee, 2017). On the one hand, Xiao et al. (2011) found that taking more financial courses increases the chance of engaging in risky credit behaviour. On the other, Asbi et al. (2020) observed that when new information is made available, people with representative bias may follow the current pattern of financial information. Thus, sophisticated financial knowledge and skills are required to cope with changes in financial information as they are solely accountable for financial well-being (Kumar et al., 2023). Thus, increased financial knowledge translates into an increasing pattern of financial information.

The pattern of financial information consumption may change over time due to changing behavioural needs (Ang & Timmermann, 2012), just as the actual consumption pattern changes over time (Xue et al., 2020). It has been suggested that patterns of financial information consumption could create fewer or more risky opportunities to improve financial well-being (Sharma et al., 2023). On one hand, financial information patterns that contain covert agendas can impair decision-making and impede the advancement of financial well-being. These covert plans may result in unfavourable outcomes, such as monetary losses and declining financial literacy. On the other hand, customized patterns of financial information can assist people in developing successful, unique plans for reaching financial well-being. With the help of these personalized financial information patterns, a household can better comprehend their financial circumstances, make the most use of their resources, and build sound financial habits.

Just as people reduce consumption as they age (Xue et al., 2020), they may increase or decrease consumption depending on new knowledge, affecting their overall well-being (Lusardi & Mitchell, 2011). As such, Kochar (1999) proposed that households should smoothen consumption across periods. Similarly, the increased amount of financial information amongst the financially literate amounts to more financial information and reduced financial information, meaning less financial information, with these changes depicting patterns of financial information available (Valaskova et al., 2021). Therefore, informed financial decisions are critical to smoothen financial information patterns. Financial information patterns can point to areas for increased savings, better investments, or cost optimization. Therefore, the pattern of financial information is expected to affect financial well-being positively.

The relationship between financial well-being and financial literacy can be greatly impacted by searching for various types of financial information. A household may suffer from information overload when looking for more financial information, resulting in analysis paralysis, a decline in financial literacy, and bad decision-making. Conversely, looking for less financial information may lead to poor comprehension of financial information, worse decisions, and more financial stress. The relationship between financial literacy and financial well-being can be strengthened by determining the ideal level of financial knowledge, resulting in a clear comprehension of financial information, wise decision-making, and less financial stress. Thus, to preserve a positive relationship between financial literacy and financial well-being, finding a balance between obtaining pertinent financial information consumption patterns and avoiding having too much or too little information is crucial.

However, previous studies on the relationship between financial literacy and financial well-being focused on the mediating role played by actual consumption (Xue et al., 2020). Xue et al. (2020) investigated actual consumption patterns and needs as mediators in this relationship. Mobile payment consumption patterns and structures (Yang et al., 2023) have also been examined as a mediator in the link between financial literacy and financial well-being and have been found to increase consumption and improve financial well-being. Fan (2020) results implied that increasing financial information patterns may mediate the link between financial literacy and financial management outcomes (saving and credit behaviour). Grable and Joo (2003) demonstrated that financial literacy and attitude are critical determinants of financial information-seeking behaviour patterns that influence financial well-being.

It has been argued that through feedback mechanisms, economic and financial planning can respond to consumers' demands and adjust based on such demand or future expectations (Dapprich & Cockshott, 2023). Among the feedback mechanisms is the pattern of financial information when a person becomes financially literate. Therefore, financial literacy can be used to adjust financial information patterns that affect one's lifestyle or financial well-being. Again, financial information patterns may be vital in transforming knowledge into behaviour change, enabling a household to remain informed about financial opportunities that improve financial wellness and navigating and managing information overload to deepen and reinforce household financial well-being.

Consistent with a call by Valaskova et al. (2021), who noted that beyond financial knowledge, changes in information on purchasing have consequences on well-being. Similarly, Xue et al. (2020) recognized the importance of consumption patterns in the link between financial literacy and financial well-being. If consumption patterns can mediate the relationship, then financial information patterns are expected to mediate since consumption is anchored on information.

Given the sophistication of financial markets, the financial information pattern on the market is a critical mediating factor in achieving financial well-being following financial literacy, particularly in rural areas. The financial information pattern in urban settings differs from that in rural settings due to differences in access to information, resources, and socio-economic and environmental contexts. Kaur et al. (2023) noted that research on the link between financial literacy and financial well-being is skewed toward urban settings. In another study, Xue et al. (2020) reported a concentration of evidence in developed countries. It, therefore, suggests limited evidence exists in developing and rural settings. There is a need to focus on rural settings for several reasons. According to the United Nations, 3.42 billion people lived in rural areas worldwide at the close of 2020, representing 44.3% of the world's population and primarily concentrated in developing nations (Yang et al., 2023). Inclusive development is not achievable if the policymaker lacks evidence to act on to promote the development of the population in these areas. As in rural settings and developing countries, these constituencies remain strategic assets if SDGs can be achieved by the target year. While studies like Utkarsh et al. (2020), Fan (2021), and Asandimitra and Kautsar (2019) have explored certain aspects of financial information characteristics, such as the role of financial information sources in the relationship between financial literacy and financial well-being, the closest comparable study is research by Xue et al. (2020) which examined consumption pattern in the relationship but did not examine financial information pattern as intended. Similarly, their study focused on the subjective dimension of financial well-being instead of our composite measurement, see Figure 3.3.

3.3.4 Financial information source

One of the functions of the modern financial market is resource allocation, which includes sources of information that guide financial decision-making (Goldstein, 2022). However, to identify these financial information sources, households require financial knowledge and skills to harness them. Financial knowledge empowers people to find financial information, apply it, and use it in decision-making (Barbić et al., 2019) to improve financial well-being. These sources of information and relevant literature can change behaviour (Gardner & Stern, 1996). Information and advice are sourced for investment management, retirement planning, and tax and estate planning (Grable & Joo, 2003) to improve their financial well-being and enjoy life. Such sources reduce investment uncertainty and facilitate innovation (Chawla, 2023). Therefore, uncovering useful information sources on personal finances is critical to financial well-being (Cao & Liu, 2017). Over the past decade, a growing focus has been on the direct relationship between financial information sources and financial literacy or well-being. While some aspects of financial information have been investigated, other are not.

To illustrate this, numerous studies have explored the relationship between financial information sources and financial literacy (Khawar & Sarwar, 2021; Sabri et al., 2012; Sabri & Aw, 2019; Van Rooij et al., 2011). For example, financial literacy is positively associated with using financial planners (Gallery et al., 2011; Sabri & Aw, 2019; Van Rooij et al., 2011). However, the relationship between financial literacy and media is more complex: Sabri and Aw (2019) found a negative association with media, while another study found a positive link (Sohn et al., 2012). Similarly, Sabri and Aw (2019) identified a negative relationship between financial literacy and family influence, whereas other studies found a positive connection (Khawar & Sarwar, 2021; Sabri et al., 2012). Furthermore, Fan and Chatterjee (2017) established a positive relationship between financial literacy and financial information sources, while Cao and Liu (2017). Consumer information sources depend on financial literacy (Sabri & Aw, 2019).

At the household level, Meng (2023) demonstrated that digital financial capabilities are significantly associated with household consumption and online consumption. Still, the impact on household consumption decreased with online sources. Cao and Liu (2017) argued that personal financial behaviour antecedents might influence the selection of financial information sources, and such choices can potentially affect financial satisfaction. If financial execution antecedents are born out of financial literacy, then financial literacy should influence the selection of sources that improve financial well-being. Hence, Nguyen and Rozsa (2019) found that financial literacy positively correlated with the financial advice-seeking of retiree households. However, this relationship is complementary, and policymakers should recognize this to have a meaningful impact on household financial well-being.

Similarly, evidence suggests that financial information sources' impact on financial well-being can be positive or negative, depending on the source (Lanz et al., 2020; Pak et al., 2023; Ullah & Yusheng, 2020). For instance, Ullah and Yusheng (2020) found a significant negative relationship between peer financial influence and financial well-being.

Park et al. (2013) similarly identified an adverse effect of school peer influence. In contrast, other studies have shown that financial information from media, peers, and family can positively influence financial well-being in different contexts. While people need to access information at various stages of their lives, financial information is required in all stages, shaping and continuing to shape financial life. Sourcing and using such information is a skill that is a precondition to achieving a plan of financial life (Nzomo & Fehrmann, 2020; Sherraden, 2010, 2013). Thereafter, it becomes a need. Thus, various information landscapes require the development of financial information practices that enable people to map their financial resources and skills to access available financial information and knowledge. Financial information is achieved by being aware of its sources and being able to locate, evaluate, and effectively use it for a given goal that potentially impacts household financial well-being.

However, while extensive research has explored the role of family, media, financial planners, peers, social media, and traditional media as financial information sources, the roles of government, non-governmental organizations (NGOs), and informal sources have been largely overlooked. This study aims to fill this gap. Similarly, much of the existing research also treated financial information sources as isolated factors, whereas financial decisions often involve information from multiple sources. Therefore, empirical studies should adopt a composite view of sources to understand better their collective influence on financial literacy and financial well-being rather than focusing on individual information sources.

The impact of financial literacy on financial information sources has been well documented (Khawar & Sarwar, 2021; Sabri & Aw, 2019), as has the effect of financial information sources on financial well-being (Pak et al., 2023; Ullah & Yusheng, 2020). Recent research emphasizes the critical role of financial information from Government sources (Langella et al., 2023; Pérez et al., 2005) and NGOs in rural areas, where information flow is often limited. Given the Government's contract with its citizens (Heydemann, 2020), it must provide essential resources, including information, to address societal needs. Equally, NGOs have been instrumental in enhancing the well-being of the rural population (Desjardins et al., 2022) and the informal sector. While urban residents may access financial information from various sources, including organizations, media, and financially knowledgeable individuals, there is limited empirical evidence on how these interactions with financial literacy facilitate sound financial decisions. Furthermore, financial decision-making typically involves multiple information sources, highlighting the need for a composite view of financial information sources to better understand its role in the financial literacy and financial well-being relationship. Given the abundance of financial information sources, it has been suggested that individuals or household must be selective in choosing information sources due to information processing capabilities (Liang & Guo, 2015).

While most studies examine the linkage between financial literacy and financial information sources, or financial information sources and financial well-being, the focus of financial information sources is primarily centred on some aspects (i.e. family, friends, peers, financial planners, media, and parents). However, there are other less documented ones, i.e., the Government, the informal sector, and NGOs. Similarly, the investigations mostly used individual sources of financial information without conceptualizing it as a composite of multiple sources. Contemplating a composite of multiple sources in this study may resolve the contradictory and mixed findings associated with the relationship. Furthermore, the relationship between financial and financial well-being has shifted from direct to indirect, noting the importance of a mediating role. Despite the call to understand the role of financial information characteristics in the link (Lanz et al., 2020; Sabri & Aw, 2019), the Government, informal sector, NGOs, and a composite source as sources of FIS are yet to be subjected to empirical testing in the relationship.

3.4 Contribution of the thesis to the literature

This study makes several significant contributions to the literature. First, it focuses on Ghana's most impoverished region, characterized by low literacy, specific sociocultural practices, and complex household dynamics. It provides rare insight into how financial literacy programs and increased access to financial information in such settings benefit these rural residents. Unlike previous studies, this research uses a mixed-methods approach. It includes composite measures of key concepts, subgroup analyses based on gender and education, and robust examinations of the mediating role of various dimensions of financial information across different financial products.

It is the first comprehensive study to explore the relationship in a setting where financial behaviour and well-being can be influenced by individual and communal financial obligations—such as funerals and weddings, where the latter often take precedence over personal savings and investments. This context-specific evidence is crucial for understanding why financial information may be disregarded despite availability.

The study also uniquely balances gender representation and contrasts findings from male-dominated households with broader community perspectives. Integrating quantitative and qualitative methods in this rural context offers richer insights than prior research.

Finally, it addresses a key gap in the literature by distinguishing between subjective and objective measures of financial literacy and financial well-being. While previous studies often mismatched or used these measures in isolation, this research uses both separately and in combination, offering a more nuanced analysis of how financial literacy influences financial well-being.

3.5 Chapter Summary

This chapter provided a comprehensive review of the empirical literature relevant to this study. It began by examining the relationship between financial literacy and financial well-being and then by analyzing the mediating role of financial literacy. Finally, in detail, it explored various dimensions of financial information, including its level, patterns, and sources. The chapter also highlighted the thesis's contribution to the existing body of literature.

CHAPTER Four: Methodology

4.1 Introduction

The purpose of this chapter is to outline the methodology used in the study to achieve the various objectives. It identifies and justifies the approach adopted to analyze the data. It explains the development of the research instruments and techniques to guarantee the survey instruments' accuracy, consistency, and data analysis. This chapter is structured as follows: The study area is covered in Section 4.2. Sections 4.3 to 4.6 present the research approach, research design, data estimation technique, and ethical considerations of the study.

4.2 Study Area

This study focused on Ghana's Upper West Region (UWR), which spans approximately 18,478 square kilometres, representing 12.7% of the country's total land area. Geographically, it is the seventh largest region in Ghana out of 16 regions in Ghana. The UWR is divided into 11 political districts, with its regional political and administrative capital in Wa. In Ghana's northwest corner, UWR borders Burkina Faso to the north, Ivory Coast to the west, the Gulf of Guinea (Atlantic Ocean) to the south, and Togo to the East. Figure 4.1 shows various regions and their administrative capitals.

Figure 4.1: Map of Ghana

Source: Upper West RCC Report, 2021

Agriculture is the primary economic activity, with 72% of the population engaged in it. The region has a long dry season from October to May every year. UWR is predominantly rural, with 73.6% of its population living in rural areas. The literacy rate in the region stands at 46%, significantly lower than the national average of 69.8% (GSS, 2021), but is much lower if one considers the rural area. There is a lack of regional-focused research on financial literacy in Ghana, particularly studies that address locational differences. Relatively low levels of financial literacy in the UWR, especially in rural settings, have been well documented (Abdulai et al., 2022). As discussed in Chapter 2, low literacy levels limit the inhabitants' understanding of financial concepts like investing, borrowing, saving, and budgeting. Although inhabitants of the region have increased access to banking information through the Internet, the region suffers from restricted access to formal banking services (Tia et al., 2023; Timbile & Kotey, 2022) due to a shortage of banks, credit unions, and other financial institutions. This lack of access hinders citizens' ability to invest, save, and apply for credit, ultimately affecting their financial well-being (Tia et al., 2023; Timbile & Kotey, 2022). As a result, many people in the UWR rely on informal financial practices, including saving groups, rotating savings, credit associations (ROSCAs), and community lending networks (Domanban, 2024). While these systems offer some financial support, their lack of transparency, security, and regulatory control places people's financial well-being at risk (Domanban, 2024; Timbile & Kotey, 2022).

4.3 Research approach

Household headship in the Upper West Region (UWR) is predominantly male, posing the risk of assessing households' financial well-being primarily from a male perspective if data are predominantly collected from males. Chapter 2 highlighted that women's financial decisions are likely to differ from men's due to the cultural norms and contexts in the region (section 2.2.1). To address this, the study adopted a mixed-method research design. Quantitative approaches focused on analyzing data from household heads, reflecting the current male-dominated structure.

Complementing this, qualitative analysis provided deeper insights by ensuring equal representation of both men and women during interviews. This approach aimed to amplify women's perspectives in a traditionally male-dominated environment, thereby triangulating and enriching the findings from the quantitative analysis. Additionally, qualitative methods were necessary because, in such contexts, quantitative data alone may not adequately capture the role of information in household well-being, particularly from the women's perspectives.

Quantitative research designs can be broadly categorized into experimental and non-experimental types. Experimental designs involve randomly assigning participants to a treatment group and observing its effects on well-defined variables. In contrast, this study employed a non-experimental design, specifically a survey approach, to collect participant data on financial information, financial literacy, and financial well-being.

To achieve the study's objectives, three aspects of the research design were also used, namely, a descriptive, exploratory, and explanatory or causal design (Blumberg et al., 2014). A descriptive research design is a type of non-experimental research that aims to describe characteristics, behaviour, or phenomena as they exist in their natural state. It focuses on answering the "what" rather than the "why" or "how," providing an accurate snapshot of a situation, population, or phenomenon at a specific point in time. This aspect was used in the descriptive statistics sections of the study and the textual description in Chapter 2. An exploratory research design is a type of research conducted to investigate a problem or topic that is poorly understood or defined (Chapter 2, chapter 3 and Chapter 6). Its primary goal is to explore and gain insights, identify patterns, and develop a deeper understanding of the subject matter. This aspect was more relevant in the qualitative analysis sections. An explanatory research design, or a causal research design, is a structured approach that investigates cause-and-effect relationships between variables. Its primary goal is to determine how one variable (independent variable) influences or causes changes in another variable (dependent variable). This type of research design is used when researchers have a clear hypothesis and want to test it under controlled conditions (Chapter 5).

Based on the empirical literature review presented in Chapter Three, indicators to measure the constructs were identified, and hypotheses were developed in light of the research objectives. This was followed by an analysis of the descriptive characteristics of the variables using central tendencies (percentages, frequencies, means, and standard deviations). However, given that the study focused on the relationship of the construct variables, a descriptive research design could not explain the relationships; hence, a causal research design was used to explain the relationships in the conceptual model.

4.3.1 Research Philosophy

A research philosophy is a comprehensive framework that directs the research process, shaping how researchers conceptualize, design, and execute their studies. It includes the researcher's perspective, values, and assumptions on reality, knowledge, and methodology. This study adopts both the positivist and interpretivist philosophies. A positivist approach relies on factual knowledge derived from measurements and observations. According to Collis and Hussey (2003), positivism is employed when the researcher aims to describe a phenomenon based on scientific data to explore facts about how a particular society operates. It involves making objective deductions to produce findings based on collected data, often in the context of a business or a social phenomenon, to test hypotheses derived from theory (Crowther & Lancaster, 2008). The positivist approach to this study is evident in the quantitative data collection, which is analyzed to conclude the hypotheses posed (see section 4.4 for details on hypotheses testing). This approach examines, investigates, and evaluates a phenomenon by establishing rational relationships between variables and linking the results to relevant theoretical frameworks (Denscombe, 2008).

Interpretivist philosophy is a research philosophy that focuses on understanding human behaviour, experiences, and social phenomena from the perspective of those involved (Alharahsheh & Pius, 2020). It asserts that individuals construct and interpret their realities through their experiences, cultural norms, and social interactions. This study applied interpretivism as it proves to be particularly valuable in examining intricate social phenomena, such as the interplay between human behaviour, culture, and interaction relative to the study relationships. The interpretive approach was adopted when qualitative data was gathered.

Within the broader philosophical framework underpinning the investigation in this thesis, the study adopted a mixed-method approach as a process dimension. This approach aimed to provide a pragmatic worldview, combining quantitative and qualitative methods to understand the subject comprehensively. The quantitative method captured broad patterns and relationships among key variables, while the qualitative method delivered deeper, nuanced, contextual insights into these interactions. These methods enriched the study by ensuring statistical rigour and nuanced interpretation.

4.4 Research design

To address the six objectives of this thesis, data was collected from participants in the study areas using two types of survey instruments. The first instrument gathered quantitative data from household heads, reflecting the male-dominated headship structure in the study areas. A qualitative survey was conducted through in-depth interviews to provide a balanced perspective on financial information, financial literacy, and financial well-being between men and women. These interviews aimed to explore whether opinions differed between males and females. The quantitative data was analyzed using statistical methods. In contrast, the qualitative data was analyzed thematically to extract key insights to achieve the objectives of the study and to provide answers to research questions.

4.4.1 The target population

The population targeted in this study comprises all rural households residing in Ghana's Upper West Region (UWR). The focus on UWR is justified by the high levels of poverty and socio-cultural complexities in the region, which may hinder households from effectively utilizing financial information for their benefit. The UWR has a total of 190 193 households and a population of 878,824 individuals (GSS, 2021). Furthermore, 70.7% (134 487) of households are in rural communities (Upper West RCC Report, 2021). Rural households of interest are those delineated by the Ministry of Local Government and Rural Development (MLGRD) as being in locations beyond municipal and metropolitan boundaries, marked by limited access to social services and economic opportunities, meaning households in these areas generally encounter problems in obtaining essential services such as finance, health, education, sanitation, and economic opportunities.

4.4.2 Sampling strategy

4.4.2.1 The sampling frame

A sampling frame in research refers to the complete list or a set of elements from which a sample is drawn (Turner, 2003). This study's sampling frame consisted of all rural households in the UWR, coinciding with the target population. Unlike previous studies in the region, which focused on specific demographics such as gender, age group, and economic class, in urban settings (Agyei, 2018; Koomson et al., 2021; Oquaye et al., 2022), this study aimed to minimize selection bias and enhance generalizability. To achieve this, the survey included all household heads aged 18 years or older regardless of gender, educational background or socioeconomic status.

4.4.2.2 Sampling Techniques

Sample for quantitative analysis

This study employed probability sampling, notably simple random sampling and cluster sampling. All 11 districts were considered for the study to account for possible heterogeneity across districts. Simple random sampling of rural communities in each district was done for inclusion in the study.

Random sampling was done in selected communities to select participants. It was necessary to know the minimum sample size needed in each district for the result to be valid based on the population in that cluster. The study estimated the minimum sample size for the total rural household population in UWR and used that total sample size to determine the sample size in each cluster proportionally. The minimum sample size in UWR was estimated using an online sample size calculator (www.surveyststem.com). A value confidence level of 95% was chosen, together with the rural household population of 134 487, as demonstrated in section 4.4.1. The automatic sample size calculator returned a minimum sample size of 598. The formula used to calculate the sample size was as follows:

$$\boldsymbol{Sample\ size} = \frac{\boldsymbol{Z^2 \times p \times (1-p)}}{\boldsymbol{C^2}} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \boldsymbol{(1)}$$

Where:

Confidence level (Z value) = Z.
Percentage of picking a choice represented as a decimal (0.5 was employed as the sample size needed) = p.
Confidence interval = c.

The confidence level, shown by the Z value, quantifies the reliability of the sample results, signifying the degree of certainty that the true population parameter resides within the confidence interval. A Z value was employed to determine a confidence level. The probability of selecting an option, denoted as a decimal (p), was established at 0.5, a standard criterion for ascertaining the necessary sample size. This number determined the requisite sample size for attaining the acceptable precision level. The confidence interval (c) represents the range of values within which the true population parameter is anticipated to reside, calculated using the Z value, sample size, and standard deviation. The calculator below in Figure 4.2 demonstrates the sample size.

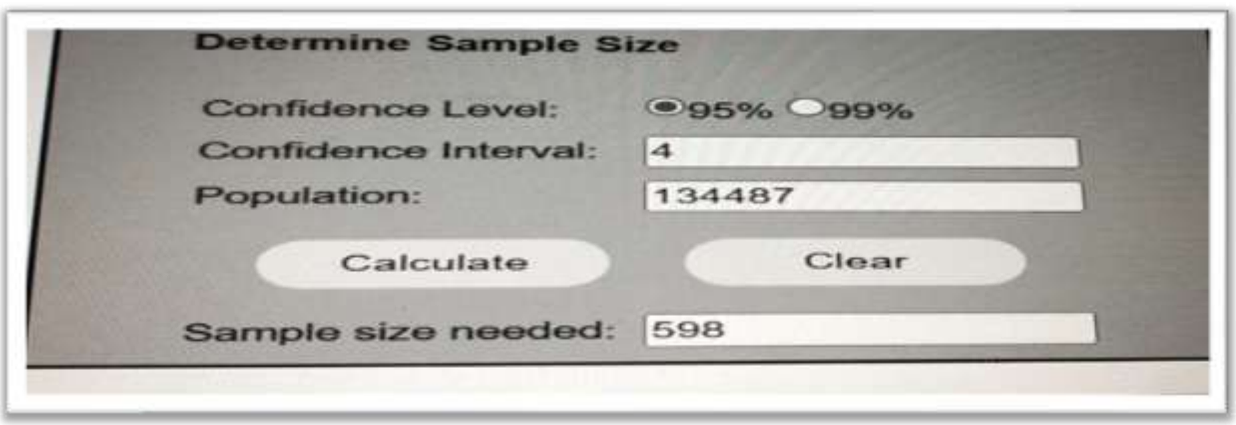


Figure 4.2: Calculation of Sample Size

Source: (www.surveyststem.com)

Community selection followed a systematic process. Within districts, a list of rural communities was obtained. A random number generator was then used to select a community for inclusion. Finally, simple random sampling was used in each community to select participating households using random number generators. The number of households selected was guided by the targeted minimum sample size for that community, which was determined based on the proportion of households in the community relative to the total household population in the UWR(See Appendix 8). Random sampling ensured that every member in the sampling frame has an equal chance of participating in the study.

Sample for qualitative analysis

For the qualitative aspect of the study, a purposive sampling method was used to select 12 households from the district. The selection aimed to ensure variation in financial literacy levels among male-head and female-headed households, equal gender representation, and coverage across all districts. The households across the two genders included those with basic, intermediate and advanced financial literacy. One household was chosen from each of the 10 districts, while Wa Municipality contributed two households due to its larger population. Based on these criteria, the final sample included six male-headed and six female-headed households for qualitative analysis. For the household's headship selection or pick for each district, see Appendix 9.

In-depth semi-structured interviews were performed with each group of 6 respondents to distinguish information from males versus females and gather comprehensive qualitative data. The interviews explored differences in financial literacy and perspectives between male and female participants, assessing the role of financial information in well-being and financial management practices. Ensuring gender parity in participation helped address headship bias in the region, allowing for a balanced analysis of research questions. The qualitative data obtained provided valuable insights into the complex dynamics of household financial management in the Upper West Region of Ghana.

4.4.2.3 Inclusion and Exclusion Criteria

To be included in the survey, the household heads had to be at least 18 old for four key reasons. First, in Ghana, individuals aged 18 and above are legally recognized, allowing them to make independent financial decisions that shape their financial well-being and future. Second, in rural settings, household heads are the final decision makers, and their financial choices affect themselves and their entire household. Third, for studies on financial literacy and well-being at the household level, the head is the most knowledgeable about the household's financial status, income, expenses, and economic activities. Fourth, selecting household heads aligns with Ghanaian cultural norms, where they are typically regarded as the family's authority and final decision-maker.

Two major questions were asked to determine eligibility during the selection of households:(1) “Are you the head of the household?” If yes, was “yes”, the next question was: (2): “Are you 18 or older?” If both responses were affirmative, the person was included in the survey; otherwise, they were excluded. As shown in Table 5.3, 684 heads of household heads were contacted, with 21 declining to participate, leaving 663 who agreed to participate in the survey.

4.4.2.4 Questionnaires

Quantitative

The questionnaire for quantitative data was designed to collect the relevant information per the research objective. It comprised seven components, as shown in Table 4.3. The sections were structured to capture (A) general and demographic information about the respondents, (B) financial literacy, (C) Financial well-being and key dimensions of financial information, including (D) financial information consumption, (E) level, (F) patterns, and (G) sources.

All the questions were adopted from earlier studies, with some modifications to align with the study’s context in Ghanaian rural settings. A total of 39 questions were posed to achieve the research objectives. As Wilkinson noted, ambiguities and mistakes in question construction and layout can easily be overlooked during questionnaire design. Since the design directly impacts the quality of the response and the validity and reliability of the data collected, careful structuring was essential. To ensure the questionnaire effectively captured the necessary responses, a pilot test assessed its clarity, relevance, and ability to meet the study’s objectives. Blumberg et al. (2014) suggested a sample size of 25-100 subjects for a pilot study that produces accurate results. The pilot study for this study used 64 respondents to assess the research instrument's credibility.

Table 4. 1:Number of Questions in Each Section

Section	Heading	No. of questions (Q)	No. of items	Responses type
A	General and demographic information	1-12	12 questions.	Multiple choice
B	Financial literacy	13-20	7 questions (Q13-19). Q20 has 8 sub-statements	Multiple choice Likert scale
C	Financial well-being	21-32	12 questions (Q21-32)	Multiple choice Likert scale
D	Financial information consumption	33	1 question. Q33 has 7 sub-statement	Multiple choice Likert scale
E	Financial information level	34-35	2 questions. Q34 and 35 have 7 sub-statements each	Multiple choice Likert scale
F	Financial information pattern	36-37	2 questions. Q36 and 37 have 7 sub-statements each	Multiple choice Likert scale
G	Financial information source	38-39	2 questions. Q38 and 39 have 8 sub-statements each	Likert scale

Source: Own Compilation

Multiple choice questions provide different choices for the respondent, while the Likert scale measures the extent of agreement or otherwise with a statement or question in each item continuum.

General socioeconomic and demographic information

The data collected under the socio-economic and demographic characteristics section included gender, age, marital status, retirement status, children, district location, educational level, work, and income. These characteristics were selected because they were established as determinants of financial well-being in previous studies. (See section A on the questionnaire in Appendix 2).

B Financial Literacy

Like Lusardi and Mitchell (2011) and Vieira et al. (2020), financial literacy was assessed using objective and subjective measures. The objective measures were elicited by seven multiple-choice questions evaluating financial knowledge and skill. In contrast, subjective measures included eight Likert-scale statements/questions to capture participants' self-perceived financial literacy (Vieira et al., 2020). These questions were administered to study participants to collect the necessary data (see Table 4.3). (See section B on the questionnaire in Appendix 2). The combination of both subjective and objective created a composite financial literacy indicator. Each dimension represents a lower-order construct that collectively forms a higher-order construct, creating a hierarchical structure.

C Financial Well-being

The study adopted essential questions from previous studies to collect financial well-being data. It followed Comerton-Forde et al. (2022) with multiple-choice questions for objective financial well-being. Subjective well-being was measured following Prawitz et al. (2006) through Likert scale questions. The questions were modified to ensure relevance to the Ghanaian context. Participants rated their level of agreement with financial well-being statements on a 10-point Likert scale. The study included four questions on objective measures and eight on subjective measures. (See section C on the questionnaire in Appendix 2). Integrating subjective and objective measures resulted in a composite financial well-being indicator. Each dimension signifies a lower-order construct that, when combined, constitutes a higher-order construct.

D Financial Information Consumption

Section D assessed financial information consumption. The study followed the approach adopted by Barbić et al. (2019), Xue et al. (2020), and Higgins and Roberts (2011). Seven questions were adopted to gain a perception of the sufficient level of financial information gained by households using a 7-point Likert scale (See section D on the questionnaire in Appendix 2).

E Financial information level

The fifth section measured the financial information level using the measurement employed by Ching et al. (2022), notably basic, intermediate and advanced levels. The respondents used multiple choice answers to determine whether the information they received was perceived as basic, intermediate, or advanced, regardless of the financial product. The study also evaluated the level of information perception using 7-point Likert scale statements on various financial products, including savings, investments, loans, deposits, financial planning and financial budgeting. (See section D on the questionnaire in Appendix 2).

F Financial Information Pattern

Xue et al. (2020) and Higgins and Roberts (2011) adopted and modified questions or statements with indicators to measure the financial information pattern. Multiple choice answers were used from the respondents to determine whether their information-seeking pattern decreased, stayed the same or increased. The study also evaluated recent information-seeking patterns perception using a 7 7-point Likert scale on various financial products, including savings, investments, loans, deposits, financial planning and financial budgeting. (See section F on the questionnaire in Appendix 2).

G **Financial Information Sources**

The study adopted and modified the measurement scales from previous studies (Cao & Liu, 2017; Fan, 2020; Sabri & Aw, 2019; Sabri & Falahati, 2012). A 7-point Likert scale was used to evaluate participants' perceptions of their willingness to consult financial information sources, notably traditional media, financial advisers, family members, friends and peers, government agencies, non-government agencies, the internet and social media. Additionally, the scale measured how much these sources have generally influenced their financial decisions, regardless of specific financial products. The analysis of the extent to which financial information sources were used for particular products was not included due to space constraints.

Qualitative

In the Ghanaian context, where males dominate the household's headship, a semi-structured interview guide was developed to validate the quantitative data by ensuring equal representation of both male and female voices. While quantitative data can highlight broad trends, qualitative research offers profound insights into the social, cultural, and behavioural aspects influencing households' interpretation and application of financial information. In rural Ghana, financial information is often shared through informal networks, and qualitative research can shed light on how these networks influence financial decisions and, by extension, financial well-being.

For the qualitative data, the study purposively selected six female-headed and six male-headed households in all districts of UWR, i.e., 6 females came from 6 districts and 6 males from another 6 districts, ensuring equal representation of both genders. The researcher initially engaged community chiefs and Assembly members to facilitate connections with the selected households (see section 4.4.2.2. on purposive selection). Building relationships with community chiefs was crucial in establishing trust with rural Ghanaians, who are often cautious around outsiders. This rapport enabled the researcher to gather more open and honest data. By incorporating both female and male perspectives on financial decision-making within the context of financial literacy and information environments, the study explores the sociocultural complexity that may lead to gender differences in financial decision-making. These insights provide a deeper understanding of household decision-making processes and overall financial well-being.

The participants were asked to choose the local languages, and expert local interpreters were used where the researcher did not speak the local language. Semi-structured interviews are preferred because they provide structure and allow participants to elaborate. Encouragement to share tales and personal experiences rather than responding to rigorous questions made the interviews more natural and improved data quality. Data was collected via recordings and note-taking. Household circumstances, family relationships, and non-verbal cues offered richness and context to the data. The questionnaire for qualitative data is attached as Appendix 3.

Processing the questionnaires for both qualitative and qualitative

The five main Ghanaian languages are widely spoken across the region, so five research assistants were recruited to support the researcher during data collection. The researcher visited the communities with an assistant who spoke either Waali or Sissala to assist where the household heads did not understand English. However, since he understands these languages, the researcher handled communities that speak Dagaare, Birifor, and Chakali.

Furthermore, the items in the constructs were refined in consultation with experts in this field of study. Where questions were adopted from prior studies, the constructs' indicator variables had already been validated. The purification process included deletion, editing, rewording, addition, and revising item statements. Content validity was obtained by seeking the opinions of experts.

4.4.2.5 Data collections and response rate

Quantitative

The questionnaire was distributed among the 684 respondents, who were reached through the sampling described in section 4.4.2.2. Out of 684 participants who were contacted with questionnaires, 665 filled out the questionnaire correctly. Two participants did not fill out the questionnaire well, resulting in 663 filled-in questionnaires and a response rate of 96.93% (see details in Table 4.4). The questionnaires were administered to participants face-to-face.

Table 4. 2:Participants' Response Rate-Quantitative Data

	No. Agreed to Participate	No. Declined to Participate	Total
Response	663	21	684
Percentage (%)	96.93	3.07	100

Source: Own Compilation

Qualitative

The study initially sought to interview the heads of 11 households, each representing one regional district. However, the researcher selected six male-headed and six female-headed households for in-depth interviews to ensure equitable representation of both male and female perspectives. The collaboration with community chiefs helped establish a connection with the 12 chosen households, resulting in a 100% response rate, as all participants willingly consented to take part. Semi-structured questionnaires allowed for flexibility and the opportunity to pursue follow-up questions, enabling the researcher to explore emerging themes and subjects in greater detail.

4.4.2.6 Data analysis

Data analysis was preceded by data cleaning. MS Excel was employed to identify missing values in the survey, revealing two cases where respondents had left portions of the questionnaire unanswered, specifically those related to subjective financial well-being and financial information consumption. Following the recommendations of previous studies (Carpenter & Smuk, 2021; Ren et al., 2023), these incomplete questionnaires were excluded from the analysis, reducing the total sample from 665 to 663.

Quantitative analysis

For the quantitative part of the study, data analysis primarily focused on testing formulated hypotheses related to the research questions, with most analyses conducted using structural equation modelling (SEM). The hypotheses examined the relationship between financial literacy, financial information dimensions, and financial well-being among rural households.

The relationship between financial literacy and financial well-being

To address the first objective, data from Section B (questions 13-20) on financial literacy and Section C (questions 21-32) on financial well-being (See attached questionnaire in appendix 2) were analyzed. Using a bootstrapping procedure to assess the path coefficients, the study used SEM-PLS with path analysis to establish the relationship between financial literacy and financial well-being.

To enhance robustness, a sub-group analysis (SGA) was conducted to contrast results between participants who had received financial education and those who had not. This served as a validity check, helping to test hypotheses in alignment with the study's objectives while identifying the strength and direction of the relationship between the two variables.

In general, previous studies have found a positive relationship between financial literacy and household financial well-being indicators (Behrman et al., 2012; Bhattacharjee, 2019; Chetioui et al., 2024; Dinkova et al., 2021). Similar evidence has also been reported in Ghana (Amidu et al., 2021; Koomson et al., 2022; Oquaye et al., 2022; Sarpong-Kumankoma, 2023). Based on this, the hypotheses tested to address the first research question were

> $H_{1A:}$ *Financial literacy has a significant positive relationship with financial well-being among rural households.*
>
> $H_{1B:}$ *Objective financial literacy has a significant positive relationship with financial well-being among rural households.*
>
> $H_{1C:}$ *Subjective financial literacy has a significant positive relationship with financial well-being among rural households.*
>
> $H_{1D:}$ *There is a significant difference in these results(*$H_{1A\text{-}1C.}$*) between households receiving financial education and those not doing so in rural settings*

The relationship between financial literacy, financial information consumption, and financial well-being.

For objective two, data from Sections B and C on financial literacy and financial well-being, respectively, together with questions 33-34 in Section D (see attached questionnaire in appendix 2) representing financial information consumption, were used to assess the mediating role of financial information in the relationship between financial literacy and financial well-being. SEM-PLS was employed to analyze the structural model, examining direct and indirect path coefficients. Theory and literature state the link between the three variables in this manner. Based on these theoretical and empirical foundations, as noted in chapters 2 and 3 of this study, the following hypotheses were developed to assess the pathways from financial literacy to financial information consumption to financial well-being:

> *H_{2A}: Financial literacy is expected to relate significantly and positively to rural households' financial information consumption.*
>
> *H_{2B}: Financial information consumption has a significant positive relationship with financial well-being among rural households.*
>
> *H_{2c}: Financial information consumption mediates the relationship between financial literacy and financial well-being.*
>
> *H_{2D}: In the presence of financial information dimensions as a mediator, financial literacy's relationship with financial well-being is insignificant.*

The relationship between financial literacy, financial information level, and financial well-being

To address objective 3, data from Sections B and C on financial literacy and financial well-being, along with Questions 35-37 in Section E on financial information level see attached questionnaire in appendix 2), were used to examine the relationships among financial literacy, financial information, and financial well-being. SEM-PLS path analysis was used to estimate path coefficients and asses direct, indirect, and total effects. These analyses provided insights into the strength and significance of the relationships among the variables.

Fort et al. (2016) observed that financial literacy improves household financial assets but highlighted the importance of financial information levels in shaping financial decisions that affect household well-being. This suggests that the level of financial information, whether low or high, has significant implications for financial well-being. Based on this, the following hypotheses were formulated:

H_{3A}: Financial literacy is positively related to financial information level among rural households.

H_{3B}: Financial information level is positively related to financial well-being among rural households.

H_{3C}: Financial information level mediates the relationship between financial literacy and financial well-being among rural households.

H_{3D}: The level of information on these financial products (savings, investments, insurance, loans, and deposits) mediates the relationship between financial literacy and financial well-being among rural households.

$H_{3E:}$ The level of information on these financial services (financial planning and financial budgeting) mediates the relationship between financial literacy and financial well-being among rural households.

The relationship between financial literacy, financial information patterns, and financial well-being

Questions 38-40 in Section F of the questionnaire gathered financial information patterns, while Sections B and C produced data on financial literacy and financial well-being, respectively. These data sets were used to analyze research question four. SEM-PLS path analysis was conducted to estimate path coefficients for both direct and indirect relationships, allowing for an assessment of the mediating effect of financial information patterns. The following hypotheses were tested to address research question four.

H_{4A}: Financial literacy is positively and significantly related to growing financial information patterns among rural households.

H_{4B}: A significant positive relationship exists between increasing financial information patterns and improving financial well-being among rural households.

H_{4C}: Financial information patterns mediate the relationship between financial literacy and financial well-being among rural households.

H_{4D}: The changing pattern of information on financial products (savings, investments, insurance, loans, and deposits) mediates the relationship between financial literacy and financial well-being among rural households.

H_{4E}: The changing pattern of information on financial services (financial planning and budgeting) mediates the relationship between financial literacy and financial well-being among rural households.

To test these predictions, the study first analyzed path coefficients to examine the direct relationships between financial literacy, financial information patterns, and financial well-being. At the same time, it employed the indirect effect of the path analysis to evaluate the mediating effect of financial information patterns in the relationship between financial literacy and financial well-being. The bootstrapping approach was employed to calculate and test the significance of the mediation effect. The hypotheses were validated or rejected based on the strength and significance of the estimated coefficients.

The relationship between financial literacy, financial information sources, and financial well-being

Lastly, the data from questions 41-42 in Section G on financial information sources and Sections B and C on financial literacy and financial well-being were used to address the final research question. As in previous analyses, SEM-PLS path analysis was employed to examine the relationships between the latent variables. This approach provided a path coefficient to explore the direct and indirect effects through the mediation pathway. Evaluating these effects helped determine whether the mediation effect was partial or total. Based on this analysis, as demonstrated in Chapter 3, the following hypotheses will be tested.

H_{5A}: Financial literacy is significantly related to financial information sources among rural households.

H_{5B}: A significant relationship exists between increased financial information sources and financial well-being among rural households.

H_{5C}: Financial information sources mediate the relationship between financial literacy and financial well-being among rural households.

H_{5D}: Financial information sources (through traditional media, financial advisors, government, and NGOs) mediate the relationship between financial literacy and financial well-being.

H_{5E}: Sources of financial information (the Internet, social media, family, friends and peers) do not significantly mediate the relationship between financial literacy and financial well-being among rural households.

The study first analyzed the direct relationships between financial literacy, financial information sources, and financial well-being by assessing the path coefficients to evaluate these propositions. Additionally, indirect, total, and direct effects were examined to determine the mediating impact of financial information sources on the relationship between financial literacy and financial well-being. The bootstrapping method was applied to compute and test the significance of the mediation effect. The strength and statistical significance of the path coefficients were then evaluated to determine whether the hypotheses were supported or rejected.

4.4.2.7 Reliability and Validity

Reliability

Reliability is the extent to which a similar outcome can be obtained when a test is repeated many times (Sushil & Verma, 2010). Standard procedures have been suggested to increase the reliability of a measure. Salkind (2006) listed these as follows: removing ambiguous items, standard testing conditions, reducing the impact of outside factors, increasing the number of observations or items, increasing the number of measurements, moderating the degree of instrument difficulty, and standardizing instruction. All these aspects were addressed through pilot testing, consulting with experienced academics in this field, and using their critical input to make revisions. All these led to modifications to increase reliability.

Indicator reliability

The indicator reliability of a measurement model is measured by evaluating the outer loadings of the items. Indicator reliability determines how well the items load on the hypothetical defined construct (Ab Hamid et al., 2017). It is the proportion of indicator variance explained by the latent variable (Kazak, 2021). The reliability of an indicator is established by applying outer loadings (Hair & Alamer, 2022), and when this is more than 0.7, an indicator is reliable (Ab Hamid et al., 2017; Hair & Alamer, 2022; Hair et al., 2017). The study calculated the indicator reliability using outer loading following previous work in the literature. Indicator reliability is necessary for validity (Hair et al., 2019). It is thus the first issue to be examined, which ensures that the indicators load relatively well to the associated constructs. Factor loading of 0.70 is acceptable in social science studies (Hair & Alamer, 2022; Hair et al., 2019). The constructs explain over 50% of the indicator's variance (Hair et al., 2019). Therefore, any factor loading below 0.70 should be considered for removal from the scale if the deletion of the item improves the composite reliability or the Average Variance Extracted (AVE) within the acceptable threshold value.

Internal inconsistency

Even though reliability tests such as test-retest and split half are available, the study deployed Cronbach's alpha and composite reliability because they are the most commonly used measurements to establish internal consistency (Ab Hamid et al., 2017). Cronbach's alpha is a coefficient between 0 and 1 employed to rate the level of internal inconsistency (homogeneity) or correlation of items in a test (Sushil & Verma, 2010). This measures the reliability of the construct based on the interrelationship of the observed items' variables. The reliability test using Cronbach's alpha is met when the latent variables in the questionnaire measure the same construct of interest (Grau, 2007). Therefore, each item in a construct coefficient is calculated to establish internal consistency. To guard against internal inconsistency, each construct should generally have an acceptable minimum cutoff value of 0.6 for composite reliability and Cronbach's alpha (Priyatno, 2013; Van Griethuijsen et al., 2015). The more the Cronbach's alpha value approaches 1, the more it points to the solid reliability of the construct indicator, and the reverse is the case.

The reliability statistics assessment is part of the measurement model assessment. All of the study's lower-order constructs were reliability-tested since the constructs were reflective at the lower level. To conduct reliability analysis in Structural Equation Modeling with Partial Least Squares (SEM-PLS), latent constructs must be evaluated for internal consistency. The procedures for performing a reliability analysis with SEM-PLS are as follows:

First, a measurement model includes the latent constructs (factors) and the indicator variables that go with them. Then, following the study's theoretical framework, the indicators are assigned to the proper constructs. After the model is built, the measurement model's parameters are estimated using the Smart-PLS software. Factor loadings, which show the connections between the indicators and the latent constructs, are generated to assess the reliability of the loadings.

The estimated model provides Cronbach's alpha and composite reliability for each latent construct. Internal consistency thus reflects how strongly a construct's variables correlate. Hence, the outer loading, Cronbach's alpha, and composite reliability values were assessed to establish the reliability of the model's indicators and constructs.

Validity

The dependent variable's most important feature is its validity measurement (Borsboom et al., 2004). Gall et al. (2007) refer to validity as the degree to which an instrument or test empirically assesses what is intended to be measured. There are several means through which validity can be tested or met for instruments to collect required and relevant data that are valid. They include face validity, content validity, and construct validity. Face validity concerns whether the reflective questions measure the concept they are supposed to measure (Nevo, 1985). This study's validity was achieved by selecting previously used and established questions in the literature to capture the variables and concepts. Content validity is the extent to which the questionnaire includes sufficiently investigative questions covering the concepts' fundamental issues (Almanasreh et al., 2019). This was met by adopting standardized questions from previous studies that measure the concepts; these questions were examined and discussed with my supervisors and were submitted to experts for evaluation. Lastly, construct validity checks whether item measurement measures the variables intended to be measured.

Convergent validity assesses the level of correlation of multiple items of the same construct that agree (Ab Hamid et al., 2017). It was maintained by assessing the latent variables' AVE. Hair et al. (2019) recommended that AVE exceed 0.50 to keep the convergent validity of a latent variable.

Lastly, the discriminant validity of the constructs was evaluated to confirm the validity of the latent variables. Discriminant validity is the extent to which constructs are empirically different (Ab Hamid et al., 2017). It was maintained by evaluating the Heterotriat-monotrait (HTMT) ratio. For latent constructs to maintain discriminant validity, the ratio should not exceed 0.9 (Hair et al., 2019). This was complemented by the Fornell-Larker criterion (Fornell & Larcker, 1981) and cross-loading.

Validating Higher-Order constructs (HOC)

Financial literacy and financial well-being were measured subjectively and objectively. Thus, financial literacy and well-being become higher-order reflective constructs based on the two lower-order constructs (LOCs) (subjective and objective). This study employed a repeated indicator approach for the HOC, with HOC specified by assigning all the underlying LOC indicators. All manifest LOC indicators were assigned when these variables were used to determine the first-order latent constructs.

The same procedure is followed to validate the HOC for the validation of the lower-order reflective construct. However, in validating the HOC, what is most important is for the LOCs to load sufficiently and significantly into the presumed HOC (Alsaad et al., 2015; Becker et al., 2012), because lower order construct represents actionable for the HOC (Alsaad et al., 2015).

Qualitative analysis

Qualitative data analysis was conducted to validate quantitative results by examining deeper contexts, participant viewpoints, and socio-cultural dynamics, including variations between gender and educational experiences. In studies examining gendered views, qualitative analysis provides valuable insights into how men and women perceive and respond to similar financial situations that quantitative data alone may not entirely capture. For example, suppose quantitative findings suggest that men possess superior financial literacy than women. In that case, qualitative analysis can investigate the underlying factors, such as disparities in resource access, decision-making responsibilities, or cultural norms affecting financial behaviour.

To ensure accuracy and consistency, two experienced transcribers in Dagara and Walle translated and transcribed the interviews in non-English. In contrast, the researcher transcribed the interviews conducted in English. Additionally, three linguistic experts reviewed each transcript against the original audio recordings, verifying accuracy based on their language expertise. The researcher extensively engaged with the data by meticulously reviewing all transcripts and identifying significant themes using deductive and inductive reasoning through systematic coding. A structured coding scheme was then developed and applied, generating codes organized into logical themes and sub-themes. While themes represent broad categories that embody the essence of the experiences and viewpoints of rural households, sub-themes provide more specific and nuanced insights. This thematic organization facilitated the identification of patterns and links within the data. It enabled a more in-depth comprehension of the intricate gender dynamics and their alignment with the quantitative findings.

To guarantee the precision, credibility, and dependability of the results, the study implemented various techniques to augment the credibility of this study: First, the consistent application of interview guides throughout the interview process; second, the employment of expert transcribers for transcription services, and finally verification of interview transcripts for precision with interviewees. Using these steps guarantees the credibility and reliability of the research findings. These measures strengthened the study's validity, ensuring the research findings' trustworthiness.

4.5 Data Estimation Technique

This study adopted the SEM-PLS, which enables relationships to be examined simultaneously. It enabled the researcher to introduce multiple variables that might indirectly affect the relationships rather than traditional regression, which adopts and applies to variables' constructs. Most importantly, SEM-PLS is known for structuring mediation effects with multiple indicators. Baron and Kenny note that "*the common approach to unreliability is to have multiple operations or indicators of the construct"* (Baron & Kenny, 1986). Therefore, the multiple variables approach can be used to estimate mediation paths using the latent-variable structural modelling method (Ramli et al., 2018). The benefit is that most possible indicators can be tested and not be omitted. It reduces the possibility of measurement and correlated measurement errors in the model. This model can also explain outcome variables in both in-sample and out-of-sample prediction. Due to its ability to estimate intricate and challenging models with multiple constructs, indicator variables, and structural routes without imposing distributional assumptions on the data set, it has recently gained popularity among researchers (Hair et al., 2019). Against this background, earlier studies concluded that SEM-PLS appears superior to ordinary regression analysis (Ramli et al., 2018).

Notwithstanding, one major issue with SEM-PLS is its inability to withstand model misspecification. This means that the estimations and conclusions obtained from the study could be skewed or inaccurate if the model is not precisely stated. This study ensured proper model specification by conducting rigorous exploratory data analysis and developing a theory to overcome this vulnerability. Furthermore, it used model validation techniques like bootstrap sampling and permutation testing to evaluate model fit and accuracy. Cross-validation techniques were used to assess the stability and generalizability of the model.

4.5.1 Structural Equation Modelling

SEM-PLS was used to evaluate the constructs' relationship and determine measurement error. Both inner (internal) and outer (external) models were adopted. The outer model is the first step in the analysis; it examines the latent variables at the observation level and evaluates the validity and reliability of the constructs and indicators. In contrast, the inner model evaluates or tests the relationship between the latent variables (Hair et al., 2012).

Structural equation modelling was used because it is the most appropriate for the hypothesis and research questions of the study. The structural equation model (SEM) is known for its confirmatory factor analysis, simultaneous equation analysis, path analysis, causal analysis, and covariance structure analysis (Tabachnick & Fidell, 2007) and is the most suitable for the interlaced constructs under financial information, financial literacy and well-being. It is a Covariance-Based (CB) technique dubbed the first general, while Partial Least Square (PLS) is the second generation of data analysis methods. This study was approached from the second-generation point of view.

The study considered and explained four basic components when conducting an SEM-PLS analysis: the construct, relationship, measured variables, and error terms, as recommended by past research (Hair Jr et al., 2014). The latent variables are unmeasured in the constructs, including exogenous and endogenous constructs (Hair et al., 2011). The measured variables were directly measured observations and were thus called indicator variables. The hypotheses represent the structural model relationships and the unexplained variance in the path model, referred to as the error term (Hair Jr et al., 2014). In SEM-PLS, two models need to be assessed: the inner model (the structural model achieved via path analysis) and the outer model (the measurement model evaluated with factor analysis) (Hair et al., 2019).

Construct Items Descriptive Statistics

Producing descriptive statistics before data analysis remains conventional in many quantitative empirical studies. This is undertaken to understand the distribution and normality of the data used to examine the relationship under investigation. A normality test for all constructs in the multivariate analysis is conducted in line with the convention, which is considered an essential assumption. The foundation of data normality is the presumption that all the data in the linear combination have a normal distribution (J. Hair et al., 2006).

The data distribution shape is based on the kurtosis and skewness value adopted for the normality determination. Kurtosis indicates that the distribution is flat or peaked, whereas skewness indicates symmetry (J. Hair et al., 2006). Positive skewness denotes a distribution that has shifted left and tailed off to the right; negative skewness is the opposite or reverse of positive skewness (J. Hair et al., 2006). Therefore, skewness should be zero for normally distributed data, representing equilibrium or a symmetric shape (Preacher et al., 2006). Similarly, a positive kurtosis value represents a peaked distribution, while a negative distribution indicates a flattered distribution.

This study followed Kline (2008) in determining skewness and kurtosis. He contended that a skewness value greater than three is observed to be more severe by some investigators. In contrast, a kurtosis value of greater than ten is delinquent and becomes more serious when higher than 20 for a sample size greater than 300. Thus, for this study, the acceptable range of normality was less than +/-3 for skewness and +/-10 or less for kurtosis.

Model Evaluation

Researchers have identified two kinds of SEM-PLS models, i.e., structural or path and measurement (Gefen et al., 2000). The confirmatory factor or measurement model defines the model's latent variables (unobserved constructs) and gives the observed variable to each. Path analysis, sometimes called regression analysis, examines the potential connection between the latent variables (J. Hair et al., 2006).

There are two approaches to evaluating the SEM-PLS model: one-step or two-step. The measurement and structural model estimation are completed simultaneously in the one-step procedure. In contrast, the two-step technique begins with the analysis of the measurement model. It proceeds to the second stage of establishing the relationship between the proposed latent variables, which is tested to evaluate the path model. The two-step procedure examines Validity and reliability through uni-dimensionality (J. Hair et al., 2006). While some researchers recommend the one-step, most prefer the two-step approach. Hence, this study employed a two-step approach.

This study assessed the measurement model by examining psychometric reliability and validity tests for the indicators to evaluate the conceptual model depicted in Chapter Two.

After establishing the validity and reliability of the measurement model, structural model assessment is followed by path analysis of the hypothetical relationship based on signs, magnitude, and significance levels. This estimated the assumed linear covariance and causal link between the latent variables that are exogenous and endogenous.

Measurement Model (Step One)

As noted earlier, the measurement model is the first step in examining a model. This study adopted confirmatory factor analysis to assess the model's validity (convergent and discriminant) and reliability (composite and Cronbach's alpha). The criteria employed for the fitness of the measurement model are summarized in Table 4.5 below.

Table 4. 3: Criteria for Measurement Model

Criterion	Accepted Fit
Construct reliability (composite) (Hair et al., 2006; Purwanto, 2021)	Loading>0.6
Construct reliability (Cronbach's alpha) (Priyatno, 2013; Van Griethuijsen et al., 2015)	Loading >0.6
Indicator reliability (Hair & Alamer, 2022; Hair et al., 2019)	Loading >0.7
Convergent validity (Fornell & Larcker, 1981)	AVE Loading >0.5 AVE loading for the latent variable correlation greater than 0.50
Discriminant validity (Hair et al., 2019)	Heterotriat-Monotriat (HTMT) < 0.90

Source: Own Compilation

Structural Model (Step Two)

The structural model is assessed after reliability and validity have been confirmed. In the structural model, the assessment hinges on collinearity, coefficient of determination ($R^{2)}$, Prediction Relevance ($Q^{2)}$, and finally, estimation of the path coefficient (β). These are critical criteria for structural model assessment (Henseler et al., 2009). Table 4.2 below presents the acceptability level of structural model fit.

Table 4. 4: Accepted Fit

Criterion	Accepted Fit
R^2 (Chin, 1998)	Values 0.19 or less = weak 0.33 or more = moderate 0.67 or more = substantial
Q^2 (Chin, 1998)	Values Between 0.02 and 0.14 = effect is weak Between 0.15 and 0.34 = effect is medium 0.35 and above = effect is large
β (Hair et al., 2006)	Values P-value less than 0.01 P-value less than 0.05 P-value less than 0.10
GoF (Goodness of fit) (Tenenhaus et al., 2005)	A value closer to 1 is better

Source: Own Compilation

4.5.2 Choice of Software

SmartPLS was employed to analyze the data and conduct the necessary diagnostics tests to achieve the objectives and test the hypotheses. It simultaneously examines structural paths and relationships to extract statistical output, particularly using primary data in behavioural economics and finance (De Souzabido & Da Silva, 2019; Hair & Alamer, 2022). It is worth noting that SmartPLS automatically estimates regression equations based on the structural model specified; therefore, there is no need to manually specify the model (Hair et al., 2012; Hair Jr et al., 2021). The software is designed to handle model estimation automatically based on the graphical interface or path diagram and simplifies the model specification process (Dijkstra & Henseler, 2015; Hair Jr et al., 2021). Endnote 20 was used to manage the study's bibliography and references.

4.6 Ethical Considerations

Ethical approval for the study was obtained from the University of KwaZulu-Natal, permitting the distribution of the finalized questionnaire and the appropriate conduct of interviews. The application process strictly adhered to the university’s ethical clearance guideline, resulting in the official approval letter(#HSSREC/00006314/2023). The appendices (Appendices 1, 2, and 4) include this letter, questionnaire, and consent form.

Chapter Summary

This chapter outlined the methodology employed to achieve the study’s objectives. Guided by both positivist and interpretive research philosophies, the study adopted a mixed methods approach. Structural equation modelling was used to analyse the quantitative data, while content analysis was applied to the qualitative data. Ethical research protocols were strictly observed throughout the process. The next chapter presents the results of the quantitative analysis.

CHAPTER FIVE: Data Analysis and Results- Quantitative

5.1 Introduction

This chapter presents the results of the quantitative analysis, evaluating data characteristics, normality distribution, and socio-demographic factors. It also assesses the measurement model's reliability and validity. The structural model analyses direct and mediating effects, confirming or rejecting the study's hypotheses. The analysis follows the widely accepted SEM-PLS reporting format (Hair et al., 2019; Rahman et al., 2021) using statistical techniques discussed in Chapter Four.

The chapter is structured as follows: Section 5.2 covers data and model diagnostics, while Section 5.3 examines respondents' characteristics. Section 5.4 presents SEM-PLS analysis, followed by measurement model assessments in Sections 5.5 (lower-order construct) and 5.6 (higher-order construct). Sections 5.7 and 5.8 analyze the structural model and path coefficients, and Section 5.9 presents hypothesis testing results.

5.2 Data and Model Diagnostics

This study assessed data normality using skewness and kurtosis to ensure the validity of subsequent structural equation analysis. Kline (2008) states skewness should fall within ±3 and kurtosis within ±10. As shown in Table 5.1a-d, all values meet these criteria, confirming the data's suitability for analysis.

Table 5. 1a: Descriptive Statistics of Indicator Variables

Lower Order Construct	Indicator	Obs	Mean	Std Dev	Kurtosis	Skewness
Objective Financial Literacy (FLO)	FLO1	663	3.80	2.16	-1.43	-0.03
Subjective Financial Literacy (FLS)						
Compare prices of goods	FLS1	663	3.32	2.14	-1.29	0.41
Money management expectations	FLS2	663	3.42	2.09	-1.28	0.34
Check the ability to pay	FLS3	663	3.51	2.06	-1.24	0.27
Save to reach a financial goal	FLS4	663	3.27	1.99	-1.12	0.39
Enough reserves for monthly expenses	FLS5	663	3.08	1.97	-0.92	0.57
Consider options for financial decisions	FLS6	663	3.28	2.00	-1.04	0.45
Able to identify the cost of taking credit	FLS7	663	4.00	2.34	-1.56	-0.06
Prefer credit to immediate cash payment	FLS8	663	4.52	2.24	-1.34	-0.38
Subjective Financial Well-being (FWBS)						
Level of financial stress	FWBS1	663	3.09	2.22	0.53	1.08
Satisfaction with the current financial situation	FWBS2	663	3.00	2.11	0.62	1.10
Feeling about the current financial situation	FWBS3	663	3.10	2.20	0.67	1.11
Ability to meet monthly expenses	FWBS4	663	3.14	2.17	0.76	1.11
Confident of meeting financial situation	FWBS5	663	3.10	2.19	0.92	1.20
Ability to afford social activities	FWBS6	663	3.34	2.39	0.57	1.13
Struggles to get by financially	FWBS7	663	3.66	2.64	0.07	1.02
Significant concern about current finances	FWBS8	663	3.30	2.34	0.21	1.03
Objective Financial Well-being (FWBO)						
Encountered payment problems for basic utilities	FWBO1	663	3.27	1.93	0.45	0.87
Lack of funds to spend	FWBO2	663	3.40	1.28	-0.24	0.07
Excess spending over income	FWBO3	663	3.47	1.79	-0.69	0.01
Sufficient savings for a period	FWBO4	663	3.43	1.74	-0.90	-0.11

Source: Own Compilation

Table 5. 1b: Descriptive Statistics of Indicator Variables

Lower Order Construct	Indicator	Obs	Mean	Std Dev	Kurtosis	Skewness
Financial Information Consumption (FIC)						
Sufficient financial information	FIC1	663	2.91	1.75	-0.84	0.52
Information to plan for income and expenses	FIC2	663	3.11	1.78	-1.03	0.37
Information to make rational financial decisions	FIC3	663	3.15	1.78	-1.02	0.35
Having relevant information for purchases	FIC4	663	3.45	1.88	-1.12	0.18
Information on personal financial management	FIC5	663	3.42	1.87	-1.22	0.12
Follow financial information that affects the financial situation	FIC6	663	3.33	1.89	-1.21	0.20
Find financial information easy to understand	FIC7	663	3.22	1.89	-1.21	0.28
Financial Information Level (FIL)						
Level of financial information on savings	FIL1	663	3.80	2.25	-1.46	0.08
Level of financial information on investments	FIL2	663	3.80	2.10	-1.34	0.02
Level of financial information on financial planning	FIL3	663	3.77	2.17	-1.35	0.14
Level of financial information on insurance	FIL4	663	3.61	1.98	-1.17	0.12
Level of financial information on loans	FIL5	663	3.64	2.03	-1.28	0.09
Level of financial information on deposits	FIL6	663	3.25	1.94	-1.12	0.33
Level of financial information on financial budgeting	FIL7	663	3.26	2.09	-1.21	0.40
FIL on savings	FILsav	663	1.84	0.78	-1.30	0.29
FIL on investment	FILinv	663	1.83	0.72	-1.06	0.27
FIL on financial planning	FILplan	663	1.85	0.75	-1.20	0.26
FIL on insurance	FILins	663	1.71	0.73	-0.98	0.50
FIL on financial budgeting	FILbud	663	1.72	0.78	-1.15	0.53
FIL on deposits	FILdep	663	1.71	0.73	-0.98	0.51
FIL on loans	FILloan	663	1.58	0.60	-0.64	0.50

Source: Own Compilation

Table 5. 1c: Descriptive Statistics of Indicator Variables

Lower Order Construct	Indicator	Obs	Mean	Std Dev	Kurtosis	Skewness
Financial Information Pattern (FIP)						
Financial information pattern on savings	FIP1	663	3.39	2.09	-1.22	0.36
Financial information pattern on investment	FIP2	663	3.50	2.06	-1.19	0.32
Financial information pattern on financial planning	FIP3	663	3.49	2.02	-1.19	0.24
Financial information pattern on insurance	FIP4	663	3.32	1.99	-1.10	0.40
Financial information pattern on loans	FIP5	663	3.15	2.03	-1.07	0.51
Financial information pattern on deposits	FIP6	663	3.19	1.96	-1.01	0.44
Financial information pattern on financial budgeting	FIP7	663	3.90	2.19	-1.49	-0.06
FIP on savings	FIPsav	663	1.69	0.71	-0.89	0.53
FIP on investment	FIPinv	663	1.70	0.68	-0.83	0.45
FIP on financial planning	FIPplan	663	1.80	0.72	-1.03	0.32
FIP on insurance	FIPinsu	663	1.68	0.69	-0.83	0.53
FIP on loans	FIPloan	663	1.57	0.68	-0.56	0.78
FIP on deposits	FIPdep	663	1.66	0.71	-0.83	0.60
FIP on financial budgeting	FIPbud	663	1.64	0.61	-0.66	0.40
Financial Information Source (FIS)						
Consult information from traditional media	FIS1	663	4.00	2.34	-1.56	-0.06
Consult information from financial advisors	FIS2	663	3.90	2.19	-1.49	-0.06
Consult information from family members	FIS3	663	3.96	2.22	-1.45	-0.02
Consult information from friends and peers	FIS4	663	3.77	2.03	-1.28	-0.03
Consult information from the government and agencies	FIS5	663	3.80	2.07	-1.33	-0.05
Consult information from NGOs	FIS6	663	3.39	2.07	-1.26	0.28
Consult information from the Internet	FIS7	663	3.43	2.12	-1.33	0.26
Consult information from social media	FIS8	663	3.79	2.22	-1.48	0.04
FIS as traditional media	FIStrad	663	3.78	2.16	-1.44	-0.03
FIS as NGOs	FISngo	663	3.70	2.00	-1.27	0.03
FIS as family	FISfamily	663	3.75	2.08	-1.32	0.03
FIS as peers and friends	FISpeers	663	3.79	2.12	-1.33	0.06
FIS as financial advisors	FISadv	663	3.79	2.25	-1.47	0.07
FIS as government and agencies	FISgov	663	3.80	2.10	-1.34	0.02
FIS as Internet	FISint	663	3.21	1.99	-1.17	0.37
FIS as social media	FISsom	663	3.80	2.16	-1.43	-0.03

Table 5. 1d: Descriptive Statistics of Indicator Variables

Lower Order Construct	Indicator	Obs	Mean	Std Dev	Kurtosis	Skewness
Higher Order Constructs						
Objective Financial Literacy	FLO	663	0.00	1.00	-1.43	-0.03
Subjective Financial Literacy	FLS	663	0.00	1.00	-1.04	0.26
Objective Financial Well-being	FWBO	663	0.00	1.00	-0.72	-0.04
Subjective Financial Well-being	FWBS	663	0.00	1.00	0.72	0.98
Financial Information Consumption	FIC	663	0.00	1.00	-0.96	0.20
Financial Information Level	FIL	663	0.00	1.00	-1.02	0.01
Financial Information Pattern	FIP	663	0.00	1.00	-1.13	0.26
Financial Information Source	FIS	663	0.00	1.00	-1.12	-0.10

Source: Own Compilation

Although SEM-PLS accounts for non-normality, Table 5.1a-d confirms that the data meets normality assumptions. Diagnostic results further support the appropriateness of SEM-PLS for both inner and outer models, as discussed in Section 4.5.1. The study also estimated the key constructs' averages. Table 5.2 shows the mean values of financial literacy (7-point scale) and financial well-being (10-point scale) items, ranging from 3.23 to 3.8.

Table 5. 2: Descriptive Statistics (Average) of Key Construct Indicators

Construct indicator	Obs	Min	Max	Mean	Std. Dev
Subjective Financial Literacy	663	1.00	7.00	3.55	1.58
Subjective Financial Well-being	663	1.00	10.00	3.22	1.90
Financial Information Consumption	663	1.00	7.00	3.23	1.59
Financial Information Level	663	1.00	7.00	3.59	1.81
Financial Information Pattern	663	1.00	7.00	3.42	1.76
Financial Information Source	663	1.00	7.00	3.76	1.87

Subjective financial literacy = FLS, Subjective financial well-being = FWBS, Financial information consumption = FIC, Financial information level = FIL, Financial information pattern = FIP, Financial information source = FIS

Source: Own Compilation

Table 5.2 shows respondents reported an average score of 3.55 out of 7 for subjective financial literacy and 3.22 out of 10 for subjective well-being. When standardized to a common scale of 1, the average financial literacy score is 0.51, and the the financial well-being score is 0.32, indicating greater confidence in financial literacy. The average financial information consumption in rural areas is 3.23, while the financial information level is 3.59. Financial information patterns scored 3.42, below the 3.76 average for information sources. This suggests that financial information consumption and patterns are below average, while information level and sources are above average. Additionally, the study compared objective and subjective measures by presenting subjective scores as percentages and comparing them to the rate of correct responses (objective measures). These results are shown in Table 5.3.

Table 5. 3: Comparison of Objective and Subjective Responses for Financial literacy and well-being

Construct indicator	Obs	percent
Objective Financial Literacy	663	0.54
Subjective Financial Literacy	663	0.51
Subjective Financial Well-being	663	0.32
Objective Financial Well-being	663	0.33

Objective financial literacy = FLO, Subjective financial literacy = FLS, Objective financial well-being = FWBO, Subjective financial well-being = FWBS

Source: Own Compilation

Table 5.3 shows that subjective financial literacy (0.51) is lower than the objective measure (0.54), while subjective financial well-being (0.32) is also lower than the actual experience (0.33). Most respondents reported lower subjective financial well-being, likely influenced by economic, psychological, social, and personal factors.

5.3 Respondents' Descriptive Characteristics

The questionnaire included demographic information to examine respondents' profiles, with Tables 5.4a and 5.4b presenting the descriptive statistics. The findings show that 95.6% of household heads were male, reflecting the typical male leadership in rural settings (Aboe et al., 2022; Azumah et al., 2023) and the underrepresentation of women in decision-making. To mitigate potential bias, a more balanced analysis of male and female views will be provided in Chapter 6. Additionally, 81.7% of respondents were aged 18 to 59, indicating they were active labour force members.

Most respondents (70.4%) were married, aligning with the culturally defined marriage age of 18 as per the Ghana Marriage Act, 1985 (PNDCL 112). Over a third had never attended school, and a quarter completed Junior High School (JHS), highlighting the region's low literacy rate of 46%, as reported in the recent housing and population census (GSS, 2021). Additionally, nearly three-quarters of respondents were employed in the agricultural sector, reflecting the region's agrarian dominance and widespread involvement in farming-related activities.

Table 5.4 a: Descriptive Statistics of Respondents

		Frequency	Percent (%)	Cumulative Percent (%)
Gender	Female	29	4.4	4.4
	Male	634	95.6	100
Age bracket	18-19	26	3.9	3.9
	20-29	152	22.9	26.8
	30-39	168	25.3	52.2
	40-49	115	17.3	69.5
	50-59	81	12.2	81.7
	60+	121	18.3	100
Retiree	No	534	80.5	80.5
	Yes	129	19.5	100
Marital Status	Single	64	9.7	9.7
	Married	467	70.4	80.1
	Divorced	41	6.2	86.3
	Separated	40	6	92.3
	Widow/widower	51	7.7	100
Biological Children	None	118	17.8	17.8
	1-2	143	21.6	39.4
	3-4	217	32.7	72.1
	5-6	105	15.8	87.9
	7+	80	12.1	100
Adopted Children	None	483	72.9	72.9
	1-2	96	14.5	87.3
	3-4	63	9.5	96.8
	5-6	10	1.5	98.3
	7+	11	1.7	100
Level of education	Never attended school	243	36.7	36.7
	Up to JHS	166	25	61.7
	Up to SHS	107	16.1	77.8
	Diploma	58	8.7	86.6
	Degree	72	10.9	97.4
	Post-graduate & above	17	2.6	100

Source: Own Compilation

.

Table 5.4 b: Descriptive Statistics of Respondents

		Frequency	Percent (%)	Cumulative Percent (%)
Work Sector	Agric. - self employed	489	73.8	73.8
	Trading - self-employed	79	11.9	85.7
	Formal sector - public	33	5	90.6
	Formal sector - private	9	1.4	92
	Unemployed	53	8	100
Average Annual Income	5 000 or less	474	71.5	71.5
	5 001-10 000	66	10	81.4
	10 001-20 000	39	5.9	87.3
	20 001-30 000	43	6.5	93.8
	30 001-40 000	22	3.3	97.1
	40 001-50 000	16	2.4	99.5
	Above 50 000	3	0.5	100
Accommodation Status	Rented residence	110	16.6	16.6
	Own residence	302	45.6	62.1
	Parents' residence	222	33.5	95.6
	Residence provided by the institution	29	4.4	100
Received financial literacy education	No	356	53.7	53.7
	Yes	307	46.3	100

Source: Own Compilation

The results showed that 81.4% of respondents earned GHC 10,000 ($667) or less annually, highlighting prevalent poverty. Additionally, 46.3% had participated in financial literacy education programs.

5.4 Assessing SEM-PLS Analysis

As noted in Chapter Four, this study used the SEM-PLS approach, with SmartPLS version 4 for analysis and SPSS version 20 for specific tests. A two-stage approach, recommended (Becker et al., 2012) and Hair et al. (2019), was adopted to handle hierarchical component modelling (HCM). This approach separately estimates lower-order constructs (LOCs) and higher-order constructs (HOCs), which is useful when unequal indicators across LOCs. An alternative method is the repeated indicator approach, where all LOC indicators are assigned to the HOC(Becker et al., 2012). The measurement model was evaluated for validity and reliability, assessing both LOCs and

HOCs. The second stage assessed the structural model to estimate path relationships and significance. The path coefficient model was constructed in SmartPLS, where the PLS algorithm was used to estimate loadings and coefficients within the range of -1 to +1. Additionally, the percentile bootstrap algorithm with 10,000 samples was used to calculate valid observations, with a significance level of 0.05.

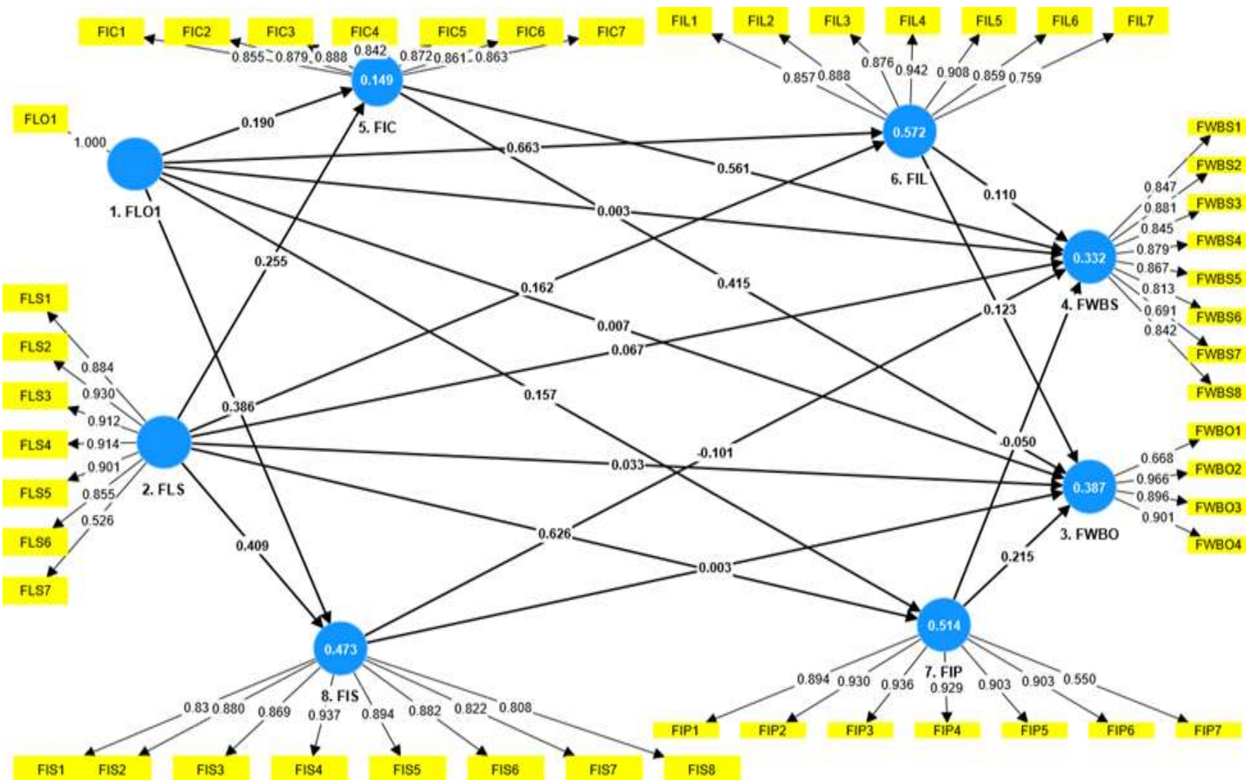


Figure 5.1: Path Model Used in SEM-PLS -LOC

5.5 Assessment of Measurement Model – Lower Order Construct (LOC)

Chapter Four discussed the assessment of convergent validity, discriminant validity, internal consistency reliability, and indicator reliability. Tables 5.6a and 5.6b present the measurement model assessments for these aspects. The LOCs assessed include financial literacy (subjective), financial well-being (subjective and objective), financial information consumption, level, pattern, and sources.

Indicator Reliability

As discussed in Chapter 4, the initial measurement model assessment identified five items loading below the recommended threshold, making them candidates for deletion if they negatively impacted construct validity and reliability. A further inspection determined that only item FLS8 (Prefer credit to immediate cash payment) significantly affected validity and reliability. With an outer loading near zero, FLS8 was deleted to improve both, as its presence hindered the constructs' reliability and validity (Hair & Alamer, 2022; Hair et al., 2019). Table 5.5 lists the items deleted or retained based on their impact on construct stability.

Table 5. 5: Items Considered for Deletion

Indicators		Loadings	Decision
Ability to identify the cost of taking credit	FLS7	0.528	Retained
Prefer credit to immediate payment	FLS8	0.092	Deleted
Encountered payment problems	FWBO1	0.668	Retained
Struggles to get by financially	FWBS7	0.691	Retained
Financial information pattern on financial budgeting	FIP7	0.550	Retained

Source: Own Compilation

Indicator Loadings

All indicators, except those listed in Table 5.5, showed outer loadings exceeding 0.70, with values ranging from 0.759 to 0.966, as shown in Tables 5.6a and 5.6b. These results demonstrate satisfactory indicator reliability for the LOC, aligning with benchmarks from previous studies.

Internal Consistency

To ensure a satisfactory measurement model, internal consistency (composite reliability (CR) and Cronbach's alpha) should exceed the 0.60 threshold (Grau, 2007; J. F. Hair et al., 2006). Construct reliability was assessed using Cronbach's alpha and CR. As shown in Tables 5.6a and 5.6b, Cronbach's alpha values ranged from 0.880 to 0.952, while CR values ranged from 0.889 to 0.954. These results confirm satisfactory internal consistency for the constructs at the lower-order level.

Table 5. 6a: Reliability and Convergent Validity

Indicators	Loadings	Alpha	CR	AVE
Compare prices of goods <- Subjective Financial Literacy	0.884			
Money management expectations <- Subjective Financial Literacy	0.930			
Check ability to pay <- Subjective Financial Literacy	0.911			
Save to reach financial goal <- Subjective Financial Literacy	0.914	0.934	0.933	0.733
Enough reserves for monthly expenses <- Subjective Financial Literacy	0.900			
Consider options for financial decisions <- Subjective Financial Literacy	0.855			
Able to identify the cost of taking credit <- Subjective Financial Literacy	0.528			
Encountered payment problems for basic utilities<- Objective Financial Well-being	0.668			
Lack of funds to spend <- Objective Financial Well-being	0.966	0.880	0.889	0.748
Excess spending over income <- Objective Financial Well-being	0.896			
Sufficient savings for a period <- Objective Financial Well-being	0.901			
Level of financial stress <- Subjective Financial Well-being	0.846			
Satisfaction with current financial situation <- Subjective Financial Well-being	0.881			
Feeling about current financial situation <- Subjective Financial Well-being	0.845			
Ability to meet monthly expenses <- Subjective Financial Well-being	0.879	0.937	0.944	0.697
Confident to meet financial situation <- Subjective Financial Well-being	0.867			
Ability to afford social activities <- Subjective Financial Well-being	0.813			
Struggles to get by financially <- Subjective Financial Well-being	0.691			
Significant concern about current finances <- Subjective Financial Well-being	0.842			
Sufficient financial information <- Financial Information Consumption	0.855			
Information to plan for income and expenses <- Financial Information Consumption	0.879			
Information to make rational financial decisions <- Financial Information Consumption	0.888			
Having relevant information for purchases <- Financial Information Consumption	0.842	0.944	0.947	0.75
Information on personal financial management <- Financial Information Consumption	0.872			
Follow information that affects financial situation <- Financial Information Consumption	0.861			
Find financial information easy to understand <- Financial Information Consumption	0.863			

Source: Own Compilation

Table 5. 6b: Reliability and Convergent Validity

Indicators	Loadings	Alpha	CR	AVE
Level of information on saving <- Financial Information Level	0.857			
Level of information on investments <- Financial Information Level	0.888			
Level of information on financial planning <- Financial Information Level	0.876			
Level of information on insurance <- Financial Information Level	0.942	0.946	0.949	0.759
Level of information on loans <- Financial Information Level	0.908			
Level of information on deposits <- Financial Information Level	0.859			
Level of information on financial budgeting <- Financial Information Level	0.759			
Information pattern on saving <- Financial Information Pattern	0.894			
Information pattern on investments <- Financial Information Pattern	0.930			
Information pattern on financial planning <- Financial Information Pattern	0.936			
Information pattern on insurance <- Financial Information Pattern	0.929	0.943	0.947	0.762
Information pattern on loans <- Financial Information Pattern	0.903			
Information pattern on deposits <- Financial Information Pattern	0.903			
Information pattern on financial budgeting <- Financial Information Pattern	0.550			
Consult financial information from traditional media <- Financial Information Source	0.836			
Consult financial information from a financial advisor <- Financial Information Source	0.880			
Consult financial information from family members <- Financial Information Source	0.869			
Consult financial information from friends and peers <- Financial Information Source	0.937	0.952	0.954	0.751
Consult financial information from the government <- Financial Information Source	0.894			
Consult financial information from NGOs <- Financial Information Source	0.882			
Consult financial information from the Internet <- Financial Information Source	0.822			
Consult financial information from social media <- Financial Information Source	0.808			

Source: Own Compilation

Convergent Validity

Convergent validity, as defined Hair et al. (2019), refers to the extent to which a construct explains the variance of its elements. To assess this, average variance extracted (AVE) is used, with a value ≥ 0.50 indicating adequate validity (Fornell & Larcker, 1981; Hair et al., 2019). Tables 5.6a and 5.6b show that all constructs have AVE values ranging from 0.697 to 0.762, surpassing the 0.50 threshold. These results confirm satisfactory convergent validity and demonstrate the adequacy of the measurement model.

Discriminant Validity

Discriminant validity refers to the extent to which assessment results of one construct do not correlate with those of another, ensuring that each measurement variable reflects its intended concept and nothing else. It confirms that constructs in a model are distinct and do not overlap, enhancing the model's validity, interpretation accuracy, and overall reliability(Chin, 2009; Fornell & Larcker, 1981). Failure to achieve discriminant validity undermines the model’s integrity, reduces research validity, and compromises the reliability of findings. Following Hair et al. (2019) and Rasoolimanesh (2022), this study assessed discriminant validity using two methods: the Heterotrait-Monotrait (HTMT) ratio (Table 5.7) and cross-loadings (Tables 5.8a & 5.8b).

Table 5. 7: Heterotriat-Monotriat (HTMT) for Discriminant Validity

Construct	FLO	FLS	FWBO	FWBS	FIC	FIL	FIP	FIS
Objective Financial Literacy								
Subjective Financial Literacy	0.508							
Objective Financial Well-being	0.372	0.426						
Subjective Financial Well-being	0.212	0.231	0.723					
Financial Information Consumption	0.323	0.362	0.597	0.596				
Financial Information Level	0.766	0.508	0.424	0.250	0.356			
Financial Information Pattern	0.483	0.743	0.49	0.201	0.366	0.508		
Source of Financial Information	0.604	0.617	0.42	0.202	0.383	0.740	0.606	

Objective financial literacy = FLO, Subjective financial literacy = FLS, Objective financial well-being = FWBO, Subjective financial well-being = FWBS, Financial information consumption = FIC, Financial information level = FIL, Financial information pattern = FIP, Financial information source = FIS

Source: Own Compilation

Table 5. 8a: Cross Loading for Discriminant Validity

Items	Indicator	FLS	FWBO	FWBS	FIC	FIL	FIP	FIS
FLS1	Compare prices of goods	**0.884**	0.375	0.241	0.385	0.404	0.603	0.488
FLS2	Money management expectations	**0.930**	0.342	0.208	0.289	0.394	0.634	0.464
FLS3	Check the ability to pay	**0.912**	0.300	0.182	0.265	0.384	0.579	0.458
FLS4	Save to reach a financial goal	**0.914**	0.339	0.207	0.273	0.386	0.633	0.452
FLS5	Enough reserves for monthly expenses	**0.901**	0.330	0.202	0.285	0.387	0.600	0.449
FLS6	Consider options for financial decisions	**0.855**	0.231	0.117	0.209	0.342	0.518	0.430
FLS7	Able to identify the cost of taking credit	**0.526**	0.370	0.142	0.317	0.550	0.554	0.729
FWBO1	Encountered payment problems for basic utilities	0.215	**0.668**	0.990	0.566	0.239	0.189	0.192
FWBO2	Lack of funds to spend	0.358	**0.966**	0.679	0.534	0.362	0.403	0.362
FWBO3	Excess spending over income	0.388	**0.896**	0.288	0.383	0.366	0.461	0.386
FWBO4	Sufficient savings for a period	0.395	**0.901**	0.298	0.393	0.373	0.475	0.392
FWBS1	Level of financial stress	0.249	0.587	**0.847**	0.536	0.260	0.200	0.231
FWBS2	Satisfaction with the current financial situation	0.227	0.584	**0.881**	0.520	0.243	0.186	0.212
FWBS3	Feeling about the current financial situation	0.207	0.562	**0.845**	0.468	0.237	0.173	0.195
FWBS4	Ability to meet monthly expenses	0.175	0.549	**0.879**	0.485	0.201	0.134	0.153
FWBS5	Confident of meeting financial situation	0.192	0.541	**0.867**	0.491	0.192	0.144	0.162
FWBS6	Ability to afford social activities	0.153	0.548	**0.813**	0.449	0.161	0.139	0.122
FWBS7	Struggles to get by financially	0.122	0.466	**0.691**	0.322	0.121	0.156	0.068
FWBS8	Significant concern about current finances	0.141	0.529	**0.842**	0.486	0.160	0.123	0.124
FIC1	Sufficient financial information	0.333	0.525	0.535	**0.855**	0.295	0.334	0.331
FIC2	Information to plan for income and expenses	0.320	0.508	0.517	**0.879**	0.315	0.308	0.326
FIC3	Information to make rational financial decisions	0.325	0.493	0.512	**0.888**	0.314	0.319	0.348
FIC4	Having relevant information for purchases	0.285	0.421	0.465	**0.842**	0.259	0.258	0.272
FIC5	Information on personal financial management	0.277	0.446	0.459	**0.872**	0.296	0.261	0.307
FIC6	Follow information that affects the financial situation	0.270	0.444	0.464	**0.861**	0.258	0.298	0.305
FIC7	Find financial information easy to understand	0.296	0.452	0.481	**0.863**	0.313	0.305	0.318

Source: Own Compilation

Table 5. 8b: Cross Loading for Discriminant Validity

Items	Indicator	FLS	FWBO	FWBS	FIC	FIL	FIP	FIS
FIL1	Level of information on saving	0.490	0.412	0.208	0.320	**0.857**	0.527	0.640
FIL2	Level of information on investments	0.487	0.400	0.221	0.335	**0.888**	0.507	0.644
FIL3	Level of information on financial planning	0.476	0.350	0.179	0.282	**0.876**	0.509	0.618
FIL4	Level of information on insurance	0.447	0.374	0.239	0.323	**0.942**	0.446	0.660
FIL5	Level of information on loans	0.410	0.352	0.235	0.304	**0.908**	0.376	0.617
FIL6	Level of information on deposits	0.380	0.276	0.215	0.278	**0.859**	0.321	0.603
FIL7	Level of information on financial budgeting	0.287	0.191	0.161	0.214	**0.759**	0.212	0.505
FIP1	Information pattern on savings	0.627	0.416	0.171	0.353	0.427	**0.894**	0.485
FIP2	Information pattern on investments	0.647	0.389	0.146	0.251	0.391	**0.930**	0.439
FIP3	Information pattern on financial planning	0.642	0.413	0.173	0.300	0.405	**0.936**	0.467
FIP4	Information pattern on insurance	0.619	0.389	0.164	0.278	0.379	**0.929**	0.439
FIP5	Information pattern on loans	0.584	0.383	0.170	0.306	0.403	**0.903**	0.457
FIP6	Information pattern on deposits	0.599	0.364	0.157	0.283	0.400	**0.903**	0.462
FIP7	Information pattern on financial budgeting	0.550	0.345	0.158	0.330	0.532	**0.550**	0.767
FIS1	Consult financial information from traditional media	0.560	0.409	0.159	0.354	0.640	0.596	**0.836**
FIS2	Consult financial information from a financial advisor	0.589	0.381	0.162	0.365	0.628	0.590	**0.880**
FIS3	Consult financial information from family members	0.600	0.360	0.136	0.300	0.632	0.607	**0.869**
FIS4	Consult financial information from friends and peers	0.554	0.372	0.186	0.349	0.674	0.521	**0.937**
FIS5	Consult financial information from the government	0.475	0.350	0.198	0.334	0.629	0.438	**0.894**
FIS6	Consult financial information from NGOs	0.465	0.286	0.202	0.336	0.581	0.402	**0.882**
FIS7	Consult financial information from the Internet	0.415	0.228	0.171	0.272	0.538	0.334	**0.822**
FIS8	Consult financial information from social media	0.476	0.279	0.146	0.218	0.550	0.442	**0.808**

Source: Own Compilation

In structural equation modelling, the HTMT (Heterotrait-Monotrait) ratio is a more conservative test for discriminant validity than the traditional Fornell-Larcker criterion, which is considered too lenient (Hair et al., 2019). The HTMT ratio helps determine whether the correlation between constructs is stronger than between indicators of the same construct. A ratio greater than 0.90 typically indicates poor discriminant validity (Henseler et al., 2015). As shown in Table 5.7, all HTMT values for paired constructs were below 0.90, suggesting no discriminant validity issues.

Additionally, cross-loadings, displayed in Tables 5.8a and 5.8b, assess the relationship between indicators and their latent constructs. Cross-loading evaluations are essential for determining measurement quality, ensuring that indicators align with their intended constructs. Generally, cross-loadings should be high for the target construct and low for other constructs (Hair et al., 2017). The results revealed that most item loadings on their respective constructs were higher than their cross-loadings on other constructs, except for FIP7 (information pattern on financial budgeting) and FLS7 (ability to identify the cost of taking credit). Despite these exceptions, the overall measurement quality was good, confirming that discriminant validity was maintained.

5.6 Assessment of Measurement Model – Higher Order Construct (HOC)

Financial literacy and well-being are higher-order reflective-reflective constructs based on two lower-order constructs (LOCs). Financial literacy incorporates subjective and objective LOCs, while financial well-being uses subjective and objective LOCs. The same validation procedure used for the LOCs was applied to these higher-order constructs (HOCs). The results of the HOC measurement model assessment, including validity (discriminant and convergent) and reliability (internal consistency and indicator), are presented in Tables 5.9 through 5.12a&b

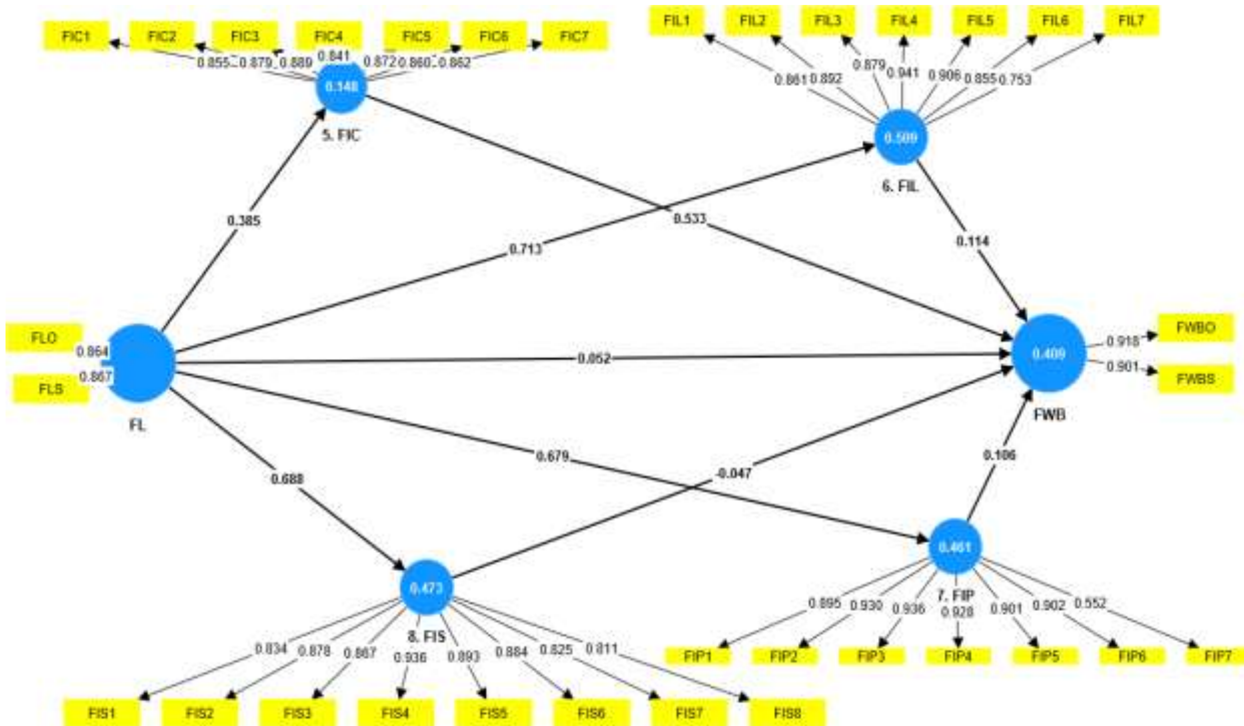


Figure 5.2: Path Model Used in SEM-PLS--HOC

Source: author's compilation

Table 5.9 shows that indicator reliability for both higher-order constructs (HOCs), financial literacy (FL) and financial well-being (FWB) was established, with outer loadings exceeding 0.70. Both constructs also met the internal consistency thresholds, with alpha values of 0.665 (FL) and 0.791 (FWB) and composite reliability (CR) values of 0.665 and 0.796, respectively. Additionally, average variance extracted (AVE) values exceeded 0.5, confirming convergent validity for the HOCs.

Despite these findings, previous studies emphasize the importance of ensuring satisfactory loadings for lower-order constructs (LOCs) into the HOCs, as they are essential for the validity of the HOCs (Alsaad et al., 2015; Becker et al., 2012; Wetzels et al., 2009; Wright et al., 2012) because the LOC is actionable for the HOC (Alsaad et al., 2015). After confirming that the LOCs loaded sufficiently into the HOCs, the study evaluated the structural model. Moreover, the HOC measurement model met all validity requirements, including construct, convergent, and discriminant validity, as stipulated by (Hair et al. 2010), confirming the robustness of the measurement model.

Table 5. 9: Reliability and Validity (Convergent)

Indicators	Loadings	Alpha	CR	AVE
Objective financial literacy <- Financial Literacy	0.864	0.665	0.665	0.749
Subjective financial literacy <- Financial Literacy	0.867			
Objective financial well-being <- Financial Well-being	0.918	0.791	0.796	0.827
Subjective financial well-being <- Financial Well-being	0.901			

Source: Own Compilation

Table 5. 10: Heterotriat-Monotriat (HTMT) for Discriminant Validity

	FL	FWB	FIC	FIL	FIP	FIS
Financial literacy						
Financial well-being	0.516					
Financial information consumption	0.482	0.705				
Financial information level	0.898	0.398	0.356			
Financial information pattern	0.857	0.404	0.366	0.508		
Financial information source	0.861	0.368	0.383	0.740	0.606	

Objective financial literacy = FLO, Subjective financial literacy = FLS, Objective financial well-being = FWBO, Subjective financial well-being = FWBS, Financial information consumption = FIC, Financial information level = FIL, Financial information pattern = FIP, Financial information source = FIS

Source: Own Compilation

Table 5.10 confirms HTMT validity, as all paired construct values are below 0.90, indicating strong discriminant validity, with values ranging from 0.356 to 0.898. To further validate the HTMT ratio, the study also applied Fornell and Larcker's Criterion, assessing discriminant validity at the higher-order construct (HOC) level. This method compares the square root of the average variance extracted (AVE) with the correlation between latent variables. According to Fornell and Larcker (1981), for discriminant validity to be confirmed, the square root of AVE should exceed the correlations with other constructs. This approach ensures that each construct better explains the variance of its own indicators than those of other constructs.

Table 5. 11: Fornell and Larker's Criterion for Discriminant Validity

	FL	FWB	FIC	FIL	FIP	FIS
Financial literacy	0.866					
Financial well-being	0.379	0.909				
Financial information consumption	0.385	0.612	0.866			
Financial information level	0.713	0.351	0.34	0.871		
Financial information pattern	0.679	0.355	0.346	0.485	0.873	
Financial information source	0.688	0.325	0.365	0.705	0.574	0.867

Source: Own Compilation

Table 5.11 confirms that all constructs meet Fornell and Larcker's Criterion for discriminant validity, as the square root of each construct's AVE is greater than its correlations with other constructs, indicating good discriminant validity. Although recent studies suggest Fornell and Larcker's Criterion may not perform well with slight differences in indicator loadings (Hair et al., 2019), the results align with those from the HTMT ratio in Table 5.10. Additionally, Table 5.12a&b shows that the factor loadings of the higher-order construct (HOC) items are greater than their cross-loadings on other constructs, further confirming discriminant validity.

Table 5. 12a: Cross Loading for Discriminant Validity

Indicators	FL	FWB	FIC	FIL	FIP	FIS
Objective financial literacy	**0.864**	0.312	0.317	0.742	0.470	0.591
Subjective financial literacy	**0.867**	0.344	0.349	0.493	0.705	0.600
Objective financial well-being	0.430	**0.918**	0.546	0.392	0.446	0.387
Subjective financial well-being	0.252	**0.901**	0.569	0.240	0.188	0.195
Sufficient financial information	0.368	0.583	**0.855**	0.295	0.335	0.330
Information to plan for income and expenses	0.360	0.563	**0.879**	0.315	0.308	0.326
Information to make rational financial decisions	0.378	0.551	**0.889**	0.314	0.320	0.348
Having relevant information for purchases	0.297	0.486	**0.841**	0.260	0.259	0.271
Information on personal financial management	0.314	0.497	**0.872**	0.296	0.261	0.307
Follow information that affects the financial situation	0.275	0.499	**0.860**	0.258	0.299	0.304
Find financial information easy to understand	0.323	0.512	**0.862**	0.314	0.306	0.317
Level of information on saving	0.654	0.345	0.320	**0.861**	0.528	0.638
Level of information on investments	0.648	0.346	0.335	**0.892**	0.508	0.642
Level of information on financial planning	0.639	0.294	0.283	**0.879**	0.510	0.616
Level of information on insurance	0.651	0.340	0.324	**0.941**	0.447	0.660
Level of information on loans	0.594	0.326	0.304	**0.906**	0.377	0.616
Level of information on deposits	0.618	0.271	0.278	**0.855**	0.322	0.605
Level of information on financial budgeting	0.534	0.195	0.214	**0.753**	0.213	0.508

Source: Own Compilation

Table 5. 12b: Cross Loading for Discriminant Validity

Indicators	FL	FWB	FIC	FIL	FIP	FIS
Information pattern on savings	0.645	0.329	0.354	0.429	**0.895**	0.484
Information pattern on investments	0.618	0.300	0.251	0.393	**0.930**	0.438
Information pattern on financial planning	0.622	0.328	0.300	0.407	**0.936**	0.466
Information pattern on insurance	0.573	0.310	0.278	0.381	**0.928**	0.438
Information pattern on loans	0.531	0.309	0.306	0.405	**0.901**	0.455
Information pattern on deposits	0.574	0.291	0.283	0.401	**0.902**	0.461
Information pattern on financial budgeting	0.545	0.281	0.330	0.535	**0.552**	0.765
Consult financial information from traditional media	0.609	0.318	0.354	0.643	0.598	**0.834**
Consult financial information from a financial advisor	0.612	0.304	0.365	0.631	0.591	**0.878**
Consult financial information from family members	0.618	0.278	0.300	0.635	0.608	**0.867**
Consult financial information from friends and peers	0.621	0.311	0.349	0.674	0.523	**0.936**
Consult financial information from the government	0.538	0.305	0.334	0.628	0.439	**0.893**
Consult financial information from NGOs	0.557	0.270	0.336	0.579	0.403	**0.884**
Consult financial information from the Internet	0.533	0.221	0.272	0.535	0.335	**0.825**
Consult financial information from social media	0.658	0.237	0.218	0.548	0.443	**0.811**

Source: Own Compilation

The confirmed reliability and validity of both LOC and HOC provide a solid foundation for examining the structural model, ensuring that the items used to measure constructs are valid and suitable for assessing and estimating the model's parameters.

5.7 Assessment of Structural Model

The assessment of the study's structural model followed confirmation of the reliability and validity of the measurement model. Hair et al. (2019) recommended the steps shown in Figure 6.3 below to assess the structural model after satisfactory confirmation of the measurement model.

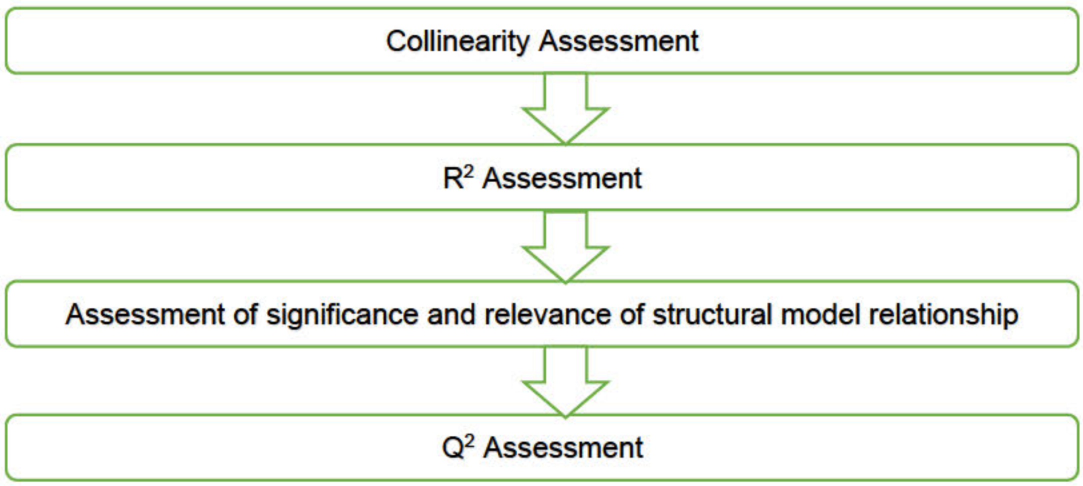


Figure 5.3: Steps for Structural Assessment

The outcome of the above process is presented in the sections below.

5.7.1 Collinearity Assessment

The structural model's collinearity between endogenous constructs and exogenous variables was assessed using the Variance Inflation Factor (VIF), following Hair et al. (2019) recommendations. VIF measures the impact of collinearity on standard errors. First-order variables—financial information consumption (FIC), financial information level (FIL), financial information pattern (FIP), and financial information source (FIS)—along with second-order variables—financial well-being (FWB) and financial literacy (FL)—were loaded into SPSS. A VIF value of 5.0 or less is considered acceptable for evaluating collinearity (Hair et al., 2017).

Ordinary least squares (OLS) regression was conducted in SPSS to assess collinearity diagnostics. The results in Table 5.13 show that all VIF values were below the critical threshold of 5, indicating no collinearity issues among the exogenous variables, with all VIF values remaining below 3.

Table 5. 13: VIF Values for Exogenous Variables Relative to Endogenous Variable

	Collinearity Statistics	
	Tolerance	VIF
Financial Literacy (FL)	0.334	2.993
Financial Information Consumption (FIC)	0.822	1.216
Financial Information Level (FIL)	0.405	2.470
Financial Information Pattern (FIP)	0.509	1.963
Financial Information Source (FIS)	0.411	2.435
Dependent Variable: Financial Well-being (FWB)		

Source: Own Compilation

5.7.2 Coefficient of Determination (R^2)

After assessing collinearity, the next step was evaluating the coefficient of determination (R^2) to examine the structural model's explanatory power (Hair et al., 2019). Wong (2016) states that R^2 is crucial for evaluating the structural model. The R^2 value indicates how much variance in the endogenous constructs is explained by the exogenous constructs (Hair et al., 2019). As per (Chin, 1998) guidelines, R^2 values of 0.19, 0.33, and 0.67 are considered weak, moderate, and strong, respectively, as outlined in Table 4.6 in the previous chapter

Table 5. 14: Coefficient of Determination (R^2)

Dependent	R^2	Adjusted R^2
Financial Information Consumption (FIC)	0.148	0.147
Financial Information Level (FIL)	0.509	0.508
Financial Information Pattern (FIP)	0.461	0.461
Financial Information Source (FIS)	0.473	0.472
Financial Well-being (FWB)	0.409	0.404

Source: Own Compilation

The structural model analysis shows that financial literacy (FL) is an exogenous variable to FIC, FIL, FIP, and FIS, with all variables in Table 5.14, except FWB, acting as exogenous to FWB. The results indicate that financial literacy explains 14.8% of the variance in FIC, 50.9% in FIL, 46.1% in FIP, and 47.3% in FIS. Additionally, FL, FIC, FIL, FIP, and FIS explain 40.9% of the variance in financial well-being (FWB). These R^2 values suggest moderate explanatory power for most variables, except FIC, which shows weak explanatory power. Based on Chin (1998) recommendation, the R^2 criterion is met, demonstrating the model's reasonable predictive ability.

5.7.3 Predictive Relevance (Q^2)

Evaluating Stone-Geisser's predictive relevance (Q^2) is essential as it assesses the model's ability to predict data points of endogenous constructs (Wong, 2016). Following guidelines by (Hair et al., 2019), this study determined the predictive relevance using Q^2 values, which reflect the path model's ability to predict observed data (Akter et al., 2011). A Q^2 value greater than 0 confirms predictive relevance (Hair et al., 2019; Henseler et al., 2009). Table 5.15 below presents the Q^2 values for the endogenous variables in the study.

Table 5. 15: Predictive Relevance (Q^2)

Indicators	**Q^2**	**RMSE**	**MAE**
Financial Information Consumption (FIC)	0.145	0.927	0.787
Financial Information Level (FIL)	0.507	0.704	0.569
Financial Information Pattern (FIP)	0.460	0.737	0.559
Financial Information Source (FIS)	0.472	0.729	0.589
Financial Well-being (FWB)	0.140	0.930	0.757

Source: Own Compilation

As shown in Table 5.15, the Q^2 values were different from zero; thus, the predictive relevance of the model was confirmed. In addition, following Table 4.6 in the previous chapter, Chin (1998) suggested that Q^2 values of 0.02, 0.15, and 0.35 are sufficient to mean small, medium, and large predictive relevance, respectively. Table 5.15 above shows that Q^2 predictive relevance ranges from small to large. FIC and FWB have small predictive relevance, while FIL, FIP, and FIS carry considerable predictive relevance.

5.8 Path Coefficients

In a structural equation model, each path between latent variables represents a testable hypothesis, with path coefficients indicating the strength and direction of relationships. Interpreted as standardized beta coefficients from OLS regression, path coefficients are assessed for significance using the bootstrapping technique. The study used percentile bootstrap methods due to the data's symmetric distribution, as confirmed by Table 5.1. Hypotheses are accepted or rejected based on path coefficient evaluation, where significance is indicated by a p-value <0.05 and t-statistics of at least 1.96. The following tables present the results, validating the model's impact.

5.9 Testing the Hypotheses

The study aimed to assess the direct impact of financial literacy on financial well-being in a rural setting without mediating variables. Using SmartPLS bootstrapping, three hypotheses were evaluated, with the results presented in Table 5.16.

Table 5. 16: Direct Effect- Financial Literacy and Financial well- being

Hypothesis	Model	Coefficient	Std. Dev	t-Statistics	p-value
H_{1A}:FL -> FWB	1	0.398	0.032	12.550	0.000
H_{1B}:FLO -> FWB	2	0.194	0.044	4.438	0.000
H_{1C}:FLS -> FWB	2	0.265	0.042	6.250	0.000

Objective Financial Literacy = FLO, Subjective Financial Literacy = FLS, Financial Literacy = FL, Financial Well-being = FWB

Source: Own Compilation

As shown in Table 5.16, composite financial literacy (FL) is positively related to financial well-being (FWB) [β=0.398; p<0.001; t=12.550], supporting hypothesis H1A. This suggests that higher financial literacy is linked to better financial well-being. Additionally, objective financial literacy (FLO) shows a significant positive relationship with FWB [β=0.194; p<0.001; t=4.438], supporting hypothesis H1B. Similarly, subjective financial literacy also positively correlates with financial well-being [β=0.265; p<0.001; t=6.250], supporting hypothesis H1C. All results were significant, with path coefficients aligning with the hypothesized direction, confirming the relationship between financial literacy and financial well-being in rural contexts.

The comprehensive data suggests a positive connection between financial literacy and well-being, offering a foundation for further subgroup analysis. This sub-group analysis, presented in Table 5.17, assesses variations in the relationship across different demographic groups, providing deeper insights beyond the aggregate data.

Table 5. 17: Robust Check on Direct Effect

Hypothesis	Group	Coefficient	Std. Dev	t-Statistics	p-value	Significant Difference
H_{1A}:FL -> FWB	Male	0.402	0.032	12.464	0.000	No
H_{1A}:FL -> FWB	Female	0.295	0.229	1.288	0.198	
H_{1A}:FL -> FWB	HFE	0.274	0.043	6.450	0.000	Yes
H_{1A}:FL -> FWB	NFE	0.381	0.056	6.808	0.000	
H_{1A}:FL -> FWB	RFLE	0.559	0.038	14.902	0.000	Yes
H_{1A}:FL -> FWB	NFLE	0.241	0.050	4.814	0.000	

Financial Literacy = FL, Financial Well-being = FWB, Had Formal Education= HFE, No Formal Education= NFE, Ever Had Financial Literacy Education= RFLE, Never Had Financial Literacy Education=NFLE

Source: Own Compilation

In comparing the complete data to sub-groups, the male cohort shows a stronger correlation between financial literacy (FL) and financial well-being (FWB) [β=0.402; p<0.001; t=12.464], slightly exceeding the overall coefficient of 0.398. This result indicates a more robust relationship for males. Similarly, individuals without formal education (NFE), with a coefficient of 0.381, show a similar strength of association to the general population. In contrast, the female cohort exhibits a significantly weaker and non-significant correlation [β=0.295], suggesting that financial literacy's impact on their well-being is less pronounced.

For those with formal education (HFE), the relationship is significant, albeit lower [β=0.274; p<0.001; t=6.330], implying the limited role of formal education in fully leveraging the benefits of financial literacy. The group with financial literacy education demonstrates a stronger correlation [β=0.559; p<0.001; t=15.10], indicating that targeted financial literacy programs have a more significant positive effect on financial well-being. Conversely, those without financial literacy education exhibit a reduced coefficient [β=0.241; p<0.001; t=4.814], highlighting the importance of such education in fostering financial well-being.

The sub-group analysis provides deeper insights into how gender, education level, and financial literacy programs shape the relationship between FL and FWB. While the overall dataset shows a positive and statistically significant link [β=0.389], sub-group variations emphasize the need for context-specific interventions to strengthen financial literacy's impact on well-being, particularly for women and those without formal education or financial literacy training

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Multi-group Analysis

This hypothesis examined the variation in financial literacy's effect on financial well-being between household heads who received financial literacy education and those who did not. A bootstrap multi-group analysis was performed to assess the significance of these differences. The results of the analysis are presented in Table 5.18 below.

Table 5. 18: Multi-Group Analysis

Hypothesis	Model	Difference (Received-Not Received)	p-value
H_{1D}: FL -> FWB	1	0.319	0.000*
H_{1D}: FLO -> FWB	2	0.201	0.016*
H_{1D}: FLS -> FWB	2	0.112	0.108
Objective Financial Literacy = FLO, Subjective Financial Literacy = FLS, Financial Literacy = FL, Financial Well-being = FWB			

Source: Own Compilation

Note: *The differences are significant in the relationship between the two groups ($p<0.05$)

Table 5.18 shows significant differences in the relationship between financial literacy (FL) and financial well-being (FWB), as well as between objective financial literacy (FLO) and FWB. A statistically significant difference [$p<0.05$] was found in the direct effects of composite financial literacy (FL) and objective financial literacy (FLO) on FWB, with positive effects of 0.319 and 0.201, respectively, supporting H1D. This suggests that receiving financial education enhances the positive impact of both composite and objective financial literacy on financial well-being. However, the difference between subjective financial literacy (FLS) and FWB was insignificant [$p>0.05$], leading to the rejection of H1D. This result indicates that improving subjective financial literacy assessments may not directly impact financial well-being. These findings imply that financial literacy interventions should focus on subjective and objective financial literacy components to affect financial well-being meaningfully. Furthermore, the analysis showed that the impact of financial literacy on financial well-being was more substantial for those who received financial literacy education, emphasizing the importance of structured financial education in improving objective financial assessments and overall financial well-being.

Relationship between FL, financial information dimensions, and FWB

The remaining four objectives explored the interrelationship between financial literacy, financial information characteristics, and financial well-being in rural settings. This analysis is essential to understand and conceptualize the mediation analysis results. Table 5.19 summarizes the findings of the direct relationships tested through the structural model. Nine hypotheses were examined across objectives two to five, with results in Table 5.19 below.

Table 5. 19: Structural Model 3: Result of Direct Effect

Hypothesis	Coef	Std. Dev	t-Stat	p-value	Percentile Bootstrap 95% Confidence Interval	
					Lower	Upper
H_{2B}:FIC -> FWB	0.533	0.031	17.063	0.000	0.481	0.584
H_{3B}:FIL -> FWB	0.114	0.046	2.467	0.007	0.037	0.188
H_{4B}:FIP -> FWB	0.107	0.043	2.472	0.007	0.035	0.177
H_{5B}:FIS -> FWB	-0.047	0.048	0.981	0.163	-0.123	0.035
H_{2A}:FL -> FIC	0.385	0.035	10.881	0.000	0.326	0.443
H_{3A}:FL -> FIL	0.713	0.020	36.419	0.000	0.680	0.744
H_{4A}:FL -> FIP	0.678	0.026	26.127	0.000	0.635	0.720
H_{5A}:FL -> FIS	0.688	0.022	30.981	0.000	0.650	0.723
H_{2D}:FL -> FWB	0.053	0.051	1.032	0.151	-0.032	0.137

Financial Well-being = FWB, Financial Literacy = FL, Financial Information Consumption = FIC, Financial Information Level = FIL, Financial Information Pattern = FIP, Financial Information Sources = FIS

Source: Own Compilation

The findings affirm that financial literacy positively relates to all four mediators—financial information consumption (FIC), financial information level (FIL), financial information pattern (FIP), and financial information sources (FIS). Among these, three mediators—financial information consumption, financial information level, and financial information pattern—show significant positive relationships with financial well-being (FWB). However, the relationship between financial information sources and financial well-being is negative and statistically insignificant, suggesting that overreliance on multiple sources could lead to uncertainty or decision paralysis, ultimately diminishing rural households' financial well-being. Too much information may impede effective decision-making, undermining financial outcomes.

Table 5.19 presents the results of the direct effects of the model. Hypothesis H2A examined the relationship between financial literacy (FL) and financial information consumption (FIC) and found a significant positive relationship [β=0.385; p<0.001], supporting the hypothesis.

Additionally, financial information consumption (FIC) positively impacts financial well-being (FWB) [β=0.533; p<0.001], validating hypothesis H2B.

Hypothesis H3A confirmed that financial literacy (FL) is positively related to financial information level (FIL) [β=0.713; p<0.001], with FIL positively influencing FWB [β=0.114; p<0.05], supporting H3B. Similarly, hypothesis H4A found a positive link between FL and financial information patterns (FIP) [β=0.678; p<0.001], with FIP also contributing positively to FWB [β=0.107; p<0.05], supporting H4B. However, financial information sources (FIS) were found to have a negative, insignificant relationship with FWB [β=-0.047; p>0.05], leading to the rejection of H5B.

The study further explored the influence of financial information characteristics on the FL-FWB relationship. When these characteristics were included in the model, the relationship between FL and FWB became insignificant [β=0.053; p>0.05], supporting H2D.

In total, 12 direct hypotheses were tested, of which 11 were supported, including H1A, H1B, H1C, H2A, H2B, H2D, H3A, H3B, H4A, H4B, and H5A. The only rejected hypothesis was H1D regarding subjective financial literacy, where no significant relationship was found. Overall, the study suggests that financial literacy, especially in its objective and composite forms, has a considerable positive impact on financial well-being through various mediators, with financial information characteristics playing a crucial role in shaping this relationship. However, excessive reliance on financial information sources may not always enhance financial well-being.

Table 5. 20a: Results on the Direct Relationship for Hypotheses Testing

	Hypothesis Statement	**Outcome**
H_{1A}	*Financial literacy has a significant positive relationship with financial well-being among rural households.*	Supported
H_{1B}	*Objective financial literacy has a significant positive relationship with financial well-being among rural households.*	Supported
H_{1C}	*Subjective financial literacy significantly correlates with financial well-being among rural households.*	Supported
H_{1D}	*There is a significant difference in the relationship between households receiving financial education and those not doing so in rural settings relative to H_{1A}.*	Supported

Source: Own Compilation

Table 5. 20b: Results on the Direct Relationship for Hypotheses Testing

	Hypothesis Statement	Outcome
	There is a significant difference in the relationship between households receiving financial education and those not doing so in rural settings relative to H_{1B}.	Supported
	There is a significant difference in the relationship between households who received financial education and those who never received financial education in rural settings relative to H_{1C}.	Not supported
H_{2A}	*Financial literacy is expected to relate significantly and positively to rural households' financial information consumption.*	Supported
H_{2B}	*Financial information consumption has a significant positive relationship with financial well-being among rural households.*	Supported
H_{2D}	*Financial literacy's relationship with financial well-being is insignificant in the presence of financial information consumption characteristics as a mediator.*	Supported
H_{3A}	*Financial literacy is positively related to financial information level among rural households.*	Supported
H_{3B}	*Financial information level is positively related to financial well-being among rural households.*	Supported
H_{4A}	*Financial literacy is positively and significantly related to growing financial information patterns among rural households.*	Supported
H_{4B}	*A significant positive relationship exists between increased financial information patterns and improved financial well-being among rural households.*	Supported
H_{5A}	*Financial literacy is significantly related to financial information sources among rural households.*	Supported
H_{5B}	*A significant relationship exists between increased financial information sources and improved financial well-being among rural households.*	Not supported

Source: Own Compilation

A sub-group analysis was conducted to assess the robustness of the complete data findings by examining changes in relationships and significance levels across rural household populations. The analysis considered factors such as gender, formal education attainment, and receiving financial literacy education. The results are presented in Table 5.21.

Table 5. 21: Structural Model 3: Robustness of the Result of the Direct Effect

Hypotheses	Coef	SE	t-stat	p-values	Coef	SE	t-stat	p-values
	Male				**Female**			
H_{2B}:FIC -> FWB	0.533	0.031	17.219	0.000	0.254	0.210	1.209	0.113
H_{3B}:FIL -> FWB	0.123	0.047	2.629	0.004	-0.336	0.303	1.108	0.134
H_{4B}:FIP -> FWB	0.118	0.045	2.622	0.004	-0.366	0.312	1.171	0.121
H_{5B}:FIS -> FWB	-0.049	0.050	0.981	0.163	0.029	0.284	0.100	0.460
H_{2A}:FL -> FIC	0.390	0.036	10.755	0.000	0.159	0.142	1.118	0.132
H_{3A}:FL -> FIL	0.716	0.020	36.459	0.000	0.510	0.247	2.070	0.019
H_{4A}:FL -> FIP	0.684	0.027	25.688	0.000	0.573	0.191	3.003	0.001
H_{5A}:FL -> FIS	0.694	0.022	31.007	0.000	0.565	0.170	3.318	0.000
H_{2D}:FL -> FWB	0.036	0.052	0.695	0.244	0.607	0.348	1.743	0.041
	Received Formal Education				**No Formal Education**			
H_{2B}:FIC -> FWB	0.463	0.041	11.288	0.000	0.616	0.049	12.555	0.000
H_{3B}:FIL -> FWB	0.029	0.055	0.528	0.299	0.171	0.057	2.984	0.001
H_{4B}:FIP -> FWB	0.148	0.055	2.673	0.004	0.047	0.072	0.653	0.257
H_{5B}:FIS -> FWB	-0.013	0.062	0.207	0.418	-0.088	0.059	1.490	0.068
H_{2A}:FL -> FIC	0.127	0.057	2.251	0.012	0.418	0.060	7.026	0.000
H_{3A}:FL -> FIL	0.520	0.045	11.657	0.000	0.576	0.039	14.901	0.000
H_{4A}:FL -> FIP	0.530	0.047	11.368	0.000	0.724	0.034	21.406	0.000
H_{5A}:FL -> FIS	0.500	0.041	12.322	0.000	0.639	0.038	16.665	0.000
H_{2D}:FL -> FWB	0.069	0.057	1.199	0.115	0.015	0.089	0.172	0.432
	Ever had FL Education				**Never had FL Education**			
H_{2B}:FIC -> FWB	0.470	0.047	9.921	0.000	0.584	0.040	14.716	0.000
H_{3B}:FIL -> FWB	0.266	0.075	3.558	0.000	0.015	0.055	0.268	0.394
H_{4B}:FIP -> FWB	-0.044	0.083	0.530	0.298	0.136	0.048	2.819	0.002
H_{5B}:FIS -> FWB	-0.038	0.089	0.430	0.334	-0.062	0.057	1.090	0.138
H_{2A}:FL -> FIC	0.517	0.043	12.035	0.000	0.204	0.057	3.586	0.000
H_{3A}:FL -> FIL	0.791	0.022	35.217	0.000	0.652	0.033	20.047	0.000
H_{4A}:FL -> FIP	0.829	0.021	39.885	0.000	0.474	0.054	8.817	0.000
H_{5A}:FL -> FIS	0.784	0.024	32.552	0.000	0.597	0.037	16.245	0.000
H_{2D}:FL -> FWB	0.153	0.097	1.572	0.058	0.068	0.056	1.210	0.113

Financial Well-being = FWB, Financial Literacy = FL, Financial Information Consumption = FIC, Financial Information Level = FIL, Financial Information Pattern = FIP, Financial Information Sources = FIS

Source: Own Compilation

The strength of the findings can be evaluated by examining the consistency across the entire dataset and sub-groups, categorized by gender, formal education, and financial literacy education. The relationships between financial literacy, financial information dimensions, and financial well-being are consistently strong, supporting the robustness of the results. For instance, the relationships observed in the overall data, as shown in Table 5.20, are mirrored across sub-groups, particularly among males, indicating that financial literacy universally impacts the acquisition of financial information, irrespective of demographic variations.

However, certain deviations within sub-groups offer deeper insights while preserving the integrity of the findings. For example, financial information consumption has a significant positive relationship with financial well-being for males and individuals with or without formal education and those with or without financial literacy education. However, for females, this relationship is insignificant. Similarly, the relationship between financial information level and financial well-being is consistent for males, those with no formal education, and those with financial literacy education but insignificant for females and those with formal education who have never received financial literacy education. Financial information patterns show significance in the overall dataset, and for males, those with formal education, and individuals who have never received financial literacy education, inconsistencies emerge in other groups.

Notably, financial information sources exhibit consistent results across all sub-groups, reinforcing the robustness of the findings. Except for the female sub-group, where the direct relationship between financial literacy and financial well-being is weaker and statistically insignificant, all other sub-groups confirm the overall results. These deviations indicate that demographic factors such as gender, education, and financial literacy education may moderate the relationship between financial literacy and financial well-being rather than pointing out flaws in the findings.

Mediating Role of Financial Information Characteristics

As Henseler et al. (2009) outlined, evaluating the direct and indirect interactions between exogenous and endogenous variables is crucial to structural model assessment. Using bootstrapping, this study applied its mediation analysis procedure to estimate the mediating effects of financial information characteristics (consumption, level, pattern, and sources). The results, with a statistically significant p-value [$p<0.05$] and t-value [$t>1.96$], provide evidence of mediation. Additionally, when the bootstrap confidence interval for the indirect effect excludes zero, it confirms the presence of mediation. The procedure recommended by Hair et al. (2017) was followed to determine whether mediation is partial or total. Table 5.22 reports the total effect, total indirect effect, direct effect, and specific indirect effects of financial literacy on financial well-being through the mediators. Mediation occurs when the influence of an independent variable on a dependent variable is conveyed via a third variable, referred to as the mediator. The independent variable impacts the mediator, subsequently affecting the dependent variable, revealing the mechanism that drives the link between the independent and dependent variables.

The findings from Table 5.22 indicate that three financial information characteristics significantly and indirectly influenced the relationship between financial literacy and financial well-being.

Table 5. 22: Structural Model 3: Results of Multiple Mediation

Hypothesis	Coef	SE	t-stat	p-value	Percentile Bootstrap 95% Confidence Interval	
					Lower	Upper
H_{2C}:FL -> FIC -> FWB	0.205	0.022	9.446	0.000	0.170	0.242
H_{3C}:FL -> FIL -> FWB	0.081	0.033	2.445	0.007	0.027	0.135
H_{4C}:FL -> FIP -> FWB	0.072	0.029	2.445	0.007	0.024	0.121
H_{5C}:FL -> FIS -> FWB	-0.032	0.033	0.982	0.163	-0.084	0.024
Direct Effect (FL -> FWB)	0.053	0.051	1.032	0.151	-0.032	0.137
Total Effect (FL -> FWB)	0.379	0.035	10.942	0.000	0.253	0.400
Total Indirect Effect of (FL -> FWB)	0.326	0.045	7.268	0.000	0.321	0.436

Financial Well-being = FWB, Financial Literacy = FL, Financial Information Consumption = FIC, Financial Information Level = FIL, Financial Information Pattern = FIP, Financial Information Sources = FIS

Source: Own Compilation

Financial information consumption (FIC) plays a critical mediating role in the relationship between financial literacy (FL) and financial well-being (FWB). To examine this, a mediation analysis was conducted, and the results (see Table 5.22) indicate a significant positive indirect effect of financial literacy on financial well-being through FIC ($\beta = 0.205$, $p < 0.001$).

This indirect effect reflects the combined influence of financial literacy on FIC and, subsequently, FIC on well-being. Since the indirect effect is positive but smaller than the total effect of financial literacy on well-being, this indicates partial mediation. Specifically, the total impact of financial literacy on well-being is $\beta = 0.379$, which consists of the indirect effect (β

= 0.326) and the direct impact (β = 0.053). This implies that financial literacy directly influences well-being in the absence of mediation and, hence, partial mediation.

These results suggest that while financial literacy directly enhances financial well-being, it also exerts an additional influence indirectly by improving financial information consumption. In other words, households with higher financial literacy are more likely to engage with financial information, contributing positively to their financial well-being.

The level of financial information (FIL) is also central to the ability of financial literacy to influence financial well-being. The study hypothesized that FIL would mediate the relationship between FL and FWB, and the results confirm this with a significant indirect and positive effect [β=0.081; $p<0.05$], supporting this hypothesis.

The financial information pattern (FIP) was also evaluated as a mediator. The findings indicate that FIP mediates the relationship between FL and FWB with a significant indirect effect [β=0.072; $p<0.05$].

However, financial information sources (FIS) did not mediate the relationship between FL and FWB. The indirect effect was insignificant and negative [β=-0.032; $p>0.05$], and the confidence interval included zero, suggesting that financial information sources do not play a significant mediating role.

When financial information characteristics were included as mediators, the direct effect of FL on FWB became insignificant [β=0.053; $p>0.05$]. However, mediation analysis is evaluated based on the total effect of FL on FWB. Since the total impact of financial literacy remained significant [β=0.379; $p<0.001$], as did the total indirect effect [β=0.326; $p<0.001$], the mediation of the three variables FIC.FIL and FIP are confirmed. The study validates mediation hypotheses (H2C, H3C, and H4C) but rejects H5C, indicating that the three financial information characteristics fully mediate the relationship between FL and FWB. Table 5.23 below summarises the testing of the mediating relationship hypotheses.

Table 5. 23: Results of Mediation (Indirect) Hypotheses Testing

	Hypothesis Statement	Outcome
H_{2c}	*Financial information consumption mediates the relationship between financial literacy and financial well-being.*	Supported
H_{3c}	*Financial information level mediates the relationship between financial literacy and financial well-being among rural households.*	Supported
H_{4C}	*Financial information patterns mediate the relationship between financial literacy and financial well-being among rural households.*	Supported
H_{5c}	*Financial information sources mediate the relationship between financial literacy and financial well-being among rural households.*	Not supported

Source: Own Compilation

Comparison of Indirect Mediating Effects (Specific)

The study used the Variance Accounted For (VAF) method to assess the magnitude of mediation. The VAF for financial information consumption (0.54) is the highest, accounting for more than 50% of the total effect. The VAF for financial information level (0.21) and financial information pattern (0.19) are lower. The total VAF (0.94) indicates that over 80% of the total effect is due to parallel mediating effects, suggesting that financial information characteristics (consumption, level, and pattern) fully mediate the relationship between financial literacy and financial well-being. Financial information consumption has the most significant mediating effect.

The robustness of the findings was assessed by comparing sub-group analyses with the complete dataset. The consistency of the mediating results is shown in Table 5.24 below. The study revealed a consistent and significant relationship between financial literacy (FL) and financial well-being (FWB) through financial information dimensions (FIC, FIL, and FIP), indicating that financial literacy positively influences financial well-being, with financial information dimensions acting as mediators. However, when examining sub-groups by gender, notable variations emerged. The male sub-group showed consistent and significant relationships between FL and FWB via FIC [β=0.210; $p<0.05$], FIL [β=0.088; $p<0.05$], and FIP [β=0.081; $p<0.05$], aligning with the overall findings. In contrast, the female sub-group exhibited insignificant or negative relationships, suggesting weaker or inconsistent mediation effects for women.

Table 5. 24: Robustness of Multiple Mediation Results

Hypotheses	Coef	SE	t-stat	p-values	Coef	SE	t-stat	p-values
			Male				**Female**	
H_{5C}:FL -> FIS -> FWB	-0.034	0.034	0.981	0.163	0.016	0.179	0.090	0.464
H_{4C}:FL -> FIP -> FWB	0.081	0.031	2.602	0.005	-0.209	0.217	0.967	0.167
H_{3C}:FL -> FIL -> FWB	0.088	0.034	2.600	0.005	-0.171	0.191	0.897	0.185
H_{2C}:FL -> FIC -> FWB	0.210	0.022	9.418	0.000	0.040	0.064	0.629	0.265
			Received Formal Education				**No Formal Education**	
H_{5C}:FL -> FIS -> FWB	-0.006	0.031	0.206	0.418	-0.056	0.038	1.467	0.071
H_{4C}:FL -> FIP -> FWB	0.078	0.030	2.611	0.005	0.034	0.053	0.648	0.258
H_{3C}:FL -> FIL -> FWB	0.015	0.029	0.522	0.301	0.099	0.034	2.885	0.002
H_{2C}:FL -> FIC -> FWB	0.059	0.026	2.236	0.013	0.258	0.042	6.200	0.000
			Ever had FL Education				**Never had FL Education**	
H_{5C}:FL -> FIS -> FWB	-0.030	0.070	0.429	0.334	-0.037	0.034	1.088	0.138
H_{4C}:FL -> FIP -> FWB	-0.036	0.069	0.529	0.298	0.065	0.025	2.623	0.004
H_{3C}:FL -> FIL -> FWB	0.210	0.060	3.495	0.000	0.010	0.036	0.267	0.395
H_{2C}:FL -> FIC -> FWB	0.243	0.030	7.970	0.000	0.119	0.034	3.474	0.000

Financial Well-being = FWB, Financial Literacy = FL, Financial Information Consumption = FIC, Financial Information Level = FIL, Financial Information Pattern = FIP, Financial Information Sources = FIS

Source: Own Compilation

Further analysis by formal education revealed additional complexities. Among household heads without formal education, significant relationships were found between FL and FWB via FIC [β=0.258; p<0.001] and FIL [β=0.099; p<0.05], but FIP showed no significant mediation [β=0.034; p>0.05]. For those with formal education, the relationships were weaker, with FIL becoming insignificant [β=0.015; p>0.05] and FIP showing significance [β=0.078; p<0.05], alongside FIC [β=0.059; p<0.05]. Households with no formal education exhibited a more substantial influence of financial literacy on FWB via mediators, particularly FIC and FIL, suggesting a greater reliance on financial literacy education. These findings underscore the importance of considering demographic factors such as gender, education, and financial literacy experience when interpreting the relationship between financial literacy and financial well-being.

Mediating role of Financial Information Level (Specific Financial Products)

The results in this section seek to test hypothesis H3D: The level of information on savings, investments, insurance, loans, and deposits mediates the relationship between financial literacy and financial well-being among rural households and hypothesis H3E: The level of information on these financial services (financial planning and financial budgeting) does mediate the relationship between financial literacy and financial well-being among rural households.

The household information level on these products was assessed as a mediator in the relationship between financial literacy and financial well-being to further understand the mediating role of financial information. Table 5.25 illustrates that higher financial information on specific products mediates this relationship.

As shown in Table 5.25, increasing information on savings [β=0.108; p<0.001], loans [β=0.035; p<0.05], and insurance [β=0.049; p<0.05], and partially mediates the link between financial literacy and financial well-being. However, no mediating effect was found for financial information on investments, deposits, budgeting, and financial planning. These findings support hypothesis H3D for savings, insurance, and loans but reject Investment deposits.

Table 5. 25: Structural Model 4: Results of Multiple Mediation (Specific Financial Products level of Information)

Hypothesis	Coef	SE	t-stat	p-value	Percentile Bootstrap 95% Confidence Interval	
					Lower	Upper
FL -> FILsav -> FWB	0.108	0.024	4.473	0.000	0.069	0.148
FL -> FILplan -> FWB	0.008	0.020	0.417	0.338	-0.024	0.041
FL -> FILloan -> FWB	0.035	0.015	2.411	0.008	0.013	0.060
FL -> FILinv -> FWB	0.003	0.023	0.128	0.449	-0.034	0.041
FL -> FILinsu -> FWB	0.049	0.014	3.387	0.000	0.026	0.073
FL -> FILdep -> FWB	-0.015	0.013	1.138	0.128	-0.036	0.006
FL -> FILbud -> FWB	0.015	0.011	1.403	0.080	-0.002	0.033
Direct Effect (FL -> FWB)	0.185	0.044	4.176	0.000	0.112	0.260
Total Effect (FL -> FWB)	0.389	0.034	11.519	0.000	0.332	0.445
Total Indirect Effect of (FL -> FWB)	0.204	0.028	7.265	0.000	0.158	0.250

Financial Well-being = FWB, Financial Literacy = FL, Financial Information Level = FIL

Source: Own Compilation

Using the Variance Accounted For (VAF) method to assess the strength of the indirect effect, the parallel mediating effects of savings (0.108/0.389 = 0.28), insurance (0.049/0.389 = 0.13), and loans (0.035/0.389 = 0.09) together account for 50% of the total effect (0.28 + 0.13 + 0.09 = 0.50), indicating partial mediation and a complementary mediating role.

The analysis of the findings of the complete dataset reveals subtle differences among sub-groups, particularly regarding gender and experience with formal education and financial literacy. The overall data shows a significant mediating role of financial information, suggesting a positive relationship between financial literacy (FL) and financial well-being (FWB), mediated by financial information levels such as loans, savings, and insurance. This strengthens the connection between FL and FWB in the general population. Sub-group analysis focuses on males and females and groups with different education levels (Table 5.26).

Table 5. 26: Robustness: Results of Multiple Mediation (Specific Financial Products Level of information)

Hypotheses	Coef	SE	t-stat	p-values	Coef	SE	t-stat	p-values
	Male							
FL -> FILsav -> FWB	0.115	0.026	4.397	0.000				
FL -> FILplan -> FWB	0.010	0.021	0.506	0.306				
FL -> FILloan -> FWB	0.035	0.015	2.344	0.010				
FL -> FILinv -> FWB	-0.002	0.024	0.100	0.460				
FL -> FILinsu -> FWB	0.047	0.015	3.094	0.001				
FL -> FILdep -> FWB	-0.012	0.013	0.920	0.179				
FL -> FILbud -> FWB	0.016	0.011	1.377	0.084				
	Received Formal Education				No Formal Education			
FL -> FILsav -> FWB	0.053	0.020	2.586	0.005	0.065	0.023	2.834	0.002
FL -> FILplan -> FWB	0.004	0.012	0.339	0.367	0.013	0.013	0.968	0.166
FL -> FILloan -> FWB	0.013	0.013	0.994	0.160	0.018	0.013	1.334	0.091
FL -> FILinv -> FWB	-0.007	0.015	0.471	0.319	-0.008	0.021	0.361	0.359
FL -> FILinsu -> FWB	0.027	0.012	2.229	0.013	0.023	0.013	1.831	0.034
FL -> FILdep -> FWB	0.001	0.004	0.291	0.385	-0.017	0.012	1.491	0.068
FL -> FILbud -> FWB	0.004	0.006	0.768	0.221	0.014	0.011	1.260	0.104
	Ever had FL Education				Never had FL Education			
FL -> FILsav -> FWB	0.127	0.051	2.498	0.006	0.065	0.023	2.834	0.002
FL -> FILplan -> FWB	-0.015	0.044	0.338	0.368	0.013	0.013	0.968	0.166
FL -> FILloan -> FWB	0.057	0.027	2.137	0.016	0.018	0.013	1.334	0.091
FL -> FILinv -> FWB	0.050	0.045	1.118	0.132	-0.008	0.021	0.361	0.359
FL -> FILinsu -> FWB	0.068	0.029	2.348	0.009	0.023	0.013	1.831	0.034
FL -> FILdep -> FWB	0.031	0.029	1.094	0.137	-0.017	0.012	1.491	0.068

FL -> FILbud -> FWB	0.005	0.022	0.215	0.415	0.014	0.011	1.260	0.104

Financial Well-being = FWB, Financial Literacy = FL, Financial Information Level = FIL

Source: Own compilation

In the male sub-group, the relationships align with the overall findings but display stronger coefficients for specific pathways, including loans [β=0.035; p<0.05], insurance [β=0.047; p<0.05], and savings [β=0.115; p<0.001]. This indicates that the impact of financial literacy, particularly in areas like loans, insurance, and savings, is more pronounced among males.

The analysis highlights the significant role of financial information level on insurance, savings, and loans in the relationship between financial literacy and financial well-being, aligning with the overall findings. This consistency suggests that insurance literacy, in particular, is a key mediator. However, pathways through financial information on budgeting, planning, investments, and deposits show no significant impact, indicating that these factors do not effectively mediate financial well-being in the general population or male-specific contexts.

Differences among educational sub-groups are more pronounced. For household heads without formal education, the role of financial information level on insurance and savings remains significant (insurance [β=0.027; p<0.05], savings [β=0.053; p<0.05]), aligning with the overall data. However, the role of loans is insignificant in this group. In contrast, for household heads with formal education, the relationships are weaker (savings [β=0.065; p<0.05], insurance [β=0.023; p<0.05]), with loans showing reduced significance. This suggests that financial literacy has a stronger effect on savings and insurance literacy in the no formal education group.

Regarding financial literacy education, individuals who have received financial literacy education exhibit patterns consistent with the general population, while those without such education show similar trends. However, the impact of loans becomes insignificant.

These findings emphasize the consistent mediation effects of savings, insurance, and loan literacy across general and sub-group contexts. However, variations in magnitude and significance across gender, formal education, and financial literacy experience underscore the importance of considering demographic factors when applying these findings in practice.

Mediating Role of Financial Information Pattern (Specific Financial Products)

As demonstrated in Table 5.27 below, the model results show the indirect effect of changing patterns of specific financial products' role in the relationship between financial literacy and financial well-being in the rural context.

Table 5. 27: Structural Model 5: Results of Multiple Mediation (Specific Financial Product Pattern of Information)

Hypothesis	Coef	SE	t-stat	p-value	Percentile Bootstrap 95% Confidence Interval	
					Lower	Upper
FL -> FIPsav -> FWB	0.082	0.023	3.529	0.000	0.043	0.120
FL -> FIPplan -> FWB	-0.029	0.021	1.370	0.085	-0.063	0.006
FL -> FIPloan -> FWB	0.078	0.019	4.085	0.000	0.047	0.110
FL -> FIPinv -> FWB	0.051	0.024	2.148	0.016	0.011	0.089
FL -> FIPinsu -> FWB	0.058	0.019	2.985	0.001	0.027	0.091
FL -> FIPdep -> FWB	-0.031	0.017	1.844	0.033	-0.059	-0.004
FL -> FIPbud -> FWB	0.012	0.016	0.727	0.234	-0.015	0.040
Direct Effect (FL -> FWB)	0.167	0.048	3.392	0.000	0.090	0.247
Total Effect (FL -> FWB)	0.389	0.034	11.459	0.000	0.332	0.445
Total Indirect Effect of (FL -> FWB)	0.222	0.032	6.943	0.000	0.169	0.274

Financial Well-being = FWB, Financial Literacy = FL, Financial Information Pattern = FIP

Source: Own Compilation

The findings in Table 5.27 revealed that changing the pattern of financial information on savings [β=0.082; $p<0.001$], insurance [β=0.058; $p<0.05$], loans [β=0.078; $p<0.001$], investments [β=0.051; $p<0.05$], and deposit [β=-0.031; $p<0.05$], significantly mediate the relationship between financial literacy and financial well-being. However, financial budgeting and planning do not significantly mediate the relationship between financial literacy and financial well-being. Thus, based on the findings, this study supports H_{4D} regarding savings, insurance, loans, and investments while rejecting the hypothesis regarding deposits. In addition, Hypothesis H_{4E} is not supported.

The fact that the direct effect of financial literacy on financial well-being is significant [β=0.167; $p<0.001$] suggests that the significant mediating variables parallel and individually play a partial mediating role in the relationship and the mediating role of these variables (savings, insurance, investment and loan) is jointly complementary while the deposit is competitive. When the VAF ratio is computed, the changing pattern of information on savings, investments, loans, deposits, and insurance accounts for 77% of the total effect.

Analysing the pathways connecting financial literacy to financial well-being via financial information patterns indicates similarities and discrepancies concerning the complete data set and gender and experience with formal education and financial literacy education. The findings emphasize the strong and beneficial mediating influence of financial information patterns concerning loans, savings, and insurance on financial well-being. In contrast, pathways such as financial planning and financial budgeting show minimal significance, suggesting a restricted impact of these patterns on the overall FWB within the general population. Table 5.28 below shows the robust analysis with various sub-groupings.

Table 5. 28: Robustness of Multiple Mediation (Specific Financial Products Pattern of Information)

Hypotheses	Coef	SE	t-stat	p-values	Coef	SE	t-stat	p-values
	Male							
FL -> FIPsav -> FWB	0.082	0.025	3.290	0.001				
FL -> FIPplan -> FWB	-0.031	0.022	1.380	0.084				
FL -> FIPloan -> FWB	0.085	0.020	4.219	0.000				
FL -> FIPinv -> FWB	0.056	0.026	2.129	0.017				
FL -> FIPinsu -> FWB	0.055	0.022	2.532	0.006				
FL -> FIPdep -> FWB	-0.036	0.018	2.041	0.021				
FL -> FIPbud -> FWB	0.015	0.017	0.892	0.186				
	Received Formal Education				**No Formal Education**			
FL -> FIPsav -> FWB	0.031	0.018	1.717	0.043	0.163	0.043	3.770	0.000
FL -> FIPplan -> FWB	-0.018	0.016	1.159	0.123	-0.014	0.045	0.307	0.379
FL -> FIPloan -> FWB	0.068	0.019	3.651	0.000	0.026	0.037	0.718	0.237
FL -> FIPinv -> FWB	0.040	0.026	1.557	0.060	0.066	0.041	1.618	0.053
FL -> FIPinsu -> FWB	0.040	0.017	2.317	0.010	0.047	0.040	1.186	0.118
FL -> FIPdep -> FWB	-0.016	0.010	1.600	0.055	-0.047	0.049	0.953	0.170
FL -> FIPbud -> FWB	-0.010	0.013	0.734	0.231	0.055	0.026	2.143	0.016
	Ever had FL Education				**Never had FL Education**			
FL -> FIPsav -> FWB	0.082	0.038	2.155	0.016	0.079	0.028	2.835	0.002
FL -> FIPplan -> FWB	-0.026	0.042	0.618	0.268	-0.015	0.022	0.665	0.253
FL -> FIPloan -> FWB	0.094	0.030	3.119	0.001	0.068	0.025	2.700	0.003
FL -> FIPinv -> FWB	0.037	0.044	0.829	0.204	0.048	0.026	1.844	0.033
FL -> FIPinsu -> FWB	0.072	0.029	2.444	0.007	0.038	0.027	1.420	0.078
FL -> FIPdep -> FWB	0.013	0.030	0.424	0.336	-0.054	0.020	2.729	0.003
FL -> FIPbud -> FWB	0.011	0.030	0.347	0.364	0.004	0.015	0.287	0.387

Financial Well-being = FWB, Financial Literacy = FL, Financial Information Pattern = FIP

Source: Own Compilation

The findings for the male sub-group align closely with the overall data, showing significant and consistent relationships between financial literacy and financial well-being, mediated by financial information patterns such as loans [β=0.085; $p<0.001$], investment [β=0.056; $p<0.005$], savings [β=0.082; $p<0.005$], insurance [β=0.055; $p<0.05$], and deposits [β=0.055; $p<0.05$]. These relationships exhibit comparable magnitudes to the complete data, confirming the strong role of financial information in mediating the relationship between financial literacy and financial well-being for males, especially in savings, loans, and insurance. However, the deposit pathway showed a significant negative relationship, consistent with the overall analysis. Financial budgeting and planning, however, remained insignificant, aligning with the complete data.

For household heads with formal education, the relationships for loans [β=0.068; $p<0.001$], savings [β=0.031; $p<0.05$], and insurance [β=0.040; $p>0.05$] are consistent with the overall data, although the significance of deposits and investments diminished, indicating a divergence. This suggests that financial information on loans, savings, and insurance has less impact among formally educated household heads.

In contrast, savings [β=0.163; $p<0.001$] showed a much stronger correlation for household heads without formal education than the complete data, highlighting the crucial role of savings-related financial information in enhancing financial well-being for this group. Budgeting also gained stronger significance, while other pathways, such as loans, insurance, and investments, diverged from the complete data.

Those with prior financial literacy education demonstrated patterns consistent with the overall dataset, while those without such education exhibited similar trends but with less significance for investments. The robust analysis reveals consistent mediating effects of financial information, with sub-group differences: formally educated individuals show less impact from savings and budgeting, while those without formal education rely more on these financial information patterns for their financial health.

Mediating Role of Specific Financial Information Sources

The results shown in Table 5.29 below provide the indirect, specific effect of sources of financial information on the relationship between financial literacy and financial well-being.

The findings reveal a significant positive indirect effect of financial advisors [β=0.099; $p<0.05$], government [β=0.084; $p<0.05$], and NGOs [β=0.102; $p<0.05$] as sources of information, mediating the relationship between financial literacy and financial well-being in rural settings. Conversely, the Internet, family, friends, peers, social media, and traditional media show insignificant or negative relationships with financial well-being. While family showed a positive but insignificant relationship, the Internet, friends, peers, social media, and traditional media exhibited insignificant negative relationships.

Table 5. 29: Structural Model 6: Results of Multiple Mediation on Specific Sources of Financial Information

Hypothesis	Coef	SE	t-stat	p-value	Percentile Bootstrap 95% Confidence Interval	
					Lower	Upper
FL -> FISadv -> FWB	0.099	0.040	2.491	0.006	0.033	0.163
FL -> FIStrad -> FWB	-0.005	0.042	0.120	0.452	-0.076	0.063
FL -> FISsom -> FWB	-0.074	0.052	1.439	0.075	-0.161	0.009
FL -> FISpeers -> FWB	-0.065	0.047	1.378	0.084	-0.142	0.014
FL -> FISngo -> FWB	0.102	0.031	3.281	0.001	0.051	0.153
FL -> FISint -> FWB	-0.053	0.032	1.639	0.051	-0.106	0.000
FL -> FISgov -> FWB	0.084	0.033	2.550	0.005	0.031	0.139
FL -> FISfamily -> FWB	0.000	0.048	0.003	0.499	-0.080	0.078
Direct Effect (FL -> FWB)	0.308	0.072	4.291	0.000	0.193	0.426
Total Effect (FL -> FWB)	0.396	0.032	12.324	0.000	0.192	0.426
Total Indirect Effect of (FL -> FWB)	0.088	0.063	1.401	0.081	-0.016	0.189
Financial Well-being = FWB, Financial Literacy = FL, Financial Information Source = FIS						

Source: Own Compilation

These findings confirm Hypothesis H5D for financial advisors, the government, and NGOs but reject it for traditional media. Hypothesis H5E is supported concerning the Internet, social media, family, friends, and peers.

Using the Variance Accounted For (VAF) method to compute the parallel indirect effects, the results show that these three sources account for 72% of the total effect. The government contributes 21%, while financial advisors and NGOs account for 25% and 26%, respectively. Consequently, the direct relationship between financial literacy and financial well-being is significant [β=0.308; p<0.001]. Thus, individually and collectively, the government, NGOs, and financial advisors partially mediate the link between financial literacy and financial well-being.

To assess the robustness of the findings concerning financial information sources, the study conducts a sub-group analysis based on gender, formal education, and financial literacy education experience. The results are presented in Table 5.30 below.

Table 5. 30: Robustness: Results of Multiple Mediation on Specific Sources of Financial Information

Hypotheses	Coef	SE	t-stat	p-values	Coef	SE	t-stat	p-values
	Male							
FL -> FISadv -> FWB	0.098	0.043	2.268	0.012				
FL -> FIStrad -> FWB	-0.006	0.045	0.144	0.443				
FL -> FISsom -> FWB	-0.087	0.052	1.671	0.047				
FL -> FISpeers -> FWB	-0.071	0.051	1.397	0.081				
FL -> FISngo -> FWB	0.113	0.034	3.308	0.000				
FL -> FISint -> FWB	-0.059	0.035	1.687	0.046				
FL -> FISgov -> FWB	0.093	0.034	2.706	0.003				
FL -> FISfamily -> FWB	0.005	0.050	0.106	0.458				
	Received Formal Education				**No Formal Education**			
FL -> FISadv -> FWB	0.131	0.034	3.889	0.000	-0.041	0.059	0.690	0.245
FL -> FIStrad -> FWB	-0.015	0.031	0.487	0.313	-0.032	0.058	0.546	0.292
FL -> FISsom -> FWB	-0.040	0.048	0.827	0.204	-0.056	0.049	1.140	0.127
FL -> FISpeers -> FWB	-0.057	0.038	1.508	0.066	0.011	0.080	0.133	0.447
FL -> FISngo -> FWB	0.030	0.018	1.684	0.046	0.142	0.062	2.290	0.011
FL -> FISint -> FWB	-0.025	0.021	1.141	0.127	-0.078	0.063	1.232	0.109
FL -> FISgov -> FWB	0.025	0.031	0.808	0.210	0.083	0.042	1.949	0.026
FL -> FISfamily -> FWB	-0.032	0.036	0.884	0.188	0.065	0.076	0.858	0.195
	Ever had FL Education				**Never had FL Education**			
FL -> FISadv -> FWB	0.197	0.072	2.728	0.003	0.038	0.042	0.895	0.185
FL -> FIStrad -> FWB	-0.036	0.082	0.436	0.332	0.017	0.046	0.362	0.359
FL -> FISsom -> FWB	0.026	0.075	0.346	0.365	-0.118	0.079	1.500	0.067
FL -> FISpeers -> FWB	0.039	0.084	0.465	0.321	-0.101	0.047	2.159	0.015
FL -> FISngo -> FWB	0.146	0.058	2.500	0.006	0.060	0.039	1.552	0.060
FL -> FISint -> FWB	-0.027	0.057	0.484	0.314	-0.054	0.041	1.296	0.098
FL -> FISgov -> FWB	0.044	0.058	0.770	0.221	0.085	0.041	2.062	0.020
FL -> FISfamily -> FWB	-0.191	0.092	2.069	0.019	0.081	0.048	1.665	0.048

Financial Well-being = FWB, Financial Literacy = FL, Financial Information Sources = FIS

Source: Own Compilation

As shown in Table 5.30, the relationship between financial literacy and financial well-being for males is mediated through financial advisors [β=0.098; p<0.05] and NGOs [β=0.113; p<0.001], which closely align with the overall findings, reinforcing the consistency of these relationships. A significant negative mediation by social media was also found [β=-0.087;

p<0.05]. Government sources remain substantial, with slightly lower coefficients than the complete analysis [β=0.093; p<0.05], indicating robustness. However, pathways involving the internet, family, peers, and traditional media are insignificant, suggesting minimal influence regardless of gender.

The sub-group analysis based on educational attainment reveals significant differences. For household heads with formal education, financial advisors serve as a highly substantial mediator [β=0.131; p<0.001], while for those without formal education, their effect is negative and negligible [β=-0.041; p>0.05]. This result highlights the dependence on professional advisory services among educated households. NGOs serve as a strong intermediary for both groups, but their effect is more robust for those without formal education [β=0.142; p<0.05] than for those with formal education [β=0.030; p<0.05]. The role of government is significant for households without formal education, but the relationship is weaker and statistically insignificant for those with formal education.

For those who have received financial literacy education, the results are consistent with global data, with financial advisors and NGOs effectively mediating the relationship. Government sources, however, show some deviations. Similarly, individuals without financial literacy education show results consistent with global data, with government sources remaining significant and other variables found insignificant in the complete data.

These findings underscore the need for tailored financial literacy programs that address demographic-specific needs, particularly those related to educational background and access to financial information resources.

Table 5. 31: Other Indirect Hypotheses Testing

	Hypothesis Statement	In terms of	Outcome
H_{3D}	*The level of information on these financial products (savings, loans, investments, insurance, and deposits) mediates the relationship between financial literacy and financial well-being among rural households.*	Savings	Supported
		Loans	Supported
		Investments	Not supported
		Insurance	supported
		Deposits	Not supported
H3E	*The level of information on these financial services (financial planning and financial budgeting) mediates the relationship between financial literacy and financial well-being among rural households.*	Financial budgeting	Supported
		Financial planning	Supported
H_{4D}	*The changing pattern of information on financial products (savings, investments, insurance, loans, and deposits) mediates the relationship between financial literacy and financial well-being among rural households.*	Savings	Supported
		Loans	Supported
		Investments	Supported
		Insurance	Supported
		Deposits	Not supported
H_{4E}	*The changing pattern of information on financial services (financial planning and financial budgeting) mediates the relationship between financial literacy and financial well-being among rural households.*	Financial budgeting	Not Supported
		Financial planning	Not Supported
H_{5D}	*Financial information sources (traditional media, financial advisors, government, and NGOs) mediate the relationship between financial literacy and financial well-being.*	Traditional media	Not supported
		Financial advisors	Supported
		Government	Supported
		NGOs	Supported
H_{5E}	*These financial sources (Internet, social media, family, and peers) do not significantly mediate the relationship between financial literacy and financial well-being among rural households.*	Internet	Supported
		Social media	Supported
		Family	Supported
		Friends & peers	Supported

Source: Own Compilation

5.10 Chapter Summary

This chapter presented the empirical findings from the analysis using SPSS, SmartPLS, and Excel. The study first reported on the normality test, descriptive statistics, and respondents' profiles, followed by the reliability and validity of the measurement model for both LOC and HOC. The results confirmed the model's reliability and validity, with internal consistency (composite reliability and alpha) exceeding 0.6, convergent validity (AVE > 0.5), and satisfactory indicator loadings. The HTMT ratio was below 0.90, and discriminant validity was established using Fornell & Larcker's criterion. Collinearity concerns were absent (VIF < 3). The structural model evaluation revealed moderate R-square values for most constructs, except for financial information consumption, which was weaker. Q2 values greater than zero indicated predictive relevance. The model showed that financial information characteristics (consumption, level, and pattern) significantly mediate the relationship between financial literacy and financial well-being. The multi-group analysis revealed no significant difference in the direct effect of subjective financial literacy on financial well-being between those who had received financial education and those who had not. Overall, the majority of the proposed hypotheses were supported. The next chapter presents the results of the qualitative analysis.

CHAPTER SIX: Data Analysis and Results- Qualitative

6.1 Introduction

This chapter presents qualitative findings to complement the quantitative analysis, focusing on women's perspectives to identify potential gender-based differences. Recognizing that gender bias can marginalize women's voices in policy-making, this chapter underscores their crucial role in development. The findings are structured around key themes aligned with the study's objectives. Section 6.2 explores respondents' demographic characteristics, while Section 6.3 examines financial literacy's impact on financial well-being. Sections 6.4 to 6.7 analyze financial information consumption, its levels, patterns, and sources shaping the relationship between financial literacy and well-being. Finally, Section 6.8 provides a summary of the chapter's key insights.

6.2 Participant Characteristics

Table 6.1 below outlines the characteristics of qualitative study participants, ensuring gender representation. Most participants were 40-59, with the 40-49 and 50-59 age groups comprising one-third of the sample. Additionally, 25% were aged 30-39, while one-twelfth were 60 or older. This broad age distribution enriches the study by capturing diverse perspectives.

Female participants were all heads of households, assuming this role due to widowhood, separation, single parenting, or divorce. In Ghana's patriarchal society, female-headed households are uncommon but arise when women take full responsibility for their families. Understanding their experiences provides crucial insights into financial decision-making and well-being in these households.

The sample statistics indicate an average participant age of 48, with significant educational disparities. One-third had no formal education, while another 33.3% completed Junior High School. A smaller proportion (16.7%) reached Senior High School, and only one-sixth attained higher education. This variation suggests differing levels of financial literacy and access to financial information.

Over two-thirds of participants had lower educational attainment, reflecting the limited educational opportunities in rural areas. Household sizes were relatively uniform, with

75% comprising 5 to 7 members. The household size of 5.9 closely aligns with the regional rural average of 5.1 from the 2021 Housing and Population Census.

Table 6. 1: Qualitative Characteristics of Respondents

Characteristics	Frequency	Percentage	Mean
Gender			
Male-headed household	6	50.0%	
Female-headed household	6	50.0%	
Age			
30-39	3	25%	48
40-49	4	33.3%	
50-59	4	33.3%	
60-69	1	8.4%	
Highest School Attended			
None	4	33.3%	
Junior High school	4	33.3%	
Senior High school	2	16.7%	
College/University	2	16.7%	
Household Size			
2-4	1	8.3%	5.9
5-7	9	75%	
8-10	2	16.7%	
Employment type			
Government worker	3	25.0%	
Farmer	6	50.0%	
Trader	3	25.0%	

Source: Own Compilation

Regarding occupation, half of the household heads were farmers, while the remaining participants were equally divided between traders and those in formal employment (government workers). These findings provide insights into the socioeconomic conditions influencing financial decision-making in rural households.

6.3 Theme 1: The role of financial literacy on financial well-being

The findings highlight the crucial role of financial literacy in decision-making and financial well-being, regardless of gender. A male (PS11) and female (PS8) participant with similar financial knowledge levels emphasized its impact:

- PS11: *"Over time, I have seen how the financial knowledge I have gained improved my household's financial health and discipline."*
- PS8*, financial literacy influences our decision-making and goal setting by helping us prioritize needs over wants in managing expenses."*

These insights reinforce that financial literacy enables household heads to manage resources, mitigate risks, plan for emergencies, and achieve long-term stability. This aligns with the quantitative findings in Table 5.16, confirming the relationship between financial literacy and financial well-being.

Sub-Theme 1: resource management:

Financial literacy enhances household stability by improving savings and investment decisions. Participants recognized that financial literacy helps them manage resources and meet household needs, contributing to financial well-being. A male participant shared, "We used to struggle to pay for basic needs like healthcare and education, but over time, the financial management practices I've learned have made a difference" (PS11). A female respondent noted, "My financial knowledge helps me improve my household's financial well-being by making decisions that benefit everyone" (PS3). While both genders show similar low levels of financial literacy, women highlight its importance for securing household needs, while men focus on long-term investments. However, female household heads with higher education extend financial literacy's role to both immediate needs and long-term goals. This suggests that, at lower literacy levels, men and women focus differently, but this difference narrows when women possess higher education and literacy. These qualitative findings align with the quantitative results, confirming the impact of financial literacy on financial well-being.

Sub-Theme 2: Risk Management:

While men and women exhibit similar financial understanding, they adopt different financial risks and investment approaches. Men-headed households tend to have a higher risk tolerance, favouring growth-oriented ventures. One male respondent noted making investment decisions based on market trends (PS2). In contrast, women with comparable literacy tend to prefer more conservative strategies, such as savings and low-risk options like *Susu* contributions. A female respondent highlighted, "Participation in the *Susu* group has significantly improved my financial literacy and decision-making" (PS7). This approach prioritizes stability and predictability over potentially higher returns, even when women have higher financial literacy than men.

Sub-Theme 3: Emergency management:

Financial literacy enhances households' ability to manage emergencies, reducing stress and boosting financial resilience. Savings and emergency funds are crucial for addressing unexpected expenses, such as medical or educational costs. A male respondent shared, “I’ve learned to save, so when school fees are needed, I can pay” (PS6), while a female respondent said, “I save small amounts when I can for emergencies or school fees after joining the group for training” (PS12). These insights show that financial literacy motivates households to save for emergencies, with both genders demonstrating similar saving habits. However, women face unique challenges, primarily due to caregiving roles. One female participant said, “When someone close to me passes away, I must contribute financially, even if it means borrowing or delaying personal expenses” (PS12), highlighting women's additional cultural and financial burdens. Households led by individuals with higher financial literacy focus on savings and investments, diversifying across formal and informal sectors. However, women with higher literacy levels emphasize informal sectors more than men, and female household heads with lower literacy tend to save primarily through informal methods like *Susu* groups.

Sub-Theme 4: wealth creation:

Participants recognized financial literacy as essential for accumulating wealth, achieving financial stability, and meeting household needs. A male participant highlighted, “The motive for seeking financial knowledge is to create wealth through investments in livestock to meet my needs tomorrow” (PS4). Similarly, a female participant noted, “My financial knowledge shapes the financial decisions I make regarding my provision store management, bringing value and income to support my salary” (PS9).

These statements suggest that men prioritize financial security through wealth generation, typically using investments in money, capital markets, and livestock. On the other hand, women create wealth through business ventures and entrepreneurship, often seeing financial literacy as a way to achieve long-term financial goals while focusing on household well-being.

Men with higher financial literacy engage in systematic planning and diversified investments, while those with lower literacy focus on livestock and farm expansion. Regardless of literacy level, women rely on informal advice and community resources, emphasizing gradual improvements.

The findings highlight that while both genders seek financial stability, their approaches reflect their roles within the household. Men focus more on wealth accumulation through investments, whereas women emphasize practical, household-based financial decisions that align with family welfare.

6.4 Theme 2: The role of financial information consumption on financial literacy and well-being

The study findings revealed that consuming financial information is essential for advancing financial literacy and promoting effective financial decision-making. It affects financial decision-making, moulds financial behaviour, and supports communal learning. These qualitative findings are demonstrated to be aligned with quantitative findings, as indicated in Table 5.22.

Sub-Theme 1: frequency and timing:

The findings highlight that regular and timely access to financial information is essential for informed decision-making across genders, fostering continuous learning and financial preparedness. Household heads with similar financial literacy levels value prompt information as it enhances their ability to make sound financial choices. One respondent noted, "*Now we have regular education on financial information, which has helped us make informed financial decisions*" (PS5), underscoring the importance of ongoing financial education in shaping financial behaviour.

However, the effectiveness of timely financial information varies based on gender roles and responsibilities. While both men and women benefit, their priorities differ. Men typically focus on income-generating financial information, such as market prices, sales trends, savings, and investment opportunities, regardless of education level. A male participant stated, "*When I am informed about market prices, it helps me decide when to sell farm produce for better returns*" (PS2).

Conversely, lower education-level women prioritize household-related financial information, such as saving for school fees and managing essential expenses. A female participant shared, "*The financial information I received from the Susu group helps me know when to save or borrow for school fees*" (PS7). However, highly literate women expand their financial information consumption beyond household needs to long-term wealth creation via formal financial institutions. Ultimately, while financial information benefits all genders, its impact is shaped by gender roles, education, and financial literacy levels.

*Sub-Theme 2: Information dissemination***:**

The methods used to access financial information significantly influence its accessibility and impact on rural households' financial decision-making. Both men and women rely on various channels, including workshops, radio broadcasts, casual conversations, and digital resources like mobile money notifications and apps. However, notable gender-based disparities exist. Women predominantly use informal and community-based sources, such as *Susu* groups and radio broadcasts; as one respondent noted, "*Most financial information I get is from the Susu group and radio*" (PS7). This preference is linked to these platforms' social and communal nature, which fosters trust and confidence in financial decision-making.

Conversely, men utilize more formal financial sources, such as banks and financial professionals. One participant remarked, "*I obtained financial information from banks and trusted colleagues who are financially knowledgeable*" (PS2), indicating a preference for sources perceived as authoritative and reliable. While women rely mainly on informal channels at lower literacy levels, men access formal and informal sources.

However, a shift occurs among highly literate women, who increasingly adopt digital financial tools, narrowing the gender gap. This shift enhances their ability to obtain financial information independently, improving financial decision-making.

Sub-Theme 3: Financial decision-making and behaviour change:

The consumption of financial information plays a crucial role in shaping financial behaviour and influencing decisions on savings, expenditures, and investments among rural households. Households with similar financial literacy levels, regardless of gender, utilize financial information to make informed choices. A male respondent noted, "*The market behaviour informs me of financial decisions to maximize profit*" (PS2). At the same time, a female participant stated, "*The Susu group's weekly information helps me save and make good financial decisions*" (PS7). This underscores the importance of financial literacy in empowering individuals to make sound financial decisions that enhance their well-being.

However, significant gender-based disparities emerge depending on financial literacy levels. Women with higher financial literacy tend to focus on long-term financial planning and strategic investments, whereas men with lower literacy levels often prioritize immediate needs over future security. This distinction highlights the transformative role of financial literacy in equipping women to make informed, future-oriented financial choices.

Women with strong financial literacy also emphasize investments in education and asset accumulation, fostering long-term stability. In contrast, men with limited financial knowledge may focus on short-term necessities, potentially compromising their financial future. While men generally access broader financial information sources, women rely more on localized financial information to guide their financial decisions.

6.5 Theme 3: The role of financial information level on the link between financial literacy and well-being

Household heads with similarly low literacy levels and access to financial information tend to make comparable decisions, often prioritizing immediate needs over long-term financial security. However, women with higher financial literacy, despite having the same access to information, make more strategic financial decisions, underscoring the crucial role of literacy in enhancing financial well-being. Women with advanced financial literacy are more likely to pursue long-term financial goals, such as investments, insurance, and education, while less educated men often focus on short-term survival. This distinction demonstrates how financial literacy enables individuals to process and apply financial information more effectively. The study further emphasizes the importance of key financial information attributes—detail, complexity, accessibility, accuracy, and adaptability—in shaping financial decision-making. Quantitative evidence reinforces these findings, confirming the link between financial literacy, the level of financial information, and improved financial decision-making, as presented in Table 5.21.

Sub-Theme 1: Detail and complexity:

Advanced financial information enhances decision-making by improving comprehension and financial literacy. Both men and women benefit when information is presented clearly and progressively. A female respondent (PS3) noted that simplified financial insights improved her understanding of essential matters like health insurance, food prices, and education costs, leading to better decisions. Likewise, a male respondent (PS5) emphasized that the clarity and relevance of financial information directly shape his ability to make informed choices.

For individuals with higher financial literacy, regular updates in financial information promote more strategic planning. While both genders gain from improved access, women with advanced financial literacy prioritize long-term financial goals, such as investments and savings. In contrast, men with lower financial literacy levels often focus on immediate financial needs.

Sub-Theme 2: Accessibility and Comprehension:

Advanced financial information is less beneficial for households with lower literacy levels, regardless of gender. Simplified financial information is essential for these individuals, as overly complex details can overwhelm financial decision-making. One respondent (PS6) noted, "*Too many details complicate financial information and sometimes lead to bad decisions that affect our household income and living*." However, women with higher financial literacy are better equipped to navigate these challenges than men. This finding underscores the interplay between financial literacy and information accessibility, highlighting that both factors must align to enhance financial well-being.

Sub-Theme 3: Adaptation to new information:

Adapting to evolving financial information is a key aspect of financial literacy, influencing how individuals adjust their financial strategies. One participant (PS6) noted, "*Anytime I learn new ways of managing my finances, I rethink past decisions to improve them*." This adaptability is evident among genders with similar literacy levels, enabling better savings and investment planning. However, women with higher financial literacy demonstrate greater adaptability, integrating advanced financial concepts such as investment diversification and responsible credit use more effectively than men. This result highlights the crucial role of financial literacy in shaping financial behaviour and long-term planning.

6.6 Theme 4: The role of financial information pattern on financial literacy and well-being

Individuals seeking financial information tend to make better financial decisions, regardless of gender. One respondent (PS5) noted, "*Unlike before when I did not receive information frequently, it affected my household decision-making negatively. But now, regularly searching for financial information has helped us make informed decisions*." Conversely, those with lower information-seeking behaviour typically search for financial guidance only during crises or market fluctuations.

Men often rely on market trends to inform their financial choices, with one respondent (PS2) stating, "*Market dynamics indicate the optimal timing for selling agricultural products to enhance profitability*." Conversely, women are more influenced by household needs, such as health emergencies or educational expenses. A female participant (PS1) remarked, "*When emergencies arise, we search for financial information on where to get support*."

At lower literacy levels, both men and women seek financial information sporadically. However, women with higher financial literacy exhibit a more proactive and diverse approach, frequently updating their knowledge of investment opportunities, particularly within the formal sector. In contrast, less financially literate men focus on immediate needs, limiting long-term financial growth. When financial literacy levels are equal, both genders prioritize immediate necessities, but women with advanced literacy engage in more strategic and future-oriented decision-making.

Sub-Theme 1: Application of pattern:

Recurring financial information patterns are key in shaping long-term financial behaviours, including savings, investments, and seasonal activities. In the agricultural and commercial sectors, these patterns are particularly evident. A male farmer (PS6) stated, "*I save during the harvest season and sell livestock when demand is high to raise income*," while a female participant (PS7) shared, "*We save with the Susu group weekly and use the savings to buy school supplies to sell at the start of the academic year for a profit*." Traders, too, adjust their financial strategies based on market trends.

These recurring information patterns help households develop disciplined financial habits, enabling them to manage income fluctuations and meet financial needs. While men and women with similar financial literacy levels, such as PS6 and PS7, rely on these patterns to address seasonal needs, women with higher financial literacy tend to apply them more strategically. Literate women use these patterns to identify optimal times for long-term investments, such as real estate, government-backed investments, or higher education. In contrast, less literate men focus on immediate financial responsibilities.

Sub-Theme 2: Cultural and Social Norms:

Cultural and social conventions significantly influence financial information trends, especially during funerals, marriages, and group decision-making in informal settings. Funerals, in particular, place a substantial financial burden on households. One female respondent (PS8) explained, "*Funerals are unexpected and require significant financial attention, impacting household planning more than discretionary events*." While male-headed households are similarly affected, they often have more flexibility in selecting which events to attend. A male respondent (PS6) remarked, "*While cultural expectations* *make us attend certain events, I am selective about social occasions like weddings or festivals, but funerals are unavoidable*."

Despite varying literacy levels, both genders demonstrate similar financial perspectives regarding social events, with women in PS8 and men in PS6 displaying consistent patterns. Rural participants also encounter financial information from the formal financial sector online. Although this was not explicitly discussed in the interviews, it likely influences their financial behaviours behind the scenes. The focus of rural residents remains primarily on the information they receive from informal financial associations, such as Susu groups, which sometimes support collaborative decision-making for the benefit of both genders. One participant noted, "*Being part of the Susu group has greatly improved my financial knowledge and decision-making ability*." Women with higher literacy levels often take leadership roles in these groups, guiding financial practices and promoting informed decision-making. In contrast, less literate men may rely on collective advice but tend to play a more passive role in leadership or strategic discussions.

Sub-Theme 3: Feedback loop:

Households' ability to assess past financial decisions and learn from communal experiences is crucial to financial literacy. Feedback loops help households refine their financial practices and improve decision-making. One respondent (PS6) noted, "*When I learn new ways to manage my finances, I start thinking differently to improve past decisions.*" Community discussions, often led by NGOs, provide valuable learning opportunities and a steady flow of information. One participant (PS7) shared, "*Being part of the Susu group has given me consistent, practical experience and a support network that helped me make better financial decisions, even in tough times*."

Both male (PS6) and female (PS7) participants with similar financial literacy levels value feedback from past decisions and communal learning. However, women with higher literacy tend to integrate feedback more systematically into their financial planning. A financially literate woman may adjust her savings strategy based on lessons from previous investments or community experiences. In contrast, a less literate man may stick to traditional practices without significant change.

The consumption, use, and evaluation of financial information are key to shaping financial literacy and well-being. Households with similar literacy levels, regardless of gender, exhibit similar behaviours. However, women with higher literacy are more likely to strategically apply and adapt financial knowledge, fostering growth and improvement in their financial decision-making.

6.7 Theme 4: The role of financial information sources on financial literacy and well-being

The qualitative findings reveal that sources of financial information significantly shape the relationship between financial literacy and decision-making. Formal and informal sources and technological advancements provide the necessary information for sound financial decisions. Gender dynamics highlight subtle differences in how men and women utilize these sources, particularly when their literacy levels differ.

The evidence shows that when men and women have comparable higher financial literacy, their financial information sources are similar, relying on a mix of formal (e.g., NGOs, government, financial institutions) and informal (e.g., family, **susu** groups, colleagues) sources. However, there is a stronger reliance on informal sources like Susu groups and mobile money agents at lower literacy levels.

When women have superior literacy compared to men, they tend to adopt a more strategic and diverse approach to utilizing these sources. Enhanced literacy allows women to engage with formal institutions, assess the reliability of information, integrate various sources, and leverage advanced financial planning tools to improve decision-making. In contrast, less-literate men rely on conventional, often limited, sources.

The qualitative findings emphasize the crucial role of informal sources, such as community-based groups, family members in urban areas, and mobile money agents, in improving financial literacy and decision-making, especially in rural areas with limited access to formal financial services. Often overlooked in quantitative studies, these informal sources play a significant role in shaping financial behaviours. However, the importance of formal sources, such as government agencies, NGOs, and financial advisors, also remains evident in the qualitative and quantitative findings.

Sub-Theme 1: Diverse sources:

The range of financial information sources, both formal and informal, significantly impacts how households acquire and use financial knowledge to enhance decision-making. Institutional sources such as banks, professional advisors, government programs, and NGOs provide structured, reliable information that influences decision-making, particularly through informal networks like *susu* groups. One male respondent noted, "I obtain financial information mainly from bank officials and trusted work colleagues who are financially knowledgeable" (PS2). Informal sources, including *Susu* groups, peer networks, and radio broadcasts, are particularly crucial for rural households or those with limited literacy. One female participant mentioned, "We attend financial literacy workshops and training sessions organized by *Susu* groups, government, and NGOs to improve our financial management skills" (PS7). These sources offer practical, culturally relevant advice, making them vital for many households. Combining formal and informal sources provides a more comprehensive understanding of financial matters.

Rural households of both genders with similar literacy levels tend to rely on a mix of formal and informal sources, with men slightly preferring formal institutions and women leaning towards informal networks. However, as women's literacy levels improve, their reliance on formal sources increases significantly. A highly literate woman may engage in bank-sponsored workshops or government programs to broaden her financial knowledge. In contrast, less literate men often remain dependent on informal sources, limiting their access to broader financial opportunities and potentially hindering their decision-making.

Sub-Theme 2: Sources integration:

The findings indicate that household heads use a combination of financial information from various sources to improve decision-making, gaining a more comprehensive understanding of financial opportunities. This approach helps balance long-term goals with immediate needs. Both men and women with similar financial literacy levels value the integration of formal and informal sources. One participant shared, "*The susu group educates us on savings, and the market trends we hear on the radio inform our selling* *decisions*” (PS7). By combining insights from different sources, households gain diverse perspectives that enhance decision-making.

For example, a female respondent stated, “*The sources of financial information help me keep track of my Susu contributions, and since my grandchildren know how to use mobile money, they check my balance before I withdraw. The Susu group has greatly improved my financial literacy, but I rely on government officers and NGOs for investment advice*” (PS12). Similarly, a male respondent mentioned, “*Depending on the information I need, I first go to the bank where I take my salary, Susu leaders, and sometimes government agents or NGOs who provide financial guidance*” (PS11).

However, women with higher financial literacy levels are better at synthesizing various sources. A literate woman uses formal sources for strategic decisions like investments or loans while relying on informal networks for immediate market trends. One woman (PS9) noted, “*The credible sources I rely on greatly influence my decisions. For example, NGOs inform us about what to buy and sell during the farming season. This source has helped me make a profit. When I speak to my banker, I assess investment rates, then use my savings and loans from the Susu to buy financial products for better returns*.” In contrast, less literate men struggle to integrate knowledge, leading to more limited and reactive decision-making strategies.

Sub-Theme 3: Technological Sources:

The study highlights the growing importance of financial technologies, such as mobile banking, SMS notifications, and digital platforms, in enhancing financial decision-making, especially in rural areas. Despite challenges, these technologies have increased access to financial services, with mobile money being a widely used tool in rural communities. A male respondent noted, “*Mobile money is my financial technology. I rely on my child to manage transactions, but I can see how much I’ve withdrawn or received. It’s safer than keeping cash, and I use it to store money from selling my farm produce*” (PS5). Similarly, a female respondent shared, “*I use mobile money to receive and save funds, like when I renewed our health insurance. It has improved our financial management, and I ask agents for clarification if I have questions*” (PS8).

While men and women with similar literacy levels use technology mainly for receiving e-cash and making payments, women with higher literacy levels are more likely to explore advanced features of financial technology. One woman (PS9) said, "*I investigate the technology's functionality before using it for financial decisions, especially with so much fraud in the system*." Literate women utilize digital platforms for more complex tasks such as savings, insurance renewals, and investment tracking, while less literate men use mobile banking primarily for basic transactions.

The study emphasizes that formal, informal, and technological sources of financial information are crucial for improving financial literacy and well-being. Both men and women with similar literacy levels exhibit similar decision-making behaviours. However, higher financial literacy in women fosters more confidence, critical thinking, and adaptability in using various sources. Tailored programs that enhance access to formal sources, strengthen informal networks, and promote digital literacy can help households—particularly women—make informed financial decisions, improving both household and community outcomes.

6.8 Chapter Summary

This chapter explored the role of financial information in shaping the relationship between financial literacy and financial well-being in rural settings of the Upper West Region (UWR) of Ghana. Using semi-structured interview data, the study confirmed the findings from the quantitative results. The data were coded and organized into themes and sub-themes for analysis. The study revealed that financial technology is a key dimension of financial information, significantly influencing this relationship. These findings suggest that financial literacy can contribute to rural households' financial well-being through multiple pathways, with distinct characteristics of information shaping these pathways. The next chapter discusses the findings of the thesis.

CHAPTER SEVEN: Discussion of the Findings

7.1 Introduction

This chapter discusses the key results reported in Chapters 5 and 6. It begins by restating the research problem and outlining the tested hypotheses in Section 7.2. Section 7.3 summarizes the key findings, while Section 7.4 interprets these findings concerning the research objectives and highlights the study's contributions to the literature. Section 7.5 explores the implications of the findings, Section 7.6 addresses the study's limitations and suggests directions for future research, and Section 7.7 presents a chapter summary.

7.2 The research problem

This study investigated the mediating role of financial information in the relationship between financial literacy and financial well-being in Ghana's Upper West Region (UWR). The research interest in this region was driven by its low literacy rates and sociocultural factors that may limit the mediating role of financial information despite its increasing accessibility due to digitalization. Additionally, although the government has implemented financial literacy programs, there is a lack of research to assess their impact. Specifically, it remained unclear whether different dimensions of financial information effectively enhance financial literacy to improve well-being.

The study tested a range of hypotheses to provide comprehensive evidence on the relationships between financial literacy, financial information, and financial well-being, focusing on the mediating role of financial information in this relationship. The first set of hypotheses tested was the baseline direct relationship between financial literacy and financial well-being (research question 1, Table 5.16), which led to the testing of the following hypothesis.

> H_{1A}: *Financial literacy has a significant positive relationship with financial well-being among rural households.*

$H_{1B:}$ Objective financial literacy has a significant positive relationship with financial well-being among rural households.

$H_{1C:}$ Subjective financial literacy has a significant positive relationship with financial well-being among rural households.

$H_{1D:}$ There is a significant difference in these results(H_{1A-1C}.) between households receiving financial education and those not doing so in rural settings.

Preliminary analysis also examined the interlinkage between crude information consumption, financial literacy and financial well-being (research question 2). This provided a foundational understanding before assessing how different dimensions of information mediate the relationship between financial literacy and financial well-being. Accordingly, the study tested the following hypothesized relationships.

H_{2A}: Financial literacy is expected to relate significantly and positively to rural households' financial information consumption.

H_{2B}: Financial information consumption has a significant positive relationship with financial well-being among rural households.

In the baseline analysis, the mediation analysis initially examined the mediating role of crude financial information without considering its specific dimensions (also research question 2). Accordingly, hypotheses were formulated to assess its mediating effect as follows:

H_{2c}: Financial information consumption mediates the relationship between financial literacy and financial well-being.

H_{2D}: In the presence of financial information dimensions as a mediator, financial literacy's relationship with financial well-being is insignificant.

After the baseline mediation analysis, the study further explored mediation by considering the dimensions of information, beginning with the level of information as a key dimension (research question 3). Hypotheses were formulated to examine how financial information level variables (with categories basic, intermediate, and advanced) mediate the relationship between financial literacy and financial well-being, as follows:

> *H_{3C}: Financial information level mediates the relationship between financial literacy and financial well-being among rural households.*
>
> *H_{3D}: The level of information on these financial products (savings, investments, insurance, loans, and deposits) mediates the relationship between financial literacy and financial well-being among rural households.*
>
> *$H_{3E:}$ The level of information on these financial services (financial planning and financial budgeting) mediates the relationship between financial literacy and financial well-being among rural households.*

Furthermore, the mediation analysis incorporated financial information-seeking patterns as a key dimension, with the information-seeking variable having three categories: recently decreasing, constant, or increasing (research question 4). To evaluate the mediating role of this variable, the study tested the following hypotheses:

> *H_{4C}: Financial information patterns mediate the relationship between financial literacy and financial well-being among rural households.*
>
> *H_{4D}: The changing pattern of information on financial products (savings, investments, insurance, loans, and deposits) mediates the relationship between financial literacy and financial well-being among rural households.*
>
> *H_{4E}: The changing pattern of information on financial services (financial planning and budgeting) mediates the relationship between financial literacy and financial well-being among rural households.*

Finally, by considering the source of financial information as a key dimension (research question 5), the study tested the following hypotheses on its mediating role in the relationship between financial literacy and financial well-being:

> *H_{5C}: Financial information sources mediate the relationship between financial literacy and financial well-being among rural households.*

H_{5D}: Financial information sources (through traditional media, financial advisors, government, and NGOs) mediate the relationship between financial literacy and financial well-being.

H_{5E}: Sources of financial information (the Internet, social media, family, friends and peers) do not significantly mediate the relationship between financial literacy and financial well-being among rural households.

To gain deeper insights into the relationships identified through quantitative analysis, which did not fully capture women's perspectives, a qualitative study was conducted as part of a triangulation approach (research question 6). This aimed to evaluate whether the themes and sub-themes observed in the qualitative analysis, related to the study's key relationships, remained consistent across gender perspectives.

7.3 Key Findings

7.3.1 Baseline findings

The baseline analysis addressing research question 1 confirmed all hypotheses, regardless of whether the measure used for financial literacy or financial well-being was objective, subjective, or composite, demonstrating a positive link between financial literacy and financial well-being. The effect of financial literacy on financial well-being was more substantial for participants in financial education programs across all measures, except for the subjective financial literacy measure, which showed no significant difference between financially educated and non-educated households.

Qualitative findings reinforced the vital role of financial literacy in financial well-being, highlighting that financial security depends on financial knowledge and skills. The perceived positive impact of financial literacy on financial well-being remained consistent across genders in rural households.

The foundational analysis of the interlinkages between financial literacy addressing part of research question 2, financial information, and financial well-being, revealed that financial literacy significantly and positively impacts general financial information consumption among rural households. Furthermore, financial information consumption was positively associated with financial well-being in these communities. The analysis also established the mediating role of crude financial information in the relationship between financial literacy and financial well-being, addressing the remaining aspect of research question 2.

Consistent with these quantitative findings, the qualitative analysis highlighted that general financial information consumption is critical in enhancing financial literacy and promoting effective financial decision-making among rural households. This, in turn, reinforces its influence as a key factor linking financial literacy to financial well-being.

7.3.2 Mediation of dimensions of financial information

Focusing on mediation as the core focus of the study, financial information level was found to be a strong positive mediator in the influence financial literacy exerts on financial well-being. The findings revealed that the impact of financial literacy on financial well-being is partly absorbed (mediated) by the financial information level variable, indicating a complementary mediating role. These findings addressed research question 3.

The qualitative findings reinforced the quantitative results, highlighting the crucial role of financial information level in strengthening the link between financial literacy and decision-making. While the quantitative analysis found no evidence that financial information on investments, budgeting, planning, and deposits enhances financial literacy and has a role in financial well-being, the qualitative findings emphasized the importance of investment-related financial information in this dynamic. Additionally, both approaches confirmed that greater access to savings, loans, and insurance information significantly strengthens the connection between financial literacy and financial well-being.

The study found that recent financial information-seeking behaviour (decreasing, stable, or increasing) plays a crucial mediating role. Qualitative findings confirmed that financial knowledge encourages greater information-seeking, enhancing financial decision-making. The results suggest that financial literacy influences financial well-being primarily through information-seeking patterns. These findings responded to research question 4.

The qualitative findings supported the quantitative results, highlighting that financial information patterns are key in shaping the relationship between financial literacy and well-being. Both approaches emphasized that increasing information on savings, loans, insurance, and investments plays a crucial role in how households use financial knowledge to enhance their lives. Overall, the quantitative and qualitative findings agree on the positive impact of financial information patterns on savings, investments, insurance, and loans, with the opposite result on deposits.

The quantitative findings indicate that having multiple sources of financial information does not mediate the relationship between financial literacy and financial well-being. However, information from sources such as the government, financial advisors, and NGOs was found to mediate this relationship partially. Qualitative findings reinforced this, suggesting that combining various sources of financial information enhances financial literacy and supports effective decision-making. These findings highlight that specific information sources are crucial in shaping the relationship between financial literacy and financial well-being in rural settings, addressing the thesis's research question 5.

Comparing perspectives of men versus women (research question 6), the study found that financial literacy influences financial well-being regardless of gender. However, women in specific sociocultural contexts tend to make less financially sound decisions. Both men and women with similar levels of financial literacy tend to make similar choices in areas such as resource management, risk-taking, and investment. The findings also show that increasing women's participation in financial decision-making can significantly improve well-being. Gender differences in resource availability, priorities, and decision-making influence financial literacy, financial information, and financial well-being. Promoting equal participation for women in financial decisions enhances their engagement with financial information, enabling them to apply their financial literacy better, thereby strengthening the relationship between financial literacy and well-being and aligning their outcomes more closely with those of men.

7.4 Explanation of the findings

Baseline findings denote the preliminary relationship between financial literacy and financial well-being, excluding the influence of financial information. The results determine the significant effect of financial literacy on financial well-being, providing a basis for subsequent analysis. Mediation findings investigate the mechanisms underlying a relationship by incorporating financial information to determine if it accounts for the entire effect (full mediation) or a portion (partial mediation). This distinction clarifies not only the existence of a relationship but also the mechanisms through which it operates, aligning more closely with the central inquiry of the thesis.

7.4.1 Baseline findings

Question 1: A clear understanding of the study's findings on the mediation of financial information first required an examination of baseline relationships, which served as a foundation for understanding the core mediation analysis, which is central to the thesis. As expected, the direct relationship analysis (research question 1) confirmed that financial literacy positively influences financial well-being. Similarly, the finding that people with financial education experience better financial outcomes was anticipated. The study underscores the critical role of financial education in empowering rural households and improving financial well-being. Demonstrating the positive impact of financial literacy education, it aligns with prior research in Ghana and Saudi Arabia (Koomson et al., 2021; Soomro et al., 2024) and highlights the need for targeted financial education programs. Notably, this study is among the first to differentiate rural populations based on financial education exposure, offering a novel perspective on the long-term benefits of ongoing financial literacy engagement in rural Ghana.

Another important finding in this relationship was that the impact of subjective financial literacy on financial well-being did not significantly differ between people who have ever received and never received financial literacy education, suggesting that self-perceived financial knowledge does not accurately reflect actual financial capability. However, objective financial literacy significantly differed, reinforcing the importance of acquiring and applying financial knowledge for financial well-being. Qualitative insights further validated these findings.

However, it was surprising that financial literacy did not lead to a significant difference in well-being between households with formal education and those without formal education. These findings suggest that financial literacy programs enhance financial well-being when formal education is low, as in UWR Ghana, highlighting the need for these programs. Additionally, the qualitative findings on gender differences did not align with initial expectations. The study revealed that women focus on household sustainability and meeting immediate needs, while men prioritize investment and long-term financial goals. This result may suggest a contrast between women's present financial well-being and men's future-oriented financial well-being.

These gender differences can also be explained through Prospect Theory, which underpins this investigation. The findings suggest that women exhibiting greater risk aversion apply financial literacy to address immediate financial needs. In contrast, men's focus on investment and long-term financial goals reflects a higher risk tolerance, consistent with Prospect Theory's premise that individuals may engage in risk-seeking behaviour in uncertain contexts.

These findings align with prior research linking financial literacy to household financial well-being across various societal levels (Chetioui et al., 2024; Chipunza & Fanta, 2024; Chu et al., 2017; Gumbo et al., 2023; Korankye & Pearson, 2023; Ranabhat et al., 2022; Sconti, 2024; Som, 2024; Wang et al., 2022). These studies generally consider financial well-being as an outcome of financial literacy. However, other research (Koomson et al., 2021; Mahdzan et al., 2019; Riitsalu & Murakas, 2019) suggests either no relationship or a negative association, indicating that financial literacy alone may not directly enhance financial well-being without an intermediary factor.

The finding that financial literacy is linked to financial information and that financial information, in turn, influences financial well-being suggests the potential mediating role of financial information between these two variables.

The findings of the link between financial literacy and financial information are supported by previous research (Ching et al., 2022; Pahlevan Sharif & Naghavi, 2020) on the importance of knowledge in enhancing information use. Similarly, the findings align with Barbić et al. (2019), who linked financial literacy to responsible financial product consumption. Notwithstanding, prior studies have largely overlooked the role of financial literacy in financial information engagement. Thus, by focusing on rural Ghana and employing a mixed-methods approach, this study provides a more comprehensive perspective on the relationship between financial literacy and financial information, addressing a significant gap in the literature.

The link between financial information and financial well-being aligns with prior research indicating that financial information enhances financial well-being (Losada-Otálora & Alkire, 2019; Lusardi & Mitchell, 2017; Lusardi et al., 2019; Pérez et al., 2005). Also, consistent with Conrad et al. (2022), financial information access improved savings behaviour and long-term security. However, limited research explores this relationship in rural households within developing economies where sociocultural contexts can be deleterious. This study addresses this gap by examining how financial information consumption influences financial well-being in Ghana's UWR, contributing to the broader financial information-financial well-being discourse.

While most studies focus on advanced economies, this research expands the literature by providing region-specific evidence from rural Ghana. The findings support and complement Twumasi et al. (2021), who examined financial literacy's impact on access to financial services in Ghana, reinforcing its role in improving financial well-being, unlike Twumasi et al. (2021). This study offers novel insights by emphasizing rural Ghana and employing a mixed-methods approach, contributing significantly to existing scholarship.

Previous studies have often relied on subjective or objective financial literacy and well-being measures, leading to inconsistent findings due to measurement misalignment (Brüggen et al., 2017). This study addresses that gap using a composite measure that integrates subjective and objective dimensions, providing a more transparent, more robust understanding of the relationship between financial literacy and financial well-being. The findings suggest a significantly positive relationship, helping reconcile conflicting prior research results.

Further analysis indicates that financial literacy alone is not a reliable predictor of financial well-being. When financial information factors are included, the direct effect of financial literacy diminishes, implying that while financial literacy imparts knowledge, financial information provides the necessary guidance and access. This highlights the need for a revised conceptual model where financial literacy influences well-being through mediating mechanisms rather than direct effects. The study underscores the importance of financial information in shaping financial outcomes and aligns with previous research advocating for mediation-focused analyses (Tahir et al., 2021; Xue et al., 2020).

7.4 2 Mediation analysis

Mediation can come in two forms, i.e., full or partial mediation. Full mediation is established when the influence of an independent variable on a dependent variable is completely conveyed through a mediator, resulting in a non-significant direct relationship between the independent and dependent variables upon the inclusion of the mediator. Partial mediation indicates that the mediator accounts for some of the relationships. Nevertheless, the independent variable retains a direct and significant effect on the dependent variable, even when the mediator is considered. Full mediation denotes a scenario where a mediator variable explains the relationship between an independent and dependent variable, thereby accounting for the complete effect. Partial mediation arises when a mediator variable accounts for only a segment of the relationship between independent and dependent variables, while additional factors also affect the outcome.

The preliminary mediation analysis suggested that crude information (without considering dimensions) showed that financial information consumption partially mediates the relationship between financial literacy and financial well-being.

Question 2: As baseline analysis mediation addressing research question 2, financial information consumption (viewed from a non-dimension perspective) significantly mediates the relationship between financial literacy and financial well-being. This finding aligns with the study's expectations, emphasizing that financial literacy alone does not guarantee improved financial outcomes—it becomes more effective when households actively seek and apply financial information. The findings highlight that rural households do not rely solely on financial literacy for financial stability; they complement it with financial information consumption. This result may mean that regular financial information consumption helps them set realistic financial goals, make strategic adjustments, and achieve long-term financial security.

The findings also resonate with the Resource Dependence Theory (RDT) that underpins the study. The theory postulates that individuals and organizations depend on external resources to achieve their objectives. In this study, financial information is a crucial resource in personal finance—just as a company needs market data for strategic decisions, households need financial information to optimize their financial literacy. This perspective suggests that financially literate households recognize information as a critical resource, reducing uncertainty and improving decision-making.

These findings align with prior research showing that financial information exposure enhances financial satisfaction (Ching et al., 2022) and strengthens the financial well-being relationship Huston (2010). However, unlike Twumasi et al. (2022a), who found that mediating factors did not significantly alter the financial well-being link, this study confirms the crucial role of financial information consumption in rural households. While previous studies examined general consumption patterns (Koomson et al., 2021; Xue et al., 2020), this study focuses uniquely on consuming financial information. Moreover, it highlights how recent financial education initiatives by the government and NGOs, alongside emerging financial technologies, have improved access to financial information in rural Ghana.

The following sections discuss various dimensions of financial information and the relationship between financial literacy and financial well-being within the study context beyond crude financial information mediation.

Question 3: Financial literacy and well-being are closely tied to the intensity of information consumption. In answering research question 3, the study finds that financial information levels partially mediate the impact of financial literacy on financial well-being, highlighting a complementary role. Hence confirming study expectations. Households must actively engage with financial information beyond acquiring literacy to improve their financial well-being. Increased financial information fosters behavioural shifts that support sustainable decision-making (Ching et al., 2022), reinforcing that financial literacy and information engagement drive financial well-being.

The study further found that increasing financial information on savings, loans, and insurance significantly strengthens the relationship between financial literacy and financial well-being. This aligns with the reality that rural financial discussions often centre on these topics. Notably, investment-related financial information did not serve as a significant mediator, suggesting that rural households prioritize basic financial needs over wealth accumulation. Gender differences also emerged, with men seeking information on loans for large-scale investments and women for small-scale ventures.

This study highlights the critical mediating role of financial information levels in the relationship between financial literacy and financial well-being, aligning with key theoretical frameworks. Prospect Theory (PT) suggests that households secure their financial future based on their knowledge and the financial information they extract from it. Similarly, Resource Dependency Theory (RDT) emphasizes that financial literacy alone is insufficient, and households must actively engage with financial information to enhance their well-being. While knowledge is essential, it is ineffective without continuous access to relevant financial information.

The Life Cycle Hypothesis (LCH) assumes that individuals optimize savings and consumption over their lifespan. However, in Ghana's volatile economic environment—marked by seasonal agricultural income and inflationary shocks—this model is impractical without real-time financial information to guide financial decisions.

Qualitative and quantitative findings support the significance of financial information levels in this relationship, though qualitative insights offer a deeper context. Male respondents highlighted its importance in investment decisions and risk assessment. At the same time, households with limited formal education credited financial literacy with improving their ability to acquire and apply financial information, bridging knowledge gaps. Conversely, female participants emphasized its immediate utility for household management rather than long-term well-being. Meanwhile, formally educated households often relied on their existing knowledge base, engaging less with new financial information, thus weakening its mediating role.

Previous studies have overlooked financial information levels as a mediator, focusing instead on consumption behaviours—whether of goods (Koomson et al., 2021; Xue et al., 2020) or general information (Ching et al., 2022). This study advances the literature by uniquely examining financial information levels as a mediating factor, providing a more nuanced understanding of the relationship between financial literacy and financial well-being. It reinforces that continuous engagement with financial information is essential for improving financial decision-making and long-term financial well-being beyond financial knowledge. Furthermore, the findings highlight how financial information interacts with financial literacy, reinforcing the need for context-specific financial education strategies.

Question 4: From research question 4, the study argues that financial literacy alone is insufficient to achieve financial well-being; rather, it operates through financial information patterns to be effective. While financial literacy establishes the foundation, how people or households obtain, analyze, and use financial information determines its practical impact on financial well-being. This result underscores the critical mediating role of financial information patterns, particularly in rural Ghana, where structured access to financial knowledge can significantly influence financial outcomes. The findings affirmed the study's expectation by demonstrating that financial information patterns positively and partially influence the effect of financial literacy on financial well-being.

The study finds that this mediating effect is more substantial among men and individuals with formal education who use organized financial information to make informed decisions, manage risks, and plan for long-term financial stability. Conversely, the relationship is weaker or harmful for women and households without formal education. This result suggests that structured financial information may not always align with financial realities due to accessibility challenges, societal roles, or differing financial priorities. Qualitative insights highlight that men actively engage in market trend analysis and risk assessment, while formally educated households apply structured financial information in budgeting, investment, and long-term planning. In contrast, women-led households focus on immediate financial needs and savings, making systematic financial information less relevant to their daily decision-making. Similarly, households without formal education rely more on informal or sporadic financial information sources, limiting the depth and consistency needed to leverage financial literacy effectively.

The findings challenge the assumption that financial literacy translates into better financial well-being without enhancement factors. Many financial education initiatives assume that once people learn about savings or credit, they will consistently apply this knowledge. However, financial markets, inflation, and credit conditions change over time, requiring continuous updates to financial information for optimal decision-making. Key insights from the study include:

Financial information patterns act as behavioural reinforcement mechanisms, helping individuals develop good financial habits. These patterns support life-cycle financial planning, ensuring financial literacy leads to better savings and investment behaviours over time.

A multi-theoretical approach, integrating Prospect Theory (PT), Resource Dependency Theory (RDT), and the Life Cycle Hypothesis (LCH), highlights that continuous engagement with financial information enhances financial literacy's long-term effectiveness.

This study extends prior research, which has primarily focused on developed economies and urban settings, by examining financial information patterns in a rural context. Previous studies (e.g., Yang et al., 2023) found that mobile payment consumption patterns mediate the relationship between financial literacy and financial well-being. Fan (2020) also emphasized that financial information is crucial for effectively utilizing financial literacy. However, these studies primarily focused on digital financial services or generalized financial information consumption. By investigating financial information dimensions in a rural setting, assessing in detail the complex relationships, provided robustness analysis across gender and educational groups while also disguising these analyses across specific financial products in a setting where sociocultural factors are likely to obstruct objective use of financial information, this study provides unique contextual insights that can inform public policies aimed at improving financial decision-making and well-being among rural households.

Increasing information patterns on financial products such as savings, loans, insurance, and investments significantly influence rural households' financial literacy on financial decision-making, but deposits negatively mediate relationships. The findings highlight how financial information patterns mediate the relationship between financial literacy and financial well-being across different groups and financial products in rural Ghana, underscoring the importance of context-specific financial education and strategies.

Question 5: Financial literacy and financial well-being are often expected to be mediated by financial information sources—both formal and informal—in financial research. The assumption is that financially literate households are more likely to use these sources to make informed decisions, enhancing their well-being. However, findings from this study in the rural Upper West Region (UWR) of Ghana challenge this assumption. Contrary to this assumption, the results suggest that financial information sources do not significantly mediate the relationship between financial literacy and financial well-being. This indicates that even financially literate households do not consistently rely on such sources, suggesting that literacy levels or future financial goals may not entirely drive the choice and use of financial information.

Nonetheless, qualitative findings highlight the importance of formal and informal information sources in shaping financial literacy and decision-making. Households with higher literacy levels, particularly among women, are more likely to use diverse sources and make sound financial choices. In contrast, those with lower literacy often rely on informal sources, which may limit access to comprehensive financial knowledge.

Furthermore, qualitative data underscore the growing relevance of digital tools—such as mobile banking, mobile money services, and digital platforms—in improving access to financial services. Women, in particular, benefit from these technologies for saving, renewing insurance, and tracking investments. However, low-literacy individuals across genders face challenges using these tools, pointing to a critical need for tailored interventions to enhance digital literacy and financial inclusion.

The qualitative findings underscore the significance of acknowledging the intricacies and subtleties of financial information sources, especially in rural settings, where informal sources may be more dominant. The divergence between qualitative and quantitative results highlights the necessity for additional study that elucidates the nuances of financial information sources and their influence on financial literacy and well-being relationships.

Prior studies have examined the mediating role of financial information sources in various financial behaviours. For example, Fan and Chatterjee (2017) explored how internal and external information sources affect borrowing decisions. Cao and Liu (2017) found that consulting information sources mediate the link between financial planning and financial satisfaction. Both studies highlight that excessive consultation may lead to uncertainty or decision paralysis, negatively affecting financial well-being. These findings support some of the contradictions observed in the current study. However, previous studies treated information sources as distinct and separate, each tied to different financial outcomes.

This study offers a new perspective by considering financial information sources as a composite matrix rather than isolated channels. It examined their mediating role in the relationship between financial literacy and financial well-being in rural Ghana. The integrated approach challenges conventional models of financial behaviour by combining the Life Cycle Hypothesis (LCH), Prospect Theory (PT), and Resource Dependency Theory (RDT). Findings reveal that rural financial decisions are not driven solely by risk preferences (PT) or life-stage goals (LCH) but also by trust in institutional sources and access to resources (RDT), with social obligations playing a significant role.

While the composite mediation was not statistically significant, specific sources—such as government, NGOs, and financial advisors—show partial, positive mediation. These trusted sources improve financial access and decision-making. Qualitative findings also highlight the role of distant family members and mobile money agents as key informal channels. The study shows that financial literacy only significantly influences well-being when households access, engage with, and apply financial information effectively, underscoring the importance of informed financial behaviour as a mediating pathway.

Question 6: In addressing Research Question 6, the study finds that equal participation of women in financial decision-making can significantly enhance household financial outcomes in rural Ghana. Gender disparities in access to resources, priorities, and decision-making roles shape how financial literacy and information are utilized to achieve financial well-being. Facilitating women's involvement strengthens their engagement with financial information, enabling them to translate financial literacy into practical action better, thereby narrowing gender gaps in financial outcomes.

Firstly, with equal decision-making authority, women are more likely to pursue financial knowledge and apply structured financial information to their choices. This promotes the use of underutilized tools—such as credit, insurance, and investment—previously seen as inaccessible or irrelevant due to systemic barriers. Overcoming these obstacles encourages women to shift focus from immediate needs to long-term financial planning, aligning with patterns seen among highly literate males.

Secondly, empowered women can influence broader household financial strategies, contributing informed perspectives rooted in lived experience. This improves the quality of financial decisions and enhances financial information's mediating role in linking literacy to well-being.

Thirdly, an equal voice in decisions increases women's valuation of formal financial information, improving its relevance and strengthening its role as a mediator between financial literacy and well-being. This could help close gender-based disparities in financial outcomes.

Ultimately, empowering women in financial decisions promotes equitable access to financial resources and information, benefiting women and their households. Removing structural barriers—such as limited access to tailored financial education—is essential to achieving inclusive and sustainable financial well-being.

7.5 Implication of the findings

7.5.1 Preliminary analysis

The findings underscore the critical role of financial literacy in enhancing well-being, even among rural households with limited formal education. Notably, the impact of financial literacy is more pronounced for individuals with lower educational attainment, reinforcing the urgency for targeted financial education initiatives in such regions.

However, for financial literacy to translate into improved outcomes, it must be paired with access to appropriate financial services. Programs should be delivered alongside microfinance institutions, mobile money agents, and informal financial actors to ensure practical application. Tailored tools such as micro-loans, savings accounts, and insurance products can bridge the gap between knowledge and action. Furthermore, financial literacy education should be continuous and context-specific, especially for women, small-scale producers, and informal traders. This could involve integrating financial literacy into school curricula and establishing community-based learning hubs for adults. Lastly, collaborative efforts with NGOs, financial institutions, and telecom providers are essential for effective outreach. Leveraging radio, mobile apps, voice messaging, and local dialects can ensure financial literacy content is both accessible and culturally relevant.

7.5.2 Mediation Analysis

Despite the sociocultural factors expected to hinder the objective application of financial literacy, the finding that financial information still plays an enhancing role practically implies that community financial commitment might be mutually beneficial. This means those who contribute might benefit from other contributions when their turn arises. Therefore, socio-cultural practices should not hinder the effectiveness of financial literacy and information dissemination programs.

This study highlights the positive mediating role of financial information in the relationship between financial literacy and financial well-being. To strengthen this link, policymakers should move beyond theoretical literacy programs and prioritize practical, context-specific financial information. This includes real-time mobile money security updates, seasonal income management, and agricultural finance.

Expanding trusted financial networks is crucial. Collaborations with community leaders, agricultural extension officers, and local financial agents can improve the credibility and reach of financial information. Tailored content on secure savings methods, digital banking, and micro-insurance can empower rural households to make informed financial decisions.

Importantly, financial education must be gender-sensitive. Women in rural areas face unique challenges—such as lower education levels and limited financial autonomy—that hinder their access to financial resources. Programs should be customized for women through community savings groups, market associations, and female leadership networks. Financial solutions must also reflect the differing needs and priorities of men and women.

Additionally, the study shows that financial well-being is influenced by literacy and access to relevant information. As such, policymakers should engage grassroots institutions like *Susu* groups and mobile money agents to provide community-specific financial advisory services. Initiatives should also support affordable insurance products for culturally significant events like funerals, easing financial stress while respecting traditions.

7.6 Limitations of the study and future research

While this study offers valuable insights with practical and policy relevance, several limitations present opportunities for further research. First, the study's geographic focus on Ghana’s Upper West Region (UWR) limits the generalizability of its findings. Future research should include rural areas across Ghana’s southern, middle, and northern belts to capture diverse economic contexts, financial access levels, and cultural dynamics. A comparative approach would help design region-specific strategies to enhance financial well-being nationwide.

Second, although the study examined financial information as a mediator, prior literature highlights additional mediators—such as financial inclusion, consumption habits, financial behaviour, and planning propensity—that influence the link between financial literacy and well-being. Incorporating these factors into future models would provide a more holistic understanding and inform more comprehensive policy interventions.

Third, the study did not explore the quality of financial information, including dimensions such as timeliness, credibility, relevance, and clarity. These factors are critical for informed decision-making and should be integrated into future research, alongside financial literacy’s role in accessing and evaluating high-quality information.

Fourth, reliance on self-reported data, particularly among the formally educated, may introduce bias, as respondents might conflate education with financial knowledge. Longitudinal or experimental mixed-method designs would mitigate this bias and reveal how financial knowledge develops and is applied over time.

Lastly, using subjective assessments of financial information poses reliability challenges. Future studies should incorporate objective measures or treat financial information quality as a higher-order construct combining subjective and objective dimensions. Though beyond this study’s scope, these extensions could greatly enrich the empirical foundation for future policy design.

7.7 Chapter Summary

This study explored the mediating role of financial information in the relationship between financial literacy and financial well-being, addressing a critical research gap. The findings reveal that financial information mediates this relationship in rural Ghana’s Upper West Region (UWR). The study suggests expanding trusted financial networks and shifting from purely teaching financial literacy principles to offering practical, context-specific financial information. Despite its valuable insights, the study acknowledges several limitations, including the need for regional comparative analysis. Future research should build on these findings to further explore these dynamics across different regions and contexts.

CHAPTER EIGHT: Summary and Conclusion

8.1 Introduction

This chapter offers a comprehensive summary of the thesis, organized as follows: Section 8.2 outlines the research issue, Section 8.3 summarizes how the literature was conducted, Section 8.4 describes the research process, Sections 8.5, 8.6, and 8.7 summarize the key findings, conclusions on key findings, and contribution to literature. Section 8.8 summarizes the practical and policy implications of the study.

8.2 The issue under investigation

Financial information is expected to enhance the impact of financial literacy on well-being by supporting better financial decision-making. However, rural areas face challenges, including low financial literacy, complex household financial decisions, and socio-cultural factors that hinder sound financial choices, limiting socio-economic development. While financial information has the potential to improve financial stability for rural households, its effectiveness is uncertain, especially amidst the evolving landscape of digitalization, financial literacy programs, and gender and socio-cultural dynamics. This study sought to address the following research questions:

- How does financial literacy affect financial well-being among rural households in Ghana?
- How does financial information consumption influence the relationship between financial literacy and financial well-being among rural households in Ghana?
- How does the level of financial information affect the relationship between financial literacy and financial well-being among rural households in Ghana?
- What impact do financial information patterns have on financial well-being among rural households in Ghana at different levels of financial literacy?
- Do the sources of financial information influence the relationship between financial literacy and financial well-being among rural households in Ghana?

- Do the results change when women are equally involved in financial decision-making?

8.3 The literature

This study thoroughly reviewed the contextual, theoretical, and empirical literature to establish a strong foundation for the research on rural households. It focuses on financial literacy and well-being, addressing key themes, challenges, and controversies while highlighting gaps in existing research that call for further exploration. The review also informed the development of a theoretical framework, integrating relevant theories to form a comprehensive financial well-being model. This model guided the study and offered a conceptual lens for addressing the research problem. By synthesizing existing knowledge and conducting detailed analyses, including subgroup, cross-product, and cross-gender analyses with a mixed-method approach, the study examined financial information mediation in Ghana's Upper West Region. Overall, it significantly expanded the body of research on financial literacy in rural households.

8.4 Research Approach

This study employed a mixed-methods approach, integrating quantitative and qualitative methods to address the research questions. A quantitative survey assessed key variables—financial literacy, financial well-being, and financial information dimensions—while a qualitative approach focused on household head dynamics in the region. Primary data was collected through questionnaires and interviews in rural communities in Ghana's Upper West Region (UWR). Financial literacy and well-being were treated as higher-order constructs, and a robust quantitative framework was developed to examine their interrelationships. Structural Equation Modeling with Partial Least Squares (SEM-PLS) was used to test hypotheses and analyze path relationships, particularly suited for complex models with multiple variables. Content analysis using inductive and deductive methods was applied for qualitative data. The study first explored the relationship between financial literacy and financial well-being, then introduced mediators—financial information dimensions—to assess their impact, acknowledging that these dimensions are interdependent. The qualitative data was analyzed using content analysis to address the research questions further.

8.5 The key findings

The baseline analysis found evidence of the link between financial literacy and financial well-being. It also found that financial literacy influences financial information dimensions (consumption, level, pattern, and sources). In contrast, financial information (consumption, level, and pattern) also influences financial well-being, playing a significant mediation role.

Mediation analysis found that financial information mediates the relationship between financial information and financial well-being for all dimensions of information except for the financial information sources.

The study found that granting females equal financial decision-making rights could significantly improve their financial literacy, information, and well-being, as gender differences in resource availability, priorities, and decision-making affect their interaction with financial information.

Empowering women in financial decision-making can reduce inequities and improve financial literacy, enhancing their financial status and household welfare. The research shows that empowering women in financial affairs significantly impacts family welfare.

8.6 summary of conclusion

Following the findings concerning key hypotheses, the following conclusions are drawn from the study:

- Financial literacy influences financial well-being in rural UWR of Ghana.
- Financial literacy influences financial information dimensions (consumption, level, patterns, and sources) in the rural UWR of Ghana, while these dimensions of financial information positively improve financial well-being except for sources. `

- Financial literacy programs influence the effect of financial literacy on financial well-being in rural UWR of Ghana.
- Financial information consumption positively influences the effect of financial literacy on financial well-being in rural UWR of Ghana.
- Financial information level positively and significantly influences the impact of financial literacy on financial well-being in rural UWR of Ghana.
- Financial information patterns in rural UWR of Ghana positively mediate the effect of financial literacy on financial well-being.
- Financial literacy's effect on financial well-being does not pass through various sources of financial information in rural UWR of Ghana. Over-reliance on specific sources may negatively impact financial well-being due to misinformation, biased advice, or unsuitable financial products, highlighting the need to evaluate financial information sources critically.
- Financial literacy significantly impacts financial well-being, regardless of gender, with women often making non-financially sound decisions in certain sociocultural contexts.
- Affording women an equal role in financial decision-making will likely diminish the existing inequities and facilitate a more equitable distribution of financial literacy and information that eventually affects financial decision-making.

8.7 Summary of contribution to scholarly work

- Despite evidence that the level of education is important in beneficially using financial literacy, i.e., leading to financial well-being, this is the first study that investigates financial literacy in a region with a low level of literacy and financial literacy, specifically focusing on rural settings with limited opportunities.
- This is the first study conducted in rural regions with unique features UWR of Ghana, where sociocultural commitment usually overlooks personal financial interest and can obstruct the role of financial literacy.

- This is the first study that provides a comprehensive and detailed analysis and mixed approach analysis focusing on mediation analysis of 3 dimensions of information(levels, pattern, and sources) with a robustness check of their effect on well-being across gender, financial products, and education levels.
- Conceptualizing and testing of financial literacy has received varied attention. This study is one of the first to conceptualize and simultaneously test financial literacy and well-being as second-order constructs within a single study, especially in emerging economies, and validate these findings through qualitative assessment.
- It is always challenging to hear women's voices in household financial matters in most African countries where men dominate household headship. This study bridges this gap by examining women's and men's perspectives on equal opportunities.
- Unlike prior studies that focused on the effect of financial information sources on financial literacy, this research is the first to examine the mediating role of various sources of financial information (including government and NGO sources) and their mediating role in financial well-being. This new causal perspective, particularly in rural contexts, provides valuable insights into the dynamics of financial decision-making.
- The study challenges the proposed theoretical link by revealing that financial decisions are influenced by personal risk evaluation and trust in society's collective obligations rather than individualistic life cycles.

8.8 Summary of practical and policy implications

- Despite the challenges posed by multicultural factors, financial literacy still plays a crucial role in financial well-being, highlighting the need to strengthen financial literacy programs to improve overall well-being. This can arise from the possibility that community financial commitments are mutually beneficial.
- The study found that financial information dimensions partially mediate the relationships at the individual dimensional and as full mediation across all

dimensions, emphasizing its essential role in enhancing financial literacy programs and their effectiveness in improving financial well-being.

- Financial education should be tailored to specific groups and contexts depending on the community's needs through social and relevant organizations that necessitate proper translation into local parlances for effective delivery.
- Policymakers should enhance rural households' financial management through real-time financial information and seasonal income training by partnering with local financial agents and opinion leaders for legitimacy and acceptance.

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Appendix 1: Informed Consent

INFORMED CONSENT

Information Sheet and Consent to Participate in Research

Date:…………………………………….

Dear Household Head,

I am **Peter Kwame Kuutol,** a PhD student at the University of KwaZulu-Natal, South Africa, with Student number 222225099, and my email address is [redacted]. I am being supervised by Prof. Josue Mbonigaba, who can be contacted at Mbonigaba@ukzn.ac.za. He can also be contacted at +27312602503.

You are invited to consider participating in a study involving research on **financial literacy, financial information, and financial well-being: Evidence from Ghana Rural Households**. This research aims to gather the views and experiences of people in the Upper West Region of Ghana on how financial literacy and financial information characteristics contribute to households' financial well-being. The study is expected to enrol 598 households to respond to the questionnaires as a sample size. The duration of your participation if you choose to enroll and remain in the study is expected to be between 10-15 minutes.

We hope that the study's evidence will impact both global and national policymaking and development partners' decision-making since the concepts under investigation are on the top global agenda, i.e. Sustainable Development Goals. However, the study will provide no direct benefits to participants.
This study has been ethically reviewed and approved by the UKZN Humanities and Social Sciences Research Ethics Committee (approval number: HSSREC/00006314/2023).

In the event of any problems or concerns/questions, you may contact the researchers at ([redacted], +[redacted] or Mbonigaba@ukzn.ac.za or the UKZN Humanities & Social Sciences Research Ethics Committee, contact details as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001
Durban
4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557- Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

Participation in this study is completely voluntary, and you may refuse to participate or leave at any time. If you choose to participate in this study, you will have no direct benefits. You will not be at risk either physically or psychologically. You will not experience discomfort resulting from the research. If you decide not to participate or leave the study early, it will not result in any penalty or loss of benefits to which you are otherwise entitled. Please feel free to ask questions at any time. You may skip any question or topic you do not wish to answer, or that may make you uncomfortable. Your participation in this survey is voluntary, and if you decide to participate, your responses will be kept confidential, and you will remain anonymous. We sincerely hope this exercise will not cost you more than the opportunity cost of your precious time.

Only the researchers in this study will have access to study records. These records will be kept in a password-protected computer and constitute a research database for future reference. If, for any reason, there are records identifying you as participants, such information will be kept confidential. To ensure confidentiality, your name is not part of or removed from the data to be collected. Whatever your response will be shall remain confidential, and if results from this study are published, your identities will remain anonymous.

CONSENT

I,………………………………………………………………………………………………………
………………………………………., have been informed about the study entitled Financial Literacy and Financial Information Characteristics Contribute to rural households' financial well-being in Ghana.

I understand the purpose and procedures of the study.

I have been allowed to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits I am usually entitled to.

I have been informed that my participation will accrue no direct financial or other benefit.

If I have any further questions/concerns or queries related to the study, I understand that I may contact the researcher at ([redacted] or Mbonigaba@ukzn.ac.za).

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers, then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001
Durban
4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557 - Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

Please indicate if you agree to participate.

Yes ☐

No ☐

______________________ ______________________
Signature of Participant **Date**

______________________ ______________________
Signature of Witness **Date**
(Where applicable)

______________________ ______________________
Signature of Translator **Date**
(Where applicable)

Appendix 2: Survey Instrument (Questionnaire)

QUESTIONNAIRE ON Financial literacy and financial information characteristics contribution to rural households' financial well-being in Ghana.

Dear Respondent,

I am **PETER KWAME KUUTOL**, a PhD candidate at the University of KwaZulu Natal in South Africa. I am investigating financial literacy, financial information, and financial well-being: Evidence from Ghana Rural Households. You are encouraged to complete this questionnaire in connection with this study. Please note that this study is for academic purposes only. The information provided will remain anonymous and be used only for research purposes.

This survey is limited to only people living in the Upper West Region of Ghana who have a home and live in one of the villages in the region as defined by the Ghana Statistical Service (GSS). You cannot answer the survey questions if you do not stay in the area or live in any of the villages. Please note that this survey is voluntary, and you are reserved the right to decline participation.

Respond to all questions by ticking an appropriate option that best describes you and your household. If possible, write your responses. If you need more information on completing this questionnaire, contact the researcher on [redacted] **or email 222125099@stu.ukzn.ac.za.**

Thank you in advance for your assistance.

The questionnaire contains seven section.

A. GENERAL AND DEMOGRAPHIC INFORMATION

1. What is your Sex?
   a) Male
   b) Female

2. Which age bracket do you belong to?
   a) 18-19 years
   b) 20-29 years
   c) 30-39 years
   d) 40-49 years
   e) 50-59 years
   f) 60+ years

3. Are you a retiree?
   a) Yes
   b) No

4. Which of the following best describes your marital status?
   a) Single

b) Married
c) Divorced
d) Separated
e) Widow/widower

5. How many children have you given birth to?

a) None
b) 1-2
c) 3-4
d) 5-6
e) 7+

6. How many children have you adopted?

a) None
b) 1-2
c) 3-4
d) 5-6
e) 7+

7. What is your Highest Level of Education?

1. Never attended School
2. Up to Junior High School or Equivalent
3. Senior High School or Equivalent
4. Diploma or Equivalent
5. Bachelor's degree
6. Post-graduate degree and above

8. In which Sector do you work?

1. Agric – Self-employed
2. Trading-self-employed
3. Formal Sector – Public
4. Formal Sector – Private
5. Unemployed

9. How many years have you been working or unemployed?

a) Less than 1 year
b) 1-3 years
c) 4-6 years
d) 7+ years

10. What was your household average annual income in the previous year?

a) GH¢ 5,000 or less
b) GH¢5,001-GH¢ 10,000.00
c) GH¢10,001- GH¢20,000.00
d) GH¢20,001- GH¢30,000.00
e) GH¢30,001- GH¢40,000.00
f) GH¢40,001- GH¢50,000.00
g) Above GH¢ 50,000.00

11. Where do you live in …….

a) A rented residence

b) My own residence
c) My parents' residence
d) Institution provided residence

12. Have you received financial literacy education before?

a) Yes
b) No

B. FINANCIAL LITERACY

In this part, the research aims to measure the level of financial literacy

13. Imagine five of your friends receive a donation of GH¢ 1,000.00 and must equally divide the money between them. How much will each of them get?

a) GH¢100
b) GH¢200
c) GH¢1000
d) Don't know

14. Assume you saw the same television at two stores, A and B, for the initial price of GH¢ 1,000.00. Shop A offers a discount of GH¢ 150.00, while shop B provides a discount of 10%. Which of the stores will you buy from?

a) Buying in shop A (discount of GH¢150)
b) Buying in shop B (discount of 10%)
c) The value is the same
d) Don't know

15. When the inflation rate or price of goods and services increases, the cost of living rises. This statement is:

a) True
b) False
c) Don't know

16. When you distribute your investments among two or more different business activities, the risk of losing money………

a) increases
b) decreases
c) Remains Unchanged
d) Don't know

17. Assume Kwame inherits GH¢ 10,000.00 today and Peter inherits GH¢ 10,000.00 in about 3 years. Because of this inheritance, who will get richer?

a) Kwame
b) Peter
c) They are equally rich

d) Don't know

18. Suppose you had GH¢100 in a savings account, and the interest rate is 2% yearly. After 5 years, how much would you have in your account if you left the money to grow?

a) GH¢ 110 or more
b) Exactly **GH¢** 110
c) Less than **GH¢** 110
d) Don't know

19. Imagine that the interest rate on your savings account was 1% per year, and inflation was 2% per year. After one year, how much can you buy with the money in this account?

a) More than today
b) Exactly today
c) Less than today
d) Don't know

20. Please indicate your level of agreement with the following statement relative to financial Literacy on a scale of 1-7. (Where 1 means strongly disagreed and 7 strongly agreed).

statement	**1**	**2**	**3**	**4**	**5**	**6**	**7**
My household compares prices when making a purchase.							
My household usually reaches the goals I set when managing my money.							
Before buying anything, I carefully check whether I can pay for it.							
My household saves regularly to achieve long-term financial goals such as my children's education, home purchase, and retirement.							
My household has a financial reserve equal to or greater than 3 times my monthly expenses, and it can be quickly accessed.							
When deciding on which financial products and loans to use, my household considers the options from various institutions.							
My household is able to identify the costs we pay to buy a product on credit.							

My household buys on credit when the facility is available rather than paying cash immediately.							

C. FINANCIAL WELL-BEING

In this section, the research aims to measure financial well-being. Please indicate your level of agreement with the following statement relative to financial well-being on a scale of 1-10.

21. My household's level of financial stress is

1	2	3	4	5	6	7	8	9	10
Overwhelming stress									**No stress at all**

22. My household is satisfied with the present financial situation

1	2	3	4	5	6	7	8	9	10
Very Dissatisfied									**Very Satisfied**

23. My household feels comfortable with our current financial situation.

1	2	3	4	5	6	7	8	9	10
Feel overwhelmed									**Feel comfortable**

24. My household worries about meeting our normal monthly living expenses

1	2	3	4	5	6	7	8	9	10
Worry all the time									**Never worry**

25. My household is confident we could find the money to pay for a financial emergency costing GHC 2000.

1	2	3	4	5	6	7	8	9	10
No confidence									**High confidence**

26. My household doesn’t skip social gatherings or other activities because we can afford the associated costs.

1	2	3	4	5	6	7	8	9	10
Disagreed									**Agreed**

27. My household struggles to get by financially and lives from one source of income to another.

1	2	3	4	5	6	7	8	9	10
All the time									**Never**

28. The current financial situation of my household causes significant concern for our survival.

1	2	3	4	5	6	7	8	9	10
Almost always									**Never**

29. How long has your household been in arrears on basic utility bills (e.g., electricity, medical expenses) in the past 12 months?

a) In arrears of above 7 months
b) In arrears of 7 months
c) In arrears of 6 months
d) In arrears of 5 months
e) In arrears of 4 months
f) In arrears of 3 months
g) In arrears of 2 months
h) In arrears of 1 month
i) Just less than one month
j) Had no payment problem

30. State the number of weeks in the past year when your household lacked funds to cover expenses.

a) Above 24 weeks
b) Between 21-24 weeks
c) Between 17-20 weeks
d) Between 13-16 weeks
e) Between 9-12 weeks
f) Between 5-8 weeks
g) Between 2- 4 weeks
h) Less than 2 weeks but not more than a week
i) Less than 1 week
j) Never had the problem of spending money to spend

31. State the number of months in the last year when your household spending exceeded income

a) 9 months or more
b) 8 months
c) 7 months
d) 6 months
e) 5 months
f) 4 months
g) 3 months
h) 2 months
i) 1 month
j) Never experience spending exceeding income

32. How many months of your household's usual expenses can your current savings cover?

a) Not even a single month

b) 1-month expenses
c) 2 months expenses
d) 3 months expenses
e) 4 months expenses
f) 5 months expenses
g) 6 months expenses
h) 7 months expenses
i) 8 months expenses
j) than 8 months' expenses

D. FINANCIAL INFORMATION CONSUMPTION

In this segment, the research aims to measure general financial information consumption

33. Please indicate your household consumption of information with the following statement relative to financial information. (1 less sufficient to 7 very sufficient)

statement	1	2	3	4	5	6	7
My household has financial information to honour and deal with financial matters.							
My household has information to anticipate and plan for financial income and expenses.							
My household has the information to make rational financial decisions that align with financial possibilities.							
My household thinks and looks for relevant information and the financial consequences of purchasing decisions.							
My household tries to be informed and educated about personal financial management.							
My household follows financial information that affects our financial situation daily.							
My household found financial information available to us easy to understand.							

E. FINANCIAL INFORMATION LEVEL

In this segment, the research aims to measure the level of financial information level.

34. **Please rate your household level of information on the following financial products as basic (1), intermediate (2), or advanced (3)**

Financial Product	**Basic**	**Intermediate**	**Advanced**
Savings			
Investments			
Financial planning			
Insurance (Life and property)			
Loans (personal, auto etc)			
Deposit			
Financial budgeting			

35. **Please indicate your household-level agreement with the following statement relative to your financial information level. (1 means strongly disagreed to 7 strongly agreed)**

statement	**1**	**2**	**3**	**4**	**5**	**6**	**7**
My household has a high level of financial information relative to the following financial products:							
Savings							
Investments							
Financial planning							
Insurance (life and property)							
Loans (personal, auto etc)							
Deposit							
Financial budgeting							

F. FINANCIAL INFORMATION CONSUMPTION PATTERN

In this segment, the research aims to measure the pattern of financial information consumption.

36. **How has your financial information-seeking behaviour changed recently for the following financial products? (Decreased, Stayed the Same, Increased)**

Financial Product	**Decreased**	**Stay same**	**Increased**

Savings			
Investments			
Financial planning			
Insurance (life and property)			
Loans (personal, auto, etc)			
Deposit			
Financial budgeting			

37. Please indicate your level of agreement with the following statement relative to your household financial information-seeking pattern on financial products. (1 means strongly disagreed to 7 strongly agreed)

statement	**1**	**2**	**3**	**4**	**5**	**6**	**7**
My household pattern of information seeking is increasing relative to the following financial products.							
Savings							
Investments							
Financial planning							
Insurance (life and property)							
Loans (personal, auto etc)							
Deposit							
Financial budgeting							

G. FINANCIAL INFORMATION CONSUMPTION SOURCES

In this segment, the research aims to measure the sources of financial information consumption.

38. Please indicate the level at which you wish to consult the following sources of financial information. (1 less preferred to 7 most preferred).

Source of financial information	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Traditional media(Television, newspapers, magazines)							
Financial advisors, planners, or professional							

Family Members							
Friends and peers							
Government and its agencies							
Non-Governmental Organizations (NGOs)							
Internet							
Social media							

39. **Please indicate how the following sources of information influenced how your household behaves with money management. (1 less influence to 7 more influence)**

Source of financial information	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Traditional media(Television, newspapers, magazines)							
Financial advisors, planners or professional							
Family Members							
Friends and peers							
Government and its agencies							
Non-Governmental Organizations (NGOs)							
Internet							
Social media							

Thank you very much for participating in this survey. Your response will make a difference in our world today.

Appendix 3: Semi-Structured Interview Questions

a. What are your household triggers of financial information search to build financial knowledge and decision-making?
b. How do you share financial information among your household members?
c. What is your source of income? Do you have any other sources of income again?
d. What household financial management practices do you use to plan for the long-term financial goals of your household?
e. How do you perceive your financial literacy's effect on your household's financial well-being?
f. Can you describe a time when your financial knowledge helped (or failed to help) you manage a financial challenge in your household?
g. In what ways does financial literacy influence decision-making and goal-setting in your household?
h. What is your household composition, and what is relationship with them? How do your household's dynamics influence financial decision-making?
i. How has your household size changed over the years? How has your household size impacted your financial decisions? How has your financial knowledge influenced your household choices?
j. What is the age composition of your household members? Does the level of education of your household members influence your household's financial decision-making?
k. Have your household experienced interhousehold mobility? How does interhousehold mobility affect financial decisions, and how do you utilize financial knowledge to adapt?
l. Do you have any of your household members living in the city?
m. In what ways does financial information consumption affect your household's financial decisions?
n. How does your household's changing pattern of information affect financial decision-making?
o. How does the level of financial information impact your household financial planning and decision-making?
p. What are your household sources of financial information? What role do financial information sources play in your household financial decisions?
q. What is the effect of social events like funerals, weddings, naming, and festivals on your financial decision-making?
r. Have you adopted or used financial technology? If yes, what kind of financial technology?
s. Have you joined any informal financial group? What financial service or product do you access there?
t. What is the closest financial institution? Do you have a financial product or service with them?

Appendix 4: Gatekeeper Letter

REPUBLIC OF GHANA

UPPER WEST
REGIONAL CO-ORDINATING
COUNCIL

P. O. Box 151, Wa
Digital Address : XW - 0007 -0552
Kindly quote this number and date on all correspondence
My Ref No. UWRCC
Your Ref No.
Date 25 - 10 - 2023

Dear Mr. Kuutol,

RE: PERMISSION TO USE RURAL COMMUNITIES IN YOUR REGION FOR PhD STUDIES

I write regarding your letter dated 24th October 2023, requesting permission to use rural communities in the Upper West Region of Ghana for your PhD in Economics studies.

I am happy to inform you that your request for permission is granted subject to submission of ethical clearance from your institution of study and any other relevant documents to the Regional Co-ordinating Council before data collection starts.

Additionally, a copy of your study outcome is requested after completion of your study.

I wish you well in your studies.

Thank you.

Yours faithfully

[redacted]

BAYUO MENANCE DENNIS
DEPUTY DIRECTOR
FOR: REGIONAL MINISTER

CC: All District Co-ordinating Directors

Tel: +233 (0) 392 022 074
Email: info@uwrcc.gov.gh
Website: www.uwrcc.gov.gh

Appendix 5: Turnitin Report Summary

Financial literacy, financial information, and financial well-being: Evidence from Ghana rural households

ORIGINALITY REPORT

10%	9%	%	5%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.mdpi.com Internet Source	3%
2	www.coursehero.com Internet Source	<1%
3	Submitted to universititeknologimara Student Paper	<1%
4	link.springer.com Internet Source	<1%
5	www.researchgate.net	<1%

Appendix 6: Ethical Clearance Approval Letter

UNIVERSITY OF KWAZULU-NATAL ™
INYUVESI YAKWAZULU-NATALI

22 April 2025

Peter Kwame Kuutol (222125099)
School of Acc Economics & Fin
Pietermaritzburg Campus

Dear PK Kuutol,

Protocol reference number: HSSREC/00006314/2023
Project title: Financial literacy and financial information characteristics contribution to rural households' financial well-being in Ghana.
Amended title: Financial literacy, financial information, and financial well-being: Evidence from Ghana rural households
Degree: PhD

Approval Notification – Amendment Application

This letter serves to notify you that your application and request for an amendment received on 16 April 2025 has now been approved as follows:

- Change in title

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form; Title of the Project, Location of the Study must be reviewed and approved through an amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

HSSREC is registered with the South African National Health Research Ethics Council (REC-040414-040).

Best wishes for the successful completion of your research protocol.

Yours faithfully

[redacted]
....
Doctor Shamila Naidoo (Senior Deputy Chair)

/nng

Humanities & Social Sciences Research Ethics Committee
UKZN Research Ethics Office Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Tel: +27 31 260 8350 / 4557 / 3587
Website: http://research.ukzn.ac.za/Research-Ethics/

Appendix 7: Language Editor's Letter

62 Ferguson Road
Glenwood
DURBAN 4001
Tel: [redacted]
Email: [redacted]

8 July 2024

This serves to confirm that I have edited the thesis, "Financial literacy and financial information characteristics' contribution to rural households' financial well-being in Ghana", by Peter Kwame Kuutol, student number 222125099.

DISCLAIMER: The editor cannot be held responsible for any errors introduced due to changes being made to the document after the editing is complete.

Yours sincerely,

[redacted]

(Ms) Deanne Collins (MA)

Appendix 8: Postgraduate Supervision Agreement

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

COLLEGE OF LAW AND MANAGEMENT STUDIES

Proposed degree: …PhD Economics ……………………

Postgraduate Supervision Agreement[1] Year of 1st registration: ……

Student:

Surname: …… KUUTOL ……………………… Name: … PETER ……………………

Student number: 222125099……………… E-mail: 222125099@stu.ukzn.ac.za…………

Supervisor: Josue Mbonigaba …. E-mail: mbonigaba@ukzn.ac.za

Co-supervisor: … Rufaro Gardzai …………………… E-mail: … rgaridzirai@wsu.ac.za ……….

Proposed Title: Financial literacy, financial information, and financial well-being: Evidence from Ghana rural Households.

A Purpose of the Agreement

1. The purpose of this supervision agreement is not intended to be a legally binding agreement, but an informal guide to ensure that all the parties understand and accept the expectations of a postgraduate research component at UKZN.
2. The purpose of the agreement is to protect both the Student and the Supervisor(s), by setting out the duties and responsibilities of each party ensuring that each party understands and commits to the expectations of the other.
3. Both parties commit themselves to striving for a productive, trustful and honest working relationship, aiming for the achievement of a research degree award, which can be best achieved by adhering to the principles contained in this agreement.
4. Once signed this agreement should be forwarded by the Supervisor(s) to the relevant graduate school administrator and a copy kept for reference within the School. This should be completed within the first month of the Student's candidature.

B Applicable Policies and Guidelines

This document must be read together with the existing UKZN and CLMS policies and guidelines, including the applicable *Handbook*, the *UKZN Guidelines on the Supervision of Post-Graduate Degrees;* the *University's policy in relation to Plagiarism*; *Research Policies I-V* including *Research Ethics;* and the *University's policy in relation to Intellectual Property Rights* together with the prescribed format and forms for the Research Proposal; Ethical Clearance; Intellectual Property Rights; Informed Consent and Gatekeepers Permission Letters if applicable.

C Co-authorship

The Supervisor(s) and the Student must reach agreement on the terms of any possible co-authored publication which may arise out of the research. [Note: The student is generally the 1st author.]

The primary roles and responsibilities are set out hereunder. Any deviation or additions to the roles and responsibilities must be by agreement, and must be in writing.

[1] Approved by CMC on 31 March 2014.

1

D Responsibilities of the Supervisor(s)

During the course of the postgraduate studies, the Student can expect the Supervisor(s) to:

1. To provide academic support and guidance in relation to the project (this does NOT include editing student drafts), including the completion of progress reports annually.
2. Guide the Student to adhere to all the administrative requirements of the University.
3. Give guidance about the nature of the research and the standard expected, about planning the research programme, to advise the Student on literature and sources in the field which might be of assistance, the requisite techniques and the avoidance of plagiarism.
4. Develop a time line with the Student, which includes the finalisation of the research proposal, obtaining the necessary approvals, data collection, data analysis and the completion of the research report.
5. To maintain regular contact with the student depending on the circumstances. Contact can include through tutorials, PhD cohort and/or supervision meetings as agreed with the Student.
6. Return feedback on the written work of the Student within the time frame negotiated with the Student.
7. To oversee and support the student in responding to examiners' requirements. Facilitate the completion of the research project within the permissible period.
8. Work towards establishing, maintaining and monitoring a professional supervision relationship and resolve conflict. This includes providing a collaborative research environment and encouraging open communication.
9. To complete and sign the document acknowledging submission by the student as well as the Supervisor's Report.
10. To assist with the supervision of any corrections during the examination process should the need arise.
11. Not to disengage with the supervision of the Student without prior approval by the SRHDC.

E Responsibilities of the Student

During the course of the postgraduate studies, the Supervisor(s) can expect the Student to:

1. Accept that the principal responsibility for the research and its progress lies with the Student and not the Supervisor(s).
2. Develop a time line in consultation with the Supervisor(s), which includes the finalisation of the research proposal, obtaining the necessary approvals, data collection, data analysis and the completion of the research report.
3. Maintain ethical standards in the conduct of the research.
4. Inform the Supervisor(s) of the progress with the research process, and of any changes or significant delays. The Student must have due regard to the exclusion rules of the University and also notify the Supervisor(s) if he will be absent from the university for an extended time and make suitable arrangements for other forms of contact. The Student must also inform the Supervisor(s) and the PG Office about any intention to suspend registration.
5. Keep copies of all work and documentation about progress – including approvals, permissions, and letters of consent, raw data and analyses.
6. Keep proper minutes of all meetings with Supervisor(s) and deadlines agreed to.
7. Submit written work to the Supervisor(s) by the agreed deadline.
8. Submit all written work in full; on time; properly typed and formatted; comprehensively and correctly referenced; and fully edited to eliminate grammatical and spelling errors.
9. Familiarise themselves with all the administrative requirements of the University.
10. Work towards establishing, maintaining and monitoring the supervision relationship and resolve conflict.
11. Read in the research area and pass on any key articles to the Supervisor(s) to read.
12. Submit / proceed with the following timeously to the supervisor(s) / PG Office as determined in the various policy documents:
    a. Registration per semester
    b. Annual progress reports
    c. Notice of intention to submit
    d. Ethical clearance application / Application for change of title
    e. Turnitin Report with the final submission of the thesis / dissertation.
13. Note: The student should not be expected to perform additional duties for the supervisor unless specifically agreed upon and formalised in terms of the University rules and regulations.

F Responsibilities of the Schools:

During the course of the postgraduate studies, the Supervisor(s) and the Student can expect the School to:

1. To ensure that the appointed supervisors have sufficient knowledge in the specific discipline.
2. To provide a conducive environment for both the supervisor(s) and the student to carry their responsibilities in a meaningful way. The School will assist with conflict resolution should it be necessary and the parties cannot resolve it themselves.
3. To exercise a monitoring role over the progress of the students.
4. To provide the necessary resources for research supervision.
5. To assist the supervisor(s) and the student with the information to acquaint themselves with the guidelines and policies relating to research supervision.
6. To ensure the annual submission of progress reports to the College Research Office.
7. Ensure that the Supervisor(s) is not already overcommitted in terms of the Senate norms and will remain fully conversant with the project. [In addition, the supervisor will ensure continuing supervision of the Student during any sabbatical or leave of absence from the University, whether it is to appoint a new Supervisor(s) or arrange interim supervision of the Student.]
8. To appoint suitable examiners and administer the examination process diligently.
9. To ensure the collation of the required documentation for the possible DC of the student.

G Details to negotiate and agree:

1 Frequency of meetings:[2] once a month (2 weeks for the student submit draft, 2 weeks for supervisor to read and give written feedback and meet within a week of feedback)...

2 Person responsible for arranging meetings / drafting agenda / minutes: supervisor ..

3 Maximum agreed period of time for feedback on drafts: ......2 weeks......................

4 Projected date for the submission of the research proposal: done already.........................

5 How often will the student present written work? eg. **monthly, for submission of draft and receiving feedback in two weeks ....**

Supervisor: ...Josue Mbonigaba [redacted] .... Date: ... 20 Oct 2023 ....

Co-supervisor ...Rufaro Garidzai [redacted] ..... Date: ...20 oct 2023 ....

Student: Peter Kwame Kuutol [redacted] Student: Date: 20 Oct 2023 ....

[2] The Student and Supervisor will meet regularly to ascertain and discuss the progress made in the research. For full-time students the formal contact between Student and Supervisor or Supervisory team should be at least 4(four) structured interactions per year.

Appendix 9: District sample size

District and communities	Households per HPC 2021	Proportional sample targeted	Realised sample	Female-headed	Male-headed
Wa West District	17,744	56	60	2	58
Guo		11	12	0	12
Pase		11	12	0	12
Ga		11	12	1	11
Nyoli		12	12	1	11
Tuole		11	12	0	12
Wa East District	17,828	56	60	3	57
Fuffiama		12	12	3	9
Mawine		12	12	0	12
Bulenga		12	12	0	12
Baayiri		10	12	0	12
Viahaa		10	12	0	12
Wa Municipality	49,500	156	160	5	155
Dandafuro		16	16	1	15
Sing		16	16	0	16
Chansa		16	16	1	15
Nokori		16	16	0	16
Kpongu		16	16	0	16
Busa		16	16	1	15
Goohi		15	16	1	15
Kperisi		15	16	1	15
Chegli		15	16	0	16
Konjiahi		15	16	0	16
Nadoli-Kaleo District	14,747	46	55	3	52
Tangasie		8	11	1	10
Takpo		8	11	1	10

Yyaga		8	11	0	11
Sankana		8	11	1	10
Kanyini		8	11	0	11
Naro		6	11	0	11
Daffiama-Bussie	7,280	23	50	2	48
District		8	12	1	11
Moyiri		9	12	0	12
Kanato		0	12	0	12
Owlo		7	16	1	15
Kinkele					
Sissala-East Municipality	19,262	61	64	0	64
Kong		10	11	0	11
Sakai		10	11	0	11
Pieng		10	11	0	11
Challo		10	10	0	10
Kulfuo		10	10	0	10
Walembelle		11	11	0	11
Sissala-West District	14,594	46	50	0	50
Liero		10	10	0	10
Buo		9	10	0	10
Wasai		9	10	0	10
Jeffisi		9	10	0	10
Dakuma		9	10	0	10
Jirapa Municipality	16,463	52	60	4	56
Tangasie		12	12	1	11
Volo		10	12	0	12
Tampala		10	12	0	12
Tizza		10	12	0	12
Ullo		10	12	3	9
Lawra Municipality	11,962	38	40	3	37

Boo Kunyukuo Nawayele Dowine		8 10 10 10	10 10 10 10	1 1 1 0	9 9 9 10
Lambussie-Kami Tayaguri Dahili Billow Senna	10,944	34 8 9 9 8	40 10 10 10 10	1 0 1 0 0	39 10 9 10 10
Nandom Municipality Tokuu Tome Kuduo Tuopare Vapuo	9,864	31 7 8 8 8 	45 10 10 10 10 5	6 2 1 1 1 1	39 8 9 9 9 4
Total	190193	598	684	29	655

Appendix 10: Household headship picked

District	Household	Headship
Wa West	1	Male
Wa East	1	Female
Wa municipal	2	Female and Male
Nadoli-Kaleo	1	Female
Daffiama Bussie	1	Male
Sissala East	1	Female
Sissala West	1	Male
Jirapa	1	Male
Lawra	1	Female
Lambussie-Kami	1	Female
Nandom	1	Male

Appendix 11: Other Results
Financial information Level on Specific Financial Products

Direct Effect	Coef	Std Dev.	t-stat	p-values	Percentile Bootstrap 95% Confidence Interval	
					Lower	Upper
FILbudgeting -> FWB	0.062	0.043	1.452	0.146	-0.022	0.146
FILdeposit -> FWB	-0.052	0.044	1.165	0.244	-0.139	0.034
FILinsurance -> FWB	0.146	0.040	3.664	0.000	0.066	0.222
FILinvestment -> FWB	0.006	0.047	0.129	0.898	-0.085	0.100
FILloan -> FWB	0.101	0.039	2.603	0.009	0.027	0.179
FILplanning -> FWB	0.019	0.046	0.419	0.675	-0.072	0.111
FILsaving -> FWB	0.210	0.046	4.510	0.000	0.118	0.298
FL -> FILbudgeting	0.239	0.035	6.756	0.000	0.168	0.309
FL -> FILdeposit	0.281	0.037	7.676	0.000	0.209	0.353
FL -> FILinsurance	0.334	0.035	9.635	0.000	0.266	0.403
FL -> FILinvestment	0.480	0.031	15.449	0.000	0.419	0.541
FL -> FILloan	0.346	0.037	9.466	0.000	0.275	0.415
FL -> FILplanning	0.425	0.034	12.488	0.000	0.359	0.490
FL -> FILsaving	0.516	0.030	16.980	0.000	0.455	0.575
FL -> FWB	0.185	0.044	4.176	0.000	0.099	0.274

Total Effect	Coef	Std Dev	t-stat	P values	Percentile Bootstrap 95% Confidence Interval	
					Lower	Upper
FILbudgeting -> FWB	0.062	0.043	1.452	0.146	-0.022	0.146
FILdeposit -> FWB	-0.052	0.044	1.165	0.244	-0.139	0.034
FILinsurance -> FWB	0.146	0.040	3.664	0.000	0.066	0.222
FILinvestment -> FWB	0.006	0.047	0.129	0.898	-0.085	0.100
FILloan -> FWB	0.101	0.039	2.603	0.009	0.027	0.179
FILplanning -> FWB	0.019	0.046	0.419	0.675	-0.072	0.111
FILsaving -> FWB	0.210	0.046	4.510	0.000	0.118	0.298
FL -> FILbudgeting	0.239	0.035	6.756	0.000	0.168	0.309
FL -> FILdeposit	0.281	0.037	7.676	0.000	0.209	0.353
FL -> FILinsurance	0.334	0.035	9.635	0.000	0.266	0.403
FL -> FILinvestment	0.480	0.031	15.449	0.000	0.419	0.541
FL -> FILloan	0.346	0.037	9.466	0.000	0.275	0.415
FL -> FILplanning	0.425	0.034	12.488	0.000	0.359	0.490
FL -> FILsaving	0.516	0.030	16.980	0.000	0.455	0.575
FL -> FWB	0.389	0.034	11.519	0.000	0.322	0.454

Financial Information Pattern on Specific Financial Products

	Coef	Std Dev.	t-stat	p-values	Percentile Bootstrap 95% Confidence Interval	
Direct Effect					Lower	Upper
FIPbudgeting -> FWB	0.030	0.040	0.736	0.462	-0.049	0.111
FIPdeposit -> FWB	-0.085	0.045	1.876	0.061	-0.174	0.004
FIPinsurance -> FWB	0.133	0.044	3.028	0.002	0.047	0.219
FIPinvestment -> FWB	0.100	0.047	2.153	0.031	0.006	0.190
FIPloan -> FWB	0.178	0.043	4.176	0.000	0.092	0.260
FIPplanning -> FWB	-0.062	0.045	1.388	0.165	-0.148	0.026
FIPsaving -> FWB	0.163	0.046	3.575	0.000	0.072	0.250
FL -> FIPbudgeting	0.400	0.036	10.958	0.000	0.328	0.471
FL -> FIPdeposit	0.362	0.033	11.036	0.000	0.297	0.426
FL -> FIPinsurance	0.438	0.032	13.602	0.000	0.375	0.500
FL -> FIPinvestment	0.510	0.030	16.713	0.000	0.448	0.568
FL -> FIPloan	0.438	0.029	15.085	0.000	0.381	0.494
FL -> FIPplanning	0.464	0.033	14.217	0.000	0.399	0.526
FL -> FIPsaving	0.503	0.031	16.300	0.000	0.442	0.562
FL -> FWB	0.167	0.048	3.492	0.000	0.075	0.264

	Coef	Std Dev.	t-stat	p-values	Percentile Bootstrap 95% Confidence Interval	
Total Effect					Lower	Upper
FIPbudgeting -> FWB	0.030	0.040	0.736	0.462	-0.049	0.111
FIPdeposit -> FWB	-0.085	0.045	1.876	0.061	-0.174	0.004
FIPinsurance -> FWB	0.133	0.044	3.028	0.002	0.047	0.219
FIPinvestment -> FWB	0.100	0.047	2.153	0.031	0.006	0.190
FIPloan -> FWB	0.178	0.043	4.176	0.000	0.092	0.260
FIPplanning -> FWB	-0.062	0.045	1.388	0.165	-0.148	0.026
FIPsaving -> FWB	0.163	0.046	3.575	0.000	0.072	0.250
FL -> FIPbudgeting	0.400	0.036	10.958	0.000	0.328	0.471
FL -> FIPdeposit	0.362	0.033	11.036	0.000	0.297	0.426
FL -> FIPinsurance	0.438	0.032	13.602	0.000	0.375	0.500
FL -> FIPinvestment	0.510	0.030	16.713	0.000	0.448	0.568
FL -> FIPloan	0.438	0.029	15.085	0.000	0.381	0.494
FL -> FIPplanning	0.464	0.033	14.217	0.000	0.399	0.526
FL -> FIPsaving	0.503	0.031	16.300	0.000	0.442	0.562
FL -> FWB	0.389	0.034	11.459	0.000	0.321	0.455

Sources of Financial information

Direct Effect	Coef	Std Dev.	t-stat	p-values	Percentile Bootstrap 95% Confidence Interval Lower	Upper
FISadvisors -> FWB	0.177	0.071	2.499	0.012	0.033	0.313
FISfamily -> FWB	0.000	0.086	0.003	0.997	-0.169	0.167
FISgovernment -> FWB	0.146	0.056	2.595	0.009	0.037	0.255
FISinternet -> FWB	-0.099	0.060	1.653	0.098	-0.217	0.018
FISngo -> FWB	0.192	0.057	3.361	0.001	0.078	0.302
FISpeers -> FWB	-0.114	0.082	1.387	0.166	-0.273	0.054
FISsociamedia -> FWB	-0.095	0.066	1.448	0.148	-0.225	0.032
FIStraditional -> FWB	-0.007	0.060	0.120	0.904	-0.127	0.110
FL -> FISadvisors	0.557	0.030	18.516	0.000	0.496	0.614
FL -> FISfamily	0.566	0.031	18.429	0.000	0.504	0.624
FL -> FISgovernment	0.577	0.029	19.823	0.000	0.518	0.633
FL -> FISinternet	0.534	0.030	17.985	0.000	0.474	0.591
FL -> FISngo	0.532	0.032	16.561	0.000	0.467	0.593
FL -> FISpeers	0.569	0.030	18.709	0.000	0.507	0.627
FL -> FISsociamed	0.780	0.020	38.801	0.000	0.739	0.818
FL -> FIStraditional	0.699	0.024	28.921	0.000	0.650	0.745
FL -> FWB	0.308	0.072	4.291	0.000	0.170	0.451

Total Effect	Coef	Std Dev.	t-stat	p-values	Percentile Bootstrap 95% Confidence Interval Lower	Upper
FISadvisors -> FWB	0.177	0.071	2.499	0.012	0.033	0.313
FISfamily -> FWB	0.000	0.086	0.003	0.997	-0.169	0.167
FISgovernment -> FWB	0.146	0.056	2.595	0.009	0.037	0.255
FISinternet -> FWB	-0.099	0.060	1.653	0.098	-0.217	0.018
FISngo -> FWB	0.192	0.057	3.361	0.001	0.078	0.302
FISpeers -> FWB	-0.114	0.082	1.387	0.166	-0.273	0.054
FISsociamed -> FWB	-0.095	0.066	1.448	0.148	-0.225	0.032
FIStraditional -> FWB	-0.007	0.060	0.120	0.904	-0.127	0.110
FL -> FISadvisors	0.557	0.030	18.516	0.000	0.496	0.614
FL -> FISfamily	0.566	0.031	18.429	0.000	0.504	0.624
FL -> FISgov	0.577	0.029	19.823	0.000	0.518	0.633
FL -> FISinternet	0.534	0.030	17.985	0.000	0.474	0.591
FL -> FISngo	0.532	0.032	16.561	0.000	0.467	0.593
FL -> FISpeers	0.569	0.030	18.709	0.000	0.507	0.627
FL -> FISsociamed	0.780	0.020	38.801	0.000	0.739	0.818
FL -> FIStraditional	0.699	0.024	28.921	0.000	0.650	0.745
FL -> FWB	0.396	0.032	12.324	0.000	0.332	0.459