

**ATILIM UNIVERSITY
GRADUATE SCHOOL OF SOCIAL SCIENCES
DEPARTMENT OF BUSINESS ADMINISTRATION
BUSINESS ADMINISTRATION MASTER'S PROGRAMME**

**IMPACT OF FINANCIAL LITERACY ON HOUSEHOLD SAVING AND
INVESTMENT IN RWANDA**

Master's Thesis

Melchiade NIYOMUGABO

Ankara-2024

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Ankara-2024

ACCEPTANCE AND APPROVAL

This is to certify that this thesis titled “The Impact of Financial Literacy on Household Saving and Investment in Rwanda” prepared by Name Melchiade NIYOMUGABO meets with the committee’s approval unanimously by a majority vote as a Master’s Thesis in the field of Business Administration following the successful defense conducted on 23/05/2024.

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ETHICAL STATEMENT

I accept and acknowledge that I have prepared this thesis study, prepared in line with the Thesis Writing Guidelines of Atılım University Graduate School of Social Sciences;

- within the framework of academic and ethical rules;
- presented the information, documents, evaluations, and results in a way that meets the rules of scientific ethics and morality,
- I have referenced each work from which I have benefited while preparing my thesis, and that
- I hereby present a unique study.

I hereby also understand that I shall accept any loss of rights against my behalf in cases otherwise.

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ÖZ

Melchiade NIYOMUGABO. Ruanda'da finansal okuryazarlık düzeyinin hane halkının tasarruf ve yatırımları, Yüksek Lisans Tezi, Ankara, 2024.

Bu çalışma, Ruanda'da finansal okuryazarlık düzeyinin hane halkının tasarruf ve yatırımları üzerindeki etkisini nicel bir araştırma tasarımı uygulayarak araştırmıştır. Araştırmada, Ruandalıların finansal varlıklar ve ürün yönetimine yönelik finansal yeteneklerini test etmek amacıyla Ruanda Ulusal İstatistik Enstitüsü tarafından yürütülen Ruanda'nın 2020 mali kapsamı anketinden elde edilen ikincil veriler kullanıldı. Anket, Ruanda'daki bireysel hanelerin finansal okuryazarlık düzeyini ve Gelir, Cinsiyet, Yaş ve Eğitim düzeyi dahil Sosyo-Demografik faktörleri ölçmek için temsili olarak kullanılan soruları içeriyordu. Genel olarak Ruanda vatandaşları finansal okuryazardır ve genel finansal okuryazarlık ortalaması 8,85/12 puan olup %73,75'tir. Verileri analiz etmek ve İkili Lojistik Regresyon Modeli yordayıcılarının parametrelerini tahmin etmek için Sosyal Bilimler Çalışmaları İstatistik Paketi (SPSS) kullanıldı. Araştırma bulguları, bireysel finansal okuryazarlık düzeylerinin tasarruf ve yatırım olasılığı üzerinde güçlü bir etkisi olduğunu tespit etti. Ayrıca, gelir aralığı da dahil olmak üzere demografik özellikler ve 12 yaş ve üzeri örgün eğitim almış katılımcıların bir parçası olmak, Ruanda nüfusu arasında tasarruf ve yatırım yapma olasılığını etkilemektedir. Cinsiyet ve yaş, hane halkı tasarrufları ve yatırımları üzerinde güçlü bir etki olmaksızın çelişkili sonuçlar gösterdi. Genel olarak çalışma bulguları, 50.000 Rwf'nin üzerindeki gelir grubunun, 12 yıl ve üzeri eğitim seviyesinin ve finansal okuryazarlık düzeyinin hane halkı tasarruflarını ve yatırımlarını sırasıyla 2,87, 1,78 ve 1,51 oranlarla etkilediğini gösterdi.

Anahtar Sözcükler: Finansal Okuryazarlık, Sosyo-Demografik, tasarruf, yatırımları , tasarruf ve yatırımları.

ABSTRACT

Melchiade NIYOMUGABO, the impact of financial literacy on household saving and investment in Rwanda, Master's Thesis, Ankara, 2024.

This study investigated the impact of financial literacy level on the savings and investment of households in Rwanda by applying a quantitative research design. The research used secondary data extracted from Rwanda's financial scope 2020 survey conducted by the National Institute of Statistics Rwanda to test the financial capability of Rwandans for financial assets and product management. The survey contained questions used as proxies to measure financial literacy level and Socio-Demographic factors including Income, Gender, Age, and Education level of individual households in Rwanda. Generally, the citizens of Rwanda are financially literate with a general financial literacy mean of 8.85/12 scores equivalent to 73.75%. The Statistical Package for Social Sciences Studies (SPSS) was used to analyze data and estimate the parameters of Binary Logistic Regression Model predictors. The research findings identified a powerful influence of individual levels of financial literacy on the likelihood of saving and investing. additionally, Demographics including income Band, and being part of the respondents who attained formal education at the level of 12 years and above influence the likelihood of saving and investing among the population of Rwanda. Gender and age indicated contradicting results without strongly influencing household saving and investment. The study findings generally suggested that an income group above 50000 Rwf, an education level of 12 years and above, and a financial literacy level impact household savings and investment with the odds ratios of 2.87, 1.78, and 1.51 respectively.

Keywords: Financial Literacy, Socio-Demographics, Saving, Investment, and Saving and Investment

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INTRODUCTION

Background of the Study

A crucial character that people need to be financially stable but fail to notice is financial literacy. There have been many discussions about the importance of financial literacy in solving a diverse range of issues and the most effective ways to address them. Some scientific studies have been undertaken and they indicated the role played by financial literacy in different aspects of individual household living conditions and economic stability (Huston, 2010).

Financial literacy is considered as the main asset to acquire for the proper use of individual financial resources during uncertain situations and decision-making time. This was approved in study where the financially literate individuals possess the knowledge of budgeting, saving, investment, and debt management to design their future life. High financial literacy helps financial service beneficiaries operate in the unstable environment of financial markets and institutions, strengthening and improving their performance in financial decisions (Abubakar, 2015; Mulla, 2022).

The required knowledge and skills continue to become a challenge among countries around the world where the lack or having a low level of financial knowledge is considered a result of household low savings and poor investment decisions. This led to financial problems during unemployment and retirement periods as well. Culture and the behavior of the society also have significant limitations to high-level financial literacy where you may find people who are not interested in financial education when they have low awareness of how to manage individual financial resources. These techniques can help people save and invest in the future (Lewis & Messy, 2012).

A predominant shortage of financial literacy was observed worldwide but especially in developing countries where low financial literacy corresponds with income uncertainty leading to poor decision-making and non-stop financial struggle among households. Low financial literacy increases dependent on the informal financial system among the population while strengthening financial literacy helps the poor population

approach formal financial services to upgrade their financial situation (Biswas & Gupta, 2021).

More than ten years ago, the Rwandan government initiated a financial sector program to upgrade the financial literacy level of the residents. This program was introduced through an educational program that emphasizes deepening and raising the understanding of the financial concepts for Rwandans to enhance financial inclusion. Rwanda Ministry of Finance and Economic Planning together with the Central Bank of Rwanda (BNR) take financial education as the main factor in upgrading the knowledge for managing personal financial resources and put the acquired knowledge into action. It provides the instruments for practical money management in form of income, saving, investment spending, and borrowing. It helps people to get the benefits from appropriate financial services in all forms (both formal and informal) available and encourages financial behavior to improve their economic and financial lives (Minecofin, 2013a).

An improved level of savings is still crucial to ensure the proper way of getting enough money for investments and future spending. Higher savings rates have been cited as the main factor influencing the development and economic growth. Savings and growth are not only related directly but even indirectly through the use of other economic indicators like investment. To develop policies to boost economic growth and accomplish the nation's sustainable development, it is interesting to think and look into what influences savings (Ruranga & Hacker, 2020).

A large part of citizens in Rwanda identified a significant financial capacity by using the six determinants of financial health including the balance of income and expenses, maintaining reserves, management of debts, and use of financial tools to manage financial lives effectively (FinScope, 2020). Significant results were obtained where 71% of adults have strategies for balancing their income with expenses those strategies include keeping side excess cash for future life known as saving for the future or borrowing in case of a negative income gap, 63% of adults maintain reserves by savings together with assets and businesses investments, 33% of credit stress(over-indebtedness), and 88% of adults own at least 2 portfolios of financial products as the proper way to use and manage their finances (NISR, 2020).

The main purpose of undertaking this research is to conduct an empirical investigation on the financial literacy level within Rwandans of different socio-demographics and examine the level at which it impacts the saving and investment of Rwandan households. One of the issues we are interested in, is to investigate how financial literacy and demographics affect the likelihood of having positive savings and investments among Rwandans.

Problem Statement

Recently, all forms of saving and investment have shown significant growth among adult households in Rwanda through access to financial institution services (FinScope, 2020). Few of the researchers undertook studies related to financial literacy in Rwanda and identified how it affects debt management, repayment, risk diversification, and others (Rusibana, 2019). A small number of them tried to emphasize saving and investment. In this study we examined the impact of financial literacy level and saving and investment.

Research Objectives

The overall aim of this study is to investigate the impact of financial literacy on household saving and investment in Rwanda. To achieve this, the researchers answered specific research questions.

Research Questions

1. What is the level of financial literacy of Rwandans?
2. How is financial literacy distributed among Rwandans based on socio-demographics?
3. What is the impact of financial literacy and socio-demographics on Rwandans' savings and investments?

Structure of the Study

The study consists of six chapters, these chapters are as follows:

Chapter One: The introduction covers the context of the research, the presentation of the problem, the research questions, and the objectives of the research.

Chapter Two: A literature review reveals the literary sources used by the researcher to develop his research idea and in which the ideas of others have been integrated to fully understand the research topic. The goal is to find out what other researchers, readers, organizations, and governments know about the topic.

Chapter three: Conceptual framework outlines the main concepts of the study and identify deeply understanding of them.

Chapter four: Methodology outlines the techniques and methods that the researcher employed in carrying out the research especially by giving details about the type of data to use in research, the origin and the data collection process for the research.

Chapter five: Data analysis and presentation of results where all details of analysis of research data and findings are identified with meaningful implications to be the basis of drawing the research conclusion.

Chapter six: Discussion and Conclusion, the researcher will conclude what will be done, observe, and present the implications of the findings, and recommendations to policymakers.

CHAPTER 1: LITERATURE REVIEW

This section covers literature carried out on financial literacy, saving, and investment. Many researchers considered how financial literacy affects decision-making in their studies and confirm it to be an important tool for society to make financial decisions as well as the base of evolution and growth of household finances and the country's economy in general. This part will gather literature from different scholars and documents to be able to evaluate their research findings and conclusions.

1.1. Empirical Literature Review

Individual Financial literacy and socialization of the parents were included in the variables to predict the saving culture of the students at the university level in Pakistan. Using the multiple regression analysis, they are part of the factors that have a strong relationship with saving habits in the study conducted among the university students as indicated by the results obtained for individual financial literacy together with the parent. Socialization was significant predictors of the saving compared to those without financial knowledge and the more the students receive their parent encouragement the more they save (Afsar et al., 2018).

Immediate and subsequent impacts of financial literacy were demonstrated as the factors to be considered as the predictors of saving motive in the research findings. In addition, personal preferences have long-term impacts on sparing practice through the perceptions of frugal factors. Saving plans and the mindset toward saving may facilitate financial literacy by providing different paradigms of scientific investigators linked to practical acts using the concepts of the planned behavioral theories with the variables indicating financial literacy and the personal norms to mop up the economic decisions (Widjaja et al., 2020).

The research on the impact of financial literacy on saving intention and the saving behavior of students' teachers as the main promoters of financial literacy in Indonesia was undertaken using exploratory and confirmatory factor analysis. Financial literacy was reported to predict saving behavior and did not indicate effects on attitudes toward saving and saving intention in the same way as the attitudes and individual opinion preferences

affect saving intention(Widyastuti et al., 2016). Making saving decisions is crucial during income redistribution overtime but low financial literacy might lower the individual comprehension of this idea. To indicate this, they surveyed individual respondents should be surveyed to indicate the variability of the change in saving rates and financial literacy among people with different age groups, genders, and income bands they belong to. The results emphasized financial literacy and demonstrated that inadequate financial literacy level is associated with inadequate saving compared to one another across all income categories (Brockman & Michayluk, 2015).

The predictors of financial literacy and how it impacts household saving choices were researched using financial scope survey data of the adult beneficiaries of financial services in Zimbabwe. The findings demonstrated that women do not have financial literacy compared to the opposite gender of males. living in rural areas also influence negatively the household level of financial literacy rather than people who live urban area. This shows the need for a particular program to improve the level of financial literacy for women and those people residing in rural areas moreover the econometric analysis indicated significant results with a positive influence of the level of financial literacy on personal saving for both informal and formal savings (Murendo & Mutsonziwa, 2017).

Financial behavior was mediating the influence of financial literacy on investment decisions as a crucial predictor especially for young students to affect their financial attitudes and financial behavior as a result of knowledge and skills about finance together with confidence in the young age. The positive influence on financial decisions for the future was predicted and those decisions include saving, investment, planning, consumption, and budgeting among others which can improve their financial status, living conditions, and economic development (Perwito et al., 2020).

The households who have advanced knowledge to invest in mutual funds and assign one of their portfolios to professionals rather than those with basic financial literacy were reported. This shows the overestimated ability of those households who were financially literate at a high level in the study undertaken to investigate how investment return together with the selection of portfolios were impacted by the financial literacy in china. Moreover, they were more likely to keep exclusive equities in the form of

investments and invest independently because the purpose of the study was to examine how the individual household make selection between mutual funds and stocks (Chu et al., 2017).

The variation of investment and saving behaviors were researched to track how the training related to financial literacy together with notifications play a crucial role in Ethiopia. researcher specifically evaluated the combined treatment and each treatment separately. The findings indicated that SMS notifications enhance the people to save as opposed to non-treatment. The temporary deposit and financial literacy levels were raised due to SMS notifications and financial training together and those findings were in the same direction as the previous research findings where financial literacy problems and individual concentration may affect negatively saving behavior (Abebe et al., 2018).

The financial education survey was conducted in thirty countries by the Organization for Economic Co-operation and Development to identify the determinants of financial literacy level. Gender, age, career, education, and financial socialization all have significant effects on individual financial literacy levels as was proven by different researchers to identify the relationships among these individuals' characters and financial literacy where it grows as the person becomes older which means the older people face poor financial decisions than the young people. Generally, financial literacy is not at the same level among socio-economic regions, countries, and individuals based on income levels, women are considered to have lower levels compared to men which shows the reasons for financial literacy programs among institutions to upgrade individual well-being and to achieve inclusive economy (OECD, 2016).

The level of financial literacy was researched to provide insights to the opposite gender with different levels of knowledge about financial concepts and explore the determinants of women's financial knowledge and skills. Overall findings revealed that the financial knowledge among men and women was not at the same level. The findings concentrated on the specific programs of financial education to upgrade financial service accessibility and efforts to strengthen women's confidence to make financial decisions to break down the superiority between genders (Bucher-Koenen et al., 2017).

Poor understanding of financial concepts impacts the ability of an individual to save and plan the retirement period because low financial skills and knowledge can't let you be able to fix your everyday financial concerns. Reducing the consequences of that problem takes a long time because many people seek advice from financial consultants, and misunderstanding basic financial principles has been connected to a lack of financial independence during the retirement period. A large number of people who lower their spending during the pension period was identified due to ineffective preparation during their active ages while it is the time they are supposed to take responsibility for their expenses. (Delafrooz & Paim, 2011).

The impact of financial literacy was researched in Kenya to see how it impacts access to financial services by using an econometric model. The findings of the study identified a poor association between financial literacy on financial service accessibility for the household which revealed that financial service accessibility does not depend on the level at which a person or household member is knowledgeable about financial concepts but a positive relationship was found between income, the distance from banks, and other demographics. It suggested a high probability of financial illiterate among the citizens and recommended that policymakers introduce financial education-related programs at every stage of education to boost the level of knowledge about finance (Wachira & Kihui, 2012).

The impact of financial literacy on how to buildup wealth was researched to identify the relationship between them by investigating how the level of knowledge about financial concepts influences saving behavior, investment decisions, and overall wealth accumulation. Some of the key results and recommendations from their research outlined the significant relationship between those variables where the research suggested the need for education programs related to financial concepts, workplace initiatives together with supportive policies can enhance individuals' financial decision-making and contribute to long-term wealth accumulation (Behrman et al., 2012). This study was followed by the study about the negative impact of low financial literacy in Russia during the crisis to assess the ability of the consumers to apply decision-making based on the information to upgrade their finances. the research demonstrated the financial and real effects of financial

illiteracy after evaluating the understanding of topics like compound interest rates and inflation (Klapper et al., 2013).

The motives for the household savings were investigated using logit regression analysis. The implication of the research findings identified that the value of assets, educational standing, financial institution loyalty, and experiencing the recent negative shock identified a significant effect on household saving decisions. The number of people who are not financially independent, male, and Muslim have a detrimental impact on the choice of household members to save (Yazeed et al., 2013). Using a cointegration model, Ogbokor and Samahiya (2014) found that, in terms of long-term connections, the quantity of savings is favorably associated with income and inflation rate and negative to the increase in population.

The economic significance of financial literacy was identified in exploring its impacts on various economic outcomes like savings, investment decisions, retirement planning, and debt management. Overall findings underscore the significance of financial literacy by highlighting its positive relationship to economic outcomes researched in the study. The findings also emphasized the act of promoting the education of financial-related courses and knowledge which upgrades the financial literacy level to enhance individual living conditions and overall financial health (Lusardi & Mitchell, 2014).

The different types of financial education were investigated to boost saving and investments. The researcher produced reliable results including some suggested requirements to compare how delivery channels and the intensity of provision show optimal approaches. They identified a need for research to explain deeply the reason for combined outcomes in evaluations of some programs. Conclusively, individual long-term saving and investments improve not only their financial security. but also, they increase the growth and development of their financial capacity as explained by the significant relationship of financial knowledge to the long-term investment and saving behavior with the indication of a strong relationship among financial literacy level and assets accumulation for the retirement period. It doesn't matter the quality of long-term savings or investments even if they are low, the main importance is the role financial training plays

in upgrading and improving the level of together with the savings and investments of the individuals. (Atkinson et al., 2015).

Barriers to the development of financial knowledge programs on particular communities with poor financial services in the United States were determined to gain a deep understanding of different predictors that have effects on financial literacy together with stronger financial decisions. The findings approved the significant role of financial knowledge level and education for both urban and rural societies without sufficient financial facilities as the responsibilities of leaders of both the financial institutions and communities in general. However, access to financial education programs is important to upgrading financial literacy which helps in decision making, especially for those people who live in communities with inadequate financial services to fight against poverty (Martin et al., 2017).

Creation of financial literacy programs in third world countries was examined and most developing countries face inadequate financial knowledge problems. The stock investment is dominated by only high-level educated people or individuals with high income, and some employees use informal ways of saving (keeping their money in their houses). This is bad because the lenders charge the higher interest rate on borrowers and clarifies how a low understanding of financial concepts coincided with inaccessibility to financial facilities or inadequate use of them in case they are provided to the population but also the required level of knowledge was unknown (Danns et al., 2017).

The influence of financial literacy on financial behavior and the implication on financial decision-making were investigated. Being literate financially was indicated to be a general opportunity not limited to anyone based other personal character. All people who already realized their lack or low level of financial knowledge in related areas can seek ways of gaining such kind of required knowledge to improve the reliability of their financial decisions based on information. This shows clearly how to identify financially literate individuals based on their strong decision and their influence on their living conditions. This happened in Rwanda where the training about financial literacy affects positively the behavior of citizens regarding savings, credit, and repayment and it is taken as a needed element for changing an individual behavior(Kumar et al., 2017).

Influence of Financial literacy and other variables on investment decisions was undertaken in Indonesia using quantitative methods. Primary data was used in the research where descriptive statistics and multiple linear regression were applied by the researcher himself. In the findings of this research, financial literacy was identified significant impact on investment decisions surprisingly it could be indicated also by other determinants like demographics of the study population. Research also neglected the considerations of multiple factors in examining how they affect investment decisions (Arianti, 2018).

The research to identify how financial literacy related to asset investment was conducted in Rwanda using a survey method for data collection. the results of that study identified a significant relationship among variables of his research where the higher financial literacy of individuals contributed to the assets investment selection focusing on returns and risk minimization. Again, this research emphasized different demographic characteristics and income to determine individual financial literacy levels that impact investment decisions among the population (Rusibana, 2019).

The factors affecting individual savings were surveyed in 63 provinces of Vietnam by using a binary logistic regression model to estimate the variables. After analyzing the data, the findings showed significant effects of different predictors including financial literacy on individual saving behavior. In contrast, other demographic characteristics including gender, education, and basic financial behavior were affecting personal savings (Nguyen & Doan, 2020). Empirical research relating financial literacy to the savings behavior of high school students in Russia to verify if financial literacy is part of the predictors of savings was undertaken. They found a significant level of the results when there is a control of the endogenous effect. Financial literacy was demonstrated to have insufficient power to influence the saving behavior of teenagers in Russia where other factors should be determined (Gilenko et al., 2021).

The financial literacy status impact on household financial decisions in the district of West Bengal of India was investigated. Research determined inadequate knowledge for financial concepts of the women based on statistical results. Financial literacy was approved to affect decision-making including savings, investment, and borrowing propensity, and negatively related to the quality of borrowing and pension planning. the

higher income and educational level also showed a significant impact on households' savings and investment (Biswas & Gupta, 2021).

Evaluation research was undertaken for the CARE Canadian financial education program for member saving groups in rural Rwanda to improve financial understanding and utilization of modern services and products. The research outcomes identified the mixture of the use of both informal and formal financial services financial institutions, and other savings groups especially for borrowing and the researcher measured the ability of the participants to calculate trade-offs. Between them, the estimation results showed a sound effect of 0.33 score of financial literacy which was a large difference compared to the baseline average score of 1.7 (Schoofs, 2022).

All the research reviewed emphasized the variation, the relationship and the level of financial literacy with different variables like access to financial services, financial education, asset accumulation, and income among others but a small number of them tried to relate financial literacy and saving and investment moreover, the researchers were contradicting one another based on the results. Financial literacy also was identified as having a low significant impact on different variables depending on the nature of the study. this shows the need for other researchers to conduct other studies to determine clearly how financial literacy affects saving and investment, especially in Rwanda where the number of financial literacy studies is still low.

The Summary Table of the Literature review

Authors	Methodology	Variables	Research Findings
Afsar, J., Chaudhary, G. M., Iqbal, Z., & Aamir, M. (2018).	Pearson correlation and multiple regression analysis.	IV; Financial literacy and socialization of parents DV; Behavior of saving.	Parental socialization and financial literacy favorably impact students' saving behaviors.
Widjaja, I., Arifin, A. Z., & Setini, M. (2020)	Quantitative approaches using SEM-PLS	IV: Financial Literacy, storing intentions and attitudes toward savings, subjective	Financial literacy influences saving behavior, either directly or indirectly, via the variables of saving intention and attitude toward saving

		<p>norms on saving behavior as mediated by attitudes toward austerity.</p> <p>DV: Savings behavior</p>	<p>mediation. Other results shows that personal perceptions have an indirect influence on frugal behavior via attitudes about thrifty characteristics.</p>
<p>Widyastuti, U., Suhud, U., & Sumiati, A. (2016).</p>	<p>Confirmatory Factor Analysis</p>	<p>IV: Financial literacy, attitude towards saving, subjective norm,</p> <p>DV: Saving intention and Saving behavior (with dimensions: investing behavior and spending behavior)</p>	<p>Financial knowledge has no meaningful effect on saving attitudes or intentions. Other findings indicated that financial knowledge and saving intention had a substantial effect on saving behavior. In addition, attitudes and personal perceptions affect saving intention.</p>
<p>Brockman, P., & Michayluk, D. (2015).</p>	<p>Quantitative methods</p>	<p>IV: Financial literacy, gender, age groups, income levels.</p> <p>DV: Savings rates</p>	<p>Differences in financial literacy and savings rates between genders and across age groups and income levels. We show that in each income group, people with low financial literacy save significantly less than others. We examine specific components of financial literacy and show that understanding diversification is associated with increases in savings rates in several income groups.</p>

Murendo, C., & Mutsonziwa, K. (2017).	Quantitative methods (OLS Regression)	IV: Age, Age squared term, Gender, Household size, Head monthly income, level of education, place of residence, Access to information, Mobile money use, Bank account ownership, Savings club DV: Individual's savings decisions.	Women have lower financial literacy compared to men. Financial literacy positively influences savings behavior for both rural and urban individuals. Policy interventions to enhance financial literacy are crucial for improving individuals' saving behaviors.
Chu, Z., Wang, Z., Xiao, J. J., & Zhang, W. (2017).	Social Indicators Research	IV: Financial literacy DV: Participation and fund_holding.	Higher financial literacy, especially advanced financial literacy, is associated with delegating part of the portfolio to experts and investing in mutual funds, leading to better chances of positive investment returns.
Abebe, G., Tekle, B., & Mano, Y. (2018).	compared the joint treatment to the two treatments in isolation	IV: Financial literacy training, Reminders, Joint treatment of financial literacy training and reminders DV: Savings-to-sales ratio, business proceeds reinvested back into business, the percentage of	Providing reminders significantly increased savings behavior, while the joint treatment of financial literacy training and reminders had additional positive effects on savings behavior. results confirm earlier findings that savings can be limited by attention and that financial literacy

		savings goal achieved, and the deposit in an ordinary bank account.	matters for saving behavior when saving is at the top of the mind.
OECD. (2016).	Quantitative methods	IV: Gender, age, career, education, and financial socialization DV: Financial literacy	Study findings indicated Gender, age, career, education, and financial socialization significantly impact individual financial literacy levels. findings focusing on relevant aspects of financial knowledge, behavior, attitudes, and inclusion, and insights into the financial literacy of the population and their needs in terms of education and other forms of support.
Bucher-Koenen, T., & Lusardi, A. (2011).	Quantitative methods (descriptive statistics and OLS Regression)	IV: Financial literacy, Gender, age, education, labor market status and geographical location Dv: Financial literacy and retirement planning	Overall findings revealed that the financial knowledge among men and women was not at the same level and financial knowledge impacts retirement planning.
Delafrooz, N., & Paim, L. (2011).	Quantitative methods (multiple regression analysis)	IV: Gender, ethnicity, age, education, income, and financial literacy DV: Saving behavior	Results of the study indicated significant differences in financial behavior according to age, education, income, and financial literacy.

			Furthermore, financial literacy, income, and marital status were the most influential predictors of saving behavior.
Wachira, I. M., & Kihiu, E. N. (2012)	Quantitative methods (multinomial logit approach)	IV: Financial literacy, income level, distance from the bank, age, marital status household size gender, and level of education DV: Saving behavior	The study found that financial literacy remains low in Kenya. Besides, regression results indicate that households' access to financial services is not based on levels of financial literacy but rather on factors such as income levels, distance from banks, age, marital status, gender, household size, and level of education.
Behrman, J. R., Mitchell, O. S., Soo, C. K., & Bravo, D. (2012)	Quantitative methods (Linear regression model)	Financial literacy, schooling, and interaction of financial literacy and schooling DV: wealth accumulation	Financial literacy and schooling attainment are both strongly positively associated with wealth accumulation and the schooling effect only becomes positive when interacting with financial literacy.
Klapper, L., Lusardi, A., & Panos, G. A. (2013).	Quantitative methods (descriptive statistics and regression)	IV: Financial literacy, income, employment status, education, marital status, age, and gender	Financial literacy is positively related to participation in financial markets and negatively related to the use of informal sources of borrowing. Moreover,

		DV: Participation in Financial markets (income shock, formal and informal credits, bank account, and level of spending capacity).	individuals with higher financial literacy are significantly less likely to report experiencing a negative income shock during 2009 and have greater availability of unspent income and higher spending capacity.
Yazeed, A. M., Razak, W. A., & Domanban, P. B. (2013).	Quantitative methods (Logistic regression analysis)	IV: Education, the value of an asset, commitment to a financial institution, religion, age, and gender DV: Household saving decision	The results of the logit regression show that educational status, the value of assets, a shock to household heads, and committing to financial institutions positively and significantly explain the decision of households to save
Ogbokor, C., & Samahiya, O. (2014).	Econometric techniques (unit root tests, co-integration, and error correction procedures)	IV: Gross domestic income, inflation rate, interest rate, broad money supply, population growth, DV: Domestic savings	The results of the co-integration tests suggest that there is a long-run relationship between savings and the explanatory variables used in the study. The results suggest that inflation and income have a positive impact on savings, whilst the population growth rate has negative effects on savings. Further, deposit rate and

			financial deepening have no significant effect on savings.
Lusardi, A., & Mitchell, O. S. (2014).	Comparative statistics and instrumental variables estimation	IV: Financial knowledge DV: Economic decisions	Endogenizing financial knowledge has important implications for welfare as well as policies intended to enhance levels of financial knowledge in the larger population. the impact of financial literacy on economic decision-making in the United States and elsewhere and conclusions may be drawn about the effects and consequences of financial illiteracy and what works to remedy these gaps.
Atkinson A., Messy FroreAnna, Rabinovich Lila, & Yoong Joanne. (2015).	Theoretical	IV: Financial literacy acquired in different types of financial education DV: Savings and investment.	Financial knowledge and skills are positively related to Long Term Savings and Investment behavior and indicate a strong correlation between levels of financial literacy and retirement wealth accumulation. Evaluations of various types of financial education aimed at increasing Savings and Investment have identified good results.
Danns, D. E., & Danns,	Institutional Model for	IV: Economic education, financial	Financial inclusion and economic education are

G. K. (2017).	Financial Literacy in Developing Countries as a framework for analyzing national financial education programs.	education, financial inclusion, the financially-included population, the financially excluded population, financial literacy DV: Financial well-being, poverty reduction, and economic growth	integral to explanations of financial literacy in developing countries. financial inclusion and improved financial literacy in developing economies are considered sine qua non for reducing poverty and inequality and promoting economic growth and financial well-being.
Kumar, S., Watung, C., & Eunike, J. (2017).	The research used a quantitative method to regress structured equation modeling	Financial literacy, financial behavior, and financial decision	There's a significant relationship between financial literacy to financial behavior and from financial behavior to financial decision.
Arianti, F. (2018).	The research used a quantitative method including both descriptive statistics analysis and multiple linear regression	IV: Financial literacy, financial behavior, and income DV: Investment decisions	Financial literacy indicated an insignificant effect on investment decisions, while financial and income behavior have a significant effect on investment decisions

Rusibana, C. (2019)	The research used Correlation analysis	IV: Financial knowledge, financial awareness, financial uses, behavior finance, finance confidence, social interaction DV: Financial asset investment decisions (Market participation, Savings, Retirement Planning, Private pension funds, and investment).	Financial use, financial knowledge, financial awareness, behavior finance, finance confidence, and social interaction are positive and significant on the stock market participation, savings, retirement planning, and private investment funds
Gilenko, E., & Chernova, A. (2021)	employ a copula-based bivariate probit-regression approach	IV: Age, gender income, mother education, ATMs, school performance, part-time job, online wallet, school card, plastic card, know fraud, and financial literacy and saving DV: Financial well-being	The commonly accepted viewpoint here is that a higher level of financial literacy (as brought by the relevant economic education via, in particular, smarter saving) leads to increased financial well-being.
Biswas, S., & Gupta, A. (2021).	The quantitative method included both descriptive statistics and	IV: Financial literacy, gender, age, location, education level, work situation, income. DV: Retirement planning, savings	The financial literacy of female and rural respondents is found to be lower. Higher-income and education remain the other significant determinants of financial

	multiple regression analysis		literacy. Financial literacy is found to significantly affect saving decisions, investment decisions, borrowing propensity, and borrowing quality, the first three being positively and the fourth being negatively influenced by financial literacy. However, on retirement planning, no significant impact is observed.
Schoofs, A. (2022)	Quantitative method including OLS Regression.	IV: Financial education training, financial attitude, financial awareness, financial numeracy, and other socio-demographic factors DV: Financial literacy score, accumulated formal savings, and a formal borrowing index.	The impacts of financial literacy training are ambiguous on financial behavior. financial literacy training seems to play a very limited role in equipping participants with the ability to calculate financial trade-offs. The effect on a financial literacy score is positive, but small and statistically insignificant. the financial literacy training may improve formal borrowings. Overall findings suggest a mixed picture of the usage of formal financial services.

CHAPTER 2: CONCEPTUAL FRAMEWORK

The conceptual part of this study will focus on the main keywords of the research. Among those key terms include financial literacy, savings, and investment to ensure deep explanations of the study.

2.1. Financial Literacy

Previous Research provided the definitions of financial literacy with different viewpoints of the researchers. In this study, we selected one of those definitions which is the understanding of the fundamental economic and financial theories and being able to put into practice the acquired skills and knowledge to control individual financial assets for an entire life (Hung et al. 2009). There are several definitions of financial literacy provided with almost similar meanings in this context and others with deviating ideas based on the way it is in this research.

Bowen (2002), identified the difference between knowledge and literacy in the context of finance by considering knowledge as understanding the theories of finance and the necessary concepts of the daily functioning of society while literacy considered as capability to apply the acquired intelligence to influence the behavior and attitudes but unbelievably, some of the researchers and media use these concepts interchangeably (Huston, 2010). International organizations, including the OECD (OECD, 2016) together with other authors including (Hogarth & Hilgert, 2002); (Remund, 2010); (van Rooij et al., 2011); and (Mahdzan, 2013) supplied a diverse range of definitions. They claim that financial literacy develops from one's own experiences, knowledge, and needs and that it benefits one's engagement in financial services.

Rwanda's Financial Scope (2016), identified financial literacy as essential to the foundation of population financial sector-related skills for improving the domestic market about financial assets to step up the number for both owners and the users of formal savings mechanisms rather than saving at home or in kind and decreasing the number of people who use informal or lack formal savings mechanisms. This demonstrates the critical need for financial literacy initiatives to increase understanding of direct savings via the financial system and to produce financial products that satisfy the diverse motivations for saving among the public. Moreover, improving financial education and

training for business owners and production cooperatives would support demand-side limitations related to farmers' and entrepreneurs' incapacity to provide reliable financial plans and identify the difficulties for the supply side related to guarantees and borrowing for small businesses or the agriculture sector.

In most reviewed literature about financial literacy, researchers defined financial literacy by using different sub-concepts that contain one of the main keywords including a form of particular knowledge, individual capacity to implement the knowledge, financial behavior and experiences, and the perceived knowledge (Hung et al., 2009). This implies that individual who has financial knowledge are those who are capable to receive, analyze, and assess information necessary to make decisions that would best safeguard their future.

Based on empirical study findings, different researchers have been designing financial literacy measurements including the Jumpstart Alliance for Financial Literacy in 1997 (Mandell et al. 2009). The questionnaire measuring the literacy about financial concepts in health and retirement for Americans of equal or above 50 years was developed by Lusardi & Mitchell (2007), and several other studies referred to those researches with the main three surveyed questions to develop to assess the respondent's comprehension and the importance of the financial concepts.

According to OECD (2022), the OECD/INFE toolkit assessment of literacy in finance might be made by a combination of knowledge, behavior, and attitudes. each of these sub-concepts is explained as follows;

Financial Knowledge: understanding or being aware of financial concepts like budgeting, savings, investment, and borrowing. A large number of researchers identified this kind of knowledge to be the main prestigious component of financial literacy which helps to judge the assets and portfolios of financial institutions. The knowledge that an individual possesses is proportional to the advantages he gets from financial assets and products (OECD, 2016).

Financial Attitudes: refers to the opinions and mindset that can help to comprehend what is considered to be true or believed and shape individual decision-making about money management and financial choices (Avivah et al., 2023). To develop the proper

financial mindset to be able to concentrate on the present situation rather than dwelling about the past to worry about the future (Widyakto et al., 2022).

Financial Behavior: refers to different methods and actions that shape individual decision-making about money management and financial choices. They are personal, social, and cultural characteristics to respond to risk tolerance and financial goals (Lusardi & Mitchell, 2014).

Bhushan and Midori, (2013); and Arundel, Debit, and Savignac, (2013) demonstrated serious consequences of financial literacy for wealth creation. As for debt, empirical studies have shown insufficient skills and knowledge can lead to expensive loans or huge debt burdens (Koenen & Lusardi, 2011); (Clapper et al., 2011). The importance of financial knowledge was demonstrated to promote economic confidence and thus promote growth for the country in general (Hallahan et al, 2004).

2.2. Socio-Demographic Factors

Household demographics and socioeconomic factors were proposed to impact the individual savings culture which led to deep analytics in different research to provide an indeed clarification to prove the relation (Snyder, 1974). The act of saving among households is based on numerous economic factors like income levels, employment stability, inflation rates, and interest rates all contribute to how households make decisions about saving their money. Social factors have an undoubtable contribution to influencing household savings. Cultural norms, societal expectations, and peer influences can all shape how households prioritize savings. Family size, marital status, gender, and age are demographic characteristics that influence household saving behavior (Mahdzan, 2013; Aidoo-Mensah, 2018).

Different life stages and responsibilities can affect the propensity to save. Furthermore, cultural factors influence household saving behavior. Cultural beliefs and attitudes towards money, financial literacy, and financial product accessibility can shape the saving habits of individuals. Cultural practices that encourage saving or discourage excessive spending can have a profound impact on the overall savings rate within the household sector. Recognizing and comprehending these factors are paramount in establishing policies that effectively encourage and promote household savings

(Niculescu-Aron et al, 2012). The socio-economic and demographic factors to include in this study are the following;

- ❖ *Income*: Personal income is one of the main determinants of savings as the researchers identified in the literature. Mahdzan (2013) found that the income and the savings of an individual should have a positive correlation because the person is supposed to have enough money to save.
- ❖ *Gender*: According to Lusardi and Mitchell (2011), males are better capable of saving because women are often less financially aware than males, which influences their savings. Further research has found that women are more unable than males to prepare their retirement savings plan (Sunden et al., 1998) while others have found contradicting results (Agnew, 2006). As a result, gender is expected to be a key determinant of individual savings.
- ❖ *Age*: People save greater amounts of funds as they become older because older people are disposed to be worried about their future. and older persons have fewer life-cycle costs such as schooling, marriage, and home ownership. Individual saving is seen to be favorably connected to age (Mahdzan, 2013).
- ❖ *Education*: according to Hogarth and Hilgert (2002), attending high levels of education is expected to help students gain insight into personal finance and make future choices because educated people can control their money better concerning saving, investment, and budgets.

2.3. Saving

Saving refers to the act of keeping aside the amount of money for future use or keeping the individual income that is not used for buying today with the purpose of spending for an unexpected event or hard time in the future (Johnson, 2015). The concept of saving has been discussed several times where savings approved as one of the important determinants of economic development and growth for individuals or nations in general. This consideration was usually taken together with consumption, especially in economic theories where one is the opposite of the other during the decision-making period which shows us the origin of defining savings as the amount of money not spent for personal income (Fisher, 1996).

The household savings measurement was regarded in two different methods, the first is the flow or earned method where savings are measured as the surplus of the present household income over the spending amount. This method applies only the flow concepts without considering the unit of the study whether it is individual, business company, region, or country. This method has been coincided with the effects where the savings figure is total and it is not easy to know the value of property acquired. The stock approach measurement is another method where savings are measured as the difference in the net worth from the balance sheet or the change in the acquisition of tangible properties (Alamgir,1976). After investigating the role different economic variables including money management play in development at different economic levels, saving was approved to have an undoubtable contribution where it is hard to achieve sustainable development without taking savings into consideration (Bautista et al., 1990).

Savings are classified into two main types or categories based on the sector undertaking savings. The first one is called private savings this type is made by individual household member savings and the business sector while the second is the public sector savings which is the savings part made by the government. Household savings are included in countries' internal savings of both developed and developing states because this type of savings is gathered by financial institutions to distribute into different appropriate assets or portfolios in the form of investments (Aidoo-Mensah, 2018). Savings can take many different forms like simple saving accounts, insurance, capital for livestock, and other assets. The Ministry of Economics and Finance report focused on the modernized way used to save through the institutions in charge of that to identify the laws and regulations governing those institutions to ensure proper supervision (Minecofin, 2013b).

According to Modigliani and Bromberg (1954), the traditional microeconomic method of selecting savings and consumption assumes that a completely rational and enlightened person consumes less than his income during periods of high income. Starting from Modigliani, Bromberg (1954), and Friedman (1957), consumers must create an ideal savings and accumulation model to promote marginal utility. These models generally assume how the population could be able to formulate or apply savings together with spending plans and require experience and diverse economic computation for managing

finances. However, the detailed explanations below identify that, As we've described below, not many people seem to have much financial knowledge. In addition, the acquisition of this knowledge can be linked to costs. In the past, when pensions were designed and administered by the state, individual employees paid little attention to the details of their savings, investments, and wealth accumulation for retirement plans (Lusardi & Mitchell, 2014).

2.4. Investment

The term investment is explained in different research but with almost similar meanings. Economists and financial specialists interpret the term 'investment' differently. Economists regard it as fresh and productive property, whereas financial specialists emphasize resource distribution and movement among households. The distinction between gambling and speculation and how they are risky, period, and the profits from them (Singh, 2014). Financially, the investment entails allocating money, time, or other resources to generate lucrative returns in the form of income, interest, or asset gain. Investment activities are essential to a society's prosperity and growth and People tend to invest in assets that are highly profitable compared to those with low returns with protection of their wealth (Bindabel & Salim, 2021). While in economic terms, investment is the accumulation of freshly generated assets such as inventories, buildings, and equipment. However, financial experts describe investment as the purchase of a property with the intent of return and/or capital gain. Because saving and investments are interrelated, every person who invests wants his or her hard-earned funds to be placed in an extremely safe, attractive, and liquid industry (Fazli Sabri et al., 2020).

Investment has different categories, direct investments are ones in which the investor chooses and decides on his investments, A person may also make indirect investments for old age insurance through pension and retirement saving accounts, life insurance policies, the investment in shares of companies, and mutual fund securities. These investments are not under the control of any individual. They are assigned with looking after the specific company this implies the reason why it is essential for the longer average lifespan, the need to plan for retirement income, the high tax and inflation in the economy, and the anticipation of steady ongoing regular income payments in dividends and interest payments (Singh, 2014).

In the financial system, investors play an undoubtable role because they keep a large portion of their funds in assets and the implementation of the investment decision is frequently related to financial behavior (Bindabel & Salim, 2021). Modern studies are exploring gender discrepancies in financial risk behavior using particular approaches and tactics, it nearly always concludes that females are risk hesitant in the opposite way than men where according to current research, women choose the low-risky investment while receiving better returns than males (Dohmen et al., 2017).

2.5. Saving and Investment

The concept of saving and investment relation has been studied in several different research to provide clear indeed explanations about the relationship between those two macroeconomic variables where the rise in savings increases investment and vice-versa (Irاندوست, 2019). Saving and investment have been considered to be important global factors to impact the employment creation, inflation, and economic growth, particularly in the context of developing nations where mobilizing local assets and effective use of them act as the main priorities of the policymakers (khan, 1993). The keynesian theory says that the rise in public and government income leads to a rise in savings that later enforces the investment of the country, this shows us investment as an internally originated factor in the process of accumulating savings but on the other hand as an external factor which affect saving and Keynes approved the contribution of the state to mop-up investment to increase the output growth and decrease unemployment (Lee et al., 2020).

According to Mankiw (2016), the aggregate demand theory provides the IS curve which depicts indeed understanding of the association between saving and investment where the expected investment equals the expected saving as indicated in national income accounting identity, and the formula describing that relation is as follows $I=(y-t-c) +(t-g)$. Where **I** represent investment, **y** represents income to be decreased by **t** which is tax, **c** means consumption and **g** represents the government expenditures. The right-hand side of the equation is called expected saving while the left-hand side is called expected investment. As explained before in the saving part $(y-t-c)$ is the household saving or private saving and $(t-g)$ is government saving. and both made the national saving one of

the components of the national income which plays an important role in mopping up the investment within the country (Lee et al., 2020).

In this study, saving and investment were analyzed at the individual household level in a closed economy where there is no interaction with the rest of the world and no government saving. In this case, total savings are necessarily equal to total investment based on production function of the economy which is divided between current consumption and investment (C+I) and the income received by households, should be divided into consumption and saving (C+S). this shows that investment should always be equal to saving (I+S). It is understandable and known that saving and investment in the country should not necessarily be done by the families or companies themselves. Some may want to save without investment plans, while other families may have investment plans but no savings. that is why financial institutions intervene to distribute savings to those who want to invest in the form of financial liabilities and financial assets for the savers. (Mankiw, 2016).

Essential approach for understanding how to connect saving and investment concepts was developed within the context of the keynesian neoclassical synthesis through the use of several significant differences. Higher investments result from higher savings with the presence of numerous factors of production because employment and the real output will be increased due to a rise in investments (Bardan et al., 1970). The relationship between those two opposite variables has been discussed in the context of local saving and investment by Luders and McKinnon (1974). complementarity theory suggests that investment should finance itself which means smart investors should save the amount of money they need for the next investment (Fry,1980; Moore, 2010). Another hand, the current account of the inter-temporal theory provides a suggestion where it says that domestic funds should not be invested locally for the case of the small open economy better to invest them elsewhere.

Financial literacy and saving and investment

At the household and country level, financial literacy has been shown to predict saving, which various researchers have recognized. According to Jappelli and Padula (2011), financial literacy has been identified as a potential factor in increasing national

savings by 3.6%. The majority of the empirical research was conducted at the individual level in countries with advanced economies apart from the research of Klapper and Panos (2001) or other similar studies undertaken.

Several studies undertaken especially in advanced nations identified financial literacy to have a significant impact on the financial preparation for retirement periods and saving choices. Here we may say the study of Lusardi and Mitchell (2006, 2007, and 2008) implied that less financially literate individuals are less likely to save for their retirement. This was emphasized again by the research of Lusardi and Mitchell (2009) where an individual with financial sophistication are more likely to prepare their retirement with sufficient finances in terms of money and the households with no or low financial literacy doesn't plan for their retirement ages (Alessie et al., 2008).

Multiple factors were used to support this observation, including the explanation of how perceived financial stability is affected by the low level of numerical skills (Banks et al., 2009), inadequate financial knowledge increases the obstacles that hinder information needed to save and invest and resulted into higher planning expenses. Moreover, a positive association was identified between making retirement plans and financial literacy. The opposite causality problems should be taken into consideration when researching the effect of financial literacy on saving habits and related knowledge in carrying out the saving plan (Alessie et al., 2008).

CHAPTER 3: METHODOLOGY

The methodological part of the research explains how the study will be conducted because it depicts the different procedures including design and methods to be undertaken in the research.

3.1. Research Design and Data

This research used a cross-sectional survey design and the data used were collected from Rwanda's Financial Scope Survey 2020 (FinScope, 2020) which includes detailed information on the financial aspects, socio-demographic, and economic factors of the households. The survey was conducted with the National Institute of Statistics Rwanda to track the trends of the financial sector and provide relevant information on the use and access to financial services among the different citizens to improve financial policy.

The Rwanda FinScope Survey was developed as a research tool by Fin Mark Trust with the aim of making financial work for the people with low financial capacity and it is a nationally representative study that provides information and insights into how people make money and manage their finances (FinScope, 2016). The major aim of this survey was to provide baseline information on financial service access in Rwanda and to give Rwandan government assistance for different development programs.

3.2. Variables of this Research

The outcome variable known as the dependent variable of this study is the saving and investment of the household respondent. The predictors of the outcome in this research include financial literacy score, monthly income band, gender, education level, and the ages of the household respondents. The saving-investment part of the FinScope 2020 survey provided information related to individual savings to be used in this research as a proxy representing the saving and investment of the household respondents since researchers like Bardhan and Lewis (1970), identified a strong correlation between saving and investment.

Measurements of financial literacy levels in Africa are rare or non-existent in several nations reason why in this research, the survey of Rwanda FinScope 2020 provided indirect questions on financial literacy. The information they provide on financial

education is limited, as it focuses on access to financial products rather than skills (Sayinzoga et al., 2016). However, questions about financial skills and behavior were used to measure respondents' literacy level about financial concepts, as the questions assessed households' understanding of concepts, including compound interest, inflation, and arithmetic. The questions have been used in previous research by Lusardi and Mitchell (2014) and the Organisation for Economic Co-operation and Development in the Financial Literacy Survey (OECD, 2016). In addition, the survey collected sociodemographic and economic factors to identify the understanding of the population studied and its financial situation concerning financial institutions' products and services.

3.3. Variables Measurements

Dependent Variable: Savings and Investment

The savings and investment of the household respondent is the outcome variable of the study represented by household saving. It is a dichotomous variable where 1 represents the household who agreed that they save with at least one of the different mechanisms of saving and 0 for the households who don't use saving mechanisms identified. Precisely the respondents were asked to indicate the saving mechanism they use to save. many researchers used dichotomous variable in their research including Nguyen and Doan (2020) in Vietnam, Uddin (2020) in the context of Omani, and Mahdzan (2013) in Malaysia.

Independent Variables

Sociodemographic factors and financial literacy are the predictors of the model in this research and these variables are measured as follows:

1. Financial Literacy (FL)

The financial literacy of individual households was obtained using the Financial Knowledge, Financial Behavior, and Financial Attitudes Survey Question Series to determine how individual households' knowledge of inflation, interest rates, and many others affects their attitudes and behaviors at the time of decision-making.

The questions used to measure financial literacy were coded in different categorical scale formats, however, to ensure the accuracy of the measurement for this research, they were recorded to ensure a common overall measure of the total scores of the surveyed households, referring to the Organisation for Economic Co-operation and Development's (OECD) Financial Education Measurement Toolkit (2016). This variable has taken a value between 0 and 12.

2. Household Income

The monthly income of the individual household respondent was provided as a categorical variable in this study from this financial scope survey where the respondents were asked about the monthly income band they belong to based on the amount they earn. We grouped the income categories of the respondents into four groups, the income categories were classified into two groups where the respondent with income less or equal to 50000 Rwandan francs (Rwf) was coded 0 and those with income band above 50000 Rwandan francs (Rwf) for the second group coded 1.

3. Gender

Gender was identified by different researchers to be part of the factors that influence an individual household decision specifically about finance in different countries. In this study, the gender of the respondent was used where if the household respondent is of the male gender was coded 1 and 0 for the female household individual respondent based on the data of the financial scope survey of 2020.

4. Age

The data from the survey contained the ages of the respondents. Due to different research identified the relationship between individual ages and financial decision making, the ages were used as categorical variables divided into two categories the first is the young generation category with ages below or equal to 40 years old coded 0, and the second is the older generation with all ages above 40 years old coded 1.

5. Education (EDU)

The educational level of the respondents is a categorical variable that will be included in this research model to see if it influences the personal savings and investments of the household respondents in Rwanda. we combined categories into two groups, those with education below humanity coded 0, while those with humanity and above coded 1.

3.4. Research Model and Hypothesis

Research Model

In this research, a logistic regression model was used to estimate the probability of positive savings. which represents household saving and investment and the predictors of the model. The model assumes that there is no reallocation in the alternative set without the changes in predictors and the model assumes that the households choose the amount they can save. The model is presented as follows:

$$\text{Log}[p(SI)/(1-p(SI))] = \beta_0 + \beta_1 FL_i + \beta_2 Y_i + \beta_3 AGE_i + \beta_4 Sex_i + \beta_5 Edu_i + \epsilon_i$$

where $P(SI)$ is the probability of saving and investing for respondent i , β_0 is constant, β_1 , β_2 , β_3 , β_4 and β_5 are the coefficients of the variables; financial literacy (FLi), income, age, gender, and education, and ϵ_i is the term misused by respondents.

The Research Hypothesis tested

Based on the study overview and the analysis of the research, the null hypotheses (H_0) and the alternative hypotheses (H_1) tested to conclude the statistical significance of the study findings are as follow;

$H_{0.1a}$: There are no significant gender differences in financial education

$H_{1.1a}$: There is a significant difference in financial literacy between gender groups

$H_{0.1b}$: There is no significant difference between age groups in financial literacy

$H_{1.1b}$: There is no significant difference between age groups in financial literacy

$H_{0.1c}$: There is no significant difference in financial literacy across income groups

$H_{1.1c}$: There is a significant difference in financial literacy across income groups

H₀.1d: There is no significant difference in financial literacy across levels of education

H₁. 1d: There is a significant difference in financial literacy across educational attainments

H₀. 2: Financial education does not have a significant impact on saving and investing

H₁. 2: Financial education has a significant impact on saving and investing

H₀. 3: There are no significant differences in the impact of household income group on saving and investment

H₁.3: There is a significant difference between the impact of household income group on saving and investing

H₀.4: No significant difference in the impact of family age group on saving and investing

H₁. 4: There is a significant difference in the impact of household age group on saving and investing

H₀.5: There is no significant difference in the impact of household gender on saving and investment

H₁. 5: There is a significant difference in the impact of household gender on saving and investment

H₀.6: There is no significant difference in the impact of educational attainment on saving and investing.

H₁. 6: There is a significant difference in the impact of educational attainment on saving and investing.

Logistic regression method has been indicated to be an essential method of any type Data analysis involving the study of the relationship between the categorical outcome variable and the predictor variables. The predictors of the model can be continuous, categorical or both combined and when the outcome variable has two or more categories, the logistic regression model is the most commonly used regression model to analyze this data. The goal of the logistic regression model is the same as that of any other regression model used in statistics to describe the relationship between an outcome variable and a set of predictive variables (Hosmer et al., 2013).

CHAPTER 4: DATA ANALYSIS AND RESULTS

4.1 Descriptive Analysis

This section presents the results and discussions of the data used in this study to provide the answers to the questions of this research in order to achieve the objectives. The whole data provided in the survey was not analyzed due to the 44% of missing value resulting from the respondents who did not provide the full information about the income categories they belong to while this is an important predictor of the outcome in this research.

The data of 6803 household respondents were enough to provide reliable results based on the sample size formula for the survey researchers to represent the total population in Rwanda with a 90% confidence level and a margin of error of 10%. The formula was identified as $N = (z^2 * p^2) / e^2$ and then divided N by $1 + (N / \text{population})$, where the population (N) used in this formula represents 13246394 of Rwandans. Data collected from 6803 respondents were enough to provide reliable findings.

Analysis of data was based on descriptive statistics, regression of the econometric model, and independent sample t-test to identify and assess how financial literacy impacts saving and investment in Rwanda by estimating the parameters of the model predictors.

4.1.1. Socio- Demographics of the respondents

Data analysis of this part emphasized on the different demographic features of the respondents to identify their background-related information in detail. This helped to determine whether the respondents were suitable for the research.

Table1; Socio-Demographics of the respondents

Demographics	Categories	n	%
Gender	Female	3817	56.1
	Male	2985	43.9
Age group	<= 40	3890	57.2
	Above 40	2912	42.8
Income Group	<= 50000 Rwf	4874	71.7
	Above 50000 Rwf	1928	28.3
Educational level	Below 12	5379	79.1
	12 and above	1423	20.9

Table 1 above identifies the demographics of the household respondent including gender, age group, monthly income group, and Educational groups. The study included a total of 6802 respondents, 3817 (56.1%) were female while 2985 (43.9%) were Male. The Age group of the respondents was part of those demographics where 3890 (57.2%) were aged 40 years old and below while 2912 (42.8%) were aged above 40 years old. The income group was part of demographics to show the monthly earnings of the household respondents with 4874 (71.7%) of them who earn a monthly salary below or equal to 50000 Rwf and 1928 (28.3%) of respondents identified their earnings above 50000 Rwf. Lastly, the educational level of the respondents was classified into two categories with 5379 (79.1%) respondents attaining education below a secondary school degree and 1423 (20.9%) holding high school degrees and above.

4.1.2. Financial Literacy Level of the Rwandans

The main objectives of this study were to examine the level of financial literacy of the Rwandan population and to identify how this affects their savings and investment. Financial literacy level was examined using the respondent's scores calculated using the questions that appeared in the Rwanda Financial Scope Survey 2020. Those questions were divided into three parts (financial knowledge, attitudes and behaviors) for the respondents to track the level of literacy they have to manage their finances.

The population of Rwanda identified a good status through financial literacy mean score as indicated by the descriptive statistics analysis of the respondents' scores about the questions related to financial concepts like interest rate, inflation, and other related concepts. The results are presented in the table below.

Table 2; The Financial Literacy Level of Rwandans

	N	Min	Max	Mean	S. D	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	S. E	Statistic	S. E
Financial Literacy	6802	3	12	8.85	1.73	-0.951	0.03	0.408	0.059

In the table above, the average score in financial literacy has been shown in the summary statistics of 6802 respondents based on their total scores, where 8.85 (73.75%) scores identify the central tendency of the financial literacy scores considered to be the

general score for every individual household respondent out of 12 maximum scores, the minimum of 3, and the standard deviation of 1.73, skewness and kurtosis are identified as -0.951 and 0.408 respectively. This result is higher compared to the reported financial literacy score of 11.9 (54.09%) out of 22 by the OECD/INFE, in 2017 and 14.51 (69.10%) out of 21 by Gupta,2021 in India.

4.2. Distribution of the Household Financial Literacy

The second objective of this research was to determine how financial literacy is distributed among Rwandans based on different demographic characteristics. To answer this question, let's calculate the t-test of the average financial literacy score to gender, age, income, and education.

4.2.1 The t-test of mean financial literacy to gender

An independent sample of t-tests was conducted to compare the financial literacy of men and women. The results determined a difference in significance ($t = -11.418$, $p = 0.000$) in the scores of women with ($M = 8.65$, $SD = 1.817$) lower than the mean score of men with ($M = 9.12$, $SD = 1.573$) and the magnitude of the difference in the mean score of -0.470 CI = 5 was significant, suggesting that the hypothesis (**H_{1.1a}**) was significant.

Table 3: The t-test of mean financial literacy to gender

		N	Mean	SD	Std Error Mean			
Financial Literacy	Female	3817	8.65	1.817	0.029			
	Male	2985	9.12	1.573	0.029			
T-test								
F	Sig.	T	df	Sig. (2-tailed)	Mean diff.	Std Error diff.	95% C.I for Diff.	
87.734	0.000	-11.418	6730.494	0.000	-.470	0.41	Lower	Upper
							-551	-389

4.2.2 The t-test of mean Financial Literacy to Age group

The t-test results for the equality of means between the respondents aged 40 years old and those with age above 40 years identified a significant difference ($t=6.870$, $p=0.000$) in the financial literacy score means of the respondents aged 40 years ($M=8.98$, $SD=1.643$) to be greater than the mean of those with age above 40years old ($M=8.69$, $SD=1.827$). the magnitude of the mean difference of 0.295 and the CI of 0.211 to 0.379

were identified significant and those results also support the hypothesis (**H_{1.1b}**) based on the Table below.

Table 4; The t-test of mean Financial literacy to Age group

		N	Mean	SD	Std Error Mean			
Financial Literacy	<=40	3890	8.98	1.643	0.026			
	40+	2912	8.69	1.827	0.034			
T-test								
F	Sig.	T	df	Sig. (2-tailed)	Mean diff.	Std Error diff.	95% C.I for Diff.	
47.044	0.000	6.870	5886.165	0.000	0.295	0.43	0.211	0.379

4.2.3 The t-test of mean financial literacy to income group

Table 5 below identifies the t-test conducted to compare the respondents with income <=50000 Rwf and those with above 50000rwf. The results identified a significant difference (t=-42.954, p=0.000) among scores for the household with earning <=50000rwf with (M=8.44, SD=1.781) to be lower than the mean for those with income above50000 Rwf (M=9.91, SD=0.998) and the magnitude of the difference in average of -1.468, CI=-1.535 to -1.401 was significant. So, the hypothesis (**H_{1.1c}**) is supported.

Table 5;The t-test of mean financial literacy to Income group

		N	Mean	SD	Std Error Mean			
Financial Literacy	<=50000rwf	4874	8.44	1.781	0.026			
	>50000rwf	1928	9.91	0.998	0.023			
T-test								
F	Sig.	T	df	Sig. (2-tailed)	Mean diff.	Std Error diff.	95% C.I for Diff.	
763.445	0.000	-42.954	6047.461	0.000	-1.468	0.034	-1.535	-1.401

4.2.4 The t-test of mean financial literacy to Education

The t-test for mean financial literacy score of thehousehold with education below 12 years level and the level above 12 years were calculated. The results identified a significant difference (t=-37.077, p=0.000) in the scores of the respondents below 12 years level with (M=8.58, SD=1.776) to be lower than the mean for those with the level of education above 12 years (M=9.90, SD=0.996) and the extent in the mean difference of -1.328, CI=-1.399 to -1.258 was significant. So, the hypothesis (**H_{1.1d}**) is supported as shown in the table below;

Table 6;The t-test for Mean Financial literacy to Education

		N	Mean	SD	Std Error Mean			
Financial Literacy	<12 years	5379	8.58	1.776	0.024			
	12 years +	1423	9.90	0.996	0.026			
T-test								
F	Sig.	T	df	Sig. (2-tailed)	Mean diff.	Std Error diff.	95% C.I for Diff.	
556.484	0.000	-37.077	4059.154	0.000	-1.328	0.036	Lower	Upper
							-1.399	-1.258

4.3. Logistic Regression Analysis

This section reflects the impact of the level of household financial literacy and demographics on the savings and investment of Rwandan residents was investigated to identify if there is impact of their literacy level about finance and demographics on individual saving and investment. The statistical package for Social Science Studies (SPSS) version 22 was used to analyze and test the relationship between these variables.

Binary logistic regression model was chosen as the appropriate model to analyze this research due to the binary nature of the outcome variable and predictors we have which contain both continuous and categorical. However, this model is the best to estimate and test the parameters of the predictors in this research to identify outcomes of saving and investment for Rwandans based on the types of our predictors including financial literacy which is continuous variable and the remaining categorical variables including gender, income group, age group, and education of individual respondents.

4.3.1. Test for logistic regression model assumptions

Before the analysis All the required assumptions for binary logistic regression model were tested including the multicollinearity, outliers, and others to confirm the validity and reliability of both data and model. Those assumptions tested are the following;

1. Outcome variable should be measured with the dichotomious nature.
2. The model predictors should be either continuous or categorical where continuous factors are scaled on interval ratio while categorical variable could be ordinal or nominal variable) and this assumption is fulfilled in this study.
3. There should be no multicollinearity among the model predictors. To test this assumption bivariate correlation method was used and demonstrated the good result where there is no multicollinearity in data set of this research as justified in the test result below.

Table 7; Bivariate correlation method test results

		Financial Literacy	Income Group	Gender	Age group	Education level
Financial Literacy	Pearson Correlation	1	.382**	.135**	-.084**	.312**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	6802	6802	6802	6802	6802
Income Group	Pearson Correlation	.382**	1	.110**	-.014	.462**
	Sig. (2-tailed)	.000		.000	.245	.000
	N	6802	6802	6802	6802	6802
Gender	Pearson Correlation	.135**	.110**	1	-.009	.091**
	Sig. (2-tailed)	.000	.000		.462	.000
	N	6802	6802	6802	6802	6802
Age group	Pearson Correlation	-.084**	-.014	-.009	1	-.082**
	Sig. (2-tailed)	.000	.245	.462		.000
	N	6802	6802	6802	6802	6802
Education level	Pearson Correlation	.312**	.462**	.091**	-.082**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	6802	6802	6802	6802	6802

****.** Correlation is significant at the 0.01 level (2-tailed).

4. The data should have independent observations. To test this assumptions Durbin Watson test was used. In this study the Durbin Watson test calculated is 1.8 which fall into the normal range of the Durbin Watson results which should vary between (1.5 – 2.5) as indicated in the table below.

Table 8; Durbin Watson Test

Model	R	R ²	Adjusted R ²	S. E of the Estimate	Durbin-Watson
1	.285 ^a	.081	.081	.264	1.849

a. Predictors: (Constant), Education level, Age group, Sex of respondent, Financial Literacy, Income Band

b. Dependent Variable: Saving- investment

5. There must be a linear relationship between continuous variables and log odds, or a logarithmic transformation of the dependent variable. To test this hypothesis, the frequency of the financial literacy variable was included in the model in order to test the significant level of their p-value. The linear relationship between the continuous variable

and the log odds is confirmed when the p-value for replication is greater than 0.05. In this research, the p-value is $0.085 > 0.05$. Therefore this assumption is not violated.

6. There should be no significant outliers in the research data. this assumption tested to identify whether there are significant outliers in data which can affect the research findings and there are no outliers identified in financial literacy variable.

4.3.2. Logistic Regression Results

The study findings identified the significant perspectives of the predictors that impact saving and investment through the likelihood of the outcome variable. Outcome variable of this research model is saving and investment (SI), this variable is a dummy variable represented by respondents who agreed that they save with at least one of the different mechanisms of saving encoded with 1 which means “I Save” and 0 which means “I don’t save”. Here is the table showing variable encoding outcomes.

Table 9; Outcome Variable Encoding

Original value	Internal value
I don’t save	0
I save	1

Independent variables included in the model are financial literacy (FL) and Demographic characteristics like Age group (Age i), income group (Income), Gender (Sex), and Education level (Edu). Financial literacy is the continuous predictor while ages, income, age gener and education variables recoded into dummy variables to be estimated with the model used easily.

The table with the summary of the cases included or processed in the regression analysis. This table showed that the research has 6802 cases as identified as the total number of the respondents who provided the full information that was needed by the researcher and these are identified in the table below.

Table 10; the case processing summary

Unweighted Cases		N	Percent
Selected Cases	Included in Analysis	6802	100
	Missing Cases	0	0
	Total	6802	100
Unselected Cases		0	0
Total		6802	100

a. If weight is in effect, see the classification table for the total number of cases

Binary logistic regression model results

The results of a binary logistic regression model determine how the predictors support the model, rather than the results obtained before the predictor was included. This is called the Goodness of fit test. Our objective was to get very significant results ($p < 0.05$) and the case of this study (p-value of 0.000), as shown by the omnibus test of the model coefficients, with the Chi-square reporting 521.549. This means the full model with all predictors determined a statistically significant result with data from 6802 respondents, with df 3 as the number of input predictors. This suggests that the regression model can distinguish between households that report saving and those who doesn't.

In addition, the results of the Hosmer and Lemeshow tests confirmed the validity of our model. SPSS believes that this test is the most reliable and the most different from the full test described above. To validate our model, the Hosmer-Lemeshow quality test requires a value greater than 0.05, while a significant value less than 0.05 indicates a poor fit. In this study, the Hosmer and Lemeshow tests showed good results with a non-significant p-value of 0.257.

Table 11; Omnibus test and Hosmer and Lemeshow test

		Chi-square	df	sig.
Step1	Step	521.549	3	0
	Block	521.549	3	0
	Model	521.549	3	0

Hosmer and Lemeshow Test

Chi-square	df	Sig.
10.109	8	.257

The model summary table provides more information about the usefulness of the model. The values of Cox and Snell's R-squared and Nagelkerke's R-squared indicate the variation in the dependent variable that can be explained by the model, and these values range from 0 to 1. These are pseudo-R-squared values and not the actual R-squared values used in the multiple regression output. In this research, the values of 0.074 and 0.170 indicate that this combination of variables explains between 7.4% and 17% of the result.

Table 12; the Model Summary

Step	-2 log-likelihood	Cox& Snall R Square	Nagelkerke R Square
1	3352.369 ^a	0.074	0.17

a. Estimation terminated at iteration number 7 because parameter estimates

Parameter Estimate Results of the Variables in Equation

The section of the parameter estimates shows the predictors entered for step 1 of the logistic regression analysis as listed in the table of the findings where FL stands for Financial literacy level, Income stands for income group, Age stands for the age group, Gender stands for the Sex of the respondents, and Edu stands for the educational level of the respondents. The table which shows the results of regression analysis is organized as follows;

The coefficients of log odds related to every single independent variable are presented in the B column to show the magnitude and the orientation of the relationship between the predictors and the log odds of the binary outcome with a negative sign where there is a negative relationship and positive or no sign where there is a positive relationship. The coefficients of standard errors (SE) were displayed to indicate the coefficient estimates variation.

The Wald test contains the Wald statistics as chi-square test results of the initial hypothesis for every predictor parameter and the Wald statistics corresponding degrees of freedom (df) are identified in the table. The p-value is also included in the Sig. (significance) column where a p-value less than 0.05 implies a significant relation with the outcome. Lastly, the odds ratio is shown in the Exp(B) column to reveal the change in the probability of belonging to a certain group of the outcome result from a unit change in a predictor variable with the 95% confidence interval which provides a range of numbers with a fair amount of certainty.

Five predictor variables (financial literacy, income, gender, age, and education level) of the respondents were included in the model to examine the impact of the independent variables on the likelihood that the household respondents were reported to save and invest. Based on the table below, some of the predictors at the first regression were not statistically significant. As a result, we conducted a second-order logistic

regression with only three of the predictor variables that made a statistically significant impact in the first level regression model (financial literacy, income, and education).

Table 13 ; Estimates of the Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Step 1 ^a FL	.413	.025	278.975	1	.000	1.512	1.440	1.587
Income (1)	1.057	.199	28.345	1	.000	2.878	1.950	4.247
Edu (1)	.578	.211	7.509	1	.006	1.783	1.179	2.697
Constant	-1.194	.188	40.393	1	.000	.303		

a. Variable(s) entered on step 1: FL: Financial Literacy, income, Edu: Education.
Reference categories are; income <=50000 Rwf and Edu: below 12 years

The FL stand for financial literacy, income (1) stand for the income above 50000rwf (Rwandan francs) and Edu (1) stands for 12 years of education and above. The estimated equation after replacing the parameter estimates into the model gives us the following;

$$\text{Log}[\hat{P}(SI) / (1 - \hat{P}(SI))] = -1.194 + 0.413FL_i + 1.057Income_i + 0.578Edu_i$$

The predictor reported to have higher contribution was income presenting an odds ratio of 2.87 which indicated that the household respondents with income higher than 50000 Rwf are more likely to save 2.87 times compared to those who were earning income less or equal to 50000 Rwf holding all other factors constant in the model. The variable with the least contribution is financial literacy presented an odds ratio of 1.51 which indicated that for every unit increase in financial literacy score, the household respondent was 1.51 times more likely to save all other factors remain constant in the model. This came after the odds ratio of the education level of the household respondent of 1.78 which identified that there was 1.78 times more likelihood of saving due to the education level of 12 years and above compared to those with education less than 12 years holding all other factors constant.

DISCUSSIONS AND CONCLUSIONS

Discussions of the Findings

The main objective of this study was to determine the level of financial literacy and to study its impact on household savings and investment among the Rwandan population. The results of the research showed a good level of financial literacy, with an average score of 8.85/12 (73.75%), obtained from the total financial literacy score made by the combination of the financial knowledge or skills, financial attitudes, and financial behavior of Rwandans.

The distribution of financial literacy across demographics was tested using the T-test for equality of means, females were identified to score low financial literacy mean compared to the male mean score, the households aged under 40 years old with greater mean scores of financial literacies compared to those aged for 40 years and above. The households who earn an income less than or equal to 50000 Rwf were reported to have lower financial literacy mean than those who earn a monthly income above 50000 Rwf while the citizens with education level below 12 years basic education also identified to have low financial literacy score compared to citizens who completed 12 years of basic education and above.

Financial literacy was identified to have a positive relationship with the likelihood of saving and investment among the population of Rwanda at a statistically significant level below 0.005 explaining that there is a higher probability of using diverse mechanisms of saving or holding different types of investment to the people who possess high financial literacy level compared to the population with low financial literacy level, the findings of this study are in connection with the previous findings of other researchers (Luzardi and Mitchell, 2014) who reported the effect of financial literacy on saving and investment which help them to prepare for their retirement. (Brushan, 2014) reported to financial literacy to affect Investment. However, we can prove that the financial literacy level has an undoubtable impact on the savings and investment of the Rwandans.

In this study, demographic characteristics of the population in Rwanda were tested to identify how they affect saving and investment where age and gender were reported to be statistically insignificant factors which means that there is no influence of age and

gender on saving and investment of the household in Rwanda. The impact of age Band and gender on the outcome variable in this study identified similar implications with the previous research findings of (Biswas & Gupta, 2021); and (Uddin, 2020) where those predictor variables did not indicate a significant relationship with personal saving and investment.

The high income (above 50000 Rwf) was indicated to have a higher influence on the probability of saving and investment of the household compared to other factors included in the model. This was expected by the researcher where income was considered to be one of the main determinants of the household's chances of saving and investment. finally, the results of the research come up with confirmation and show the association with the previous research findings of Mahzdan (2013), who indicated the role of higher income in influencing individual saving behavior. However, we can also prove that there is a statistically significant impact of income on saving and investment among the households in Rwanda.

Having 12 years of basic education and above was reported to be a statistically significant factor in the probability of saving and investment. Apart from financial literacy, this result strengthens the understanding of the role played by diverse knowledge and skills the Rwandans acquired from other concepts in different fields of their studies. The results of this study are in the same context as the other previous researchers like Hogarth, (2002) and later Mahzdan, (2013) who found similar results. However, we can also prove that there is a statistically significant impact of income and education on saving and investment among households in Rwanda.

Conclusions

Financial literacy and Saving and investment are important for the growth and development of both individual households and the country in general because, during economic and financial crises, they act as the main tools to overcome financial problems.

This research identified a high level of financial literacy among households in Rwanda using the overall average financial literacy score. The research findings went on to harmonize the role of financial education programs introduced by the Government of

Rwanda to improve the financial literacy and inclusion of households through understanding financial and economic concepts for those attending formal education, as well as training on financial products and services for others who are not at the formal education level to raise awareness and improve their literacy about Finance.

Financial literacy was also concluded to be part of the determinants of the probability of individual household saving and investment as it was identified by the results of the study where the total scores have shown a strong impact on the probability of saving and investing while other factors remain constant and the results are in the same context and supported by some of the previous related research.

In this study, the impacts of the demographic characteristics have been researched where the high level of educational and high-income groups indicated statistically significant impacts compared to those with low-income groups on the probability of having savings and investment. on the other hand, the results did not find the strong influence of the gender difference, and age groups of the individual households.

Limitations of the Study

After the analysis of the research findings, recommendations may be identified to guide other researchers who want to undertake their study about financial literacy in Rwanda. the findings of this study were generalized on the country's population level due to the cross-sectional survey research used but the results obtained are not identical to some previous study findings which indicates the need for a more comprehensive study to be undertaken with the future researchers.

Another limitation was related to the extent to which the household respondents provided knowledgeable results during the survey. The households who did not respond may resulted from financial-related problems or cultural behavior of the society which may cause the people to provide wrong or refuse to answer the survey questionnaire and this may lead to different outcomes for those who returned the questionnaire with some empty results but this is a general limitation for different survey-based research.

This research topic seems to be new in Rwanda due to the limited number of similar literature review research in this country and Africa in general this made the researcher

generalize the findings on the whole community of Rwandans but, may have been constrained by any kind of error and the research focused on the financial literacy and demographics as the variables of studies to predict the possibility of household to have saving and investment while the saving and investment may be influenced by the other economic factors including inflation, interest rate, among others. When applying and implementing the results of this research, it's better to keep closer to those limitations and the future researcher should overcome them by including other variables and using different methods of analysis to provide extensive knowledge about the factors which may impact individual household saving and investment in Rwanda.

Future Researchers

There are several contexts to investigate financial literacy relating to the financial and economic concepts specifically in the decision-making context. However, future researchers need to undertake a similar or related study to research the appropriate way of measuring financial literacy level in Rwanda and Africa in general, how financial literacy influences different household decisions related to the management of individual households' finances in Rwanda, to compare the financial literacy level among the urban and rural populations, and undertake financial literacy study comparing Rwanda and other countries in the same region.

Researching financial literacy and its positive or negative impact is in context with the investigation of how government policies and regulations have been affecting and changing the living conditions of the population. However, researching the role financial education plays in reducing poverty among the population would be helpful to the policymakers to cover the gap during the policy reformulation. Determining the difference between financial literacy and financial capacity in the household should help Rwandans to be aware of what is needed to any extent to which they can improve their financial decisions.

The researchers, investors, and scholars may benefit from the dynamics of household saving and investment or other financial concepts through effective policies and regulations that show their contribution to the improved life of the households in general Thus the need for another research to be undertaken. Moreover, it gives a clear

understanding of how the financial sector contributes to the development and improved household living conditions of the people with low earning status in Rwanda.



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APPENDIX 1

FINANCIAL LITERACY QUESTIONS

Questions about financial knowledge

1. Imagine that five friends are given a gift of 20000 Rwf. If the friends have to share the money equally how much does each one get?

1 correct

2 Incorrect

3 Irrelevant answer

4 I don't know

5 Refuse to answer

2. Now imagine that the friends have to wait for one year to get their share of the 20000 Rwf and inflation remains the same. In one year's time will they be able to buy?

1 More with the share of the money than they could buy today

2 The same amount they could buy today

3 Less than the amount they could buy today

4 I don't know

5 Refuse to answer

3. You lend 5,000 Rwf to a friend one evening and he gives you 5,000 Rwf back the next day. How much interest has he paid on this loan?

1. Correct

2. Incorrect

3. Irrelevant answer

4. I don't know

5. Refuse to answer

Financial Attitudes Questions

Please tell me the level of agreement or disagreement with the following statements, explain where 1 is completely agree, 2 is agree, 3 is disagree, 4 is completely disagree, and 5 is I don't know.

1. You compare different options and then choose the best one that suits your needs.
2. You know what to do for recourse when not satisfied with a financial service or product?
3. You are confident enough to make a complaint against a bank or financial institution if you are not satisfied with the service or product offered?
4. You don't mind being in debt as long as you have what you need/want?
5. Do You understand the terms and conditions in the contract with a financial institution?

Financial Behavior Questions

I am going to read statements about financial behavior, please tell me your experience recorded responses as 1 Always 2 Often 3 Sometimes 4 Seldom 5 Never 6 I don't know.

1. before you buy something, you carefully consider whether you can afford it.
2. Do you pay your bills on time?
3. Do You keep a close personal watch on your financial affairs?
4. You set long-term financial goals and work hard to achieve them.

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RESUME

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Publications:

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