

UNIVERSITY OF CAPE COAST

FINANCIAL INCLUSION AND POVERTY INCIDENCE IN GHANA:

THE MODERATING ROLE OF GENDER, LOCATION AND  
HOUSEHOLD SIZE



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2021

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HOUSEHOLD SIZE

BY

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Thesis submitted to the Department of Finance, School of Business, College  
of Humanities and Legal Studies, University of Cape Coast, in partial  
fulfillment of the requirements for the award of Master of Commerce Degree  
in Finance.

DECEMBER 2021

## DECLARATION

### Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature..... Date.....

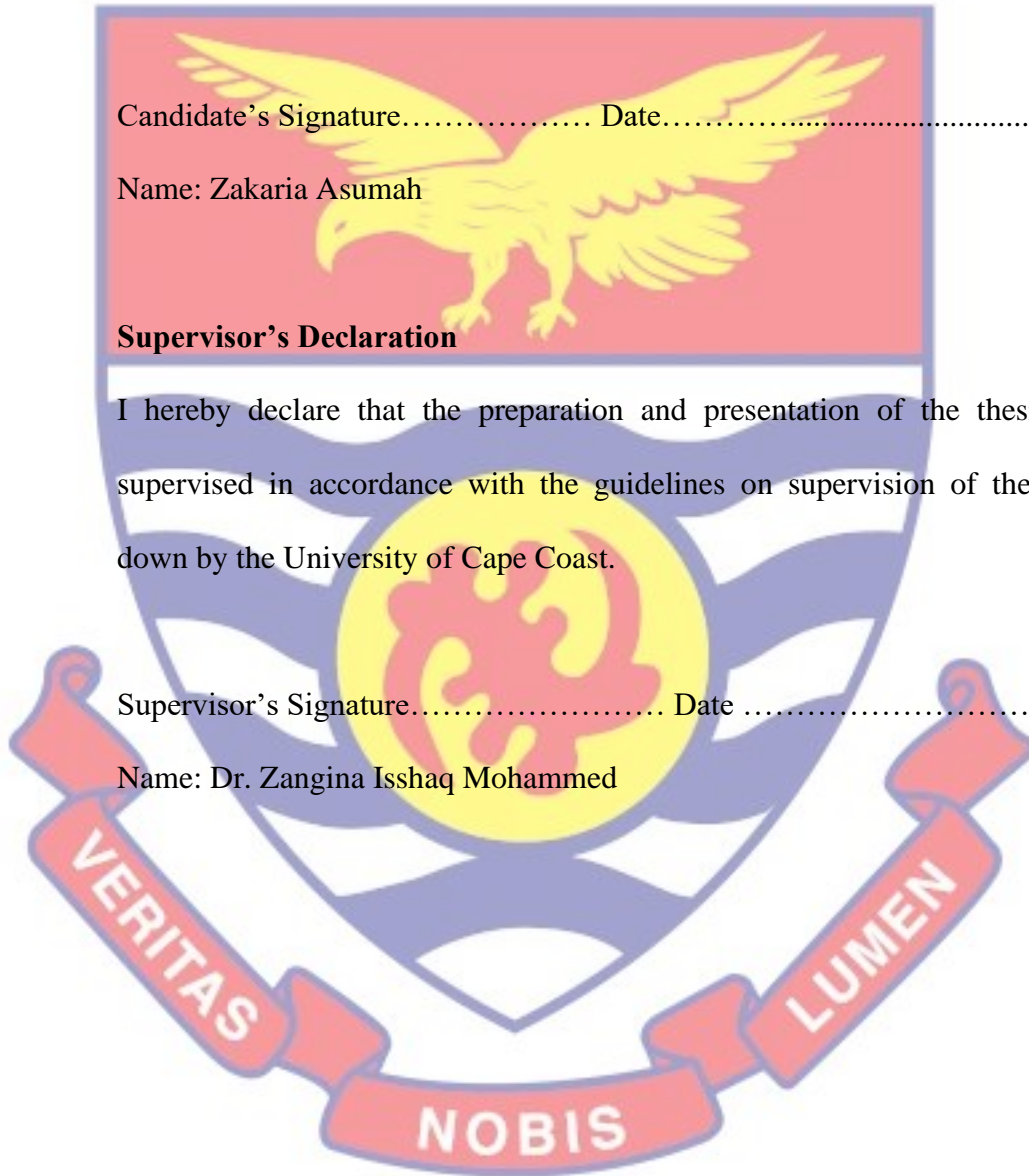
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### Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Supervisor's Signature..... Date .....

Name: Dr. Zangina Isshaq Mohammed



## ABSTRACT

The main aim of the study is to investigate the relationship between financial inclusion and poverty incidence and how gender, location and household size conditions the relationship. The study employed a quantitative approach and an explanatory design to explore the relationships among the variables.

Secondary data was obtained from the Ghana Living Standards Survey (2017) and the logistic regression and bivariate probit models were used for the estimations. The results revealed that financial inclusion significantly reduces poverty incidence in Ghana irrespective of the proxy adopted for financial activities. In terms of effectiveness, it was observed that savings had the greatest impact on poverty incidence followed by loans and then insurance. Poverty was also found to have negative effects on households' likelihood to purchase an insurance policy. The results further suggested that the gender of the household head, location of household head, and the size of the household significantly moderate the effects of financial inclusion on poverty incidence. The household size indicate an inverted U-shape relationship with poverty incidence in the presence of financial inclusion. Household heads in the Savannah zone benefited less from the impacts of financial inclusion on poverty incidence as compared to those in the Coastal and Forest zones. Financial inclusion was found to benefit male-headed households more than female-headed households. The study, therefore, recommends that savings and loans must be the target of policy makers in reducing poverty incidence in areas where poverty incidence is high in Ghana. The Central Bank must create a specialized inclusion program in the Savannah zone of Ghana to reduce poverty incidence in the area.



**KEY WORDS**

Financial Inclusion

Gender

Ghana

Household Size

Location

Poverty Incidence



## ACKNOWLEDGMENT

I sincerely express my profound gratitude to my Supervisor, Dr. Zangina Isshaq Mohammed for his immense professional supervision, constructive criticism, and guidance. You have instilled in me the art of patience, perseverance, and commitment, seeing the good in all situations, yearning for higher heights, and being of service to mankind of all walks of life. I am much grateful to you Sir.

I am also extending my sincere gratitude to Prof. Siaw Frimpong, for his unreserved contribution to my entire academic studies. He has been fantastic and supportive. The continuous support of all the Faculty Members and staff of the Finance Department at the University of Cape Coast during my studies cannot be left out; thank you and God bless you all.

I must also say a very big thank you to my brother, Mr. Haruna Musah for all the support given me right from my childhood to this stage of my life. He sacrificed all to make life comfortable for me. I will never forget all that you have gone through to make me the person I am today. I say thank you and may Allah richly bless you. Finally, I want to thank my family and friends for their continuous support., especially, my mother, Ishaq Adia, and my sister, Kande, and also my selfless friends Seidu Fusein and Amidu Abdul-Latif.

## DEDICATION

To my brother: Musah Haruna



## TABLE OF CONTENTS

	<b>Page</b>
DECLARATION	ii
ABSTRACT	iii
ACKNOWLEDGEMENT	v
DEDICATION	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	ix
LIST OF FIGURES	ix
LIST OF ACRONYMS	xi
<b>CHAPTER ONE: INTRODUCTION</b>	
Background to the Study	1
Statement of the Problem	8
Purpose of the Study	10
Research Objectives	10
Research Hypotheses	10
Significance of the Study	11
Delimitation of the Study	12
Limitations	12
Organization of the Study	13
<b>CHAPTER TWO: LITERATURE REVIEW</b>	
Introduction	14
Theoretical Framework	14
Conceptual Framework	40
Empirical Review	22



Chapter Summary	41
<b>CHAPTER THREE: RESEARCH METHODS</b>	
Introduction	42
Research Design	42
Population of the Study	43
Data Source	44
Model Specification and Estimation Techniques	44
Chapter Summary	48
<b>CHAPTER FOUR: RESULTS AND DISCUSSION</b>	
Introduction	50
Descriptive statistics	50
Estimated Results	57
Discussion of Results	82
Chapter Summary	90
<b>CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS</b>	
Introduction	92
Summary of Research	92
Summary of Findings	93
Conclusions	94
Recommendations	95
Suggestions for Future Research	96
REFERENCES	98
APPENDIX	112

## LIST OF TABLES

	Page
1 Apriori Expectation	46
2 Cross-tabulation between poverty incidence and background characteristics.	52
3 Descriptive statistics of continuous variables	53
4 Average Age of a Household head and Average Households Size by location	54
5 Cross-tabulation between poverty incidence and Access to Credit.	55
6 Cross-tabulation between poverty incidence and Savings through formal Financial System	56
7 Cross-tabulation between poverty incidence and Ownership of Insurance Products.	56
8 The Logit Output of Access to Loans and Background Characteristic on Incidence of Poverty Among Respondents	59
9 Margin and Margin Comparison Based on Gender and Location	61
10 Biprobit Model of Formal System of Savings on Poverty Incidence and Background Characteristic on Incidence of Poverty Among Respondents	68
11 Margins Comparison Based on Location and Savings	71
12 Logit output of poverty incidence, background characteristics, and insurance in Ghana.	74
13 Logit output of insurance, background characteristics and poverty incidence in Ghana	77
14 Margins comparison based on location and insurance	80

## LIST OF FIGURES

	Page
1 Conceptual Framework	40
2 Percentage of the household heads by location and sex	51
3 Household heads Poverty Status by Locality	52
4 Predictive margins-plot of location, gender, and loans on poverty incidence	63
5 Marginsplot of household size, loans, and sex on poverty incidence.	64
6 The interactive effects of location and household size on poverty incidence for the respondent that had access to loans in urban areas	65
7 The interactive effects of location and household size on poverty incidence for the respondent that had access to loans in rural areas	66
8 Interactive Effects of Gender and Savings on Poverty Incidence	69
9 Interactive effects of location and savings on the incidence of poverty	70
10 Margins-plot of the interactive effects of household size and savings on poverty incidence	72
11 Interactive effects of gender and insurance on poverty incidence	78
12 Interactive effects of location and insurance on the incidence of poverty	79
13 Margins-plot of the interactive effects of household size and insurance on poverty incidence	81

## LIST OF ACRONYMS

ARDL	Autoregressive-Distributed Lag
DFE	Dynamic Fixed Effect
FI	Financial inclusion
Findex	Global Financial Inclusion Database
GDP	Gross Domestic Product
GLSS	Ghana Living Standard Survey
GMM	Generalized Method of Moment
GSS	Ghana Statistical Service
ICT	Information Communication Technology
LEAP	Livelihood Empowerment Agency Programme
MFI	Micro-Finance Institutions
MPI	Multi-Dimensional Poverty Index
NFIDS	National Financial Inclusion Development Strategy
NGOs	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Square
PMG	Pooled Mean Group
SDG	Sustainable Development Goal
SPSS	Statistical Package for Social Sciences
UNDP	United Nation Development Programme
VSLA	Village Savings and Loans Associations



## CHAPTER ONE

### INTRODUCTION

Access to financial services is key to the modern economy, and it is a vital step towards poverty incidence reduction and shared prosperity (Wang, 2019). Financial inclusion is crucial as increased access to financial services by the poor is usually, measured as an operational tool that may help lower poverty incidence and income disparity (World Bank, 2013). Providing financial services to the poor in the form of savings, credits, and insurance facilities assists the poor to better manage risks, gradually accumulate assets, and increase income-generating. The GSS (2018) noted that “the incidence of poverty in Ghana is still very much a rural phenomenon with extreme poverty being highly concentrated in Rural Savanna and highly skewed towards household heads engaged in agricultural activities”.

The observations above suggest that though financial inclusion could reduce poverty incidence, the actual effects may depend on some background characteristics of the household. The current study seeks to investigate the link between financial inclusion factors and the role that background characteristics such as household head gender, household size, and location of household head play in such a relationship.

#### **Background to the Study**

Poverty remains a binding constraint to the quality of life in developing and emerging economies like Ghana. As a concept with several operationalization and facets, poverty has gained significant attention in the empirical literature in terms of how to correctly measure it and what factors explain its prevalence, incidence, and depth. The OECD (2001) asserted that

“Poverty embraces different dimensions of deprivation that relate to human capabilities including consumption and food security, education, rights, health, decent work, security, voice, and dignity. Poverty incidence must be minimized in the light of environmental sustainability. Reducing gender inequality is critical to addressing all aspects of poverty” (OECD, 2001, p.1).

In light of this, attention has now shifted to growing fields such as financial inclusion and how their full development could impact the poverty dynamics of the population. The continuous search for more leading variables that could serve as policy targets to reducing poverty incidence in all forms, as entailed in the sustainable development goal (SDG) 1 is still on.

Globally, 1.3 billion people, representing 22% of the global population, live in multidimensional poverty (UNDP, 2020). The report further stated that about 84.3% of multi-dimensionally poor people live in African countries (558 million) and South Asia (530 million). Ghana, as a sub-region in Sub-Saharan Africa, did not make it into the list of countries that made significant progress in poverty reduction (UNDP, 2020). The Multi-Dimensional Poverty Index by the Ghana Statistical Service (2020) indicated that 45.6 percent of Ghana’s population are multi-dimensionally poor. The GSS report in 2020 further suggested that MPI reduced by 0.062 from 0.298 in 2011 to 0.236 in 2017 where there has been an annual average decline of about 2.97%. The evidence suggests that though some progress has been made, the process has been slow. Nonetheless, as indicated, the emerging economies have shifted attention to financial inclusion and how their full development could impact the poverty dynamics of the population.

World Bank (2018) defined financial inclusion as “the means where individuals and businesses have access to useful and affordable financial products and services that meet their needs (for example, savings, insurance, transactions, credit, and payments) delivered responsibly and sustainably”.

There are several aspects of financial inclusion but the World Bank identified access as the leading financial inclusion variable. However, financial inclusion includes insurance, a formal system of savings, ownership of a bank account, and credit accessibility. Financial inclusion, which promotes the ownership of savings accounts, rendering of loan services, remittances, payment made by individuals, improves person and household welfare by enhancing entrepreneurial propensities, empowering women, investing in education, and risk management (Koomson, Villano, & Hadley, 2020).

Also, savings, credit, and insurance play a key role in strengthening disadvantaged people's economic conditions as they may enhance the investment performance of an economy and control risky economic situations. For instance, a formal system of savings allows for greater amounts of capital to be accumulated for investing in children's schooling, health care, high-quality intake of food, marriages, and funeral arrangements. Also, savings can serve as 'quasi insurance' in the event of unexpected economic shock and unfavorable occurrence (Steinert *et al.*, 2017). For example, savings can help with smoothing consumption by acting as a shield against crises and lowering alternative coping strategies such as school dropout of children, quick sales of farm produce or assets, disproportionately borrowing at high-interest rates, and funeral costs (Steinert *et al.*, 2017). Saving for the future has the power not only to improve a household's overall economic situation but, may also, has



the potential to reduce the inter-generational transmission of poverty and vulnerability to poverty (Klasen, Lechtenfeld, & Povel, 2015).

Credit used in this study comprises bank or microfinance loans that are given to the less privileged to empower them to engage in various forms of economic activities. For example, making credit available for small-scale farmers assist them to establish and expand their agricultural production, increase household income and promote food sufficiency and facilitate the household's ability to repaid money lent to them (Ellis, 2013). This is expected to increase employment opportunities, encourage people to live in the rural areas, thereby reducing rural-urban migration, and reduce the current rise in societal vices (Maryjane & Celestine, 2013). Also from studies of Mazumder and Wencong (2013), Seidu and Bambangi (2006), Ogaboh, Ocheni, and Nkpoyen (2014), households with credit, experience more poverty incidence reduction as they can create jobs for themselves and, ensure smooth income and consumption flows. Beyond these benefits mention above, household heads with credit are also able to expand and diversify their businesses, resulting in an increase in household income level, better education, and health care than a household without credit.

Insurance as a financial product benefits households in many ways, for instance, a household with insurance cover against certain losses is likely to be granted a loan by the bank or borrow money with a low-interest rate. This reduces the lender's risk of the borrower defaulting on the loan. Also, a household with insurance cover reduces risk in taking business activities. An insurance policy provides payment for covered losses when they occur. That is, the risk of having to pay for losses out of one's pocket is reduced. Again, a



household can insure their children's education in the event of death, their children's education will be taking care of to avoid future dropouts of school.

The contribution of financial inclusion should not be ignored in Ghana. Statistics from the Ghana Statistical Service (2016) indicate that in the year 2015, Ghana's GDP grew by 3.89%. The service sector reported the highest growth rate of 5.7%, agriculture came in second with a growth rate of 2.4%, and the manufacturing sector came in the third growth rate of 1.2%. With regards to the service sector, insurance, and banking contributions accounted for 22.9% (Bank of Ghana, 2015). However, in 2017 the contribution of the insurance and banking sectors dropped in the first quarter and the second quarter by 18% and 25.5% respectively, indicating that the penetration of the insurance and the banking sector has faced a marginal decline as though expected that financial inclusion warrants the inclusion of more people into the financial sector (Kusi, 2018).

Developing nations are at the center stage of recording a low rate of financial inclusion and such countries are associated with a greater number of the population living in high poverty incidence while a small group of the population possesses about 70% of the country's wealth (Majanga, 2016). For example, in Ghana, the National Financial Inclusion Development Strategy (NFIDS, 2018) reported that 42% of the population in Ghana is still financially excluded. In terms of regional breakdown, the five poor regions (Volta, Brong Ahafo, Upper West, Upper East, and Northern,) remain the most financially excluded areas in Ghana leading to a larger margin of incidence of poverty relative to the other regions (NFIDS, 2018). Financial inclusion has increased the global policy agenda and has drawn considerable

attention in its ability to crack the vicious cycle of poverty and reduce income disparity (Omar & Inaba, 2020; Koomson *et al.*, 2020).

Several studies have devoted time and resources to investigate the nature and direction of the link between the financial inclusion variables and incidence of poverty in both emerging and developed economies (Omar & Inaba, 2020; Quartey, Danquah, & Iddrisu, 2017; Jabir *et al.*, 2017; Akpandjar, Quartey, & Abor, 2013). At the current stage of research, the link between financial inclusion and poverty incidence has reported mixed findings. For instance, Godwin (2017) found a negative link between financial inclusion and poverty occurrence, but Quartey *et al.* (2017) found a positive relationship yet Alimi and Okunade (2020) found no relationship in the short run. Furthermore, the direction and combination of factors that best moderate the relationship are also under investigation (Husaini & Chibuzo, 2018).

In examining the relationship between the incidence of poverty and financial inclusion in Ghana, the role played by gender, location, and household size in the relationship cannot be overlooked. Gender has been cited in the literature to have influenced the relationship between financial inclusion and poverty incidence (Swamy, 2014; Kaur & Kapuria, 2020). For instance, Swamy found a significant effect of gender on the link between financial inclusion and incidence of poverty. Also, Kaur and Kapuria (2020) posited that in general, women's engagement in financial inclusion services has a significant effect on rising household income and enhancing family well-being in India. Though these studies looked at gender and how it influences the link between financial inclusion-related variables and poverty incidence, the study area might have influenced the outcome; thus, restricting its generalization to

the current study area. Hence, a study assessing how gender influences the relationship between financial inclusion and poverty incidence is in the right direction.

Further, the relationship between poverty incidence and financial inclusion is likely to depend on the location of households. That is, financial inclusion variables have been confirmed by Ajide (2016), both short and long-run relationship as a suitable strategy for lowering poverty incidence in rural communities. Huang and Zhang (2019) also found that the financial inclusion of rural areas improves the socio-economic conditions of rural households. However, most studies in Ghana fail to pay critical attention to financial inclusion as a method for reducing rural poverty incidence. This induces further study.

Also, the level at which financial inclusion will contribute to low poverty incidence in Ghana could depend on the household size of a household head. The size of a household has implications on consumption expenditure which eventually determines the savings propensity of the households (Anyanwu, 2014). Also, the size has implications on the number of potential economically active individuals in the household. Hence, there was the need to examine the role that household size plays in the effects of financial inclusion on poverty incidence reduction. It was, therefore, important to empirically examine the relationship between the incidence of poverty and financial inclusion in Ghana as well as the moderating role of gender, location, and household size using a nationwide survey dataset.



## Statement of the Problem

There is a wide disparity of poverty incidence among the various administrative regions in Ghana. Greater Accra for instance, has an extremely low poverty incidence of 2.5%, which is 20.9% lower than the national average of 23.4%. Unfortunately, the least can be said of the five regions in Northern Ghana, which mostly comprises the Savannah Zone. More than four out of every ten household heads are poor in Upper East Region (54.8%), increasing to one out of every two in the Northern Region (61.1 %) and seven out of every ten in Upper West (70.9 %) (GSS, 2018). Giving a further analysis of the poverty trend in Ghana, more efforts are needed to fight poverty incidence among households. The reason is that the incidence of poverty in the rural area rose from 37.9% to 41.8% in 2016/2017 contributing to national poverty of 78% (Cooke, Hague, & McKay 2016; GLSS7, 2018). Also, the report from GLSS7 (2018) highlighted that poverty incidence was higher among the male-headed households of 25.8% than a female-headed household of 17.6%.

To amicably reduce poverty incidence in Ghana, financial inclusion variables like access to formal credit, a formal system of savings, and insurance are needed for poor households. Financial inclusion variables can be used to provide financial services to the poor in the form of savings, credits, and insurance facilities to assist the poor to better manage risks, gradually accumulate assets, and increase income earning capabilities, and improve quality of life.

Because the effectiveness of financial inclusion in reducing poverty incidence is moderated by several background characteristics, it is apparent



that studies that did simple analysis left out a greater part of the issues unanswered. Methodologically, there is the need to expand the discussion on the linkage between financial inclusion and incidence of poverty to capture the moderating role of background characteristics of the respondents in the relationship between financial inclusion variables and poverty incidence (Osei-Fosu, Dampah, & Emmanuel, 2019; Akpandjar, Quartey, & Abor, 2013; Giesbert, Steiner, & Bendig, 2011).

Also, earlier studies have created a composite index to capture the effects of financial inclusion on poverty incidence, which did not take into account the separate effect of financial products on poverty levels of households (Osei-Fosu *et al.*, 2019; Akpandjar *et al.*, 2013; Giesbert *et al.*, 2011). Since all the financial inclusion variables cannot be targeted at the same time by policy makers, there was the need to examine the individual effects of the various components of financial inclusion such as usage and access of credit, insurance, and savings on poverty levels of the households. The current study, therefore, spotted a gap in the methodology employed as well as the scope of analysis of the relationship between financial inclusion and poverty incidence in Ghana and sought to contribute to providing answers to them.

This study is motivated by the fact that the role of financial inclusion in reducing poverty incidence may depend on gender, household size, and location of a household which need to be investigated. That is, exiting literature on financial inclusion suggest that access to and utilisation financial financial inclusion products differ by gender and location (Kaur & Kapuria, 2019). For example, access to financial institution and variety of

financial product is unequivocally easier in urban areas than rural areas. Kaur and Kapuria (2019) indicated that gender disparity exist in the utilisation of financial inclusion product by estimating it at 59% of females as against 67% of males. The contrast suggests that the moderating role of gender and location may well matter for how financial inclusion could affect poverty incidence in Ghana. The study sought to fill a gap in the existing literature by employing key variables as moderators in the relationship between financial inclusion and poverty incidence in Ghana.

### **Purpose of the Study**

The purpose of the study is to investigate the dynamics of financial inclusion and the incidence of poverty across various urban and rural areas in Ghana.

### **Research Objectives**

1. To examine the relationship between financial inclusion and poverty incidence in Ghana
2. To determine the moderating role of gender between financial inclusion and poverty incidence in Ghana
3. To determine the moderating role of location between financial inclusion and poverty incidence in Ghana
4. To assess the moderating role of household size between financial inclusion and poverty incidence in Ghana.

### **Research Hypotheses**

H<sub>1</sub>: There is a significant positive relationship between Financial inclusion and poverty incidence in Ghana.

H1<sub>a</sub>: There is a significant positive relationship between access to credit and poverty incidence in Ghana.

H1<sub>b</sub>: There is a significant positive relationship between savings and poverty incidence in Ghana.

H1<sub>c</sub>: There is a significant positive relationship between insurance and poverty incidence in Ghana.

H<sub>2</sub>: There is a significant moderating effect of Gender on the relationship between financial inclusion and incidence of poverty in Ghana.

H<sub>3</sub>: There is a significant moderating effect of location on the relationship between financial inclusion and incidence of poverty in Ghana.

H<sub>4</sub>: There is a significant moderating effect of household size on the relationship between financial inclusion and incidence of poverty in Ghana.

### **Significance of the Study**

This study examines how gender, household size, and location moderates the relationship between financial inclusion and poverty incidence in Ghana. The study thus has both social and empirical relevance. Empirically, this study provides insight into the methodological flaws of simple analysis by revealing how different the interactive effects among the variables could be form the simple effects. It, therefore, provides an avenue to other researchers in the field of finance and economics on the need to incorporate moderators into their analysis.

The outcome of the study also contributed to the understanding of the role played by the various components of financial inclusion on poverty incidence. This finding provides more information on the leading financial



inclusion variables that policy makers could target for effective policy outcomes in reducing poverty. Also, the contribution of the study is not just reducing poverty incidence among households, rather, the potential to reduce risk and vulnerability to poverty.

### **Delimitation of the Study**

The scope of the study was limited to urban and rural areas of Ghana. The study also used financial products to determine financial inclusion and also used the poverty line as a measure of poverty incidence of the households as defined in the GLSS7 (2018). The study employed solely cross-sectional data from GLSS 7 because that is the currently available data from the Ghana Statistical Service on poverty status in Ghana. The study used formal ownership of an account, savings, access to credit facilities, and insurance products as a measure of financial inclusion. The measurement was used because it encompasses the actual usage dimension of financial inclusion.

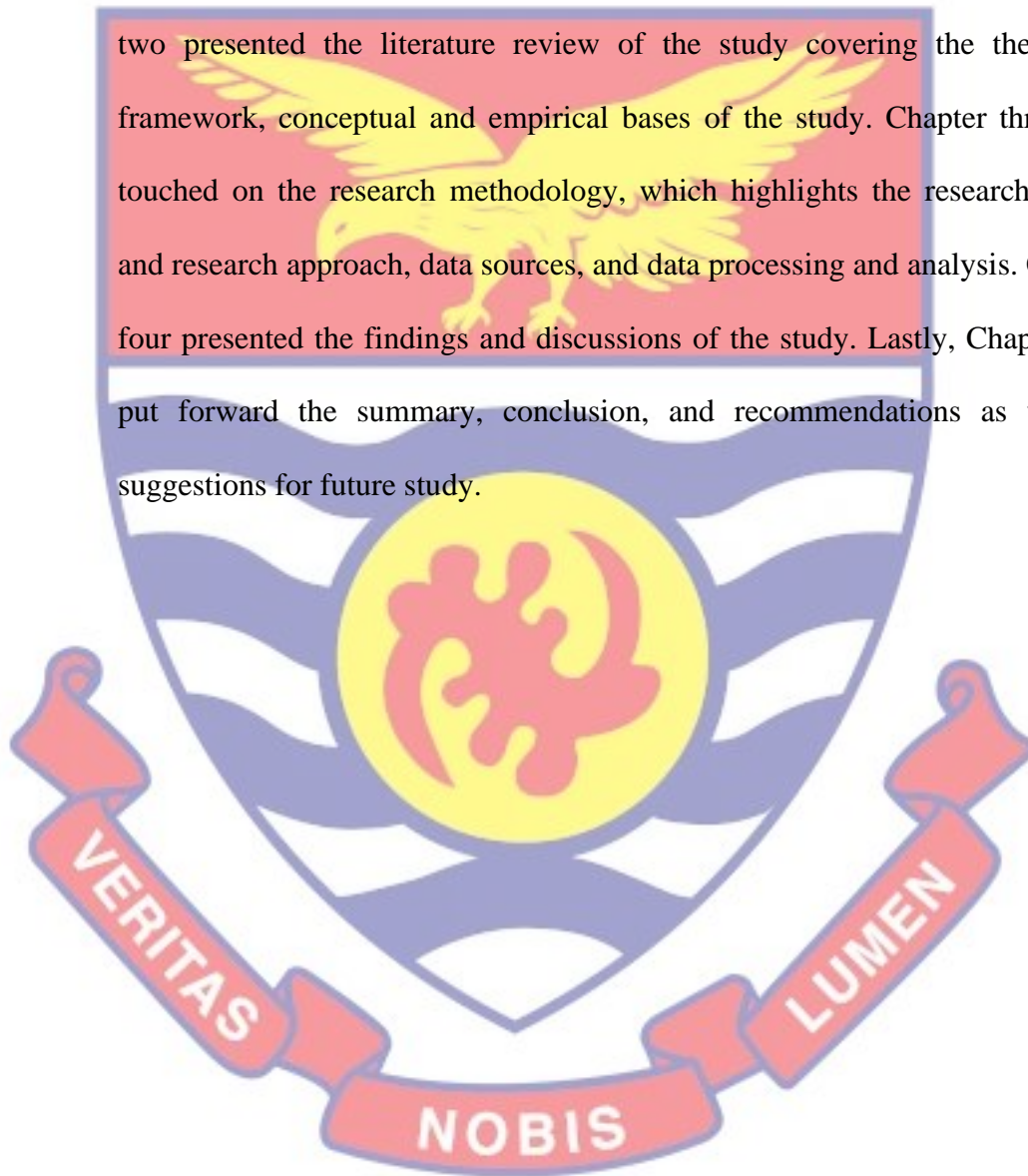
### **Limitations**

The study used cross-sectional data and there may be challenges of missing entries within the data span. Also, though Ghana currently has 16 regions, the data was collected when the number of regions was ten. The stratification of data points, therefore, exists as ten regions. This limitation does not constitute a major threat to the study since the analysis is done at the macro level for which the desegregation matters less. The study, however, limits the descriptive analysis of the poverty incidence by current regions, something that could be possible in the next round of the GLSS survey.



## Organization of the Study

The research is divided into five chapters. Each chapter encompasses the following in order of their presentation in the study. Chapter one captures the background to the study; problem statement, purpose, hypotheses, significance, delimitations, limitations and organization of the study. Chapter two presented the literature review of the study covering the theoretical framework, conceptual and empirical bases of the study. Chapter three also touched on the research methodology, which highlights the research design and research approach, data sources, and data processing and analysis. Chapter four presented the findings and discussions of the study. Lastly, Chapter five put forward the summary, conclusion, and recommendations as well as suggestions for future study.



## CHAPTER TWO

### LITERATURE REVIEW

#### Introduction

The focus of the study is to investigate financial inclusion and poverty incidence in Ghana: the moderating role of gender, location, and household size. This chapter presents the theoretical and empirical review of the study. Two theories were adopted for this study, thus, the empowerment theory and Transitory or transient theory. The chapter further presents a review of literature and a conceptual framework that support the study objectives.

#### Theoretical Review

The study integrated the Empowerment and Transient theory to explain the linkages that exist between financial inclusion and poverty outcomes as well as how background characteristics may moderate such relationships.

#### Transient Theory of Poverty

Transitory or transient poverty according to Jalan and Ravallion (2002) is defined as the contribution of consumption poverty at household levels that is directly attributable to variability in consumption over time. Transitory poverty comes from the vulnerability of people to fall from their standards of living or economic wellbeing; people above the poverty line sometimes might have fallen below the national poverty line, or people living just on the poverty line might as well fall into extreme poverty. The transient poor category is households whose food expenditures are expected to fall below the national food poverty line (Mehta & Shah, 2003). Transitory poverty according to (Lipton and Ravallion, 1995; Jalan and Ravallion, 2000) is often caused by vulnerability resulting from lack of access to credit, savings, and

insurance. The theory holds that accessibility of insurance and income-stabilization schemes such as savings, access to loans, and any other financial product can help households against transient poverty. Thus, insurance and income-stabilization schemes are viewed as more essential policy measures when poverty is transient (Lipton & Ravallion, 1995). In the same way, Hulme and Shepherd (2003) maintained that micro-credit is more suitable in countries where poverty is mostly a transitory issue.

The transitory theory holds that household heads who save through the formal system have the chances of increasing returns in the future as compared to household heads who do not. Also, credit to households by financial institutions allows household heads to engage in profitable ventures and eventually improves their living conditions. “Poor households who are more likely to have credit constraints in the future may be more ready to sacrifice current income and purchase insurance products to reduce the risk of falling below the poverty line in the future (Morduch, 1995)”.

Considering this theory, a relationship can be drawn between access to credit, savings, insurance, and poverty incidence. This theory provides a linkage about how access to credit, savings, and access to insurance policies can help reduce the poverty incidence of household heads. It can therefore be inferred that a direct relationship could exist between financial inclusion and poverty incidence in Ghana. This is to say that increased access to credit, savings, and insurance is likely to result in a fall in poverty incidence. On the other hand, a lack of access to these indicators of financial inclusion will likely lead to an increase in the incidence of poverty.



## Empowerment Theory

Empowerment theory was proposed by Sen (1999). The theory was used by Sen to echo the presence of poverty and how it can be reduced. He emphasizes that poverty goes beyond low income but comprises the lack of financial services, social, political, and psychological power. The basis of his argument centered on providing equal opportunity and distribution of resources to reduce the undesirable socio-economic difference in society. In his argument, most modern societies denied some group of people access to financial services, power, and control which makes them remain in poverty. Also, according to Baden and Milward (1995), “though rural households are not always poorer than urban households, due to the weaker basis of their privileges, they are largely more vulnerable and, once poor, may have fewer options in terms of escape”. They further, stated that, by making available access to insurance and credit facilities for activities that are income-generated, financial inclusion participation can considerably reduce susceptibility to poverty. A reduction in poverty vulnerability can occasionally, also translate into empowerment if greater financial security allows the less privileged to become more assertive in their household affairs (Cheston & Kuhn, 2002). According to Abdulai (2020), the major strength of Sen’s theory is its ability to deal with a multi-dimensional nature of poverty such as financial exclusion, vulnerability, and powerlessness. The theory also promotes self-strengthening, actual participation in economic activities, control, and influence over individual affairs.

Kao, Chen, Ben, and Yang (2014) also asserted the fact that empowerment theory stresses the concurrent treatment of financially



disadvantaged groups and their social surroundings in order to improve their skills and opportunities. Kao (2014) further stated that empowerment is a way of creating an atmosphere that allows individuals to develop and move out of the poverty trap. For this reason, women's empowerment is crucial to global progress and it can be improved by providing affordable financial services to women and less privileged communities (Holloway, Niazi, & Rouse, 2017). Also, empowerment of individuals or household heads through financial services such as loan accessibility, micro-insurance, saving, and possibly ownership of accounts will reflect an individual's age or stage in life, because, young households are likely to have negative savings since they are likely to have relatively low earnings and also retirement for most people is likely to be the most substantial and enduring income fluctuation stage. Again, the location of a household head determines his level of financial inclusion empowerment and how it influences their poverty status.

#### **The integration of the transient and empowerment theory to the study**

The transient theory posits that financial inclusion, as a proxy for consumption of a financial product, can significantly influence the poverty status of households, but does not directly explain the transmission mechanism. The empowerment theory was, therefore, adopted along the transient theory to provide some explanation to the transmission mechanism. That is, the empowerment theory explains that financial inclusion can affect poverty status by empowering the heads of households to explore other poverty alleviation activities. For example, access to loans can serve as head capital to a head of a household and also boost the economic status of the family. Also, the level and extent of empowerment are known to be dependent

on background traits of households heads (such as gender, and age) and the geographical location of the person (Wang, 2019). It can therefore be argued that financial inclusion may not have a uniform influence on the poverty incidence for all groups in the society. Goodman (2018) argued that possession of a bank account can be considered an important aspect of financial inclusion but gender can play a significant role in whether access could translate into the utilization of the bank accounts by both males and females. For instance, some localities in Ghana limit the tendencies that a female could exploit the full extent of their bank accounts because they are not supposed to take such major decisions without the partners.

Suri and Jack (2016) asserted that empowering females with the right financial services to borrow and save money may help them better expand their businesses, choose where and how to work, increase productivity and earnings, and lower their risks of being poor. They may also have more options to contribute to household decision-making, make financial choices, leave abusive relationships and experiences, and reduce exposure to intimate partner violence (Hendricks, 2019).

Household size can also have implications for the effects of financial inclusion irrespective of the gender of the household head. That is, a smaller household can be easier to manage when the household head is empowered through financial inclusion, then the effects on poverty could be significantly higher than that of a larger household (Meenakshi, Ray, & Gupta, 2000). However, the relationship may not be so straightforward for household size, since a large household could also imply the possibility for some older members to be financially included, which will instead reduce poverty

incidence for the household head (Lanjouw & Ravallion, 2014). Hence, it can further be argued that household size could, condition the effect of financial inclusion on poverty incidence through household heads that could be empowered by financial inclusion. That is, the tendency that a household head could be financially included in a household increases when most of the household members are in the economically active age group (Anyanwu, 2014). On the other hand, a large household with most of its members outside the economically active age group can have lower tendencies to be financially included since high consumption expenditure could impede savings.

Evidence also suggests that locational variables such as rural and urban dwellings can imply how financial inclusion variables could influence poverty outcomes. The location of the household head is another demographic characteristic considered necessary to moderate the effects of financial inclusion on poverty incidence through empowerment. This is because differences in location could affect access to financial institutions and financial services, hence financial inclusion (Fox & Romero, 2017). This is because access to financial institutions in rural areas is relatively difficult, compared to urban areas. Household head locations could also imply differences in infrastructure and cost of living, both of which have implications for poverty incidence. The geographical location of a household head could have different implications on financial inclusion, empowerment, and hence poverty incidence. Location as well have implication for economic opportunities and cost of living which are key to empowerment when a household head is financially included (Ajide, 2016).

The transient theory relates to the first research hypothesis of this study whilst the empowerment theory addresses hypotheses two, three, and four. Integrating these theories provides the linkages and relationships among the study variables. This is because, to examine how gender, household size, and location of a household head moderate the relationship between financial inclusion and poverty incidence in Ghana, the effect of gender, household size and location, and financial inclusion on poverty incidence need to be examined in the light of theories which define these concepts. Therefore, integration of the two theories served the purpose of this study by providing a link between financial inclusion variables and poverty status.

### **Incidence of Poverty**

The incidence of poverty measures a household head as being poor or very poor and non-poor (Quartey *et al.*, 2017). A household is classified as poor if the income of the household head is insufficient to purchase the basket of goods and services used to determine a poverty threshold (Momodou, 2016). Poverty incidence (headcount index), defines what proportion of the households live below the poverty line (Schmied & Marr, 2016). The measurement of incidence of poverty is consumption expenditure also known as the poverty line, it is divided into two levels: the upper poverty line and the lower poverty line also known as the food/extreme poverty line (Koomson *et al.*, 2020).

According to GLSS7 (2018), the upper poverty line is estimated to be Gh¢1,314 per adult equivalent per year, which comprises both basic food and non-food consumption. Household heads able to have consumption expenditure above this threshold or level mean that the household head can



buy enough food to fulfill their basic nutritional needs and basic non-food desires (GLSS7, 2018). The low or extreme poverty line is estimated to be Gh¢792.05 per adult equivalent per year, comprised of only food consumption expenditure (GLSS7, 2018). Any household or individual whose total spending falls below this level is considered to be in extreme poverty (GLSS7, 2018).

### **Financial Inclusion**

Financial inclusion is regarded as a way of lowering poverty levels and promoting economic development. Financial inclusion gives the poor and the less privileged group in society the right to access basic financial needs such as credit, transfer and remittance, savings, insurance, and financial literacy education as and when needed at an affordable cost. Access to credit facilities, especially by the less privileged and the poor, is a pre-requisite for poverty reduction, social inclusion, employment, and economic growth since it allows them to save and invest, provide for their families, and help them to break the cycle of poverty (Lal, 2018). Improved access to finance by the poor empower them to lift themselves out of the poverty trap by investing their resources into the micro-scale business, therefore, reducing severe poverty (Lal, 2018).

“Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs – transactions, payments, savings, credit, and insurance – delivered responsibly and sustainably” (World Bank, 2018, p.2.). The availability of structured financial systems of banking provides opportunities for socially excluded and economically disadvantaged groups to participate in income-generating and

expansionary activities (Afrin, Haider, & Islam, 2017). Byson (2016) also explains Financial inclusion as the process of mainstream institutional actors enabling access to relevant financial goods and services needed by vulnerable groups such as weaker portions and low-income groups at an affordable cost in a fairly and transparently.

According to Agyemang-Badu, Agyei, and Duah (2018), financial inclusion is explained as adequate access and usage of financial services like savings, investment, loans, insurance, and pensions to all individuals regardless of their levels of income. Demirgüç-Kunt, Klapper, and Singer (2016) contend that access to financial credit creates a lot of opportunities for all manner of persons especially, poor people and small-scale businesses. Financial inclusion is also defined by Acquah (2019) as providing financial services at affordable and easily accessible to not just those at the top of the economic pyramid but also low-income individuals and small businesses. The major concern of financial inclusion is to get underbanked and unbanked individuals to access financial services to improve individual conditions and economic growth (Park & Mercado, 2016).

### **Empirical Review**

#### **Financial Inclusion and Poverty Incidence**

Financial Inclusion may be the only method to provide financial services to low-income households at all income levels. For example, making credit accessible for household heads to carry out any economic activities could help them sustained their economic well-being. Access to finance may have an impact on the quality of life of low-income households while also empowering the poor to raise and diversify their income and improve their

economic situations in a way that reflects the multifaceted dimensions of poverty. (Akpanjar, Quartey, & Abor, 2013).

Several studies had been conducted in Ghana and other countries. In Ghana, for instance, Quartey *et al.* (2017) studied rural financial intermediation and poverty reduction in Ghana. Employing bivariate probit model techniques on primary and the GLSS6 data, they discovered that financial institutions had a favorable impact on tackling poverty in Ghana. The study, however, stated that the impact is insignificant with the reason that financial intermediation has not focused on savings and credit accessibility to the less privileged section of the economy, possibly due to government deficit financing and the possibility of default in credit payment. Quartey *et al.* (2017) opined that to amicably eliminate global hunger or severe poverty as stated in the Sustainable Development Goals, the fewer privileged people in the society must be given meaningful access to financial services through the implementation of an effective pro-poor financial products strategy.

Lal (2018) conducted a study on the impact of financial inclusion on poverty alleviation among rural households in India. His analysis was based on primary data using one-way ANOVA and SEM. The factor analysis technique was applied to form constructs on variables. According to his results, financial inclusion through cooperative banks has a direct and considerable influence on poverty occurrence. His study further revealed that access to basic financial services like loans, savings, credit, etc., through financial institutions has impacted positively in reducing the poverty level of the poor. However, his studies centered on credit accessibility at the neglect of other financial inclusion variables.



Using the OLS estimation technique, Abdul-Rahamon, Aarisola, Pelumi, and Samuel (2020), analyzes the impact of bank financial intermediation activities on poverty incidence in Nigeria using secondary data from 1988-2018. They found that money supply, loans, credit advances to the poor have a strong significant effect on poverty incidence on the poor populace in Nigeria. They, however, stressed that inaccessibility to financial services such as banking services can worsen poverty on the poor. They, therefore, proposed that banks provide financial services to the less privileged at a lower cost, most especially to the private and agricultural activities. This will in a way reduce the cost of purchasing food items and eventually increase the standard of living.

With the Treatment effect model and propensity score matching technique Mohammed, Mensah and Gyeke-Dako, (2017) through the Global financial inclusion index investigated the potential impact that financial inclusion has on lowering poverty incidence on low-income households in 35 Sub-Saharan African countries. According to the study, the poor who are financially included get net wealth advantages and have higher welfare benefits than those who are not financially involved. In a similar vein, Godwin (2017) in his study analyzes panel data from the World Bank spanning from 1980 to 2012 on Sab-Saharan African countries. He employed Ordinary Least Square (OLS) regression analysis. His results indicated that financial intermediation (inclusion) had no positive and substantial influence on human development within the period of study. He further recommended that policymakers should rather focus attention on other aspects of development.



Alimi and Okunade, (2020) explained the role of financial inclusion and ICT diffusion on reducing poverty incidence in Sub-Sahara African countries. Financial inclusion through access to financial services like loans, insurance, and savings could be a key panacea to a high incidence of poverty. Data spanning from 2004-2017 and retrieved from World Development Indicator and World Bank across 27 African countries. The study employed a Non-stationary heterogeneous panel estimation technique which comprises a pooled mean group (PMG), mean group, and dynamic fixed effect (DFE) estimators. They found out that financial inclusion in the short run has no impact on levels of poverty. They concluded that financial inclusion through ICT diffusion as a moderator is imperative on poverty incidence in less developed countries. However, there is no obvious connection between poverty incidence and ICT. Arguably, the role of demographics characteristics is critical to poor households than the effect of ICT diffusion. Besides, the question is how is ICT going to inculcate into the illiterate section of the society?

For instance, Mazumder and Wencong (2013) examined the impact of credit on the rural poor in Bangladesh in which data was collected on 360 micro-credit recipients for estimation of regression analysis and chi-square test using SPSS. The results revealed a positive link between loan availability and poverty incidence reduction. Although micro-credit was estimated to have a positive effect on the poverty levels of the households, the joint impact of savings and insurances and as well as the gender, age, and locational effect were not clearly stated in the study. Mazumder and Wencong (2013) in their analysis did not take into consideration whether or not the household heads

who had access to credit have insurance cover and saving for the future. These other key financial products and background characteristics of the households were not controlled for in their study which in a way may not give a clear policy direction. For this reason, the joint impact of savings, credit, and insurance and their moderating effect with background traits is important for policy direction.

In a similar vein, Peprah (2012) also studied access to credit and well-being among women in Ghana. The study used a three-stage estimation approach employing data collected from 320 women entrepreneurs using structured questionnaires on credit as a dependent variable and well-being, and household head characteristics of women entrepreneurs as independent variables, the researcher found out that customers with high well-being scores mean are most likely to have larger loans. Though, the study found a positive relationship between household heads' well-being and access to credit. But, the critical issue here is that poverty was rather treated as an independent variable. Perhaps, the role that credit play in reducing poverty levels is more prudent to poor households than the effects of poverty on access to credit. For instance, Bambangi (2006) asserted that credit is a unique measure to help poor households to overcome their vulnerability to poverty.

In Kenya, Odhiambo (2010) examined the inter-temporal causal relationship between financial development and poverty reduction during the period of 1968-2006. The study attempts to answer a question, is financial development in Kenya a spur to poverty reduction? The researcher adopted a trivariate causality model. The study found a bi-causality between savings in a

formal system of banking and poverty reduction. The researcher also revealed that savings have a greater impact on poverty reduction in Kenya.

Peprah, Koomson, and Forson (2017) used binary logistic estimation to investigate the link between poverty and insurance in Ghana using GLSS 6 data. Their study revealed that poor individuals have lower demand for an insurance policy with geographical location influence being more pronounced for the poor in the rural areas, as compared to formal salary earners. Considering the vicious cycle of poverty, insurance alone as a financial product may not be able to break one's cycle of poverty.

Certainly, household easy access to loans, insurance schemes, and savings propensity translates into low poverty levels in diverse ways (Mohammed, Barrowclough, Kibler, & Boerngen, 2020). In that vein, it is significant to state that the study had created the link between financial inclusion through (possession of bank account, savings, access to loans and insurance cover) and poverty incidence. However, it would have been more appropriate to policymakers and implementers if the moderating effect of gender, household size, and location had been examined.

Examining the effect of credit plus on poverty reduction in Ghana using data from GLSS 6, Bukari, Peprah, Ayifah, and Annim (2020) employed OLS, two-stage least squares, probit, simultaneous quantile regression, and dominance analysis. the study revealed that financial product independently contributes to household head poverty reduction. The study again showed that though credit reduces household-heads poverty incidence, savings has the greatest poverty reduction among the extremely poor group and that poor household heads hardly fall on credit at the first financial product priority



when the need arises. Rather, they use insurance, remittances, and savings to smoothing their consumption to avoid unexpected income shocks (Bukari *et al.*, 2020).

Imai and Azam (2010) used household panel data from 1997 to 2005 in a study conducted in Bangladesh. The treatment effect model and propensity score matching were used in the analysis for participants and non-participants in microfinance programs. Using a treatment effect model, the study discovered that while simple household access to general loans from Microfinance did not significantly increase per capita income of the household, household acquiring loans for productive purposes from Microfinance did significantly increase per capita income of a household. The study, however, stressed the need for and monitoring of how households used the loans in a quest for increasing household income and eventually lowered household poverty incidence. The study also discovered that the application of treatment effects and Propensity Score Matching to each cross-sectional panel data, poverty incidence significantly reduced over time.

Although several studies had proven that micro-credit has a positive impact on poverty incidence, other researchers hold a contra view (Morduch, 1998; Kiiru, 2008). Also, Annim and Alnaa (2013) posited that microfinance or financial institutions cannot turn the fortunes of households overnight by way of improving welfare unless there is a constant demand for goods and services from micro-entrepreneurs and farmers.

### **Gender and Financial Inclusion on Poverty Reduction**

Generally, there has been a global improvement in financial inclusion and poverty reduction. However, gender equality concerning financial



inclusion, there still exists a wide gap, particularly in less developed countries (Kaur & Kapuria, 2020). Discrimination has been found in the way organizations reach out to females and the circumstances under which they do so (Kaur, 2020). It has been observed by Samer *et al.* (2015) in Malaysian that savings and credit have a positive impact on the household income of women

who save and borrow for business for a longer time as compared to new borrowers. A stratified random method was employed to collect data from 780 women from urban and rural districts using the multinomial logistic estimation technique. The study also revealed that some rural women continue to face challenges in obtaining loans from financial organizations. Financial services reaching out to men is enormous than those granted to women. To confirm this argument, Danquah Quartey and Iddrisu (2017) concluded that women in rural areas are likely to be at a disadvantage to the credit granted to them than men.

Employing three-stage feasible least squares and OLS estimation technique, Koomson *et al.* (2020) examined the effect of financial inclusion on poverty and vulnerability to poverty of Ghanaian households. The study employed a Ghana Living Standard Survey Round Seven. The study revealed that females-headed households have a higher probability of witnessing a greater reduction in the incidence of poverty and susceptibility to poverty as a result of financial inclusion than male-headed households. Male heads reduce the chances of being poor by 26%, while female heads can cut their chances by 30%. GLSS 7 (2018) asserted that women are more enterprising than men, and this may support the reason why men are poor than women when financial products are being accessed by both gender.

Swamy (2014) used panel least square and GMM to investigate financial inclusion, gender dimension, and economic impact on poor households using cross-sectional and time-series data. The results indicated that women's participation in financial inclusion improved household income by 16.23%. He also found out that gender has a significant influence on the impact of financial inclusion policies on the less privileged. He further pointed out that income growth and net inflation effect was 8.40% for females as against 3.97% for males, suggesting that there is a great disparity between women and men which affects financial inclusion policies. He, therefore, concluded that financial inclusion programs played a significant role in lowering the incidence of poverty.

Examining drivers of financial inclusion and the gender gap in Nigeria using data from Global Findex (2011), Abdu, Musa, Abdullahi, Adamu, and Mohammed (2015) employed the Binary Probit Model and technique of Fairlie decomposition for data analysis. Their findings acknowledged the existence of gender inequality in financial inclusion against women's households. The result showed that education and high-income level increases the chances of being financially included. They attested that financial inclusion is a tool for inclusive growth and an effective way of reducing poverty and also the improvement of the wellbeing of individuals. They suggested that policy implementers should focus on educating more females in the country for the gap to be bridged.

Fasoranti (2013) used the binary logistic estimation technique to examine the effect of savings mobilization among women on poverty reduction using primary data collected from a structured questionnaire on two

hundred respondents in Malaysia. The study revealed that rural savings by women are an indispensable way of reducing poverty in the study area and also has a positive impact on the poverty incidence of the household. The research further showed that 83% of the population used the proceed from the savings to do other investments that generate further revenue for the household. That is buying of vehicles and building for renting and other hospital bills. The researcher recommended that women participation in saving, should be encouraged and that such investment should be channeled to productive ventures than just consumption

The effort to bridge the gap between males and females concerning financial participation is still on. The study by Kaur and Kapuria (2020) examined factors that determine the assessment of institutional and non-institutional finance across male and female-headed households' in India using household data from Situation Assessment Survey, 70<sup>TH</sup> round, Basic Road Statistics (2016), Agricultural Statistics at a Glance 2016, database on India Economy and Census (2011). The study applied Multinomial Logistic regression for data analysis. The study showed that women have a low tendency of accessing institutional finance and a high tendency of accessing non-institutional finance as compared to male-headed households. Their study also revealed that educational level, monthly household consumption expenditure, and penetration of commercial banks have a positive influence on female-headed households to access institutional finance. In their assessment, they concluded that expanding females' access to financial services will be an operative weapon for the low incidence of poverty and reducing income inequality among rural folk.



In Ghana, Mannah-Blankson (2018) explored gender inequality and access to microfinance using a survey of 499 households. The researcher adopted two sets of statistical analysis on the data set. Cross-sectional regression analysis was used to determine the importance of micro-finance on households' gender wealth inequality and the Oaxaca-Blinder decomposition method also examined the gap between the wealth of female-headed and male-headed households. Her findings indicated that an increase in access to microfinance is related to lower gender asset gaps across households. The researcher, therefore, concluded by advocating that credit to financially constrained households, particularly women can contribute to poverty reduction and hence reduce gender inequality.

Similarly, household savings and women empowerment in Ghana was studied by (Annim & Peprah, 2015). They Employed Heckman's two-stage and probit estimation techniques on the GLSS 6 data, the study found that, increased women's bargaining power increases the likelihood of ownership of savings account and amount saved. Concerning formal account ownership, a basic dimension of financial inclusion revealed that females still contribute to about 1.7 billion unbanked adults worldwide (Findex, 2017).

A related study by Ammin and Alnaa (2013) examined access to microfinance by rural women and its implication for poverty reduction in rural households in Ghana. The study specifically sought to investigate the causal link between getting a loan from microfinance institutions and poverty reduction among rural households in the Upper East Region of Ghana, using consumption expenditure as the dependent variable. Using questionnaires, the study used the Treatment effect estimation technique on data from 250

beneficiaries and 250 non-beneficiaries from five Districts in the Region. The study tests the hypothesis that getting a loan has a poverty-reducing effect. The analysis validated the premise that credit had a 0.12% reduction in poverty. Based on this, they concluded that microcredit can reduce poverty incidence even in very impoverished localities. Hence, more rural women should be reached out to through microfinance.

### **Financial Inclusion and Location on Poverty Reduction**

Though Financial inclusion all over the world is on the rise, still the disparity between urban-rural participation is dominant in developing countries. Huang and Zhang (2019) investigated both the long-run and short-run consequences of financial inclusion and urban-rural income inequality using Chinese provincial data from 1985 to 2013. They employed panel co-integration methods for data analysis, the study showed that access to financial services reduces the urban-rural income inequality in the long run but, increases the income gap in the short run. The study also revealed that the accessibility of finance in various geographical areas reduces rural-urban income inequality in the long run. They suggested that financial network expansion and education to the rural areas can narrow income inequalities between the rural and the urban dwellers.

Ampah, Ambrose, Omagwa, and Frimpong (2017) determined the effect of access to credit and financial services on poverty reduction in the Central Region of Ghana using a cross-sectional study sample of 370 respondents on a structured questionnaire in 2016. SPSS was used to run a multiple regression analysis. the researchers revealed that though credit accessibility affects reducing poverty, its impact is not great when compared

to savings. They further stated that having credit and not utilizing it for productive purposes does not guarantee growth in wealth. The study, therefore, concluded that accessibility to credit has a positive impact on the poverty levels of entrepreneurs in the Central Region of Ghana.

In similar research conducted in India by Imai, Arun, and Annim (2010), it was discovered that credit meant for investment purposes was more significant in reducing poverty in rural areas compared to urban localities. However, in urban areas, basic access to MFIs had a greater overall poverty-reduction impact because microcredit had larger average poverty reduction impacts in the urban areas. Ghalib, Malki, and Imai (2011) also posited that credit had a positive effect on the poverty incidence of the household heads in terms of household expenditure on income, healthcare, and other related activities.

Investigating effects of spatial location and household wealth on health insurance subscription among women in Ghana by Kumi-Kyereme and Amo-Adjei (2013). Employing data from the 2008 Ghana Demographic and Health Survey using bivariate descriptive analysis and binary logistic regression estimation techniques for the analysis. The study showed that the poorest people in the northern zone were slightly less likely to possess insurance. The margins expanded more severely in the Northern zones after interacting wealth with the zone of residence. Though the study stressed that women in the Northern zone were more likely to be insured than those in the Coastal zones. In a similar study, Kusi, Hansen, Asante, and Enemark (2015) confirmed that households that are insured lowered the incidence of catastrophic health



expenditure on them to 2.9% while uninsured reduced theirs to 4.0%. This suggests that insurance reduces income-expenditure for an unexpected event.

A similar study was conducted by Ajide (2016) in Nigeria on financial inclusion and rural poverty reduction using data from the Central Bank of Nigeria, World Bank, and the National Bureau of Statistics from 1996 to 2013.

ARDL Modeling was used for data analysis and the bound testing results indicated a long-run relationship among variables. The study further discovered a negative relationship between loans granted to rural households and rural poverty incidence in Nigeria. The study also brought to light, as the monetary agencies increase efforts on rural financial inclusion through loan grants, savings, and micro-insurance, the poverty level will reduce as well.

Giesbert, Steiner, and Bendig (2011) investigated participation in micro life insurance and the use of other financial services and determining its impact on households in Ghana. The study employed a multivariate probit model on national household survey data of 350 households in the Central Region gathering data from Anidaso policy insurance cover. The study revealed that households that are perceived to be more vulnerable to risk than others are less likely to enroll in insurance policies. They found Insurance to be risky to them. The study again showed that life insurance does not reduce the poverty levels of the household as expected because Anidaso's policy only covers the risk of death (possibly accident and urgent hospitalization), while households face more risks such as unemployment, bad harvest, and illness. Giesbert (2011) assumed that "loans and savings could be a substitute of insurance if they serve a risk management function or their use could reinforce

the uptake of insurance if all services are provided by the same financial institution”.

Osei-Fosu, Dampah, and Emmanuel (2019) examined the impact of village Savings and Loans Associations (VSLA) on the livelihood development of the rural women and poverty reduction of Awutu Senya District in the Central Region of Ghana. Semi-structured questionnaires were employed for data collection from 700 women. The study found that women who save through VSLA have their standard of living, businesses, self-esteem, and social life significantly improving than those who do not save. Bannor, Oppong-Kyeremeh, Derkyi, Adombila, and Amrago (2020) in a related study among the rural women in Ghana using probit heteroscedasticity linear regression model. Their study indicated that though savings through VSLA has a significant impact on the off-farm income of rural women, however, it does not affect poverty.

Shauri (2014) examined savings and credits groups on poverty reduction of rural households in Tanzania using a sample of 204 respondents. The researcher employed multiple linear and logistic regression methods for data analysis. the study found out that savings and credit benefit the area of study in terms of increasing income levels of households. A larger household that got loans was able to reduce their poverty levels because households were able to competently manage their businesses.

A study on household financial needs and factors that determines financial services in rural and urban households in Ghana. Ghana Living Standard Survey 5 was used to evaluate the inclusion of a household in a certain financial sector and what influences their choices by Akpandjar,

Quartey, and Abor (2013). Conditional logit model results indicated that locational features are vital in acquiring financial services from a certain segment of financial institutions. The findings also showed that when the alternatives to financial services are available, rural folks are more likely than urban households to obtain their financial services from the informal financial sector. Again, rural folks experience significant shocks and this harms their quest for savings, but on the other hand, it induces urban households to patronize more credit facilities and demand for insurance products. Their study, therefore, encourages policymakers to provide tax incentives to financial institutions that are ready to reach out to the rural areas of the country.

Babajide, Taiwo, and Isibor (2015) conducted a study on micro-savings mobilization innovations and poverty alleviation in Nigeria. The paper critically examined the influence of innovative savings products in the Nigerian banking sector on the wellbeing of low-income households. The study employed primary data collected using structured questionnaires and uses OLS estimation technique to test the hypotheses. The findings showed that the savings rate has increased by 160% after the implementation of the innovative savings account. The results further showed that saving products has significantly impacted welfare, thereby reducing poverty among low-income earners. The study, therefore, concluded that increasing access to savings using innovative savings products has a higher likelihood of reducing the incidence of poverty both in rural and urban localities.



## Financial Inclusion and Household Size on Poverty Reduction

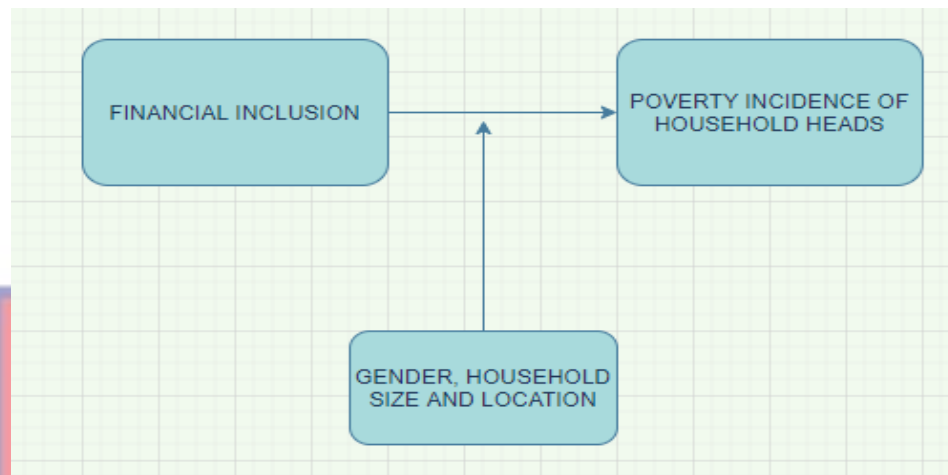
Using a Multivariate logistic regression, Anyanwu (2014) investigated marital status, household size, and poverty in Nigeria. Using the Harmonized Nigeria Living Standard Survey data, the study revealed that household size determines poverty in the country. Also, the study revealed that a one-person household negatively and significantly reduces poverty but, the addition of an individual to the household increases the chances of a household head being poor. They concluded by recommending that any policy geared towards reducing high poverty incidence among the Nigerian population should include the need to practice family planning and also government needs to provide free or subsidized contraceptives for married couples. The study, however, did not state clearly whether household size served as a moderating variable in the study. Hence, the current study will consider household size as a moderating variable. Also, though the study showed a link between household size and poverty status, the critical issue here is that, in determining rural household poverty, financial inclusion variables need to be considered as a pivotal tool for lowering the poverty incidence of households.

Libois and Somville (2017) in their study, fertility, household size, and poverty in Nepal using Nepal living standard survey of household representatives. The data were analyzed using regression analysis to determine the relationship between household size and poverty incidence. The outcome of the study indicated that gradually increasing household size, and having more birth will progressively contribute to a household's incidence of poverty. Their results were consistent with those of Meenakshi and Ray (2002) in India and, (Ray, 2000).

In a similar vein, Khan, Rehman, and Abrar-ul-Haq (2015) also studied determinants of rural household poverty, the role of household socioeconomic empowerment in Pakistan. The study used binary logistic regression estimation approach employing data collected from 600 households using structured questionnaires on poverty status as a dependent variable and, household, socioeconomic empowerment, remittances, and female to male ratio and as independent variables, the researcher revealed that household size is an important determinant of household head poverty as it distorts the per-capita income of the household. Also, the logistic estimation pointed out that an increase in the number of household members increases the chances of that household falling into the poverty trap. However, the study has further shown that if all the household members participate in economic activities their contribution may pull the household head out of the poverty trap. Though, the study found a relationship between household size and poverty status. But, the critical issue here is that, in determining rural household poverty, financial inclusion variables need to be considered as a pivotal tool for lowering poverty incidence.

Using the logistic regression estimation technique, Silva (2008) examined micro-level determinants of poverty reduction in Sri Lanka. The study employed a national survey consisting of 7,500 household heads and 34,330 individual populations. The study showed that the likelihood of falling into the poverty trap increases with household size, with the household head being female, residing in a remote area, and earning a casual wage.

## Conceptual Review



*Figure 1: Conceptual Framework*

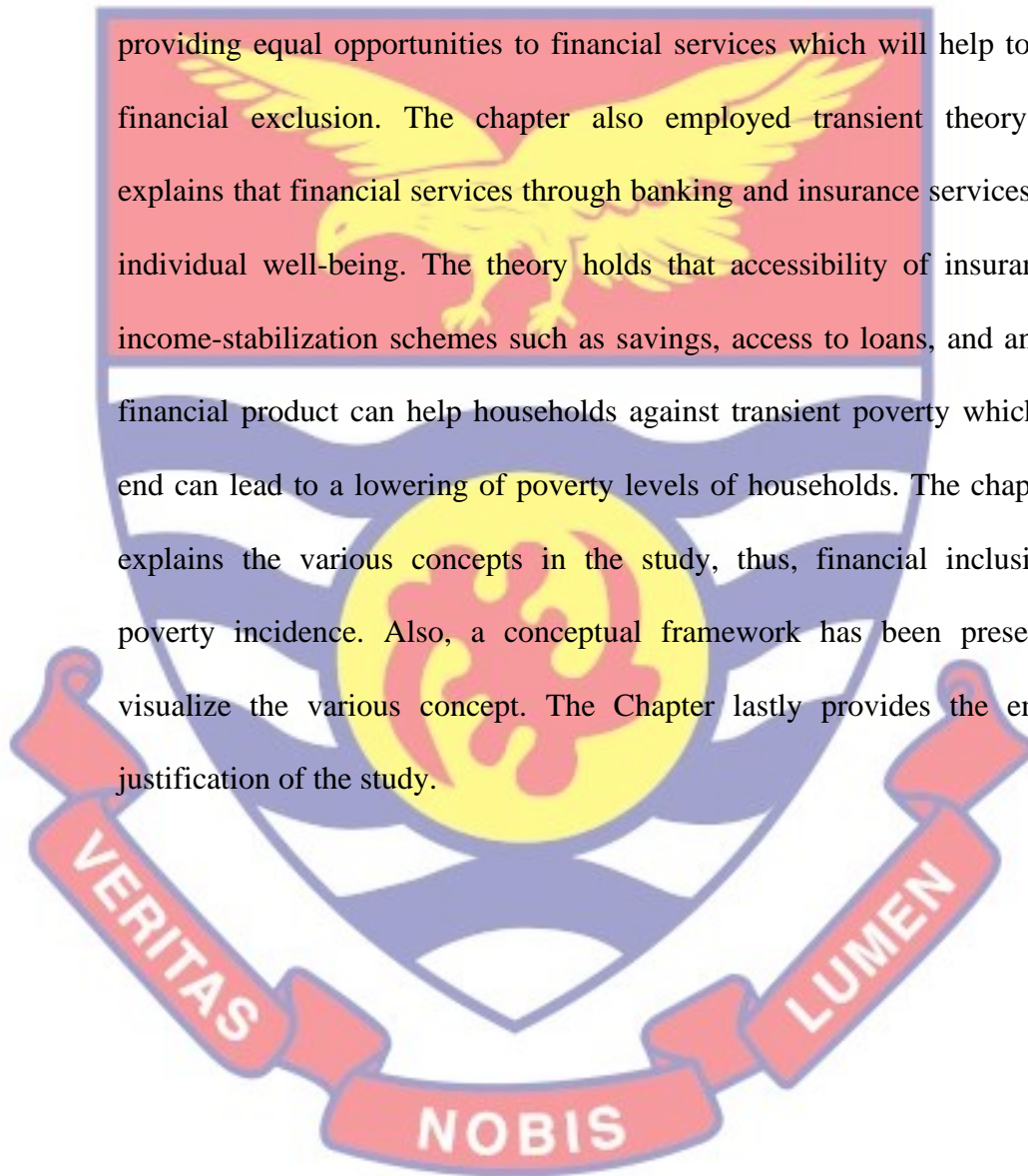
Source: Author's Construct (2021)

To build a link between financial inclusion, poverty incidence, and the moderating variables, a conceptual framework is developed to simplify the various relations. As displayed in the diagram, financial inclusion has an effect on poverty incidence but the demographics' characteristics serving as the interaction effect or the moderating variables change the impact that financial inclusion has on poverty incidence. The study sought to investigate how financial inclusion interacting with gender to assist lower the incidence of poverty amongst males and females' household heads. Thus, the "gender" as a moderator moderates the effect that financial inclusion has on poverty levels. Also, the study sought to examined household levels of financial inclusion moderating with location will have an impact on poverty incidences because rural dwellers are less likely to have an equal chance to formal financial services unlike the urban dwellers and also the head of a household considering his household size and his financial inclusion may have an impact on poverty incidence.



## Chapter Summary

The chapter explained the theories and also review empirical studies employed in the study. The chapter adopted the empowerment theory, which explains that poverty levels can be reduced when the less privileged are empowered to help themselves out of the vicious cycle of poverty through providing equal opportunities to financial services which will help to reduce financial exclusion. The chapter also employed transient theory which explains that financial services through banking and insurance services lead to individual well-being. The theory holds that accessibility of insurance and income-stabilization schemes such as savings, access to loans, and any other financial product can help households against transient poverty which in the end can lead to a lowering of poverty levels of households. The chapter also explains the various concepts in the study, thus, financial inclusion and poverty incidence. Also, a conceptual framework has been presented to visualize the various concept. The Chapter lastly provides the empirical justification of the study.



## CHAPTER THREE

### RESEARCH METHODS

#### Introduction

This chapter talks about the methodology and procedures used to examine the role financial inclusion played on the incidence of poverty in Ghana; the moderating role of gender, location, and household size. Precisely, the chapter is composed of research design, definitions, variables measurement, data source, model specification, and data analysis technique.

#### Research Design

The study adopted the positivism research paradigm. Pioneers of positivism assert that the positivist approach to scientific research goes in line with the philosophical view of the natural scientist and it involves researching into an observable social reality to arrive at law-like generalizations (Saunders, Lewis, & Thornhill, 2016). The positivist believes that the statistical method can be applied to collect data on variables that are measurable, reliable, precise, and free from human bias. Hallebone and Priest (2008) are of the view that the positivism paradigm is appropriate for the development of models and theories to examine the relationship between quantitative variables. Positivist philosophy also allows researchers to make predictions about general situations.

Three research design has been identified by Saunders *et al.* (2016), these are explanatory, exploratory, and descriptive. The study adopted an explanatory research design. Studies that sought to investigate the cause and effect relationship between variables are considered explanatory research (Saunders *et al.*, 2016). Explanatory research design offers the following

advantages; It is critical in determining the causes of a variety of processes and analyzing the impact of changes on current norms and procedures, It assists in research replication if necessary and provides higher levels of internal validity owing to careful subject selection. An explanatory research design was adopted for the study to gain a comprehensive understanding of the relationship between poverty incidence and financial inclusion in Ghana.

The research approach consists of three main forms, that is, the qualitative approach, the quantitative approach, and the mixed approach (Creswell, 2014). Quantitative research according to Creswell (2014), is a type of research approach which sought to explain a phenomenon using numerical data which is analyzed mathematically. A quantitative approach allows generalization and statistical testing but sometimes accessing data for statistical analysis is quite difficult. The study, therefore, employed the quantitative research approach as it investigates cross-sectional secondary data on dependent and independent variables in testing objectives on the relationship between financial inclusion and poverty incidence.

### **Population of the Study**

The population consists of the respondents from which the sample of the study is drawn (Saunders, Lewis, & Thornhill, 2012). This study focuses on the household levels of the Ghanaian population. According to GLSS 7 (2018), “the estimated household population from the survey is 28.4 million, while the projected population for 2017 based on the 2010 population and housing census is 29.0 million”. With this household population, the survey selected 15,000 household heads and 14,009 households were successfully interviewed. In Ghana, a higher percentage of households are headed by males



(66.6%) than females (33.4%). The percentage of males who had formal education in Ghana was 87.9% of the sample population as against female counterpart of 76.1% under the age of 15 years and older while those who never attended school comprises 12.1% of males against 24.9% of females under the age of 15 years and older (GSS, 2017).

### **Data Source**

The study examined the relationship between financial inclusion and poverty incidence in Ghana; the moderating role of gender, age, and location. Based on this premise, cross-sectional secondary data on financial inclusion and poverty incidence were obtained from GLSS7 (2018). Segments of the GLSS 7 used include sections on ownership of accounts, availability of financial services, access to credit, savings, remittances, and insurance. Other factors such as household size, location, sex of the household head, age, educational level, employment status, marital status were all taken from the household demographic and other economic indicators segment of the GLSS 7. The study included 14009 households in thousand (1000) enumeration areas across the ten (10) regions of Ghana. The rationale for the period (2005-2017) selection of the survey is that GLSS 7 is the most recent data available on households' surveys in Ghana and also the representative nature of the data makes it credible for the study. The unit of analysis is household heads.

### **Model Specification and Estimation Techniques**

In trying to investigate the relationship that exists between financial inclusion and the incidence of poverty in Ghana, this research adopted bi-probit and logit model estimation to examine the impact of financial inclusion variables on poverty incidence in Ghana. The study also examines the impact

of the different indicators of financial inclusion in Ghana, thus, revealing which of the indicator has the highest effect on lowering poverty incidence in Ghana. In line with this, the study defined both poverty incidence and financial inclusion as binary variables. That is, the study took the dichotomous view of poverty as poor (1) or not poor (0) and financial inclusion as

financially included (1) or not financially included (0).

$$Pov_i = \alpha + \beta_1 FI_i + \beta_2 Sex_i + \beta_3 Loc_i + \phi_2 FI \times Loc_i + \varphi_j CV_i + e_i \dots \dots \dots (1)$$

$$FI_i = \gamma + \rho_1 Pov_i + \rho_2 Sex_i + \rho_3 Loc_i + \omega_1 FI \times Sex_i + \omega_2 FI_i \times Loc_i + \psi_j CV_i + \varepsilon_i \dots \dots \dots (2)$$

Where;

$POV_i$  stand for the incidence of poverty of a household

$FI_i$  is a vector financial inclusion variables

$Sex_i$  represent the gender of household

$hhsz_i$  is the household size

$LOC_i$  represent the geographical location of a household

$FI_i \times Sex_i$  denote moderating between financial inclusion and gender

$FI_i \times hhsz_i$  represent moderating between financial inclusion and household size

$FI_i \times LOC_i$  represent the moderating effect between financial inclusion and location

$\alpha$  denotes the intercept term on poverty incidence

$\gamma$  denotes the intercept term on financial inclusion

$\beta_i$  is the slope of the background variables gender and location respectively

$\varphi$  refers to the marginal effects of the interaction terms that were meant to capture the moderating effects of background characteristics and financial inclusion on the incidence of poverty.

CV represents control variables

$\epsilon_i$  and  $\epsilon_i$  represents the error terms.

The slope coefficients  $\varphi_1$  and  $\varphi_2$  capture the interactive or moderating effects of sex and location on poverty status while  $\omega_1$  and  $\omega_2$  capturing the interactive or moderating effects of sex and location on financial inclusion. The main interest of this study was the interactive effects of sex and location on poverty status. Table 1 gives the *Apriori expected signs of each of the slope parameters*

**Table 1: Apriori Expectation**

Variable	Measurement	Expected sign
Financial inclusion (FI)	Accounts ownership, access to credit, savings, and insurance	-
Gender (Gen)	Household head of Males and females with the male head as a reference category	+
Location (Loc)	Urban Coastal, Urban forest, Urban Savannah, rural coastal, rural forest, rural savannah and Accra	-/+
Household Size (Hhsize)	Number of individuals in the household	(linear term)/-(quadratic)

Source: Asumah (2021)



### **Margins and Marginplots for the Moderation (Gender, Household Size, and Location)**

A major contribution of this study was to examine how the background characteristics of respondents could moderate the relationship between financial inclusion and poverty outcomes in Ghana. That is, could background characteristics serve as moderator necessary to explain ‘when’ the relationship between financial inclusion and poverty is strongest or weakest as well as for which group the relationship holds in the Ghanaian context. A scan through the literature suggests that moderating analysis could be done in the structural equation model (SEM) framework. Following studies such as Aguinis, Edwards, and Bradley (2017), the researchers employed the use of interaction in the regression setting because most of the moderators used were categorical and works very well with the new *margins and marginsplot* analysis. Vij and Farooq (2017) Explain moderation as an interaction effect in which the addition of a moderating variable affects the direction or degree of a connection between two variables. A complex interaction involving two or three moderators was estimated with the predictive margin commands, and the resulting outcome was plotted to give a visual impression on which factors combine to influence the relationship between financial inclusion and poverty outcomes.

Predictive margin means are a generalization of adjusted treatment means for the regression model (Williams, 2011). Graubard and Korn (1999) explained predictive margins as, “The predictive margin for group  $r$  represents the average predicted response if everyone in the sample had been in group  $r$ ”. Technically, predictive margins can best be described as a post-estimation

analysis that uses the outcomes of the estimated model as it was done in the context of this study.

### Chapter Summary

This chapter presented the research methodology employed to undertake the study. The study is grounded in the positivism research paradigm and the quantitative research approach. The study again adopted an explanatory research design as it sought to explain the relationship between financial inclusion and poverty incidence through the moderating effect of gender, household size, and location in the case of Ghana. It must be noted that the study used GLSS 7 in the entire study as a result of data availability. The regression model is developed to examine the relationship between financial inclusion and poverty incidence in Ghana. The study mainly employed the bi-probit and logistic regression estimation techniques to estimate the regression model

The study adopted the explanatory research design and followed the quantitative approach. Much as the design and approach allow for extensive statistical analysis and generalization, it also suffers from being less in-depth in analysis. That is, the purely quantitative analysis does not allow the actual position of the respondents to be accessed on issues relating to how their access to financial inclusion has reduced their poverty incidence. That is, the story told with numbers may well defer from the verbal views of the respondents since several other factors matter on how financial inclusion could affect the poverty incidence of a household head. The study used cross-sectional data and there may be challenges of missing entries within the data span which could lead to issues of bias. The 2018 Ghana Living Standard

Survey (GLSS), where data for the present study was extracted, does not have data on the sixteen regions. Hence, the analysis of data was not based on regional levels.





## CHAPTER FOUR

### RESULTS AND DISCUSSION

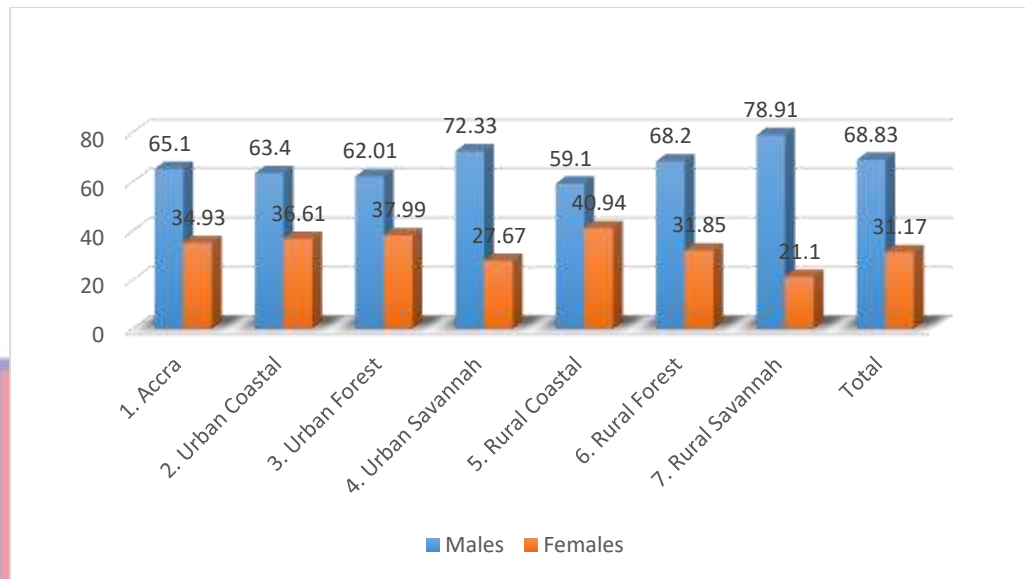
#### Introduction

This chapter presented estimated results of the study based on the proposed data, interpreted the results, and provided a discussion of the outcomes. It began with descriptive statistics for the major variables, presented the regression analysis of the individual financial inclusion proxies, discuss the findings and a chapter summary was provided.

#### Descriptive statistics

According to GLSS7 (2018), “The composition of a household is a reflection of the social structure of the population and may consist of a man, his wife or wives and children, and some relatives or non-relatives who may be living with them” (GSS, p.5). Out of the 15000 households sampled, 14009 household heads were successfully interviewed. The Figure 2 below offers summary descriptive statistics of the percentages of household size by location and sex.

Figure 2 present the cross tabulation of location and sex of the head of household. The results show that males (68.83%) form the largest proportion of the households than female counterparts (31.17%). as indicated in Figure 2. Also, the percentage of the household head of males in Accra is (65.1%) and that of females constituted (34.93%). Again rural and urban savannah constitute male representatives of 78.91% and 72.33% respectively higher than female counterparts, also males form the highest proportion of other localities.



*Figure 2: Percentage of the household heads by location and sex*  
 Source: Estimated from GLSS7 (2018).

Figure 3 indicates household poverty status by locality. It can be observed that rural savannah has the highest number of very poor household heads (33.82%) with the rural forest registering the lowest incidence of poverty of (4.15%) followed by rural coastal recording the second-highest number of very poor households of (4.36%). It can also be estimated that Greater Accra has the greater number of non-poor household heads (99.5%) followed by urban forest (96.46%), urban coastal (95.96%) and urban savannah has the least non-poor households of (79.44%). A possible reason could be that Greater Accra has more economic activities, amenities, and infrastructure than the other urban areas (urban coastal, urban forest, and urban savannah), which could result in greater numbers of households in Greater Accra consuming more than the extreme poverty line, unlike the other localities. Another reason that could lead to extreme poverty incidence difference between the urban and the rural areas households could be

attributed to unequal distribution of state resources leaving the rural areas to experience more poverty incidence.

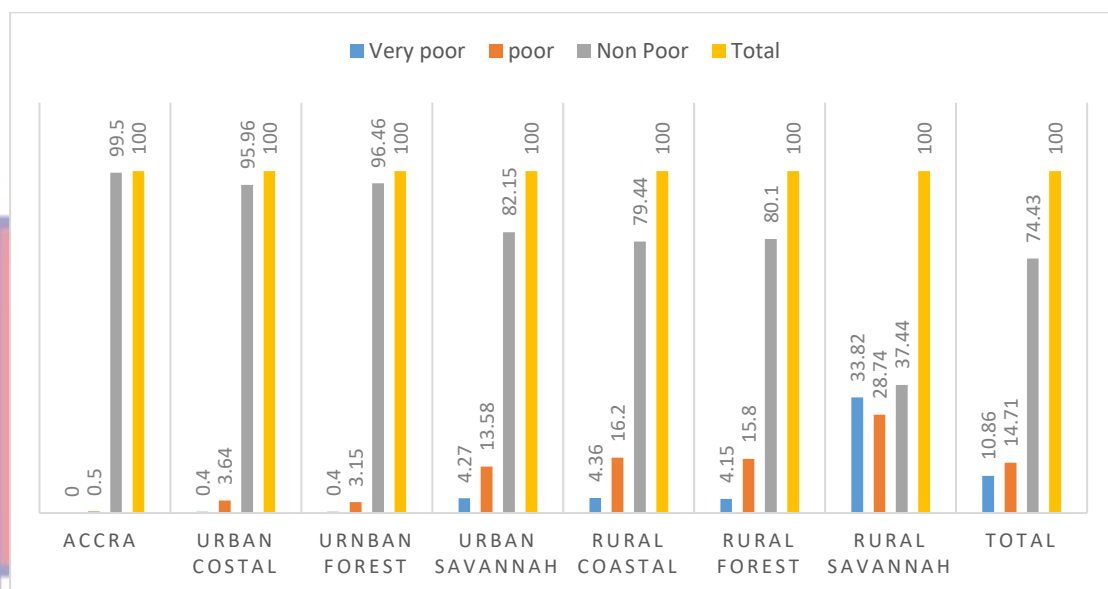


Figure 3: Household heads Poverty Status by Locality

Source: Estimated from GLSS7 (2018).

Table 2 presents the cross tabulation of poverty incidence and selected background characteristics of the household head.

**Table 2: Cross-tabulation between poverty incidence and background characteristics.**

Variable	Very poor		Poor		Nonpoor		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
<b>Gender</b>								
Male	1,205	12.59	1,486	15.41	6,952	72.04	9,643	68.83
Female	317	7.26	574	13.15	3,475	79.59	4,366	31.17
<b>Location</b>								
Urban	67	1.11	304	5.05	5,647	93.84	6,018	42.96
Rural	1,455	18.21	1,756	21.98	4,780	59.82	7,991	57.04

Source: Estimated from GLSS7 (2018).

In Table 2, with gender, out of 14009 household heads, 9,643 representing 68.83% constituted male-headed households. Out of the 68.83%,



12.49% household heads were very poor while 15.41% falls within the poor category and 72.04% male-headed households were non-poor. In the same vein, 4,366 representing 31.17% constituted the female-headed household of which 7.26% were very poor and 13.15% falls within the poor category while 79.59% were non-poor. Thus, male-headed households experience extreme

poverty as compared to female-headed households and also female-headed households were found to be non-poor as compared to male-headed households. This data indicated that female-headed households are more likely to be better management of their finances/resources than male-headed households all other things being equal. Also, Aketemah (2018) posited that male-heads on average have a larger household size than female-headed households.

Table 3 presents the descriptive statistics household size for the respective categorization in the poverty incidence variable.

**Table 3: Descriptive statistics of continuous variables**

Household size					
Pstatus	Obs.	Mean	Sd	Min	Max
Very poor	1522	6.421	3.421	1	28
Poor	2060	5.669	3.003	1	27
Non poor	10427	3.586	2.456	1	25
Age					
Very poor	1522	49.991	16.159	17	99
Poor	2060	48.667	16.002	18	99
Non poor	10427	45.214	15.724	15	99

Source: Estimated from GLSS7 (2018)

From Table 3 above, the average household size and household head by poverty status indicate that the poor category (6.4 for very poor and 5.7 for

poor) has an average household above the national average of four (4) people per household. In the case of the non-poor, the average household size is 3.6 approximately equal to the national threshold of four persons. It is therefore justifiable to say that, the larger the household size, the poorer the household becomes (Atakli & Agbenyo, 2020). Again, the age status of a household head determines the poverty levels of a household head. For instance, the household heads who fall within the very poor and poor category have their mean age of 49.9 years and 48.7 years higher than the national mean age of 45.1 years. It is therefore prudent to state that per the figures in Table 3, households who are still in their early forties are likely to break the cycle of poverty.

Table 4 presents the distribution of household size based on the location of household.

**Table 4: Average Age of a Household head and Average Households Size by location**

Variables	Obs	Average household age		Average Household Size	
		Mean age	Sd	Mean	Sd
Accra	604	45.69	15.324	3.23	1.971
Urban Coastal	1732	45.88	14.961	3.60	2.316
Urban Forest	2511	43.98	15.306	3.31	2.239
Urban Savanna	1171	44.20	15.191	4.22	2.681
Rural Coastal	1148	47.04	16.596	3.84	2.498
Rural Forest	3064	46.87	15.751	3.92	2.535
Rural Savanna	3779	47.87	16.699	5.56	3.456
Total Average	14009	46.24	15.912	4.20	2.867

Source: Estimated from GLSS7 (2018)

From the Table 4 above, the mean age of household at urban areas are (45.6 years for Accra, 45.8 years for urban Coastal, 43.9 years for urban Forest

and 44.2 years for urban Savannah) while the mean age of rural households are (47.0 years for Rural Coastal, 46.8 years for Rural Forest and 47.8 years for Rural Savannah). This indicates that the average age of urban household heads is lower than the average age of rural household heads. Also, Urban forests recorded the lowest mean age of 43.9 years and rural Savannah recorded the highest mean age of 47.8 years. With regards to household sizes, Accra recorded the lowest mean household size of 3.2 while the rural savannah recorded the highest household size of 5.6.

Table 5 presents the cross tabulation of poverty incidence and Access to loans for the household head.

**Table 5: Cross-tabulation between poverty incidence and Access to Credit.**

Poverty Status	Loan	no loan	Total
Very poor	82	1,433	1,515
Poor	121	1,908	2,029
Non poor	768	9,031	9,799
Total	971	12,372	13,343

Pearson  $\chi^2(2) = 17.56$  Pr = 0.000

Source: Estimated from GLSS7 (2018)

As indicated in Table 5 those who get access to credit, 82 of them were in extreme poverty, 121 household heads were found poor and 768 household heads fall within the non-poor category. This brings to the total of 971 household heads across the country who get access to credit per the survey. For those who do not get access to credit through the formal financial system, 1433 were very poor and 1908 were also poor, whereas 9,031 household heads who do not get access to credit fall within the non-poor category. Giving a total of 12,372 household heads who do not get credit.



Table 6 presents the cross tabulation of poverty incidence and Access to savings for the household head.

**Table 6: Cross-tabulation between poverty incidence and Savings through formal Financial System**

Poverty Status	None	Savings	Total
Very poor	1,372	143	1,515
Poor	1,722	307	2,029
Non poor	5,955	3,844	9,799
Total	9,049	4,294	13,343

Source: Estimated from GLSS7 (2018), Pearson  $\chi^2(2) = 852.28$  Pr = 0.000

As shown in Table 6 those who do not save, 1,372 of them were in extreme poverty, 1,722 household heads were found poor and 5955 household heads fall within the non-poor category. This brings to a total of 9,049 household heads across the country. For those who save through a formal financial system, 143 household heads were very poor and 307 household heads were also poor, whereas 3,844 household heads who save fall within the non-poor category. Giving a total of 4, 294 household heads who save.

Table 7 presents the cross tabulation of poverty incidence and ownership of insurance products for the household head.

**Table 7: Cross-tabulation between poverty incidence and Ownership of Insurance Products.**

Poverty status	No	Yes	Total
Very poor	1,327	188	1,515
Poor	1,693	336	2,029
Non poor	7,421	2,378	9,799
Total	10,441	2,902	13,343

Source: Estimated from GLSS7 (2018)

As indicated in Table 7 those who do not own insurance, 1,327 of them were in extreme poverty, 1,693 household heads were found poor and 7,421 household heads fall within the non-poor category. This brings to the total of 10,441 household heads across the country who do not own insurance. For those who own insurance, 188 household heads were very poor and 336 household heads were also poor, whereas 2,378 household heads who own insurance fall within the non-poor category. Giving a total of 2902 household heads who own insurance. Averagely, households who did not hold any insurance policy outnumbered those who did, showing that Ghanaians had a low level of patronage for insurance products.

The analysis of the descriptive statistics of the variables of the study suggested that the study sample has enough respondents in each category of the categorical variables that allowed for fair comparison of outcome across sex and location. However, it was observed that the number of household in the non-poor category of poverty index were significantly larger than those in poor and very poor categories. Hence, the two poor categories were merged into a single variable as poor to create a dummy out of the poverty incidence variables for the rest of the analysis.

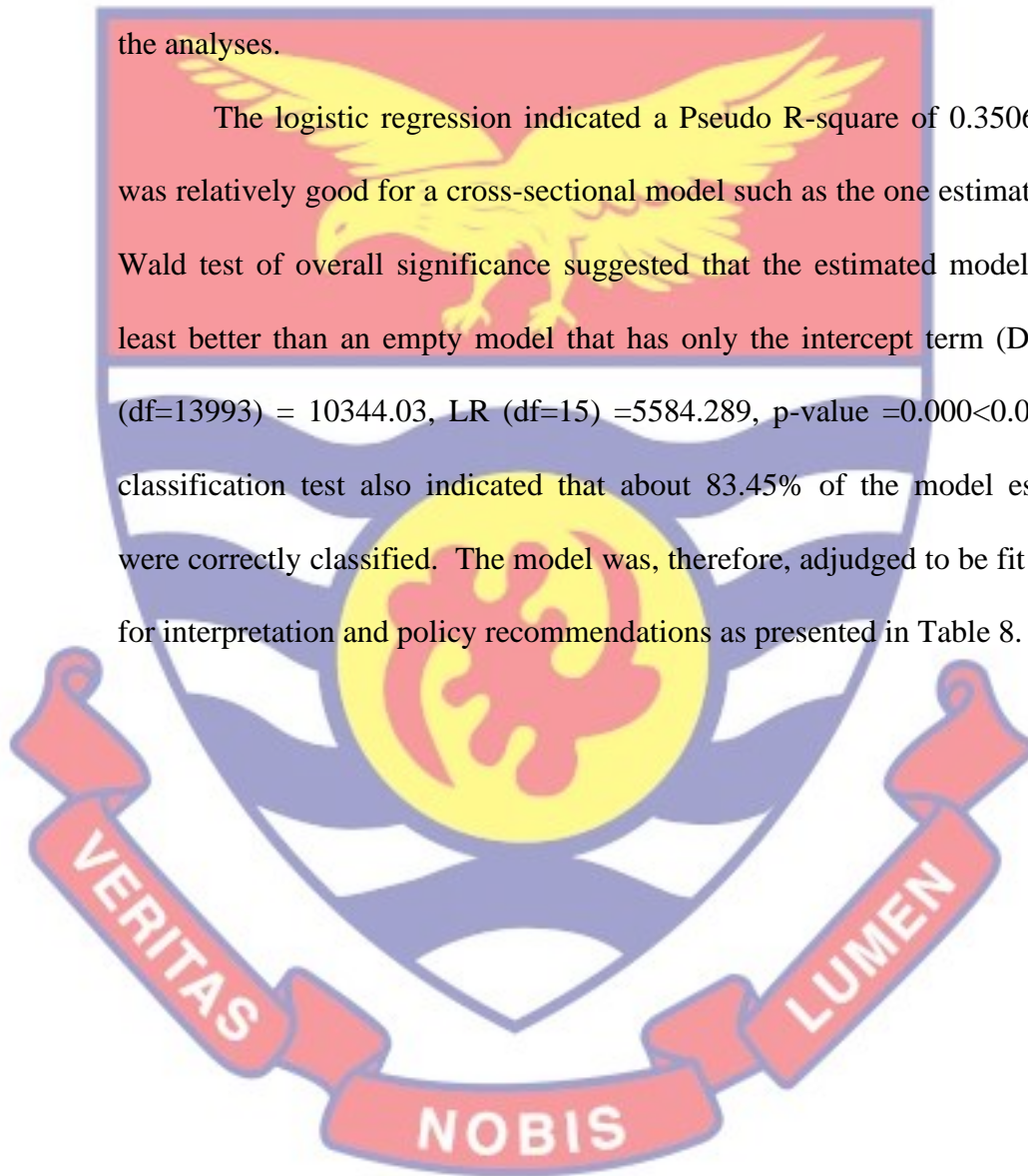
### **Estimated Results**

#### **Access to the loan facility and poverty incidence in Ghana**

This section sought to examine the effects of access to loan facilities on the incidence of poverty in Ghana, as well as the moderating role of background characteristics on such a relationship. The bi-probit model was initially estimated to correct for possible endogeneity resulting from simultaneity or feedback effects from the incidence of poverty to access loans.

The test of dependency between loans and incident of poverty failed to reject the null hypothesis that the models could be estimated individually to yield a consistent result ( $\rho = -.026956$ , Wald test of  $\rho = 0$ :  $\chi^2(1) = .010203$ ,  $\text{Prob} > \chi^2 = 0.9195 > 0.05$ ). That is, access to loans was found to be exogenous in the poverty model, and hence a logistic regression was estimated and used for the analyses.

The logistic regression indicated a Pseudo R-square of 0.3506 which was relatively good for a cross-sectional model such as the one estimated. The Wald test of overall significance suggested that the estimated model was at least better than an empty model that has only the intercept term (Deviance ( $df=13993$ ) = 10344.03, LR ( $df=15$ ) = 5584.289,  $p\text{-value} = 0.000 < 0.05$ ). The classification test also indicated that about 83.45% of the model estimates were correctly classified. The model was, therefore, adjudged to be fit enough for interpretation and policy recommendations as presented in Table 8.





**Table 8: The Logit Output of Access to Loans and Background Characteristic on Incidence of Poverty Among Respondents**

Variables	Odds Ratio	Std. Err.	Z	P>z
Ref: No loan				
Loans	.4311763	.0425657	-8.52	0.000
Age	.9875792	.0092709	-1.33	0.183
Age_square	1.000142	.0000898	1.58	0.114
Econat				
Unemployed	1.639819	.1392018	5.83	0.000
Not in labor force	1.410297	.1137535	4.26	0.000
Sch	2.09008	.1190638	12.94	0.000
Ref: Accra				
Urban Coastal	7.226604	4.286729	3.33	0.001
Urban Forest	7.214797	4.258216	3.35	0.001
Urban Savannah	28.07105	16.44959	5.69	0.000
Rural Coastal	43.72869	25.58991	6.46	0.000
Rural Forest	43.91965	25.5601	6.50	0.000
Rural Savannah	180.1202	104.7951	8.93	0.000
Hhsize	1.660803	.0374424	22.50	0.000
Square_hhsize	.9804552	.0014128	-13.70	0.000
Ref: Male				
Female	1.166249	.0681345	2.63	0.008
_cons	.0010366	.000645	-11.04	0.000

Source: Estimated from GLSS7 (2018).

The results, as presented in Table 8, indicated that compared to a household head that had no access to loan facilities, the probability that a household head that accessed loans shall be poor is multiplied by about 0.43. This suggests that access to loans significantly reduces the households' incidence of poverty in Ghana. The results on location suggested that all the categorization of geographical locations significantly influence the incidence of poverty at a five percent significance level. That is, compared to households in Accra, the probability that incidence of poverty among

household heads in Urban Coastal, Urban Forest, and Urban Savannah was multiplied by about 7.23, 7.22, and 28.10 respectively. The multiplication factor of odds suggested that compared to Accra, household heads in an Urban Coastal and Urban Forest are about 7 times more likely to be poor while those in Urban Savannah were about 28 times more likely to be poor. Also, compared to household heads in Accra, the likelihood of becoming poor for household heads in Rural Coastal, Rural Forest, and Rural Savannah were multiplied by 43.73, 43.92, and 180.12 respectively. Again the household heads in Rural Coastal and Rural Forest were all about 44 times more likely to be poor as compared to those in Accra and, rural savannah is about 180 times more likely to be poor compared to household heads in Accra.

It was also observed that compared to male-headed households, the probability that a female shall be poor was multiplied by about 1.17, and the results were statistically significant at the five percent significance level. The household size indicated a direct but diminishing effect on the incidence of poverty in Ghana. That is, a one-person increase in household size initially multiplies the likelihood of becoming poor by about 1.66 and eventually by about 0.98 times. The respondents that never been to school were about twice more likely to be poor than those who have ever had a formal education when all other factors remain constant. As expected, household heads in gainful employment were less likely to be poor compared to the unemployed or those outside the labour force. It was further observed that the unemployed were more likely to be poor (odds ration= 1.64) than those outside the labour force (odds ratio=1.41). Finally, the age of the household head did not significantly

influence the incidence of poverty of the household head at the five percent significance level ( $p\text{-value} > 0.05$ ).

**The moderating role of Gender, Location, and Household size on the relationship between access to loans and incidence of poverty**

This section extended the analysis on the effects of access to loans on the incidence of poverty to include the interactive effects of gender, location, and household size on such effects. The margins, margins-plot, and pairwise margin probability comparison test of Bonferroni were used for the analysis, as post estimations after the logit model.

**Table 9: Margin and Margin Comparison Based on Gender and Location**

		Delta-method	Unadjusted
Interaction	Margin	Std. Err.	Groups
Accra # male	.0083025	.0047339	A
Accra #female	.0095989	.0054643	A
Urban Coastal # male	.0540822	.0061765	B D
Urban Coastal# female	.0616613	.0070558	C
Urban Forest # male	.0540751	.0055112	BC
Urban Forest# female	.0616533	.0063253	D
Urban Savannah # male	.1649673	.0100404	
Urban Savannah # female	.1835321	.0119688	
Rural Coastal # male	.2252839	.0122142	EF
Rural Coastal # female	.2480364	.0133821	G
Rural Forest # male	.2253279	.0078871	E G
Rural Forest # female	.2480831	.009849	F
Rural Savannah # male	.4863945	.0089538	
Rural Savannah # female	.5168739	.0128476	

Note: Margins sharing a letter in the group label are not significantly different at the 5% level.

Source: Estimated from GLSS7 (2018).



From Table 9, the results of the predictive margin probability suggested that males and females headed households in Accra had an identical incidence of poverty at the five percent significance level (repetition of A), but both have a significantly lower incidence of poverty than any other location in Ghana (A did not occur in any other place). The results on the other interactive

effects suggested that the females-headed households always indicated higher tendencies to be poor as compared to male-headed households in all other locations. That is, aside from Accra, males-headed households indicated a lower likelihood to be poor than female-headed households irrespective of location. It was further observed that the poverty incidence gap was widest between males and females headed households in rural areas as compared to urban areas. In rural savannah, the female-headed household had about 3.05% more chance to fall into poverty than male-headed households in the same locality. Female-headed households were about 2.27% more likely than male-headed households to be poor in rural forests and rural coastal areas.

The situation in rural savannah was worth noting since the poverty incidence in these rural areas was more than twice that of other rural areas (coastal and forest) in Ghana. For example, the incidence of poverty among the males in rural savannah was about 49% and that of females was about 52%. It was even the case that the incidence of poverty in the urban savannah was relatively higher compared to other urban areas irrespective of the gender of the household head. Figure 4 visualizes the results presented in table 9.

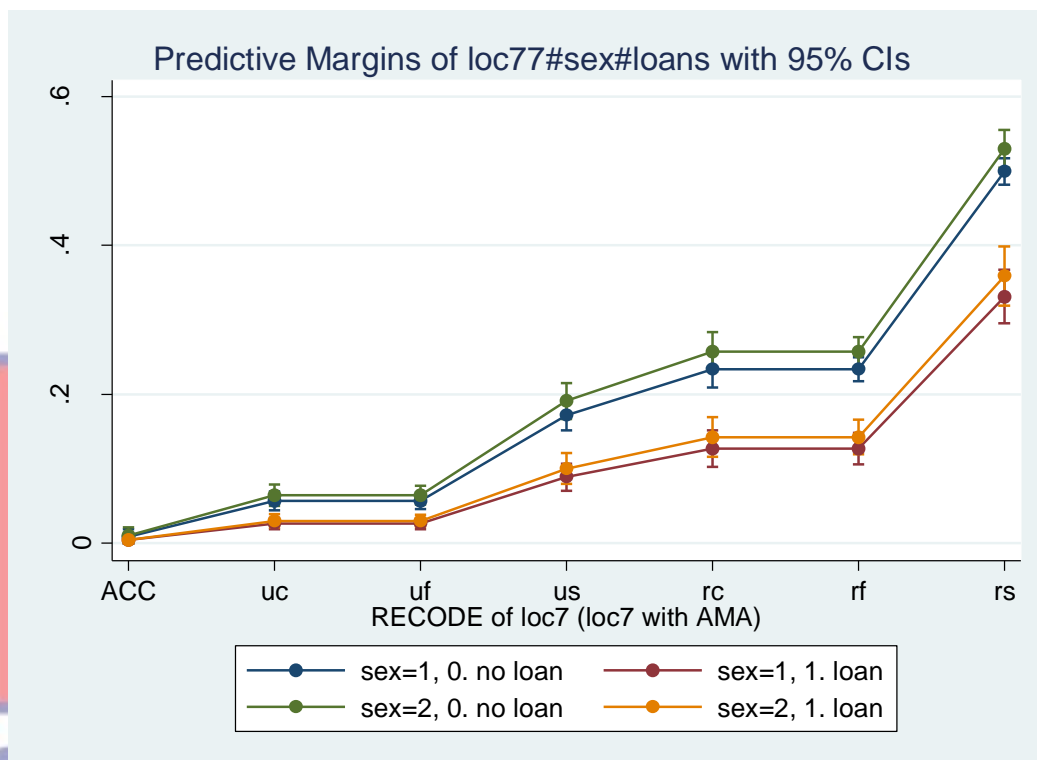


Figure 4: Predictive margins-plot of location, gender, and loans on poverty incidence

Source: Estimated from GLSS7 (2018)

The upwards trending of all the curves indicated increasing incidence from Accra (ACC), through the Urban Coastal (UC), Urban Forest (UF), Urban Savannah (US), and Rural Coastal (RF), Rural Forest, and to the Rural Savannah. The relatively widening gap indicates the increasing disparity between male-headed (1) and female-headed (2) households in terms of incidence of poverty as urban areas are compared with rural areas. On the role of access to loans, it was observed that access to loans reduced the incidence of poverty for males (1) and females(2) irrespective of gender and location. In all cases, both those with loans and those without loans, the male-headed household had reduced tendencies to be poor.

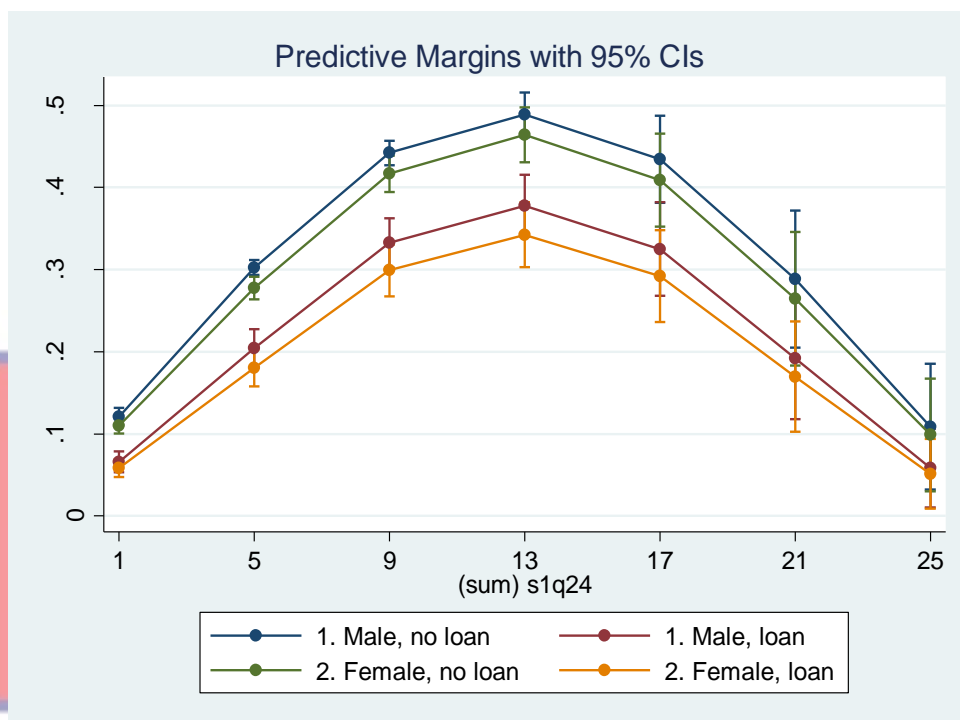


Figure 5: Marginsplot of household size, loans, and sex on poverty incidence.

Source: Estimated from GLSS7 (2018).

The interactive effects of gender and household size on poverty incidence suggested that two variables strongly moderate the relationship between access to loans and poverty incidence. That is, the introduction of household size altered the interactive effects of gender on the effects of access to loans on poverty incidence. That is, as household size increased, as presented in Figure 5, female-headed households had lower tendencies to be poor if they access loans than males headed households. The threshold of 13 household sizes was observed as the household size after which the effects of household size changes from positive to negative, irrespective of gender and access to loans. That is, increasing household size beyond 13 members had poverty incidence falling for any further additional member added to the household.



Figure 6 presented the interactive effects of location and household size on the effects of loans on poverty incidence.

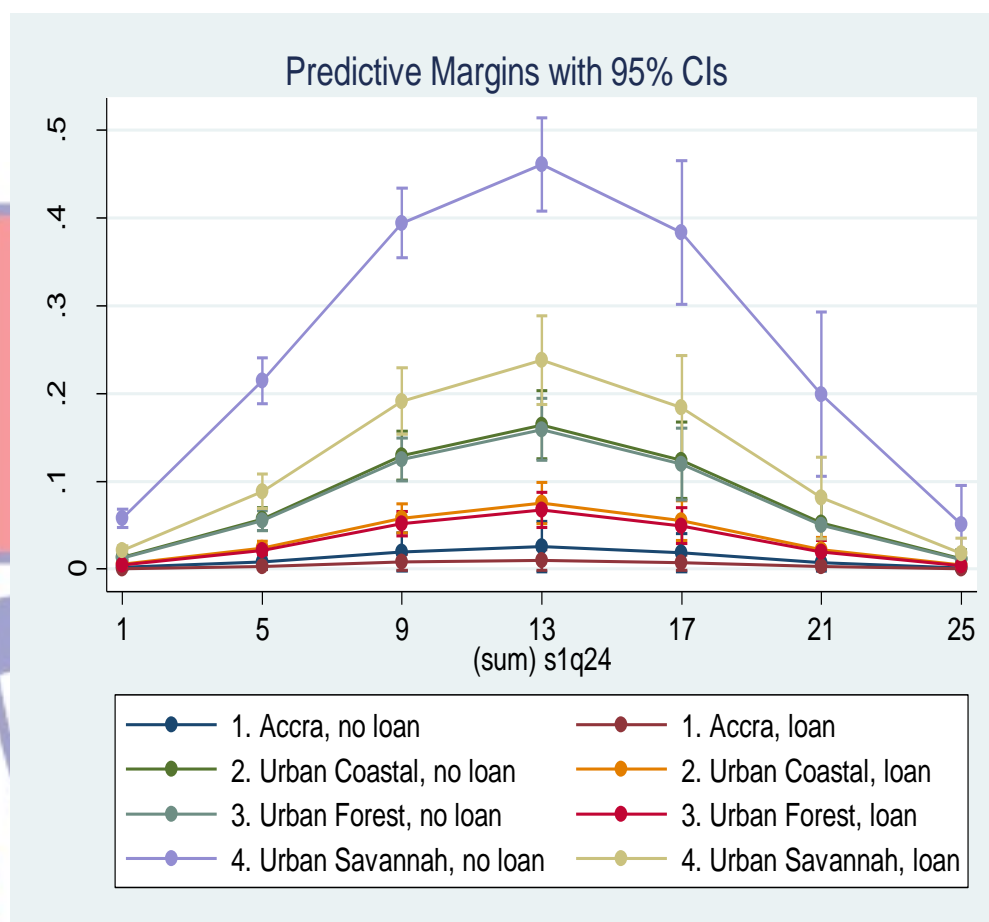


Figure 6: The interactive effects of location and household size on poverty incidence for the respondent that had access to loans in urban areas  
Source: Estimated from GLSS7 (2018).

In relation to Table 6, the results suggested that, for all urban locations, household heads that accessed loans had their incidence of poverty reduced significantly as compared to those that did not. It was, however, evident, that household heads that did not access loans in Accra have a lower incidence of poverty than those that accessed loans in urban coastal, urban forest, and urban savannah. It was also, clear that households that accessed loans in urban

savannah were worse off than those that did not access loans in other urban areas.

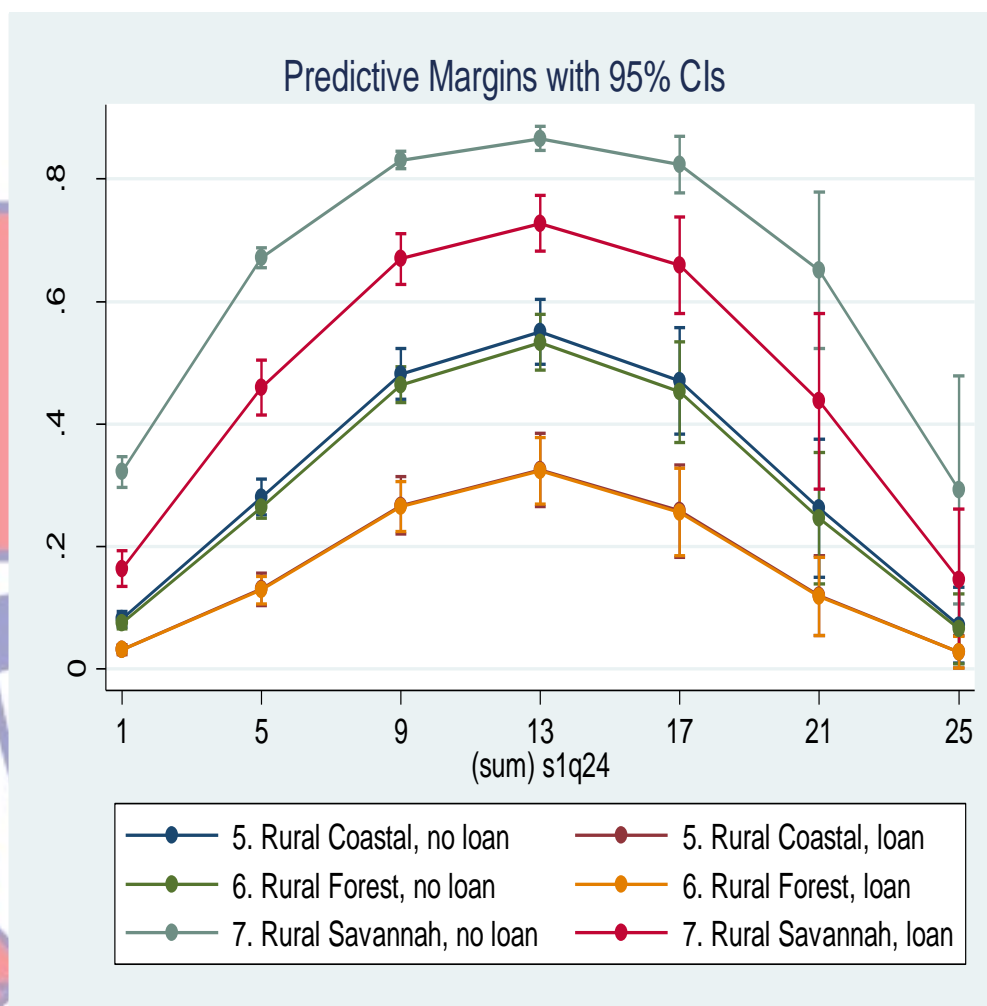


Figure 7: The interactive effects of location and household size on poverty incidence for the respondent that had access to loans in rural areas

Source: Estimated from GLSS7 (2018).

From Figure 7 access to loans again reduces the incidence of poverty for households in rural areas as compared to those that could not access loans. It was again observed that the households that accessed loans in rural savannah were worst of than those that could not access loans in other rural areas. This observation could have several implications. First, it could be the case that the interests on the loans accessed in rural savannah are too high that

they reverse the fortune of the beneficiaries. Second, it could also imply that the beneficiaries of loans in this location do not invest loans into the productive ventures, possibly for consumption, which then implies future income might have converted into debt serving. That from an inter-temporal choice perspective, consuming more now, by borrowing, means consuming less in the future, due to debt serving.

Hence through financial inclusion, defined as access to loan facilities, reduces the incidence of poverty; the non-financially included households in Accra and other urban/rural areas were better than the financially included households in the urban savannah and rural savannah. Financial inclusion, however, significantly bridged the poverty incidence gap between the household in the savannah localities and other locations in Ghana. Another striking observation was that the moderating effects of gender, location, and household size did not alter the threshold of 13 members in any of the analyses.

#### **Formal System of Savings and Poverty Incidence in Ghana**

This hypothesis examines the relationship between savings and incidence of poverty in Ghana, with special emphasis on the moderating role of gender, location, and household size. The bi-probit model was estimated and the rho test rejected the null hypothesis that the models were independent at the five percent significance level ( $\rho=6311886$ , Wald test of  $\rho=0$ :  $\chi^2(1) = 27.5968$ ,  $\text{Prob} > \chi^2 = 0.0000 < 0.05$ ). Hence the bi-probit model with poverty as the endogenous variable was presented in Table 10 and subsequently interpreted. The Wald test suggested that the estimated model



was better than an empty model with only the intercept (Wald Chi2(25) =7306.17; Prob > Chi2=0.0000).

**Table 10: Biprobit Model of Formal System of Savings on Poverty Incidence and Background Characteristic on Incidence of Poverty Among Respondents**

Variables	Coef.	Std. Err.	Z	P>z
Ref: no save				
Save	-1.609907	.1260692	-12.77	0.000
Ref: Accra				
Urban Coastal	.5064485	.2057463	2.46	0.014
Urban Forest	.4904306	.2047458	2.40	0.017
Urban Savannah	1.065603	.2156528	4.94	0.000
Rural Coastal	1.019037	.2303459	4.42	0.000
Rural Forest	1.023593	.2285264	4.48	0.000
Rural Savannah	1.794187	.2417827	7.42	0.000
Hhsize	.2595212	.0140591	18.46	0.000
Square_hhsize	-.0100155	.0007879	-12.71	0.000
Ref: Male:				
Female	-.0354991	.0330352	-1.07	0.283
_cons	-2.230672	.3030632	-7.36	0.000

Source: Estimated from GLSS7 (2018).

From Table 10, the results suggested that compared to the household heads that do not save through formal financial system, the households that save have their tendency of becoming poor significantly reduced by about 1.61 units. The results further suggested that compared to the households in Accra, the household heads in all other locations in Ghana have an increased probability of becoming poor with different magnitudes of effects. Among the urban areas, urban savannah indicated the highest tendency to be poor, and rural savannah also indicated the highest probability of being poor. Household

size again exhibited the inverted U-shape relationship with poverty incidence which suggested the existence of a threshold after which the positive effects changes to negative. Gender, however, failed to explain poverty incidence when the savings habits were introduced into the analysis. The outcome of the model indicated that the effects of financial inclusion variables, location, and household size were consistent in terms of the direction of effects as compared to the loans model.

**The Moderating Role of Gender, Location, and Household Size on the Relationship between savings and Incidence of Poverty**

The interactive effects of gender, location, and savings on poverty incidence in Ghana were assessed as presented in Figures 8 and 9.

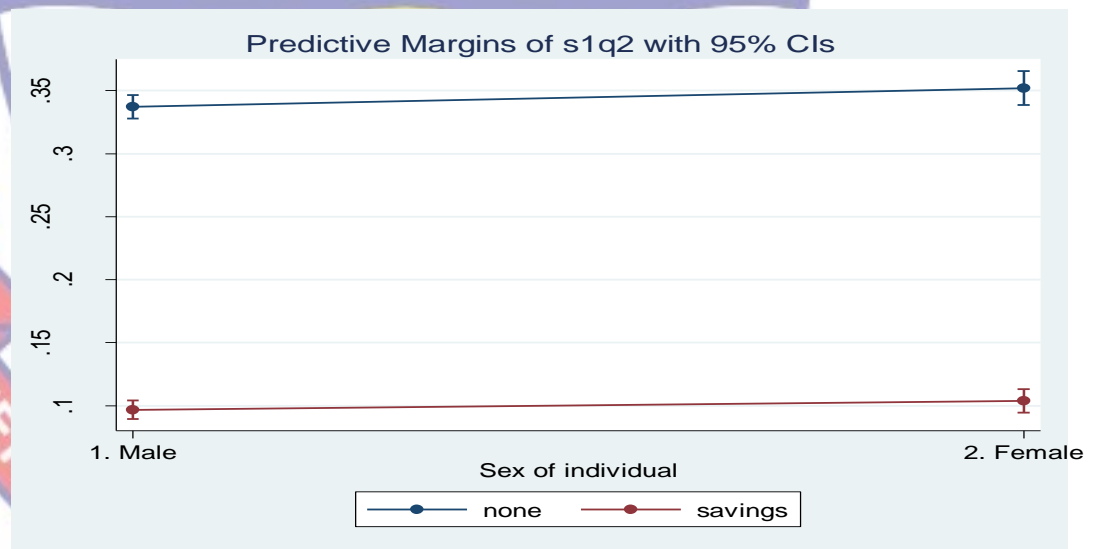


Figure 8: Interactive Effects of Gender and Savings on Poverty Incidence

Source: Estimated from GLSS7 (2018).

The plot in Figure 8 was clear on the fact that savings reduce the incidence irrespective of gender. The results suggested that the probability differences between the financially included households and the non-

financially included households were relatively wide, which points to the poverty reduction capacity of financial inclusion.

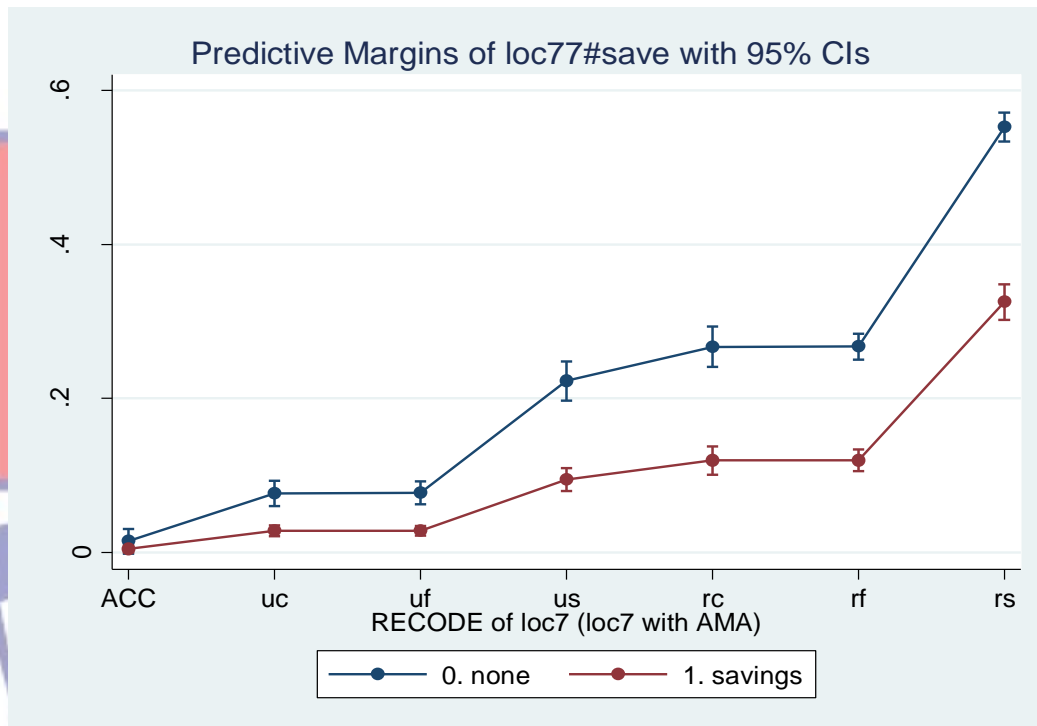


Figure 9: Interactive effects of location and savings on the incidence of poverty

Source: Estimated from GLSS7 (2018).

Figure 9 presents the interactive effects of location and savings on the incidence of poverty. The results confirmed the initial observation that poverty incidence increases steadily from Accra urban areas to rural savannah in the northern part of Ghana. The gap between the savers and non-savers as compared to the case of access to loans indicated that savings were more effective at reducing poverty incidence than access to loans.



**Table 11: Margins Comparison Based on Location and Savings**

Interaction	Margin	Delta-method Std. Err.	Unadjusted Groups
Accra #none	.0143326	.0081019	AB
Accra #savings	.0047762	.0027575	A
Urban Coastal#none	.0768448	.0084752	C
Urban Coastal#savings	.027758	.0035823	B
Urban Forest#none	.0775475	.0075697	C
Urban Forest#savings	.0280361	.0032647	B
Urban Savannah#none	.2216504	.0127894	
Urban Savannah#savings	.0944315	.0075831	C
Rural Coastal#none	.2679533	.0133826	E
Rural Coastal#savings	.1198162	.0092813	D
Rural Forest#none	.2682089	.0084469	E
Rural Forest#savings	.1199621	.0071604	D
Rural Savannah#none	.5511097	.0095948	
Rural Savannah#savings	.3242233	.0117762	

Note: Margins sharing a letter in the group label are not significantly different at the 5% level.

Source: Estimated from GLSS7 (2018).

Table 11 presents the pair-wise comparison of the points plotted in Figure 9 using the Bonferroni test option. The results suggested that financial inclusion, by way of the formal system of saving, does not explain poverty incidence in urban areas of Accra, but significantly explains poverty incidence in other urban and rural areas in Ghana. The margin probabilities suggested that the effects were very strong in urban and rural savannahs. That is, the probability that a household head who does not save through a formal system shall be poor in urban savannah was about 22.16%, but that a household head that saves reduces to 9.44% in the same locality. Also, the probability that a household head that does not save shall be poor was about 55.11%, but that of

a household head that saves being poor reduces to about 32.240% in the same locality. A similar observation could be made about households that save and those that do not save in the other urban and rural areas, but the reduction appears to be the widest in the rural areas.

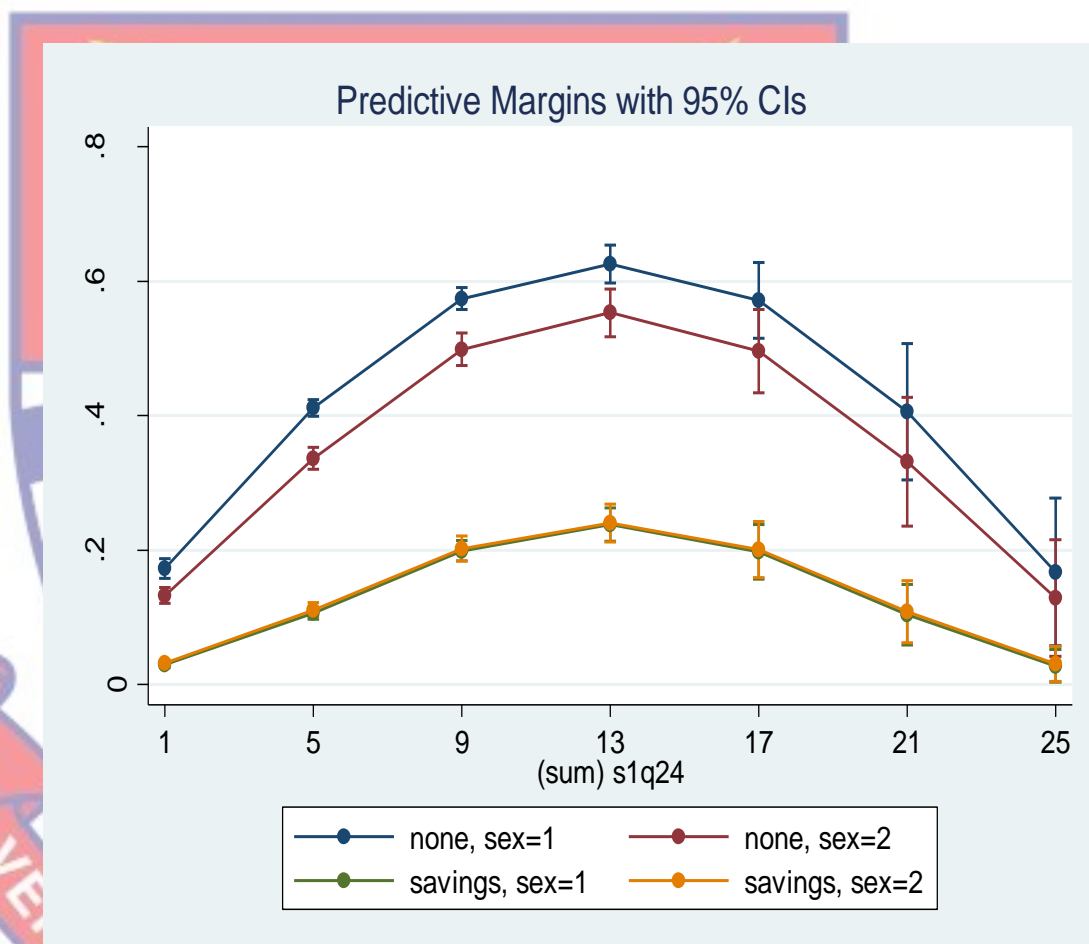


Figure 10: Margins-plot of the interactive effects of household size and savings on poverty incidence

Source: Estimated from GLSS7 (2018).

The first major observation in Figure 10 was the consistency in identifying 13 household sizes as the threshold size on the effects of household on poverty incidence for savers and non-savers. Also, the gap between the poverty incidences of the households that save and those that did not save was

relatively wider at all sizes as compared to the case of access to loans. It could also be observed that among the non-savers females had a reduced incidence of poverty as compared to male-headed households, but there was no difference between the males and female-headed households for savers (their plots overlaps). The outcome proves the ability of financial inclusion variables to bridge the poverty incidence gap between males and females.

The major conclusion was that savings as a proxy for financial inclusion significantly reduce the incidence of poverty irrespective of gender, location, or household size. However, gender, location, and household size moderate the effects of savings on poverty incidence in terms of the extent of the effects.

#### **Effect of poverty incidence on access to insurance in Ghana**

This hypothesis examines the effects of poverty incidence on access to insurance in Ghana, with special emphasis on the moderating role of gender, location, and household size. The logit model was fitted and the margins were predicted for the analysis. The Wald test suggested that the fitted model was better than an empty model with only the intercept (Deviance (df=13793) 14343.617, LR (df=14, 500.931); p-value=0.000<0.05). The result of the classification test was suggested that about 77.15% of the estimates were correctly classified with a pseudo-R-square of 0.3533. The post-estimated test was in favor of a relatively good fit model and hence the results were presented in Table 8 and interpreted.



**Table 12: Logit output of poverty incidence, background characteristics, and insurance in Ghana.**

Insurance	Odds Ratio	Std. Err.	Z	P>z
Poverty Status	.5452107	.0348456	-9.49	0.000
Ref: Employed				
Unemployed	.8003025	.0637937	-2.79	0.005
Not in labour force	.795132	.0558714	-3.26	0.001
Age	1.014196	.0014796	9.66	0.000
School	.590402	.0346231	-8.99	0.000
Ref: Accra				
Urban Coastal	1.088148	.1251103	0.73	0.462
Urban Forest	1.741773	.1884063	5.13	0.000
Urban Savannah	1.639835	.1979723	4.10	0.000
Rural Coastal	1.017679	.1264585	0.14	0.888
Rural Forest	.8632757	.0952195	-1.33	0.183
Rural Savannah	1.473032	.1701109	3.35	0.001
Hhsize	1.033156	.0180525	1.87	0.062
hhsize_Square	.9996883	.0012182	-0.26	0.798
Ref: Male				
Female	1.313369	.0602401	5.94	0.000
_cons	.133536	.0167501	-16.05	0.000

Source: Estimated from GLSS7 (2018).

Table 12 shows that poverty incidence, employment, age, education, location, household size, sex significantly influence demand for an insurance policy with the case of Urban Coastal, Rural Coastal, Rural Forest being insignificant as compared to household heads in Accra. Compared to households who are not poor, the likelihood of a household head who is poor to demand insurance policy is multiplied by 0.55. This indicated that as poverty incidence of a household increases, demand for insurance diminishes at a marginal rate, better still, poor households are 0.55 less likely to purchase an insurance product as compared to the non-poor due to the reason that they

possessed a small number of resources to insure against. Poverty incidence has been found to have a significant influence on demand for insurance, this supports the findings of Peparah, Koomson, and Forson (2017) that poor household heads have a lesser probability of demand for any insurance policy.

Compared to employment, household head who is unemployed and not in the labour force are less likely to demand insurance product by 0.80 and 0.79 respectively. Also, unemployed household heads have a probability of demanding insurance by 0.80 more than the “not in the labour force” household heads who have the probability of demanding insurance by 0.79. comparing employed households and unemployed households, those who are gainfully employed can be seen having the chances of demanding more insurance products than the unemployed. This is likely to be that salary workers are by law mandated to insure against retirement and some self-employed workers are also required to ensure their businesses.

The results further suggested that compared to the household heads in Accra, the household heads in all other localities in Ghana have an increased probability of demanding insurance products multiplied by a factor greater than one (1) expect Rural forest. Among the urban areas, Urban Forest indicated the highest demand for the insurance policy of (odds ratio of 1.74), and the Rural Forest also indicated the lowest tendencies of demanding insurance by 0.80. though household heads living in Urban Coastal, Rural Forest and Rural Coastal does not significantly influence their demand for insurance products. It can also be observed that demand for insurance is different depending on the residential area. Rural household heads' probability of demand for insurance is less compared to their urban counterparts. This is

due to variations in poverty levels in different locations since poverty status has been proven to have a major impact on insurance demand.

The results further indicated that an additional one household member increases the probability of demanding insurance multiply by 1.03. Household size again exhibited the inverted U-shape relationship with insurance demand which suggested the existence of a threshold after which the positive effects changes to negative. Also compared to male-headed households female-headed households are more likely to demand insurance by about 1.31 than male-headed households because females are seen as more risk-averse than males (Faff, Mulino, & Chai, 2008).

#### **Access to Insurance and Poverty Incidence in Ghana**

This hypothesis examines the effects of access to insurance on the incidence of poverty in Ghana, with special emphasis on the moderating role of gender, location, and household size. The logit model was fitted and the margins were predicted for the analysis. The Wald test suggested that the fitted model was better than an empty model with only the intercept (Deviance (df=13794) 10169.158, LR (df=13, 5554.928); p-value=0.000<0.05). The result of the classification test was suggested that about 83.46% of the estimates were correctly classified with a pseudo-R-square of 0.3533. The post-estimated test was in favor of a relatively good fit model and hence the results were presented in Table 9 and interpreted.



**Table 13: Logit output of insurance, background characteristics and poverty incidence in Ghana**

Variable	Odds Ratio	Std. Err.	Z	P>z
Insurance	.5465081	.0355096	-9.30	0.000
Ref: Accra				
Urban Coastal	7.037587	4.179996	3.29	0.001
Urban Forest	7.318674	4.322851	3.37	0.001
Urban Savannah	28.44242	16.67239	5.71	0.000
Rural Coastal	41.65278	24.38591	6.37	0.000
Rural Forest	41.19613	23.98368	6.39	0.000
Rural Savannah	172.4589	100.3553	8.85	0.000
Hhsize	1.649603	.0363996	22.68	0.000
Hhsize_Square	.9808547	.0014052	-13.49	0.000
Ref: Male				
Female	1.168893	.0683754	2.67	0.008
_cons	.0009003	.0005272	-11.98	0.000

Source: Estimated from GLSS7 (2018).

The results suggested that compared to the household heads that do not have insurance, the households that had access to insurance have their odd of becoming poor multiplied by 0.5465. The results further suggested that compared to the households in Accra, the households in all other locations in Ghana have increased odds of becoming poor multiplied by a factor greater than one (1). Among the urban areas, urban savannah indicated the highest tendency to be poor (odds ratio of 28.44), and the rural savannah also indicated the highest odds of being poor (odds ratio of 172.46). Household size again exhibited the inverted U-shape relationship with poverty incidence which suggested the existence of a threshold after which the positive effects changes to negative. The results further indicated that compared to the male-headed household, the odds that a female-headed household shall be poor is

multiplied by about 1.1689. The outcome of the model indicated that the effects of financial inclusion variables: gender, location, and household size were consistent in terms of the direction of effects as compared to the loans and savings models.

### The Moderating Role of Gender, Location, and Household Size on the Relationship between Access to Insurance and Incidence of Poverty

The interactive effects of gender, location, and insurance on poverty incidence in Ghana were assessed as presented in Figures 3 and 4.

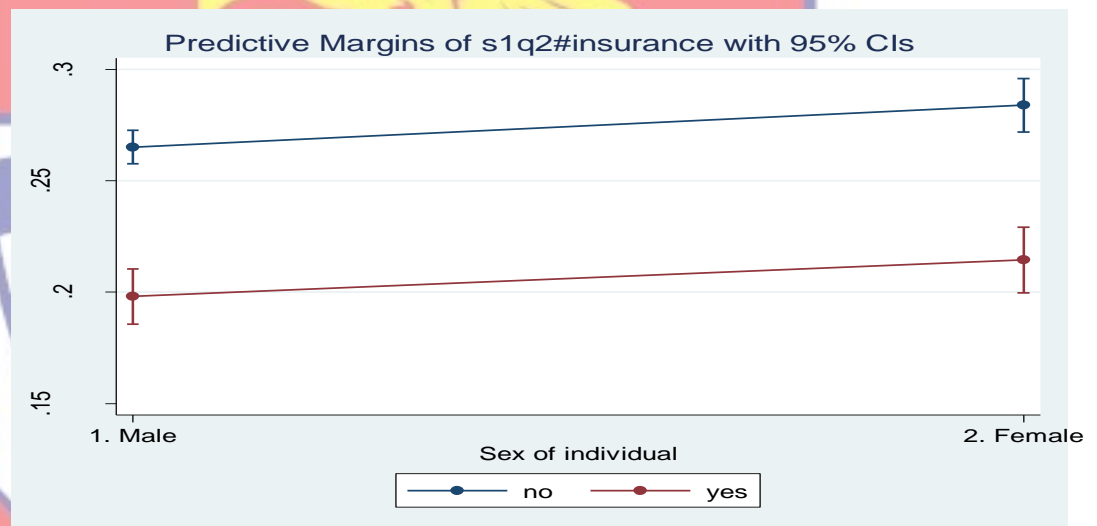
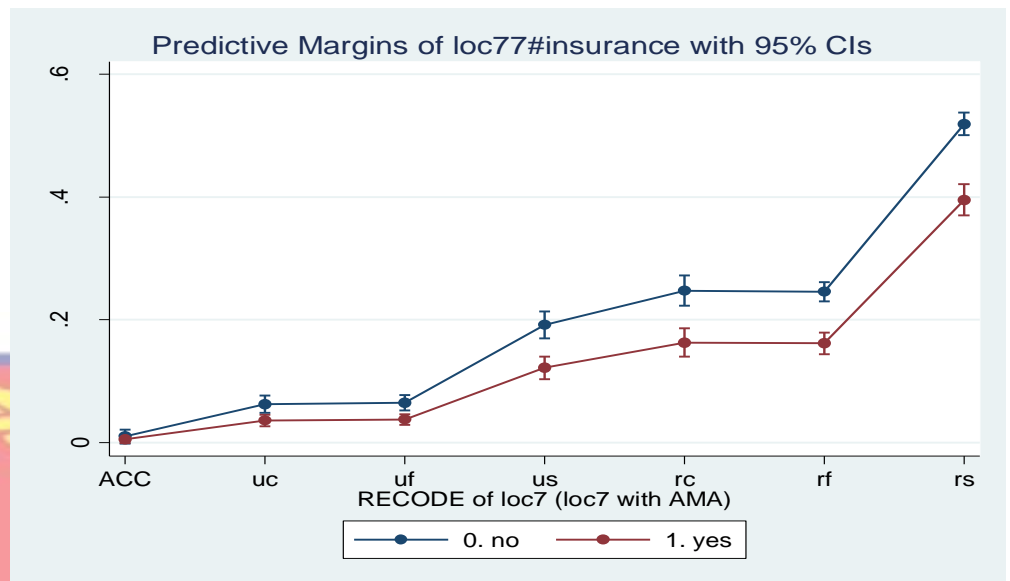


Figure 11: Interactive effects of gender and insurance on poverty incidence

Source: Estimated from GLSS7 (2018).

The plot in Figure 11 suggested that access to insurance significantly reduces the incidence of poverty for both genders. The results suggested that the probability differences between the financially included households and the non-financially included households were relatively wide, which points to the poverty reduction capacity of financial inclusion.



*Figure 12: Interactive effects of location and insurance on the incidence of poverty*  
 Source: Estimated from GLSS7 (2018).

Figure 12 presents the interactive effects of location and access to insurance on the incidence of poverty. The gap between the poverty incidence of household heads that access insurance packages and those that did not was relatively wider as compared to the case of access to loans, but closed as compared to the case of savings. This observation indicates that as proxies for financial inclusion, savings (odds ratio=0.32677) had the greatest effects on poverty incidence followed by access loans (odds ratio=0.43118) and then access to insurance (odds ratio=0.54651).



**Table 14: Margins comparison based on location and insurance**

Interactions	Margin	Delta-method Std. Err.	Unadjusted Groups
Accra #no	.0099858	.0056749	A
Accra #yes	.0055115	.0031772	A
Urban Coastal#no	.0626464	.0071136	C
Urban Coastal#yes	.0362572	.0047124	B
Urban Forest#no	.0648398	.006476	C
Urban Forest#yes	.0375954	.0043298	B
Urban Savannah#no	.1914939	.011204	D
Urban Savannah#yes	.1217748	.0093032	
Rural Coastal#no	.2476216	.0126611	E
Rural Coastal#yes	.1630717	.0116594	D
Rural Forest#no	.2458711	.0079288	E
Rural Forest#yes	.1617486	.0090273	D
Rural Savannah#no	.5190977	.0093598	
Rural Savannah#yes	.3953959	.0129515	

Note: Margins sharing a letter in the group label are not significantly different at the 5% level.

Source: Estimated from GLSS7 (2018).

Table 14 above presents the pair-wise comparison of the points plotted in Figure 4 using the Bonferroni test option. The results suggested that financial inclusion, by way of insurance, does not explain poverty incidence in Accra (repetition of A), but significantly explains poverty incidence in other urban and rural areas in Ghana. The margin probabilities suggested that the effects were very strong in urban and rural savannahs. That is, the probability that an individual who does not have insurance shall be poor in urban savannah was about 19.14%, but that a household head that had access to insurance have their probability reduced to 12.18% in the same locality. Also, the probability that a household head that does not have insurance shall be

poor was about 51.91%, but that of a household head that had insurance being poor reduces to about 39.54% in the same locality (rural savannah). A similar observation could be made about households that had access to insurance packages and those that do not in the other urban and rural areas, but the reduction appears to be the widest in the rural areas.

Figure 13 presents the interactive effect of household size, gender, and access to insurance on poverty incidence in the sample.

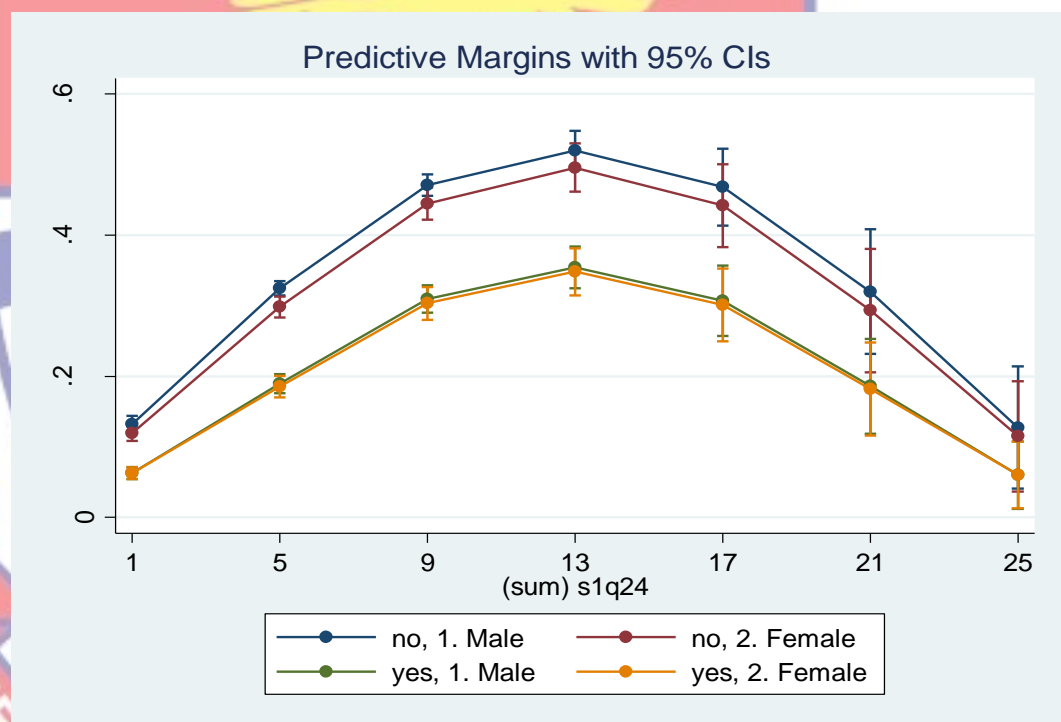


Figure 13: Margins-plot of the interactive effects of household size and insurance on poverty incidence

Source: Estimated from GLSS7 (2018).

The first major observation in Figure 13 was the consistency in identifying 13 household sizes as the threshold size on the effects of household on poverty incidence for households that had access to insurance and those that do not. Also, the gap between the poverty incidences of the households was relatively wider at all sizes as compared to the case of access to loans but

less wide as compared to that of savings. It could also be observed that among those that had no access to insurance, the female household head had reduced incidence of poverty as compared to male-headed households, but there were no clear differences between the males and female-headed households for those insurance packages (their plots overlaps). The outcome proves the ability of financial inclusion variables to bridge the poverty incidence gap between males and females.

The major conclusion was that insurance as a proxy for financial inclusion significantly reduces the incidence of poverty irrespective of gender, location, or household size. However, gender, location, and household size moderate the effects of access to insurance on poverty incidence in terms of the extent of the effects.

### **Discussion of Results**

The broad objective of the study was to examine the relationship between financial inclusion variables and poverty incidence in Ghana; with a special interest in the moderating role of household characteristics such as gender of household head, location, and household size. The analysis was, however, done under six main hypotheses using the three main proxies of financial inclusion which were access to loan facilities, savings with formal or semi-formal institutions, and access to insurance packages. Each proxy resulted in two hypotheses which were the effects of the proxy on poverty incidence and the moderating role of background characteristics on such relationship.

The first hypothesis evaluated the effects of access to loans on households' poverty incidence in general. The results suggested that access to



loans significantly reduces the household head incidence of poverty as compared to household heads that were constraint to accessing loans (Mannah-Blankson, 2018). This observation was consistent with theories and empirical works on financial inclusion and poverty reduction since access to loans is expected to increase the option of the household heads to expand their income sources by exploring other business opportunities (Koomson *et al.*, 2020). Accessing loans or credit facilities that go into a direct investment instead of direct consumption has been hypothesized as one of the surest means to breaking the poverty cycle in most emerging economies such as Ghana. (Mohammed, Barrowclough, Kibler, & Boerngen, 2020). The results in the current study point to the fact that households in Ghana, in general, may be managing loans very well to reap the positive benefits on the incidence of poverty. The results were consistent with that of earlier studies such as Mazumder and Wencong (2013), Peprah (2012), and Bambangi (2006).

In Ghana, Peprah (2012) established a direct relationship between access to credit or loans and well-being which invariably implies a negative impact on poverty. Mazumder and Wencong (2013) observed in Bangladesh, an emerging economy like Ghana, that there is a positive relationship between access to credit facilities and poverty reduction. Seidu and Bambangi (2006) asserted that access to credit or loans is the single most important step in the fight against poverty in developing countries.

The second objective aimed at accessing the moderating role of three household characteristics on the effects of loans on poverty incidence reduction. The results suggested that the gender of the household heads, location of household heads, and the size of the household significantly

moderate the effects of loans on poverty incidence. It was observed that household heads in Accra have a very low incidence of poverty as compared to other urban areas in Ghana, and almost non-existing compare to the high poverty incidence in rural areas. Among both urban areas and rural areas, household heads in the savannah areas of Ghana were the worst affected irrespective of gender and household size. It was common knowledge that business opportunities exist in urban areas that could project the incidence of poverty below that of rural areas, but the magnitude of the incidence in the rural areas compared to the urban areas calls for more direct interventions. The results further suggested that the poverty incidence in the savannah zone was high that the households in the rural coastal and rural forest had a relatively close incidence of poverty like that of urban savannah and were isolated from the case of rural savannah.

On the role of gender, it was observed that males and female households had an identical incidence of poverty in Accra. However, in all other locations in Ghana, female-headed households indicated a relatively higher incidence to be poor compared to the male-headed household. The plausible reason for such observation could be that in Accra most males have access to formal descent work that promises secure income, while females have access to flushing informal activities that equally increase their return to work (Danquah, Quartey & Iddrisu 2017). Hence, returns from formal and informal work may be enough to pull most household heads out of poverty incidence irrespective of the gender of the household head, when all other factors remain constant. Household size altered the moderating role of gender of the effects of loans on poverty incidence. That is, when the number of

individuals in the households was controlled for, consisted to Mannah-Blankson (2018) it was observed that female-headed households that access loans had reduced tendencies to be poor as compared to males. Meaning, for two household heads of identical size, the male-headed household that accesses loans had a higher likelihood to be poor than the female-headed households that accessed loans when all other factors are kept constant.

The results also identified a household size threshold of 13 individuals which suggested that though increasing household size increases the incidence of poverty for both male and female-headed households, the relationship changes to negative after the household size exceeds 13 members. This observation could be explained by the fact that a household with many members shall have a higher possibility for some of the members to be older and economically active. For example, in a polygamous household, headed by the husband, the wife in the household may be economically active and can contribute to the welfare of the household.

The extant literature had earlier acknowledged the moderating role of gender and location but not much on household size. Quarthey (2017) identified the joint effects of location and gender on poverty incidence by concluding that women in rural areas are likely to be at a disadvantage to the credit granted to them than men, but when they do it has reducing effects on poverty. Swamy (2014) made an explicit observation on the effects of access to loans on poverty incidence of females and other less privileged groups. Swamy (2014) found that females that access loans were about twice more likely to reduce poverty as compared to males that access loans. Specifically, income growth and net inflation effect was 8.40% for females as against 3.97% for



males. Kaur and Kapuria (2020) also added that increasing women's access to financial services will be an effective weapon for the lowering incidence of poverty and reducing income inequality among rural folk which was validated in this study. In the Ghanaian context, Mannah-Blankson (2018) explained why females benefit more from access to loans than males, by stating that access to loans helped bridge the asset gap between males and females and hence lower the poverty incidence of females more.

The results on household size were consistent with some earlier studies both within and outside Ghana. The studies of Libois and Somville (2017) and Khan, Rehman and Abrar-ul-Haq (2015), Silva (2015), and Anyanwu (2014) observed a direct link between household size and poverty incidence. The outcome of earlier studies suggested that the positive effects of household size are irrespective of country of assessment or geographical area. Silva (2008) found that increasing household size has significant positive effects on poverty but the effects are stronger for females especially when they reside in rural areas.

The outcome of this study extended the results from the earlier studies by identifying and estimating the curve-linear relationship between household size and poverty incidence. Hence, the outcome was consistent with the positive effects but went ahead to estimate that the relationship is inverted U-shape such that earlier studies estimated the positive part of the relationship which could be considered misspecification of the functional form. Hence, the current study identified a threshold of 13 members after which the relationship turns to be negative. Several explanations have been offered by earlier studies on why such possibilities may exist. That is, there are higher tendencies that a

very large household size may have some members engaging in income-earning activities and being financially included, which according to Khan *et al.* (2015) could pull the household out of the poverty trap.

The results on formal system of savings, third and fourth hypotheses, as a proxy for financial inclusion, indicated stronger negative effects on poverty incidence as compared to that of loans. That is, households' heads that resulted in a formal system of savings indicated the widest drop in poverty incidence as compared to those that did not and may have even accessed loans. Households heads who practice savings through formal financial institutions have better returns as compared to households without any formal system of savings (Samer *et al.*, 2015). The moderating role of gender, location, and household size was again confirmed when savings were used as a proxy for financial inclusion. Household heads in Accra were still better off than other areas when they save and the effects were identical for both males and females.

It was observed that though savings reduces the poverty incidence in both urban and rural areas, the effects were wider in the rural areas than in urban areas. That is, when the household heads in rural areas save, it had significantly more effects in their poverty reduction as compared to those in the urban areas. Savings were also found to bridge the poverty gap between male and female-headed households as compared to those who did not save. The effectiveness of savings as compared to loans or insurances could be attributed to the fact that, especially in rural areas, savings is mostly considered a prerequisite for a household to access loan facilities. Hence, the

effects of savings could capture the effects of loans as well since most households that save also have loans, but the reverse may not be true.

The direct impact of poverty on poverty incidence has been observed in several earlier studies. Ampah, Ambrose, Omagwa, and Frimpong (2017) made a discovery very similar to that of the current studies by observing that savings have stronger reducing effects on poverty than loans, keeping other factors constant. Ajide (2016) and Shauri (2014) also observed that savings reduce poverty incidence by increasing the income-generating portions of the household heads and help them manage their business more efficiently. Fosu *et al.* (2019) added that women who save have their standard of living, businesses, self-esteem, and social life significantly improving than those who do not save. The outcome, however, contradicted the finding of Bannor and Oppong-Kyeremeh (2020) on savings among women in Ghana who observed that though savings impact positively, it does not influence the poverty level. Bukari, Peprah, Ayifah, and Annim (2020) also reiterated that in general savings in a formal system have the greatest impact on poverty among financial inclusion variables in Ghana.

The five and sixth objectives were on the effects of access to insurance on poverty incidence. The results found indirect effects of access to insurance on the incidence of poverty when all other factors are kept constant. In terms of magnitudes of effects, access to insurance indicated the least negative effects on poverty reduction. The small indirect effects of insurance could be explained by the fact that insurance is technically not a financial intermediary activity that increases the financial position of a household but serves as a buffer against a sudden drop in welfare. That is, insurance exists to indemnify



households to their state before the insured risk occurs and, offers very little when the risk does not occur. The moderating role of household characteristics was relatively the same as that of loans and savings, except that the effects were minimal.

The fact that insurance policies may not impact directly or have small effects on poverty was underscored in Giesbert *et al.* (2011) who argued that a given insurance package may cover only an aspect of risk thus leaving the household still exposed to other risks that could worsen their poverty plight. Giesbert *et al.* (2011) argued further that in the presence of proper risk management practices, loans and savings could substitute for insurance. Hence, some of the effects of insurance could be felt in loans and savings if the insurance was a hedge against and acquired loans or savings.

It was therefore concluded that financial inclusion, irrespective of the proxy adopted, had statistically significant negative effects on poverty incidence but the magnitude of the effects depends on the type of proxy adopted. The differences in the magnitude of effects could be cited as the reasons for the inconsistent results of the effectiveness of financial inclusion in reducing poverty observed in the literature, since different studies may have used a different proxy or a combination of proxies. This observation that financial inclusion general reduces poverty incidence was consistent with exiting literature that used composit index to examine the overall impact of financial inclusion on poverty. Lal (2018) and Abdul-Rahamon *et al.* (2020) asserted that loans and credit advances to the poor have a strong significant effect on their poverty incidence in India and Nigeria respectively just as the current study observed for the case of Ghana. In explaining the reasons why

financial inclusion could reduce poverty incidence in Africa, Gyeke-Dako, (2017) opined that when individuals get financially included, they experience the net wealth advantages and have higher welfare benefits than those who are not financially included. Bambangi (2006) as well stated that financial inclusion helps the poor to reduce their vulnerability to external shock thereby reducing their poverty incidence. A recent study by Okunade (2020) was clear that the role of demographics characteristics is critical to poor incidence of households than the effect of other variables such as ICT diffusion.

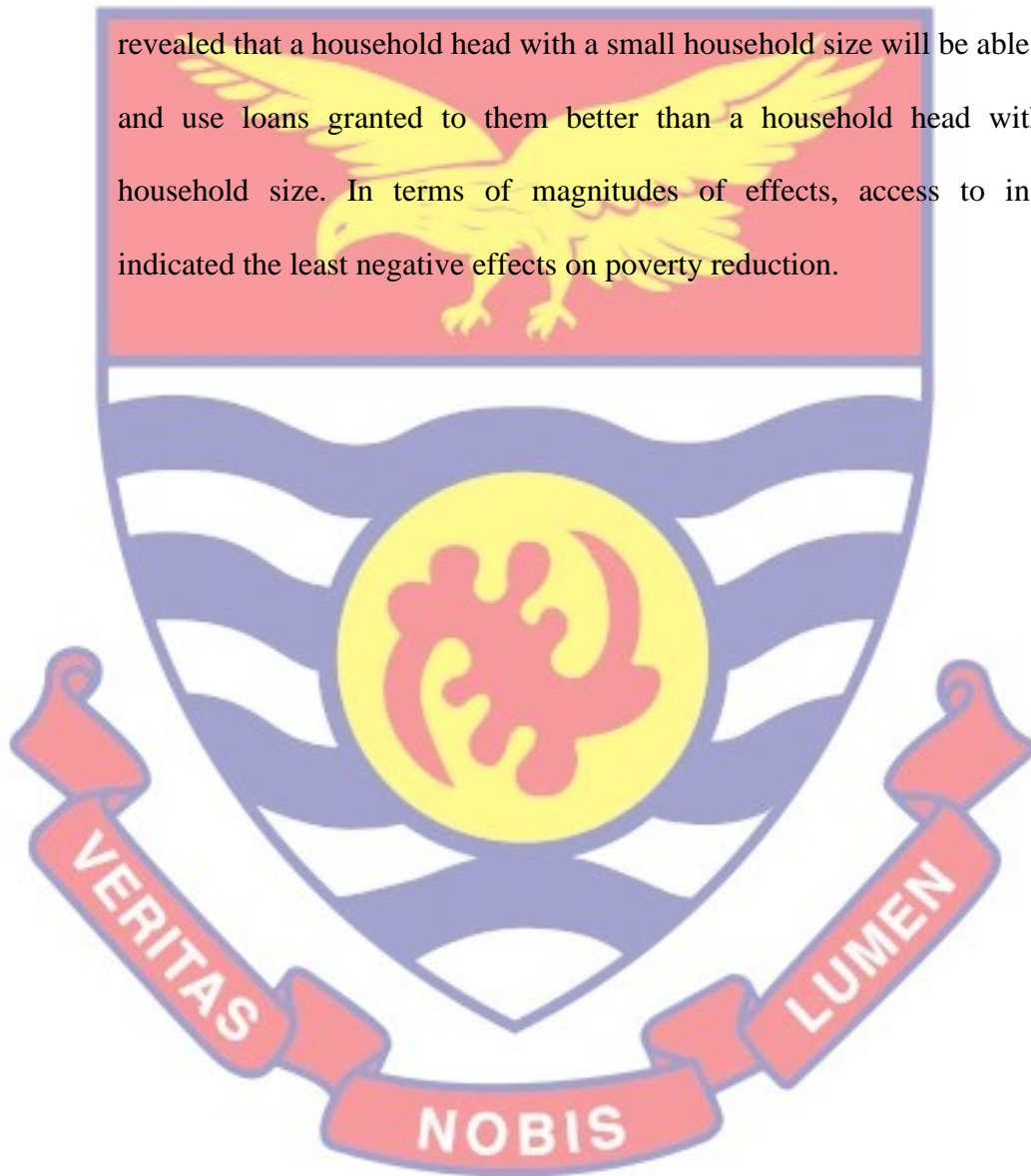
### **Chapter Summary**

The chapter presented an analysis between financial inclusion and poverty incidence in Ghana. The analysis shows that savings are the best financial product that has a great impact on poverty incidence, followed by credit accessibility and finally insurance taking into consideration various proxies of financial inclusion. Also, the chapter presented a descriptive analysis of the variables used in the study. The descriptive analysis revealed that on average, the national household size in Ghana is four (4) members, of which Accra, coastal areas, forest zones fall below the national average of three (3) members while Savannah zone recorded above the national average of five (5) members and more. The descriptive analysis also reveals that household size above the national average constituted the very poor and poor category. Also, household head ranges the ages of 50 years and above falls within the very poor category.

The chapter went further to discuss the moderating role of gender, location and, household size in the relationship between financial inclusion variables and poverty incidence in Ghana. The study revealed that

empowering women to develop a saving habit and getting access to credit will help reduce the poverty incidence of women in the country. There is also strong evidence that the efficient and effective mobilization and utilization of rural savings would therefore engender rural socio-economic development and hence an improvement in the welfare of rural households. The study finally

revealed that a household head with a small household size will be able to save and use loans granted to them better than a household head with large household size. In terms of magnitudes of effects, access to insurance indicated the least negative effects on poverty reduction.





## CHAPTER FIVE

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Introduction

The study sought to examine financial inclusion and poverty incidence in Ghana. Specifically, the research examined the separate effect of savings, credit, and insurance on household heads poverty incidence and finally, examine the interactive effect of gender, location, and household size. Also, the chapter presents the findings of the entire study. The chapter again presents a summary of the research findings, conclusions, recommendations, and lastly suggestions for further research.

#### Summary of Research

The study sought to explore the relationship between financial inclusion and poverty incidence in Ghana. The study specifically examined the separate effect of savings, insurance, and credit on household heads poverty incidence, and lastly, the study examined the moderating role of gender, location, and household size on the relationship between financial inclusion and poverty incidence in Ghana. The study specifically was guided by four objectives with six hypotheses. The first three explored the savings, insurance and credit effect on poverty incidence and the last three hypotheses also relate to the moderating role of gender, location, and household size. The study adopted and integrated the Transient theory of poverty and the Empowerment theories based on which a conceptual framework was developed.

The research was based on a positivist research paradigm and a quantitative research approach. An explanatory research design was also employed for the study. The study used data from Ghana Living Standard

Survey Round Seven which has a representative nationwide coverage. Both descriptive and inferential statistics were used for the analysis. The Logistic and Binary probit estimations for the analysis were used to examine the direction and magnitude of the effects of financial inclusion proxies on poverty incidence in the defined locations identified in the dataset. The results

were presented, interpreted, discussed, and integrated into the literature. The main findings were outlined in the next section in line with the objectives:

### **Summary of Findings**

The following were the main findings observed in the study based on the stated objectives and hypotheses. The first objective sought to examine the relationship between financial inclusion measures (access to credit, savings and insurance) and poverty incidence. From the results, it was found that access to credit by household has a significant positive effect on poverty incidence compared to a household without access to credit. It was also observed that savings had a stronger negative effect on poverty incidence as compared to that of loans. It was observed that though savings reduces the poverty incidence in both urban and rural areas, the effects were wider in the rural areas than in the urban areas. The results again found a negative relationship between access to insurance packages and the incidence of poverty when all other factors are kept constant. In terms of magnitudes of effects, access to insurance indicated the least negative effects on poverty reduction.

The second through to the fourth objectives aimed at examining the moderating role of gender, location and household size on the relationship between financial inclusion and poverty incidence. It was observed that the

gender of the household head, location of household, and the size of the household significantly moderate the effects of loans on poverty incidence. That is, male-headed households have reduced incidence of poverty compared to females-headed households, which provides responses for the second objective. The location of a household in the south or urban areas had reducing effects of poverty incidence as compared to location in the Savannah or rural areas, which provides response to the research objective three. The household size indicated an inverted U-shape relationship with poverty incidence irrespective of location, gender of the household head, or the proxy adopted for financial inclusion which provides responses to research objective four.

### **Conclusions**

It was therefore concluded that financial inclusion, irrespective of the proxy adopted, had statistically significant negative effects on poverty incidence but the magnitude of the effects depends on the type of proxy adopted. The differences in the magnitude of effects could be cited as the reasons for the inconsistent results of the effectiveness of financial inclusion in reducing poverty incidence observed in the literature, since different studies may have used a different proxy or a combination of proxies. Hence, the study concludes that the kind of proxy adopted for financial inclusion can have an impact on the resulting outcome and must be taking into consideration when interpreting the outcome.

It could also be concluded that the background characteristics of households have implications on the effectiveness of financial inclusion. It was interesting to observe that rural household heads in the Southern part of Ghana (rural coastal and rural forest) have lower poverty incidence than urban



household heads in the Northern part of Ghana (urban Savannah). Hence, it was concluded that policies that target poverty incidence based on the dichotomy of location as rural and urban without expanding the scope into coastal, forest, and savannah regions may leave some vulnerable households out while including the same average households.

Finally, it was concluded that the age distribution of a household matter in examining the effects of household size on poverty incidence, given that the household head is financially included. The fact that the relationship between financial inclusion and poverty incidence reverses at some higher level of household size was unanticipated but tends to become an interesting finding.

The study contributes to the conceptualization of financial inclusion and assessment of the relationship between financial inclusion and poverty incidence in Ghana. First, it provides evidence to support the position that households' process of financial inclusion can have different effects on poverty incidence, and hence must be treated in isolation. It also, adds to the arguments that simple effects without moderation could be misleading in terms of policy action.

### **Recommendations**

In line with the findings of this study major recommendations have been highlighted. The Central Bank must continue and accelerate its quest to include more Ghanaians financially by empowering commercial banks to expand and develop more financial products, since the reducing effect of financial inclusion is not in doubt. The Central Bank must also consider the effects of location in deciding areas concentrate their effects to achieve the

necessary impact of financial inclusion on poverty incidence reduction. For example, policy intervention must give preference to both rural and urban areas in the savannah region, such that the rural coastal settlement should not be selected above the urban savannah where a choice is imminent. Efforts of the Ministry of Employment and Manpower Development must continue to intensify their activities in the Savannah regions by provide entrepreneurial opportunities to the residence irrespective of location since the area is still facing marginally high poverty incidence. The ministry of social welfare must prioritize household heads in both urban and rural households in the savannah areas of Ghana in their supports programs such as LEAP and others.

The study recommends to researchers in the field of financial inclusion and policy analysis to consider the separate effects of financial inclusion proxies on poverty incidence in their studies, since the current study observed the effects can be different for different proxies. Finally, the household must be encouraged to save a significant portion of their income since it has the greatest effects on the reduction of their poverty incidence. NGOs into credit provision must also intensify their provision of affordable credit to households in Ghana.

#### **Suggestions for Future Research**

A major limitation of the study was the concentration on only three background characteristics, hence future studies can expand the analysis to include other household characteristics such as age, number of economically active members, and level of education of head and spouse of the head. Also, the study focused more on access to insurance in general due to data limitations, hence future studies could focus more on specific insurance

packages to determine the specific effects on poverty incidence. Finally, future studies could expand the analysis to include multi-dimensional poverty measures.





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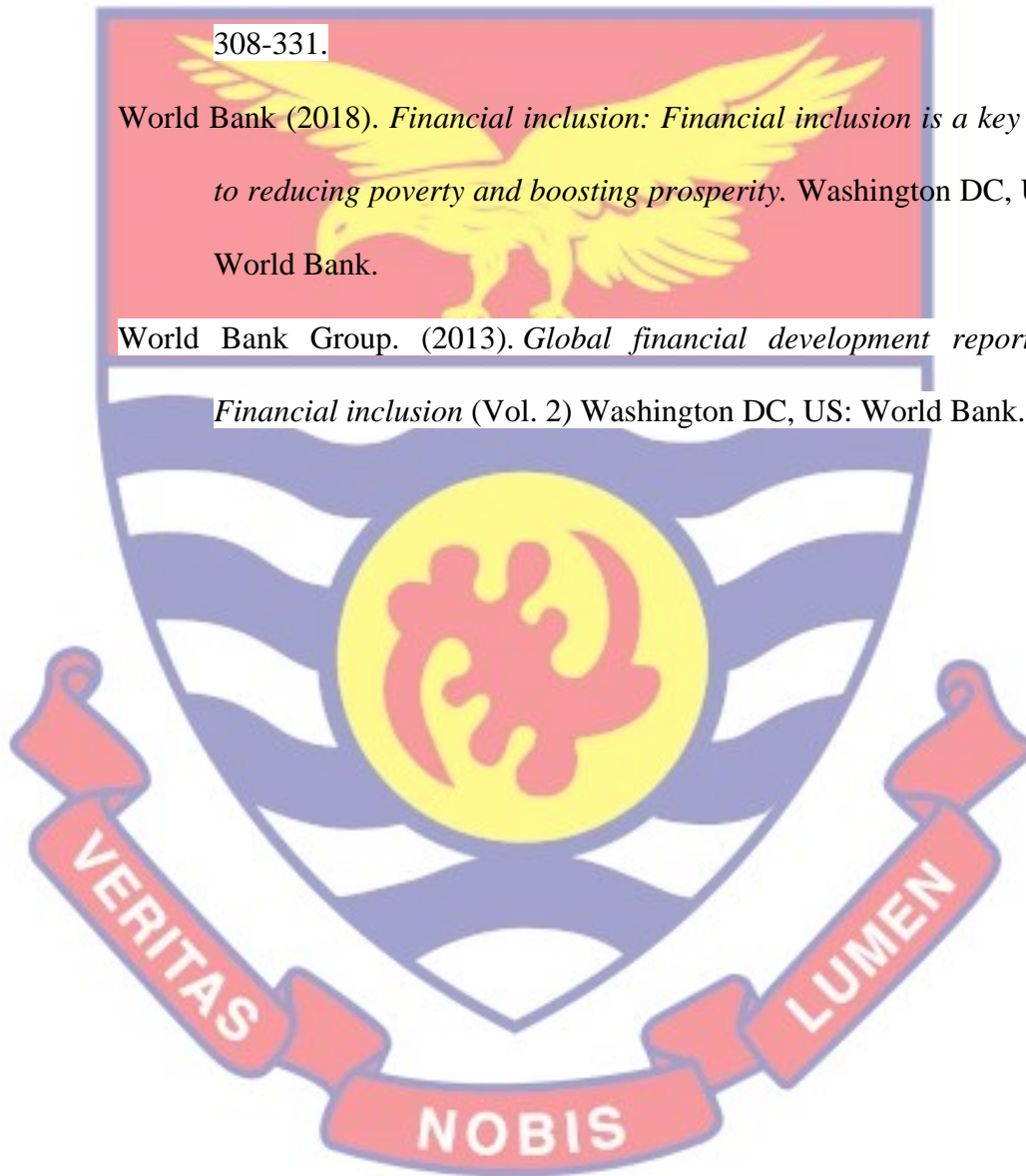
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## APPENDIX

### POST ESTIMATION

Log-likelihood		
	Model	-5174.000
	Intercept-only	-7964.163
<hr/>		
Chi-square		
	Deviance (df=13995)	10348.000
	LR (df=13)	5580.326
	p-value	0.000
<hr/>		
R2		
	McFadden	0.350
	McFadden (adjusted)	0.349
	McKelvey & Zavoina	0.545
	Cox-Snell/ML	0.329
	Cragg-Uhler/Nagelkerke	0.484
	Efron	0.382
	Tjur's D	0.384
	Count	0.835
	Count (adjusted)	0.354
<hr/>		
IC		
	AIC	10376.000
	AIC divided by N	0.741
	BIC (df=14)	10481.664
<hr/>		
Variance of		
	e	3.290
	y-star	7.226

Logistic model for pov\_status

Classified	True		Total
	D	~D	
+	2090	823	2913
-	1492	9604	11096
Total	3582	10427	14009

Classified + if predicted Pr(D) >= .5

True D defined as pov\_status != 0

Sensitivity	Pr(+ D)	58.35%
Specificity	Pr(- ~D)	92.11%
Positive predictive value	Pr(D +)	71.75%
Negative predictive value	Pr(~D -)	86.55%
<hr/>		
False + rate for true ~D	Pr(+ ~D)	7.89%
False - rate for true D	Pr(- D)	41.65%
False + rate for classified +	Pr(~D +)	28.25%
False - rate for classified -	Pr(D -)	13.45%
<hr/>		
Correctly classified		83.47%



	logit
Log-likelihood	
Model	-5084.579
Intercept-only	-7862.043
Chi-square	
Deviance (df=13794)	10169.158
LR (df=13)	5554.928
p-value	0.000

R2		
McFadden		0.353
McFadden (adjusted)		0.351
McKelvey & Zavoina		0.549
Cox-Snell/ML		0.331
Cragg-Uhler/Nagelkerke		0.487
Efron		0.385
Tjur's D		0.387
Count		0.835
Count (adjusted)		0.355

IC		
AIC		10197.158
AIC divided by N		0.738
BIC (df=14)		10302.620

Variance of		
e		3.290
y-star		7.296

Logistic model for pov\_status

Classified	True		Total
	D	~D	
+	2060	802	2862
-	1482	9464	10946
Total	3542	10266	13808

Classified + if predicted Pr(D) >= .5  
True D defined as pov\_status != 0

Sensitivity	Pr( +   D)	58.16%
Specificity	Pr( -   ~D)	92.19%
Positive predictive value	Pr( D   +)	71.98%
Negative predictive value	Pr( ~D   -)	86.46%

False + rate for true ~D	Pr( +   ~D)	7.81%
False - rate for true D	Pr( -   D)	41.84%
False + rate for classified +	Pr( ~D   +)	28.02%
False - rate for classified -	Pr( D   -)	13.54%

Correctly classified		83.46%
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	logit
Log-likelihood	
Model	-5047.190
Intercept-only	-7964.163
Chi-square	
Deviance (df=13994)	10094.380
LR (df=14)	5833.945
p-value	0.000

R2		
McFadden		0.366
McFadden (adjusted)		0.364
McKelvey & Zavoina		0.573
Cox-Snell/ML		0.341
Cragg-Uhler/Nagelkerke		0.501
Efron		0.397
Tjur's D		0.399
Count		0.837
Count (adjusted)		0.362

IC		
AIC		10124.380
AIC divided by N		0.723
BIC (df=15)		10237.592

Variance of		
e		3.290
y-star		7.701

Logistic model for pov\_status

Classified	True		Total
	D	~D	
+	2143	848	2991
-	1439	9579	11018
Total	3582	10427	14009

Classified + if predicted Pr(D) >= .5  
True D defined as pov\_status != 0

Sensitivity	Pr( +   D)	59.83%
Specificity	Pr( -   ~D)	91.87%
Positive predictive value	Pr( D   +)	71.65%
Negative predictive value	Pr( ~D   -)	86.94%

False + rate for true ~D	Pr( +   ~D)	8.13%
False - rate for true D	Pr( -   D)	40.17%
False + rate for classified +	Pr( ~D   +)	28.35%
False - rate for classified -	Pr( D   -)	13.06%

Correctly classified		83.67%
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