

UNIVERSITY OF CAPE COAST

**EFFECT OF FINANCIAL EXCLUSION ON POVERTY: ISSUES OF
MEASUREMENT AND RELATIONSHIPS IN GHANA**

JONES ARKOH PAINTSIL

2019

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MEASUREMENT AND RELATIONSHIPS IN GHANA**

BY

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A thesis submitted to the Department of Economics Studies of the School of Economics, College of Humanities and Legal Studies, University of Cape Coast, in partial fulfillment of the requirements for the award of Master of Philosophy degree in Economics

OCTOBER 2019

DECLARATION

Candidates Declaration

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

Candidate's Signature Date

Name: Jones Arkoh Paintsil

Supervisors' Declaration

We 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.

Principal Supervisor's Signature..... Date

Name: Prof. Samuel Kobina Annim

Co-Supervisor's Signature.....Date

Name: Dr. Ferdinand Ahiakpor

ABSTRACT

Financial services play an important role in the development of national economies. Studies have shown that financial inclusion promotes economic growth. However, the concept of financial exclusion dynamics has received little attention. The study thus examined the effect of financial exclusion on poverty in Ghana. Specifically, the study estimates the classes of financial exclusion (incidence, depth, and severity); determined the association between classes of financial exclusion and poverty using Chi-Square independence test and finally examined the effect of the classes of financial exclusion on poverty using ordinary least square, instrumental variable estimation, and conditional mixed process. Due to the endogeneity of financial exclusion, the study employed supply-side variables-type of the financial institution and insurance as instruments to remedy the endogeneity problem. The study found a high financial exclusion in Ghana, especially, Northern Region, Upper West, Upper East, and the Volta Region. Further, the study established that poor households are mostly associated with financial exclusion. Besides, incidence, depth, and severity of financial exclusion hurt household heads consumption poverty. Again, the severity of financial exclusion generally dominates the depth of financial exclusion whereas the depth of financial exclusion generally dominates the incidence of financial exclusion. Besides, the study, therefore, recommends inclusive finance in Ghana especially the Northern region, Upper West, Upper East, and Volta region. Again, the study recommends the education of household heads, and as well as providing them with employment opportunities as these decrease household head poverty, and financial exclusion.

KEY WORDS

Incidence

Depth

Severity

Financial products

Poverty

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my supervisors, Professor Samuel Kobina Annim and Dr. Ferdinand Ahiakpor both of the School of Economics, for their professional guidance, advice, encouragement, and goodwill with which they guided this work. I am very grateful.

I am also grateful to Dr. Joshua Sebu, Mr. Raymond Kofinti, and Mr. James Fiagborlo for their generous contributions to make this work better. I wish to thank my family and friends for their support, especially my parents, Albert Kojo Paintsil and Agnes Sam for their sense of humor, patience, optimism, advice and support throughout this journey, and to my siblings for their support and prayers.

DEDICATION

To my father, Albert Kojo Paintsil; My mother, Agnes Sam; and my siblings.

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LIST OF ABBREVIATIONS

CMP Conditional Mixed Process

FGT Foster, Greer, and Thorbecke

GSS Ghana Statistical Service

IV Instrumental Variable

OLS Ordinary Least Square

PCA Conditional Mixed Process

CHAPTER ONE

INTRODUCTION

Financial services play a key role in the lives of many people across the globe. The majority of people rely on a bank account to pay their bills, receive their salaries and make transfers. Yet, following the collapse of many microfinance institutions and banks in Ghana in addition to the recent financial sector reforms by the Bank of Ghana, lack of access to the most basic financial products and services such as credit, insurance, savings products, and pensions are likely to exacerbate. Financial exclusion has many different manifestations. People can be excluded from one or many different financial products, through choice or access problems. Others simply have few financial skills and poor understanding of financial services. Financial exclusion has harmful consequences on poor households and can lead to serious debt problems, homelessness, hunger or even mental health issues.

Background to the Study

Financial exclusion describes a situation where people cannot or do not access and use appropriate financial products and services. The term financial exclusion came to prominence in the late 1990s as part of the debate around poverty and social exclusion (Blake & de Jong, 2008; Gloukoviezoff, 2007; Kempson & Whyley, 1999). Historically, studies into financial exclusion have been an effort to analyse poverty issues away from income base measurement. That is, financial exclusion is partly about looking at the other side of the ledger: the costs that individuals, households, and communities bear (Blake & de Jong, 2008). Poor

people pay more for many of their financial services than those on middle incomes, in relative terms, and sometimes in absolute terms (Blake & de Jong, 2008). A key challenge with financial exclusion is that the term is broad and could, theoretically, apply to exclusion from many different products and services. Financial exclusion could also apply to people at many different income levels. In practice, however, the term is used to refer to people on low incomes who lack a bank account or have them but do not use them (Blake & de Jong, 2008; Gloukoviezoff, 2007).

Empirical evidence suggests that financial exclusion hinders the growth and development of many countries across the world (Nair, 2017; Iu, 2015; Buckland & Simpson, 2008; Devlin, 2005; FSA, 2000; Kempson & Whyley, 1999). Financial exclusion is thought to be prevalent in developing countries where extreme poverty occurrence is most predominant (Karlan & Morduch, 2010). In contrast, evidence also suggests a considerable high rate of financial exclusion in high-income and advanced countries of the world (Nair, 2017; Gloukoviezoff, 2007; Devlin, 2005).

Financial exclusion is often perceived as a microscopic view of the broader problem of social exclusion. (Barboni, Cassar, & Demont, 2017; Klapper, Lusardi, & Van Oudheusden, 2015; Barr, 2004; Connolly & Hajaj, 2001; Kempson & Whyley, 1999). Thus, financial exclusion is deeply rooted in the social setting of every country and that the focus must encapsulate not only individuals or households that suffer from financial exclusion but every aspect of the society. Research has also established the difficulty in accessing financial product and services by poor households who are more often trapped in the various forms of exclusion; exposed to more unpredictable shocks; and seldom equipped with high

educational level and critical information (Mujeri, 2015; UNCTAD, 2014; Rutherford, & Ruthven, 2009; Al-Hussainy, Beck, Demirguc-Kunt, & Zia, 2008; Lusardi, 2008; Daryl, Morduch; Levine, 2005).

From the global arena, statistics on financial exclusion shows that the phenomenon demands attention. Accordingly, the report stated that about 1.7 billion adults remain unbanked; that is without a bank account in any financial institution (Demirguc-Kunt, Klapper, Singer, Ansar & Hess, 2018). Further, the share of adults without an account is 31. Again, on a global scale, about a quarter of unbanked adults live in the poorest 20 percent of households within their economy (Demirguc-Kunt et. el, 2018). Further, 77 percent of adults are without an account in any formal financial institutions in West Africa. Also, the World Bank (2016) highlights the difficulty with credit access by small and medium enterprises across Africa. The figures stood unreasonably high as reported in a country comparison analysis by the World Bank and Figure 1 presents the distribution across South Africa, Kenya, Nigeria, South Saharan Africa, Tanzania, and Ghana.

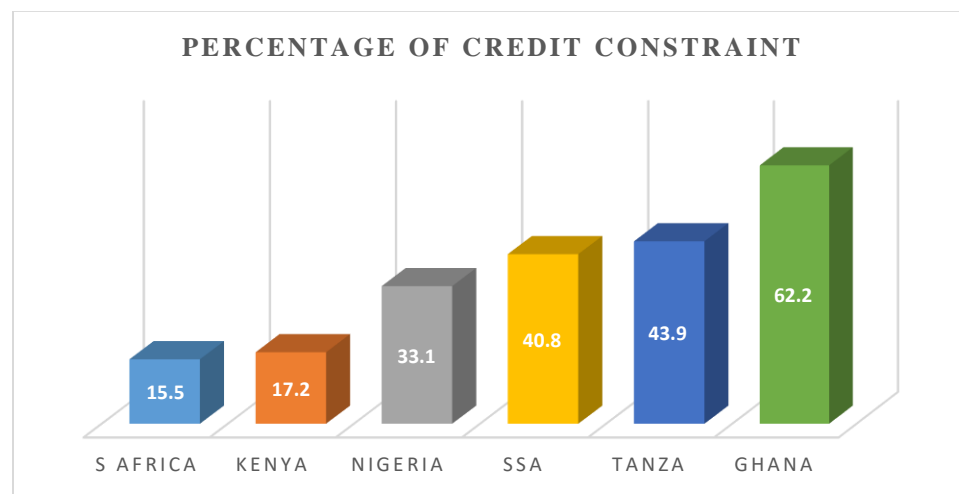


Figure 1: Access to Finance as a Major Constraint (country comparison)

Source: World Bank, 2016

Reports also highlight that developing countries have high financial exclusion (Demirguc-Kunt, Klapper, & Singer, 2017). Accordingly, only 39.4 percent of the Ghanaian female population has an account. Account penetration among the rural population stood high at 34.5 percent while 9.8 percent of Ghanaian adults reported having a debit card, and less than one percent use a credit card for transactions. Further, account usage stood at 4.4 percent for debit cards and incipient at 0.6 percent for credit cards (Demirguc-Kunt, Klapper, & Singer, 2017). These reports highlight the general non-participation in the financial system, which raises much concern.

Demirguc-Kunt et. al, (2018) report that 42% of Ghanaians do not have access to formal financial services whereas Ghana Living Standard Survey (GLSS), the 5th and the 6th rounds report that 70.2% and 64.6% of household heads respectively do not have a savings account. Across gender differences, males accounted for 41.4% while females accounted for 58.6%. Further, a household head without any form of insurance and credit access stood at 65.9% and 88.6% respectively (Cooke, Hague, & McKay, 2016; GSS, 2014). Current estimates from GLSS round seven presented in Figure 2 reveals that financial exclusion remains a challenge.

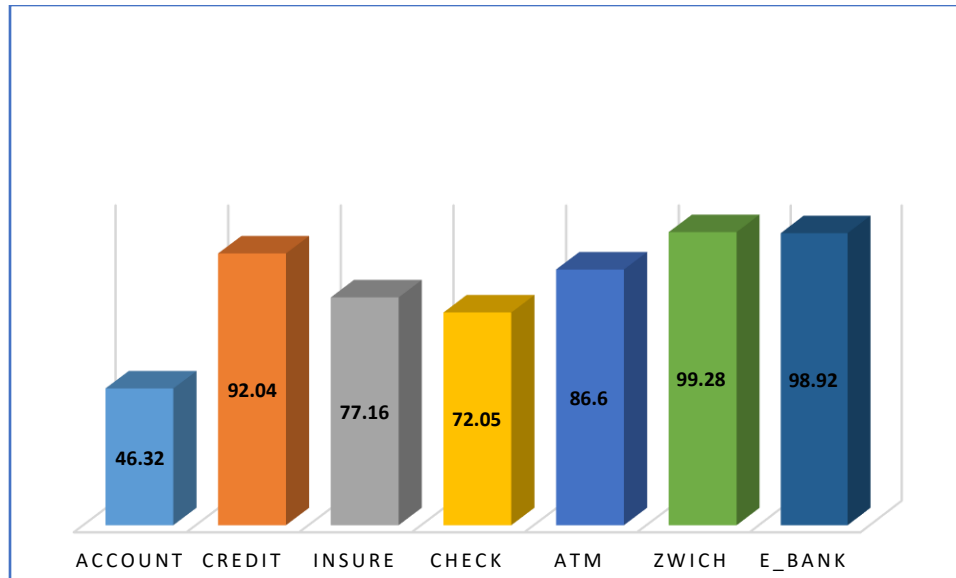


Figure 2: Financial Exclusion by Various Dimensions

Source: Author's Construct, 2019

Research Problem

In observing the financial exclusion statistics in Figure 2, a unidimensional measure of the problem will fail to aggregate accurately the level of financial exclusion across the country as that has been the trend in empirical works. Researchers generally measure financial exclusion from the unidimensional analysis where reports and empirical works show various forms of financial exclusion in the economy. However, there is the need for a measure where all indicators of financial exclusion can be aggregated to generate representative estimates of financial exclusion across the country. With this, the estimates from the general financial exclusion across all dimensions in the country will serve as a guide in alleviating the problem of financial exclusion, which has crippled the Ghanaian economy.

Besides, Figure 2 shows that 46.3% of households do not have access to the bank account while 92% of households equally do not have access to credit.

Further, current poverty estimates suggest that the percentage of people living in poverty reduced from 24.2 percent in 2012/13 to 23.4 percent in 2016/7 (GSS, 2018) while extreme poverty decreased from 8.4 percent in 2012/13 to 8.2 percent in 2016/17. However, in comparing poverty figures with financial exclusion figures shows a trend of the simultaneous problem of financial exclusion and incidence of poverty in the country. The subject for interrogation is whether household heads that experience financial exclusion are the same household heads that experience the incidence of poverty in the country.

This current study, therefore, uses cross-sectional data to investigate the effect of financial exclusion on poverty: issues of measurement and relationships. Unlike studies done in this field, this study employs a multidimensional approach to the problem of financial exclusion. The study will then adopt Foster, Greer, and Thorbecke (FGT) methods to generate classes of financial exclusion (incidence, depth, and severity of exclusion) in Ghana. Particularly, the study examines the incidence of the financial exclusion-the proportion of the household heads without any form of financial; depth of exclusion-measure how far households heads fall below the mean of the financial exclusion index and finally severity of exclusion-measure the indication of inequality of financial exclusion among household heads.

Also, the study will test the association between household heads that the face financial exclusion and their consumption poverty status. The study will further examine the effect of financial exclusion on household consumption poverty. The study further focused on rural-urban and gender differences in financial exclusion across household heads. Finally, the study examines the

dominance analysis among incidence, depth, and severity of financial exclusion to ascertain their relative contribution to the overall fitness in explaining the financial exclusion phenomenon.

Objectives of the Study

The general objective of the study is to examine the effect of financial exclusion on poverty: issues of measurement and relationships in Ghana. Specifically, the study seeks to;

1. Estimates the classes of financial exclusion measures; that is incidence, depth, and severity of financial exclusion.
2. Test for the association between the classes of financial exclusion measures and household poverty status.
3. Determine the effect of the classes of financial exclusion on household consumption poverty.

Hypotheses of the Study

1. H_0 : There is no association between the classes of financial exclusion measures and household poverty status.
 H_1 : There is an association between the classes of financial exclusion measures and household poverty status.
2. H_0 : Incidence, depth, and severity of exclusion do not affect household consumption poverty in Ghana.

H₁: Incidence, depth, and severity of exclusion affect household consumption poverty in Ghana.

Significance of the Study

Access to finance is at the core of the development process. Supported by empirical evidence (Arun & Kamath, 2015; Li, 2018), development practitioners are becoming increasingly convinced that efficient, well-functioning financial systems are crucial in channeling funds to the most productive uses and in allocating risks to those who can best bear them, thus encouraging economic growth, improving opportunities and income distribution, and reducing poverty. Therefore, financial exclusion limits the benefit of financial development, leaving much of the population in absolute poverty. The study of financial exclusion is necessary due to challenges facing the financial sector from both supply-side and demand-side inefficiencies in the financial system. This calls for interrogation into the subject to provide knowledge for appropriate policy to be implemented.

This study intends to inform the government, entrepreneurs, and managers of business, enterprises and the public of the general level of financial exclusion within the economy of Ghana. The knowledge of this situation will inform the appropriate strategy for firms and business enterprises to run their operations. Further, the knowledge of incidence, depth, and severity of exclusion will inform policymakers on the strategies to adopt to improve inclusive finance or accelerate financial participation especially because financial inclusion to improve the economic wellbeing of household heads. In the area of academia, this study will

provide a major contribution in highlighting the application of the FGT methodology of generating poverty indices in the measurement of incidence, depth, and severity of financial exclusion.

Delimitation of the Study

The study of the effect of financial exclusion on poverty: issues of measurement and relation is limited in the following ways. Foremost, the study is limited to Ghana. Further, the study is limited to the current version of the Ghana Living Standard Survey, the seventh round. The study is further limited to household head analysis where the characteristics of the head represent the entire attribute of the household.

Limitation of the Study

The first issue of concern with this study is the choice of the mean of financial exclusion as a benchmark for the measurement of depth and severity of exclusion. This is because unlike income poverty measurement where Ghana Statistical Service estimates nationally representative benchmark for upper poverty line (GhC 1314) and extreme poverty line (GhC792.05), such measurement does not exist worldwide for the measurement of financial exclusion. Hence, any measurement which might come from using the mean of the financial exclusion will affect our estimation for depth and severity of exclusion and its subsequent analysis.

Further, in finding the causal relationship between poverty and financial

exclusion, specifically, incidence, depth, and severity of financial exclusion, the study adopted a proxy variable used by the welfarist school of thought i.e. household consumption expenditure. However, there are other proxies used by other schools of thought like the basic needs approach and capabilities school of thought led by Amartya Sen. These schools of thought employ a multidimensional approach to measure the economic wellbeing of a household and hence poverty. Thus, employing a multidimensional dependent variable to replace household consumption expenditure, our proxy of economic wellbeing might have a potential effect on the magnitude of financial exclusion estimates of this study.

Further, the study is based on cross-sectional data from Ghana Statistical Service, Ghana Living Standard Survey round six. The cross-sectional nature prevents the phenomenon of financial exclusion to be studied over time. Thus, different rounds of the Ghana Living Standard Survey data can be pooled to access the time-variant nature of the phenomenon of financial exclusion in Ghana.

Organization of the Study

This study is organised into five Chapters. Chapter One introduces the study. It contains the introduction, background to the study, the statement of the problem, objectives of the study, research hypotheses, significance of the study, delimitation of the study, and, finally, the organization of the study. Chapter Two captures the review of the literature relevant to the study. The study reviewed both theoretical and empirical literature. Further, Chapter Three highlights the methods employed for the study. The chapter also gives a detailed description of the scope

of the study, theories, variables used for the study, and the econometric model used for the estimation of the research objectives. The study presents results and discussion in Chapter Four. Finally, Chapter Five captures the summary of findings, conclusions, and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter provides the theoretical underpinning for the concept of financial exclusion. The chapter discusses the evolution of financial exclusion from debates about poverty and social exclusion more generally. The concept of poverty forms the origin of this discussion. The chapter defines the concept of poverty from a narrow perspective as a lack of material resources sufficient for optimum living standards to theories underlying poverty. The literature on financial exclusion defines the concept as the exclusion of certain groups of people from financial services such as ethnic minorities, religion, and even ethnicity. The study began by exploring the philosophical background of the concept of poverty revolving around theories of poverty in economics and its relationship with household consumption poverty. Further, a review of the empirical relationships on financial exclusion and household demographic characteristics follows.

Concepts of Poverty

There have been many debates on the concept of poverty from different angles. Asselin and Dauphin (2001) defined poverty as the production of numbers by which we can assess the overall degree of poverty in a given society and by which we can identify the members of this society who can be considered as poor (Asselin & Dauphin, 2001). The authors classified poverty into three schools of

thought, which are the Welfarist School, the Basic Needs School, and the Capability School.

The Welfarist School

The Welfarist School defined poverty to exist in a given society when individuals do not attain a level of economic well-being deemed to constitute a reasonable minimum by the standards of that society, which is acceptable by all members of this society. The welfarist concept originates mainly from modern microeconomic theory and derives from the hypothesis that individuals maximize their well-being. Embedded in this approach is the concept of preference ordering of goods, generally taken to be representable by a “utility function”, the value of which is deemed to be a sufficient statistic for assessing a person's well-being. Following this approach, utilities are the basis of social preferences, including poverty comparisons (Asselin & Dauphin, 2001). A proponent indicator for the measurement of economic well-being for this school consists of the real income of an individual or a household consumption expenditure. However, researchers have raised concerns about the ability of income or consumption expenditure to serve as a good proxy for the measurement of economic wellbeing as a critic of this school.

Basic Needs School

Conversely, basic needs school are not primarily a welfare concept (Asselin & Dauphin, 2001). Instead of focusing on utility, the attention here is on individual requirements relative to basic commodities. In the traditional basic needs approach,

the goods and services usually considered basic include food, water, sanitation, shelter, clothing, basic education, health services, and public transportation. These needs go beyond the needs necessary for existence, generally known as minimal needs that only include adequate nutrition, shelter, and clothing for one's existence.

This School defines poverty as the sustained inability of a family to meet its basic needs for survival (food and nutrition, water and sanitation, health and clothing), security (income, shelter, peace, and security), empowerment (basic education and functional literacy, psychosocial and family care, and participation in the political process). However, the challenge with this School of Thought has been what constitutes the basic needs of an individual or a household as opinions defer in what is considered as "basic" among researchers.

Capabilities School

In contrast, Capabilities School assumes the thing that is lacking refers neither to utility nor to the satisfaction of basic needs, but human abilities, or capabilities (Asselin & Dauphin, 2001). The capability approach differs from utilitarian and basic needs approach in making room for a variety of doings. Thus, the perspective of capabilities provides a fuller recognition of the variety of ways in which lives can be enriched or impoverished and depends, in fact, on the set of ways of being and of doing termed as functioning's (Asselin & Dauphin, 2001). The researchers explained that living might consist of a set of interrelated functioning, comprising of being and doing. The relevant functioning, therefore, can vary from such elementary things as being adequately nourished, being in good

health, avoiding escapable morbidity and premature mortality, acquiring basic education, to more complex achievements such as being happy or cheerful, having self-respect, taking part in the life of the community (Asselin & Dauphin, 2001).

Closely related to the notion of functioning is that of the capability to function. So then, the capability to function represents the various combinations of functioning (beings and doings) that the person can achieve (Asselin & Dauphin, 2001). Capability is, thus, a set of functioning, reflecting the person's freedom to lead one type of life or another. The Capability School will thus consider a poor person as one that cannot achieve a certain subset of functioning in society. This school of thought led by Sen, advocates multidimensional poverty analysis in the measurement of poverty, as they believe poverty originates from many sources and as such a single variable like income or household consumption expenditure will not serve as a good proxy to measure poverty.

Theoretical Review of Poverty and Financial Exclusion

In the theoretical tradition, individuals or households are understood to be in poverty if their total earnings are insufficient to obtain the minimum necessities for the maintenance of mere physical efficiency (Rowntree, 2000). Poverty is also understood in terms of distributional issues: the lack of resources at the disposal of an individual or household to ensure a suitable standard of living (Barnes, 2002). Blank (2003) also provided six theoretical frameworks by which we can understand poverty dynamics within a social setting and in a country at large.

Beginning with the first theoretical perspective, the researcher argues that Poverty exists, due to economic underdevelopment. That is, households and individuals are poor because their market systems do not function effectively and efficiently. Under this theoretical framework, the principal factors that drive households into poverty are ineffective and inefficient financial market systems. As an exposition to this perspective, the financial market plays an important role in the allocation of goods and services within an economy as they serve an intermediary between buyers and sellers. Thus, household's lack of access to bank accounts, credit, insurance in addition to their inadequate use will thus hamper the benefit financial access and manifest itself in the economic wellbeing of households.

Further, the difficulty with access to a financial institution in rural areas can constitute a problem to farmers as obtaining credit from a fringe institution with their higher interest can make loan repayment difficult in the advent of poor harvest. These challenges put the household in persistent poverty because they lack the benefits provided by the financial institution. Thus, the existence of these barriers in the financial market prevents farmers in such areas from taking long-term investment decisions hence leading them to persist in poverty (Blank, 2003). Taking examples from third world poverty, Blank suggested that in such a phenomenon, poverty can be reduced by expanding markets like the financial market to poor households experiencing economic stagnation in neglected areas of the economy.

In the second theoretical perspective, Blank argues poverty occurs because some individuals within the market economies are either unprepared or unable to

participate in them productively (Blank, 2003). To Blank, proponents of this theoretical perspective believe that households' and for that matter individuals within the household are poor because they either lack the needed skills to prepare them for effective participation in the market or they are simply underage or too old to participate to take the advantage provided by the market (Blank, 2003).

It follows then from this theoretical perspective that; age and educational level of the household head and other demographic characteristics of households determine the poverty level of the household. This perspective in a broader sense captures the number of dependants (under age or too old) in a household as determinants of the household's poverty. Blank suggested that for those who are inactive in the market because they lack the productive skills or need resources, initiating sound training programmes and making resources more accessible to them can easily solve their problems of non-market participation (Blank, 2003).

For the third theoretical perspective, Blank posited that the market is inherently dysfunctional and creates poverty (Blank, 2003). With this third theoretical perspective, she notes that the "market is inherently dysfunctional" and thereby creates poverty. The opponents of international globalization often take this view, arguing that richer countries are "exporting poverty" by placing low wage jobs overseas, thereby assuring themselves of low-cost imports (Blank, 2003). The market development generated by first-world corporations in third-world economies benefits only the companies and their home customers and impoverishes local producers by buying up their land and forcing them into producing cash crops for the company, or displacing them off the land and into sweatshop labour (Blank,

2003). In this Marxist viewpoint, capitalism creates a "reserve army of the unemployed," assuring low-cost labour to the owners of capital (Blank, 2003). Here, the employment level of the head is a key driver of the household's poverty level.

With the fourth theoretical perspective, Blank posits that poverty exists due to social and political processes that occur outside the market (Blank, 2003). In this approach, the economy is simply a vehicle that reflects underlying social processes and biases. The market, per se, is not the culprit but the manifestation of a problem located elsewhere in society that leads to poverty. Social norms may validate behaviours that result in economic exclusion. Political disruption may lead to impoverishment due to population displacement and the literal destruction of economic resources. This approach argues that the market is not causally related to poverty at all but is an exogenous transmission device; it is larger underlying social and political problems that lead to poverty (Blank, 2003).

Alternatively, social norms of racism and prejudice against particular ethnic groups may result in economic discrimination as racist and discriminatory attitudes are reflected through individual behaviour in the market (Blank, 2003). In this case, the primary cause of much higher poverty rates among racial and ethnic minorities is the discriminatory attitudes that reflect themselves in behaviors throughout society, including the market (Blank, 2003). With this perspective, social norms within a particular setting may perpetuate economic exclusion with larger issues being social exclusion which financial exclusion reinforces these processes. Thus, individual behaviours within ethnic and social groups perpetuate poverty.

In the fifth theoretical perspective, poverty is attributed to individual behavioural characteristics and choices, such as marriage, family size, or alcohol and substance abuse (Blank, 2003). In this theoretical perspective, household size and marital status of household head determine the poverty level of the household. The sixth and final perspective suggests that poverty is caused by the very efforts to alleviate poverty, referred to as “welfare dependency or poverty traps (Blank, 2003). Most economists argue that welfare provides a guaranteed cash incentive while taxation creates a disincentive to work. Because short-term cash benefits hamper long-term anti-poverty efforts, time-limited aid is desirable policies. Thus, welfare measures contribute to poverty in society.

Jung and Smith (2007) also placed Blank’s six poverty perspectives to their theoretical antecedents in the field of economics. The authors clustered the six perspectives into three major schools of economic thought. The first two perspectives (economic underdevelopment and lack of human capital) were placed in “liberal economics” who believe that the market can promote economic development. The second two are “Marxian” theories (capitalism causes poverty) or “political-economic” theories (social and economic forces cause poverty). The last cluster of perspectives (individual behaviours and welfare dependency cause poverty) reflects the traditional views of “classical economics” (Jung & Smith, 2007). Thus, market interference leads to distortion, which creates a backdrop in the functioning of the market and eventually leading to poverty in society.

Similarly, a neoclassical explanation of poverty and social exclusion has been extended to the incidence of asset scarcity (Davis, 2014). The general theory

underlying this is that households with an adequate level of assets can withstand fluctuations in their incomes. Hence, the risk of becoming poor when they are hit by a negative income shock is lower than for asset-poor households (Davis, 2014). The poor would also benefit from having access to the range of ancillary services that the availability of banking offers, such as lower energy prices with direct debit “Basic” bank accounts are ways in which these benefits might be achieved (Davis, 2014). Then the poor need facilitation of access to low-cost credit markets, which can protect against income shocks and in the longer term enable them to start a self-reinforcing asset accumulation process that can eventually lead to a sufficient level of wealth to counteract the effects of income fluctuations.

In summary, the theoretical review of poverty discussed stresses the relevance of financial institution and for that matter access and use of the financial product as a means through which poor households can absorb income shocks, acquire capital for investment, and as well take the opportunity the financial market offers for personal growth and development. Thus, account ownership, credit access, insurance ownership, use of the financial product, ethnicity, household size, age, educational level of household head determine the poverty status of households and our model will, therefore, employ these variables in its estimation of our objectives.

Measurement of Financial Exclusion

Financial exclusion measurement has focused on household and individuals' demand for financial products. Generally, financial products that have

been considered in the literature relative to financial exclusion are banking exclusion, credit exclusion, savings exclusion, and insurance exclusion.

The Concept of Financial Exclusion

Financial exclusion dominated in the early discussion by geographers who were concerned about limited physical access to banking services as a result of bank branch closures (Leyshon & Thrift, 1995). Later in 1999, the term financial exclusion seems first to have been used in a broader sense to refer to people who have constrained access to mainstream financial services (Kempson & Whyley, 1999). According to Leyshon and Thrift (1995), financial exclusion may refer to those processes that serve to prevent certain social groups and individuals from gaining access to the financial system. To them, exclusion may vary over time but, they believe that the financial system has an inherent tendency to discriminate against the poor and disadvantaged groups in the society (Leyshon & Thrift, 1995).

According to Sinclair (2001), financial exclusion can be defined either from a narrow or broader view. From a narrow perspective according to them, financial exclusion can be defined as such exclusion from particular sources of credit, and other financial services including insurance, bill-payment services, and accessible and appropriate deposit accounts. In the wider sense, the term was used to denote factors which have the effect of shutting out of the less well off from mainstream money services (Sinclair, 2001). European Commission (2008) also defined financial exclusion as a process whereby people encounter difficulties accessing and or using financial products appropriate to their needs and prevent them to lead

a normal social life in the society or country in which they live or belong (EC, 2008).

This definition brings to bare some important elements in the concept of financial exclusion. The first element relates to challenges in accessing financial services in some remote areas. The second element of the concept covers difficulty in the use of available services. People might have access to the service but have difficulties in using it. Therefore, they end up not using it. A third element is that the service is appropriate. This implies that the products offered by these financial institutions provide the service that the customer requires and is suitable for the customer's needs. The final element of the definition is that financial exclusion contributes to the process of overall social exclusion as studied. This concept presents challenges in terms of measurement, as more often than not research focus measurement on access but not use which is one of the gaps in this current study.

Banking exclusion

The term banking exclusion refers to a lack of access to or use of a bank account and the associated financial transactions (Demirguc-Kunt et al., 2018; Russell et al., 2011). Currently, many financial transactions between different economic actors (being personal, corporate, or state) are carried out between bank account via electronic transfers, either with or without paper support. In both developed and developing nations alike, access to a bank account is seen as a universal need to propagate some economic development (Demirguc-Kunt et al., 2017). Access to a bank account facilitates an individual to store money safely until

it needs to be withdrawn; availing of credit; converting cheques into cash; receiving payments of funds such as salaries, pensions or social assistance (electronically); paying for goods and services other than in cash; paying bills electronically; making remittances (Al-Hussainy et al., 2008). However, it is not enough to have access to an account to be qualified as financially included. Ineffective use of checkbooks, ATM cards, electronic banking, E-zwich all contribute to exclusion from the financial services and have such bad effects on social inclusion.

Credit exclusion

Credit exclusion has been defined to refer to exclusion from affordable and appropriate credit facilities, mostly loans in our part of the world (Demirguc-Kunt et al., 2017, 2018; Demirgüç-Kunt & Klapper, 2012). Exclusion from credit facilities can arise from different, and sometimes overlapping, barriers. An example is that an individual may not be able to access credit, following the risk assessment process (Russell et al., 2011). In another jurisdiction, the conditions attached to financial products, such as the rate of interest or terms of the loan, make financial product inappropriate to use by some groups (Kempson & Whyley, 1999; Collard, Kempson, & Whyley, 2001; Atkinson, McKay, Collard, & Kempson, 2007).

Further, credit exclusion can leave individuals with no option but to source funds outside the formal financial system to satisfy their financial service needs. Many a time, this can mean high-interest credit from moneylenders or some microfinance institutions and, thus, can result in individuals experiencing heavy burdens of debt. This also has a knock-on effect on a person's mental well-being,

as the consequences of over-indebtedness can include stress, and a sense of insecurity (Balmer et al., 2006; Pleasence & Balmer, 2007).

Savings exclusion

There are several issues identified in the literature concerning savings exclusion. According to the European Commission (EC, 2008), the nature of credit and bank exclusion are of different dimensions as compared to savings exclusion (EC 2008 cited in Russell et al., 2011). The report highlighted that the problem with savings exclusion is not with access but rather the condition attached to the product, the difficulty in using the product and the lack of knowledge about its use. Further, people that are associated with saving exclusion are usually confronted with the problem of document identification; the complexity of procedures in account opening; the cost associated with account usage and as a consequence sacrifice the benefit brought forth by a deposit account (Russell et al., 2011).

Some other reasons include (i) lack of money to save (ii) lack of habit to save money in a bank (iii) unwilling to deal with the banks due to negative experience or prejudice. Thus, households' inability to save comes with the very problems which confront them, mostly the lack of employment or business earning entity to generate income (Russell et al., 2011). This stresses the relevance of providing microcredit for poor households to enable them to invest in income-generating activities from which they can then save the returns for further investment opportunities.

Insurance exclusion

Access to insurance has received a great deal of attention in financial exclusion debates. In literature, access to insurance facilities is less central to measures of financial exclusion than banking exclusion. However, the consequences of not having this service are nonetheless severe. This leaves households with no security or flexibility for unexpected events and no assets for the future, which can also lead to poverty in the old age (Kempson & Whyley, 1999; Collard & Kempson, 2006; Kumar, 2013). Again, insurance is essential in the organisation of modern societies and has become mandatory for some entities, for example, individuals and companies in motor vehicle operations. However, there is no clear definition of what types of insurance are essential for the market so that individuals without these products will automatically fall into the financial exclusion classification or pool.

Financial service exclusion

The need for financial services and the difficulty with accessing financial products have been increasingly recognised in the literature (Kumar, 2013). Alongside banking exclusion, credit exclusion, savings exclusion, and insurance exclusion, it has been widely acknowledged in the financial exclusion literature, non-use of financial service constitutes some level of financial exclusion (Gloukoviezoff, 2007). This refers to the non-use of financial services like ATM, checkbook, electronic banking, E-zwich, etc., resulting from either their unavailability or costs associated with usage. Literature has it that lack of

availability rather than lack of affordability could be the barrier to using financial services (Kumar, 2013). This indicates that service exclusion is a phenomenon that affects the collective rather than the individual level with services being unavailable to some sections of society or in some areas. Service exclusion in this respect plays a role in the processes of financial and social exclusion occurrences in society.

Within the financial exclusion literature, the supply of financial services does not imply access, neither does access entails the use of a service (Gloukoviezoff, 2007). Hence, service exclusion needs to be understood from the perspective with unrestricted use of services at one end and non-use at the other. Thus, service exclusion has consequences for individual social and economic life. In the Ghanaian context, both supply-side and demand-side barriers have both been recognised as responsible for the low level of access to financial services (Osei-Assibey, 2009). Supply-side constraints like poor banking infrastructure, the low resource base of credit purveying institutions, security-based lending procedures, lengthy and cumbersome formalities, low level of financial literacy amongst others are still dominant in the sector.

Dimensions of Financial Exclusion

Information exclusion

The process of spatial withdrawal of mainstream financial institutions is reflected by a process of information exclusion and isolation of areas where less affluent customers are concentrated (Kumar, 2013). Those included in the financial system become more informed in financial terms and well-educated, which enables

them to make informed financial decisions, while those left outside become more distanced from the financial sphere (Kempson & Jones, 2000). Consequently, financially excluded households find it even more difficult to become included in the financial system since they do not know what services are available or how to access them. Such household heads are fatally handicapped as they live in both financial and information exclusions and worsens their economic wellbeing.

Similar to geographic exclusion and social distancing, lack of information about financial products is likely to further increase psychological barriers and encourage the view of disadvantaged that certain financial services are not available to them (Kempson & Whyley, 1999). In this context, those on low incomes (credit poor) not in employment, in low-paid work or retired (work poor) and those who lack understanding of the new financial system (information poor) are least likely to participate in the cashless society (e.g. credit cards, internet, and electronic-banking). This is fueled by lower levels of access to the internet among this group (Kumar, 2013). While these new developments like mobile banking mean that money can be accessed without physical contact with the banking branch network, people living in areas most likely to be affected by geographic exclusion are least likely to take advantage of these changes in the financial system (Kumar, 2013).

Further, new entrants such as mobile phone banking may offer alternative means of becoming engaged in the financial system. Although the role of financial institutions in distributing information is crucial in explaining information exclusion amongst some consumers, customers also play an active role in this process (Kumar, 2013). Researchers show that people need to be able to make

effective use of financial products in terms of financial literacy and capability (Karlan & Morduch, 2010; Demirguc-Kunt & Klapper, 2012; Demirgüç-Kunt & Klapper, 2013). Financial inclusion and financial literacy are two pillars.

Financial literacy stimulates the demand side - making people aware of what they can and should demand. Financial inclusion acts from the supply side by providing the financial market of what people should demand. Without being financially literate and capable, households can be locked in a cycle of poverty and exclusion or suffer as a result of inappropriate product choice, high cost of credit or for some illegal money lending (Hayton et al., 2007). In terms of financial literacy, this means that individuals and households need to have knowledge of sources of credit and an understanding of basic financial terminology.

Self-exclusion and mistrust of banks

People with basic bank account may be reluctant to use their account because of the imposition of charges, which can contribute to financial difficulties in the usage of the financial product. Alongside the issues of access, other forms of exclusion can influence people's perceptions about mainstream financial service providers. Living at a distance from branches may not directly prevent people from opening an account but the geographic distance of financial service providers can create a psychological barrier since people feel that financial services are not for them and that banks are reluctant to do business with them (Kempson & Whyley, 1999). These feelings of mistrust of mainstream financial institutions are widespread among people who are largely excluded from the financial system.

Again, the mistrust of banks is one of the factors that explain why individuals might not want to access or use mainstream financial products. This puts exclusion from the financial system into a different light since it suggests that some consumers prefer not to be included for one reason or another (Kumar, 2013). Feeling of mistrust may be based on actual individual experience or by the experience of friends, family or neighbours or negative media coverage of mainstream financial service providers. Financial inclusion can be seen as a basic human right, for example: in France, it gives citizens the right to have a bank account (Gloukoviezoff, 2007b). This may be the indicator of the degree of financialisation of social relations. However, a degree of choice exists in deciding what type of transaction product people want to use and how they want to use available products. This diversity concerning accessing and using banking products is also widely acknowledged in the literature (Speak & Graham, 2000).

Further, choice or personal preferences also play a role in explaining access to other types of financial services. Research shows that some people choose to remain without these services like insurance because they feel they do not need them or they have a greater readiness to assume risk (Kempson & Whyley, 1999; Kumar, 2013; Russell et al., 2011). Research notes that some people are averse to borrowing and make a free and unconstrained choice not to use credit or they prefer to use a particular source of credit while other sources may be available without their full utilization (Kumar, 2013).

Furthermore, research offers ample evidence on the barriers that financially excluded individuals experience and which prevent financial inclusion (Kempson,

Atkinson, & Pilley, 2004; Kempson & Whyley, 1999). The question remains, whether, those who freely decide not to engage in the financial system in some way or another, should be included in the definition of financial exclusion. In this case, people's choice needs to be accepted as genuine and hence, not as an act of financial exclusion (Devlin, 2005). People may simply not need, say, a personal loan and cannot be considered as excluded from such a market if they are not using that product. However, it is not known, if people would be denied access should they approach a bank for credit or other financial services. In practical terms, however, financial exclusion is generally discussed in the context of imposed exclusion rather than 'self-exclusion' by choice. Although there is the possibility of voluntary financial exclusion, most people will experience barriers to inclusion rather than making an unconstrained choice of self – exclusion from the financial services.

Causes of Financial Exclusion

Demand and the supply-side barrier to financial exclusion have gained roots in discussion in recent times. Researchers have discussed some of these causes leveled in the literature under each sub-topic as presented in the following paragraphs.

Supply Side Barriers

Some of the important causes of supply-side barriers are a relatively low extension of institutional credit in the rural areas, risk perception, cost of its

assessment and management, lack of rural infrastructure and vast geographical spread of the rural areas with more than half a million villages sparsely populated.

The perception among banks about rural population: Generally, there exists a perception among banks that a large number of the rural population are not bankable, as their capacity to save or borrow credit is limited. Banks often look at small loans required by the marginalized section of the population as not productive.

Minuscule margin in handling small transactions: The majority of the rural population resides in small villages that are too far and often found in areas in which banks find their transactional cost-ineffective for branch outreach.

Know Your Customer (KYC) Requirements: The KYC requirements of independent documentary proof of identity and address can be an important barrier to the owing bank account, especially for migrants and slum dwellers.

Unsuitable products: One of the most important reasons for the majority of the rural population not approaching the formal sector for financial services is the unsuitability of the products and services being offered to them. For example, most of their credit needs are in the form of small lump sums and banks are reluctant to give small amounts of the loan at frequent intervals. Consequently, rural folks have to resort to borrowing money from moneylenders at exorbitant rates of interest.

Staff attitude: Workers' attitude toward rural folks often discourage such individuals to utilize banking services. The situation is even worse in rural branches where financial institutions behave with the rural poor in a lofty manner (Kumar, 2013).

Poor market linkage: The structure of the Ghanaian economy where every infrastructure is located in major cities and district capital contribute to exclusion. There are many areas where electricity access is still a challenge and thus banks and other microfinance institutions cannot operate in these rural areas.

Lack of interest from commercial banks: There is a lot of criticism on the commercial banks because of their inherent tendency to conclude that poor people are not worthy of extending the financial product to their reach. Financial institutions operate to make a profit. As a consequence, financial institutions would like to engage in transactions that offer them maximum returns. However, due to the high transaction costs associated with smaller transactions in addition to the speculation of high-risk nature in lending credibility to the lower strata of the society, financial institutions deem banking with poor as unviable.

Demand-side barriers

This refers to a situation where people have the demand for the product yet they chose not to consume the financial product due to the following challenges.

Low income: Poor individuals have lower demand for financial services as the poor may not have savings to place a deposit in savings banks. Hence, the market lacks incentives in providing financial service. Most of the people belonging to financially excluded groups are having an irregular income. Hence, opening a bank account and making use of the deposit and withdrawal in very small denominations with high frequency will increase the cost of the transaction. Poor households further anticipate that the bank will decline their access if they transact

with a small amount of capital. Again, with their low earning, such individuals or households cannot maintain minimum balance requirements of a normal saving account and various annual maintenance charges levied by banks.

Transaction cost: A vast number of the rural population resides in villages that are often located in secluded areas devoid of financial services. Consequently, the transaction cost to the customer in terms of both time and money proves to be a major restraint for visiting financial institutions. Banks find the excluded section of the society more reachable due to the difficulty of transacting with banks. Similarly, the excluded sections of the society find dealing with organised financial sector burdensome. This difficulty comes with their first contact with the banks; identification of documents in account opening, the cost of keeping savings account, coupled with the queuing processes at the banks compared to ease of keeping their money at the residences.

Easy access to alternative credit: For a good amount of low-income people, the alternative credit provided by the moneylenders and private banks is far more attractive and hassle-free compared to getting a loan from a commercial bank. Some of the poor that do not have property find it impossible to get credit without the collateral. The uneducated poor would rather put their trust in moneylenders who provide easy - collateral credit than in the well-established commercial banks. Again, the lack of financial awareness about the benefits of banking and illiteracy acts as an obstacle to financial inclusion. Lack of financial awareness may be the single most risky aspect of financial inclusion, as those who are newly included in the sector may not be able to take advantage of the market.

Legal identity: Lack of legal identities like identity cards, birth certificates or written records often exclude women, ethnic minorities, economic and political refugees and migrant workers from accessing financial services. This is because the account creating process requires some of these documents. Their failure to produce these documents thus prevents them from using a deposit account to their benefits. Also, bankers often use complex financial terminologies that the masses are unable to comprehend. This often shies some individuals from approaching the financial institutions as they feel their failure to understand these terms is due to their illiteracy and hence do not approach for financial services voluntarily.

Terms and conditions: Terms and conditions attached to products such as minimum balance requirements and conditions relating to the use of accounts, in the case of saving accounts often dissuade people from using such products. The terms and conditions and its framework are generally so tedious and detailed that understanding it is not possible for those who cannot write their name or are less literate and do not understand the English language to fully comprehend the process leading to their exclusion from the financial services with all the benefits.

Empirical literature review

This section considered empirical studies undertaken by researchers in the area of the research problem. The relevance of this is to gather a pool of knowledge on the topic under study to create a gap for this current study.

Financial exclusion and household demographic characteristics

Koomson and Ibrahim (2018) studied the financial inclusion and growth of non-farm enterprises in Ghana. Using the sixth round of Ghana Living Standard Survey datasets, the study constructed a multidimensional index from 14 indicators of financial inclusion and used an instrumental variable approach to study the effect of financial inclusion on the growth of non-farm enterprises. The finding suggests that financial inclusion has a growth-enhancing effect, especially at the urban level. However, to effectively advocate policies for financial inclusion there is the need to assess the level of financial exclusion in Ghana

Again, Koomson and Ibrahim failed to determine the percentage of households who suffer from financial exclusion and thus make policy recommendations from inclusion to miss its target population. Further, the study failed to assess whether financial exclusion reduces household poverty so that the effort to promote inclusion can target specific households facing financial exclusion. Thus, this thesis adds to the literature by considering the measurement of financial exclusion. Specifically, incidence, depth, and severity of financial exclusion.

Furthermore, Agyekum (2017) also revealed that institutional factors and technology play a key role in financial inclusion. Further, the findings suggest that nonbank-based digitalised-financial services provision appears non-discriminatory, compared with bank-based digitalised-financial services. However, there are measurement issues as households with account ownership formed the basis of analysis. Studies have shown the importance of using multiple financial products

i.e. account, credit, insurance, remittance. Thus, using account ownership as the sole measure of financial inclusion or exclusion will lead to underestimation of the true effect of financial inclusion in the economy. Dwelling on this gap of unidimensional analysis, this thesis will employ a multidimensional approach in the measurement of financial exclusion to make a case for multiple uses of financial products.

Similarly, Osei-Assibey, (2009) posited that the presence of a bank branch or proximity of a bank branch determined the possibility of inclusion. Using ordinary least square and profit regression, the findings reveal that market size influences the decision to place a bank branch in a community. Further, the level of infrastructure such as energy and communication facilities in the area, market activeness is crucial in influencing the decision to place a bank branch. Conversely, market and non-market factors such as price, illiteracy, ethnic-religion, dependency ratio, employment and wealth status as well as proximity to a bank influenced households' demand for a bank account. However, financial exclusion is not only about the lack of a bank account. Such a unidimensional analysis narrows the scope of assessing the problem of financial exclusion.

In a study done to investigate the usefulness of microfinance, particularly receiving the credit from microfinance institutions on household consumption poverty, findings revealed that microfinance has a poverty-reducing effect. That is women in the Upper East region of Ghana had improvement in the basket of food consumed because of the availability of credit facility and its multiplier effect with the economy (Annim & Alnaa, 2013). The study thus concludes that the use of

credit is crucial in alleviating poverty among women in the Upper East of Ghana and stresses the importance of credit as a financial tool to resolve acute household financial shocks.

Also, studies establish that access to credit contributes averagely to high productivity and positively influence total factor productivity (Khalily & Khaleque, 2013; Koomson & Ibrahim, 2014). Koomson et al. (2014), postulates that households' income and savings significantly affect loan refusal or credit access and thus households in rural areas can better be motivated by expanding bank branch penetration in these secluded areas (Koomson et al., 2014). Thus, an effort to expand credit access to the poor might as well consider how poor households can be encouraged to cultivate the attitude to savings for investments.

Al-Hussainy et al., (2008) also noted that ownership of bank account and access to credit have a significant relationship with household characteristics. The researchers revealed that account ownership positively correlates with education, married household head, urban dwellers, age of household and the income of household head. Similarly, the possibility of the household head to take loan positively correlates with large family size, married household heads while it correlates negatively with the unemployed household head (Al-Hussainy et al., 2008). Thus, although account and credit access are important, household characteristics also play an important role in enabling the consumption of these financial products for optimum living standards of households.

Financial exclusion and over-indebtedness

Quite a several pieces of research have been done on the relationship between financial exclusion and over-indebtedness. Gloukoviezoff (2006) concluded that the problems of access to an account or credit and over-indebtedness are the consequences that feed into the process of social exclusion. Financial exclusion thus cannot be defined about the responsibilities of the banks or customers, but with the social consequences of access and use difficulties that confront certain groups of people in society (Gloukoviezoff, 2007).

Similarly, Russell et al. (2011) asserted that financial exclusion and over-indebtedness are two distinct concepts although the two are related in many ways. However, their findings reveal important exceptions to this convergence. The authors realized that both financial exclusion and over-indebtedness are common among lower-income households, lone-parent households, households headed by someone unemployed or unable to work due to illness (Russell et al., 2011). Also, households that are financially excluded are much more likely to be located in local authority housing, and this group is also significantly more likely to be over-indebted (Russell et al., 2011). More importantly, both financial exclusion and over-indebtedness are linked to poverty although, because of the cross-sectional nature of the data, it is not possible to unpack the directions of these links as explained by the authors (Russell et al., 2011).

However, these researches provide another dimension of viewing the problem of financial exclusion, over-indebtedness, and poverty. Certainly, it is clear that there is an association among the concepts of financial exclusion, over-

indebtedness, and poverty, but nature and form are what literature has done little to unravel and the focus of this current study is to address the effect of financial exclusion on poverty and the association between financial exclusion and poverty.

Incidence of financial exclusion and poverty

Buckland and Simpson (2008) studied on Analysis of Credit Constraint and Financial Exclusion using Canadian Microdata. They use the term “incidence of financial exclusion” to refer to a household with zero bank balance, credit card refusal, and using a pawn shop. Using the probit estimation technique, the findings indicate a rising incidence of financial exclusion as income and wealth falls, although the relationship is nonlinear such that incidence rises much faster at very low levels of income and wealth (Buckland & Simpson, 2008). The results further indicated statistically significant evidence of growth in the incidence of each indicator of financial exclusion when other factors remain constant. They concluded that financial exclusion is seen to be detrimental to poorer groups in society, then this may cause some concern in policy circles related to these groups (Buckland & Simpson, 2008).

Research gaps

From the empirical discussions, studies have considered a unidimensional approach to the problem of financial exclusion (Annim & Alnaa, 2013; Khalily & Khaleque, 2013; Al-Hussainy et al., 2008). This thesis fills the gap by considering a multidimensional measure of financial exclusion; generate. Further, researches

have provided a literature review on the possible association financial exclusion, over-indebtedness and poverty but failed to test empirically the relationship among these phenomena. This thesis addresses the issue of the association between financial exclusion and poverty.

Further, this thesis contributes empirical literature by employing the FGT methods to generate the incidence of financial exclusion, depth of financial exclusion, and severity of financial exclusion. From the empirical literature reviewed, no studies have applied FGT methods to the measurement of financial exclusion and this is the major gap that this thesis seeks to fill.

Chapter Summary

In conclusion, the theoretical literature reviewed shows how poverty and financial exclusion are measured. Particularly, from an economic to Blank theoretical perspective of poverty up to neoclassical causes to poverty. Further, from the empirical papers discussed, it is clear that financial exclusion needs greater attention in terms of conceptualization and measurement. Also, financial exclusion has a role to play in explaining household poverty. Researchers have studied the individual effects of these account exclusion, credit exclusion, insurance exclusion on household demographic characteristics but largely ignored the collective impact on poverty. To fill these gaps, the current study distinct itself by examining the effect of financial exclusion on poverty: issues of measurement and relationships in Ghana.

CHAPTER THREE

RESEARCH METHODS

Introduction

The study examines the effect of financial exclusion on household consumption poverty. This chapter presents the methods used to test the hypotheses of the study. The chapter presents the research design, theoretical model Specification, the empirical model for testing the hypotheses, data source, description of the variables and finally how the post estimation techniques were conducted.

Research Design

Creswell and Creswell (2017) defined research design as the types of inquiry within qualitative, quantitative, and mixed methods approach that provide specific direction for procedures in a research study. Harwell (2011) also posited that research design shows the entire research process; from conceptualizing a problem to the literature review, research questions, methods, and conclusion. This thesis follows the positivist philosophy. Positivists hold a deterministic philosophy in which causes determine effects or outcomes (Creswell & Creswell, 2017).

Theoretical Model Specification of Poverty and financial Exclusion

Blank (2003) postulated a theoretical perspective from which poverty may come about. The first theoretical perspective postulates that economic under-development results in poverty. The explanation given is that the failure of the

market system to fully allocate goods and services within the economy is the cause of poverty (Blank, 2003). However, financial institution plays an important role in the allocation of these goods and services in the market system. Thus, household heads lack of account, credit, and insurance in addition to being under-banked significantly contribute to poverty. Besides, Blank argues that poverty also exists due to social and political processes that occur outside the market (Blank, 2003). In this perspective, the economy is simply a vehicle that reflects underlying social processes and biases. Blank argued that the market, per se, is not the culprit but the manifestation of a problem located elsewhere in society that leads to poverty.

Econometric Specification and Estimation Techniques

The estimation techniques that are used in this study are the FGT methods, Chi-square analysis, Ordinary Least Square (OLS), Instrumental Variable (IV) estimation, and Conditional Mixed Process. The choice of Foster, Thorbecke, and Greer (FGT) methods is due to its appropriateness to measure the incidence, depth, and severity of the financial exclusion concept. The study employed a Chi-square analysis to find the association between the classes of financial exclusion measures and household head poverty status. Finally, the estimation techniques OLS, IV, and CMP are informed by the measurement of the dependent variable (household consumption expenditure), which is continuous, and the endogeneity nature of financial exclusion variable. The study employed these three-estimation techniques to observe the change of events for the dependent variable (household consumption

expenditure) and the classes of financial exclusion measure (incidence, depth, severity).

Ordinary Least Square

The study used the Ordinary Least Square (OLS) estimation method for testing the third hypothesis (effect of incidence, depth, and severity of financial exclusion on household consumption poverty) of the study. The application of OLS is subject to the assumptions underlying the Classical Linear Regression Models (CLRM). OLS deals with the relationship between the dependent variable Y_i (household consumption poverty) and the independent variables F_i (incidence, depth, and severity of financial exclusion in addition to all control variables) such that the conditional mean function is specified as:

$$E(y^l / F_{al}) = F\beta \quad (1)$$

and the resultant estimator ($\hat{\beta}$), which must satisfy the basic assumption underlying the classical regression model is given below:

$$\hat{\beta} = \min \sum_{i=1}^n \left((E(y^l / F_l) - F\beta)^2 \right) \quad (2)$$

Where, $\hat{\beta}$ is the estimator under OLS that minimises the conditional mean function. The estimator, which is the sum of the error squared is assumed Best Linear Unbiased Estimator (BLUE) under the Classical Linear Regression Model (CLRM) (Cameron & Trivedi, 2005). Under such an assumption it is important to ensure that the model is not only linear in parameters but also with an error term that is both serially uncorrelated and homoscedastic.

Instrumental variable and conditional mixed process

The study employed an instrumental variable (IV) estimation technique in its household-level analysis where the threat posed by the presence of an endogeneity problem cannot be ignored (Khandker, 2005; Pitt et al., 2003). Further, the study measured incidence, depth, and severity of financial exclusion from demand-side variables and thus the study expects financial exclusion to be endogenous. Endogeneity occurs when a given explanatory variable has a dual association with the outcome variable and the error term. This is often as a result of omitted variables, measurement error, or simultaneity (Cameron & Trivedi, 2005; Wooldridge, 2015). In the face of an endogeneity problem, an IV estimation allows for dealing with the indirect unobservable effect of a given regressor variable. Thus, from the OLS, the instrumental variable estimator (IV) is then specified as:

$$Y_i = \beta_0 + \beta_1 F_i + u_i \quad (\text{Structural equation}) \quad (3)$$

$$F_i = \pi_0 + \pi_1 z + v_i \quad (\text{Reduced education}) \quad (4)$$

Where $cov(z, u) = 0$ and $cov(z, F) \neq 0$ if (IV) is expected to provide a consistent estimator (Wooldridge, 2015). Z stands for exclusion restrictions variable in the reduced form equation, v equals the error term in the reduced equation, $\beta_0, \beta_1, \pi_0, \pi_1$ are the parameters in the model. Now, for the possibility of the instrument (z) to be correlated with the error term (u), the study specifies Conditional Mixed Process

estimator which treat Y_i and F_i as systems of equations and as such Y_i and F_i are endogenous (D. Roodman, 2007). The resultant equation is specified as:

$$Y_i = \beta_0 + \beta_1 F_i + u_i \quad (5)$$

$$F_i = \pi_0 + \pi_1 z + v_i \quad (6)$$

Where $cov(z, u) \neq 0$ and $cov(z, F) = 0$ or may not $\neq 0$. This means the ρ that represents the correlation between z and u should be significant in the full model.

Empirical Model Specification

Now, employing neoclassical theoretical linkage of poverty (Davis, 2014), the study begins the empirical model specification as:

$$Y_i = \beta_0 + \beta_1 F_i + u_i \quad (7)$$

Where for a household i , Y_i is the household consumption expenditure, measured as the log of real total household consumption expenditure adjusted for inflation, F_i are the determinants of household poverty level measured as their household classes of financial exclusion and all other household characteristics, u_i is the disturbance term, β_0 and β_1 are the intercept and slope parameter respectively.

Now, because of the limitation which comes with using simple linear regression for studying a phenomenon (Wooldridge, 2015), the multiple linear regression is specified as:

$$Y_i = \beta_0 + \beta_1 incidence_i + \beta_2 employment_i + \beta_3 education_i + \beta_4 male_i + \beta_5 Age_i + \beta_6 mstatus_i + \beta_7 size_i + \beta_8 urban_i + \epsilon_i \quad (8)$$

$$Y_i = \alpha_0 + \alpha_1 \text{depth}_i + \alpha_2 \text{employment}_i + \alpha_3 \text{education}_i + \alpha_4 \text{male}_i + \alpha_5 \text{Age}_i + \alpha_6 \text{mstatus}_i + \alpha_7 \text{size}_i + \alpha_8 \text{urban}_i + \varepsilon_i \quad (9)$$

$$\text{Expend} = \theta_0 + \theta_1 \text{severity}_i + \theta_2 \text{employment}_i + \theta_3 \text{education}_i + \theta_4 \text{male}_i + \theta_5 \text{Age}_i + \theta_6 \text{mstatus}_i + \theta_7 \text{size}_i + \theta_8 \text{urban}_i + \varepsilon_i \quad (10)$$

Where β_0 , α_0 , θ_0 are the intercepts and β_1 measures the change in poverty for the unit change incidence of financial exclusion holding other factors fixed. Similarly, β_2 - β_8 measures the change in poverty for the unit change employment status of household head, education, male, age, age, marital status, size, urban respectively in equation (8). Further, α_1 measures the change in poverty for the unit change in the depth of financial exclusion holding other factors fixed while α_2 - α_8 measures the change in poverty for the unit change in employment status of household head, education, male, age, marital status, size, urban respectively in equation (9). Also, θ_1 measures the change in poverty with to severity of financial exclusion, holding other factors fixed while θ_2 - θ_8 measures the change in poverty for a unit change in employment status of household head, education, male, age, marital status, size, urban in equation (10) and ε_i measures the error term.

Conversely, literature measures financial exclusion from the demand and supply side (Buckland & Simpson, 2008; Osei-Assibey, 2009; Russell et al., 2011). The omission of supply-side variables from the earlier estimation render incidence, depth, and severity of financial exclusion endogenous and this will cause the estimate from the multiple linear regression to be biased and inefficient. To solve this problem, the study looked for instruments z that is the correlated incidence, depth, and severity of financial exclusion but is uncorrelated with the error term

(ε_i). However, the study needs to fulfill two requirements; (i) the instruments must be correlated with the instrumented, (ii) the instruments must not be correlated with the error term (ε_i).

Notwithstanding, the only way to prove the first condition is to ensure that there is no direct partial effect of the instruments on the dependent variable- household head consumption poverty (Cameron & Trivedi, 2005). This is because if the instruments have a direct partial effect on household consumption poverty, it means when omitted from the equation, the instruments will go into the error term and will thus cause the error term (ε_i) to be correlated with the explanatory variables since both the instruments and the explanatory variables will be explaining household consumption poverty (Cameron & Trivedi, 2005; Wooldridge, 2015). Within the scope of this challenge, the study considered some characteristics of the supply side variables of the financial services, which is, type of financial institution (type1) and type of insurance (type2). The argument here is that the type of financial institution (type1) and type of insurance (type2) signify the presence of the financial institution in that particular geographic area, region, districts or locality. The study specified the regression equation as:

Structural equation (a1)

$$Y_i = \beta_0 + \beta_1 \text{incidence}_i + \beta_2 \text{employment}_i + \beta_3 \text{education}_i + \beta_4 \text{male}_i + \beta_5 \text{Age}_i + \beta_6 \text{mstatus}_i + \beta_7 \text{size}_i + \beta_8 \text{urban}_i + e_i \quad (11)$$

Reduced equation (b1)

$$\text{Incidence} = \beta_0 + \beta_1 \text{type1}_i + \beta_2 \text{type2}_i + \beta_3 \text{employment}_i + \beta_4 \text{education}_i + \beta_5 \text{male}_i + \beta_6 \text{Age}_i + \beta_7 \text{mstatus}_i + \beta_8 \text{size}_i + \beta_9 \text{urban}_i + \varepsilon_i \quad (12)$$

Structural equation (a2)

$$Y_i = \alpha_0 + \alpha_1 \text{depth}_i + \alpha_2 \text{employment}_i + \alpha_3 \text{education}_i + \alpha_4 \text{male}_i + \alpha_5 \text{Age}_i + \alpha_6 \text{mstatus}_i + \alpha_7 \text{size}_i + \alpha_8 \text{urban}_i + e_i \quad (13)$$

Reduced equation (b2)

$$\text{Depth} = \alpha_0 + \alpha_1 \text{type1}_i + \alpha_2 \text{type2}_i + \alpha_3 \text{employment}_i + \alpha_4 \text{education}_i + \alpha_5 \text{male}_i + \alpha_6 \text{Age}_i + \alpha_7 \text{mstatus}_i + \alpha_8 \text{size}_i + \alpha_9 \text{urban}_i + \varepsilon_i \quad (14)$$

Structural equation (a3)

$$Y_i = \theta_0 + \theta_1 \text{severity}_i + \theta_2 \text{employment}_i + \theta_3 \text{education}_i + \theta_4 \text{male}_i + \theta_5 \text{age}_i + \theta_6 \text{mstatus}_i + \theta_7 \text{size}_i + \theta_8 \text{urban}_i + e_i \quad (15)$$

Reduced equation (b3)

$$\text{Severity} = \theta_0 + \theta_1 \text{type1}_i + \theta_2 \text{type2}_i + \theta_3 \text{employment}_i + \theta_4 \text{education}_i + \theta_5 \text{male}_i + \theta_6 \text{age}_i + \theta_7 \text{mstatus}_i + \theta_8 \text{size}_i + \theta_9 \text{urban}_i + \varepsilon_i \quad (16)$$

Interestingly, the instruments chosen correlate with the dependent variable. Although, intuitively, the study does not expect the presence of a financial institution or insurance company to have a direct benefit to household heads unless through one's participation in the financial institution. To address this situation, the study uses another estimator that recognise the possibility of the errors to be correlated known as the Conditional Mixed Process (CMP). The underlying concept of modeling in the CMP framework is that we may often want to jointly estimate two or more equations with linkages among their error processes (D. Roodman, 2007; David Roodman, 2011). There may or may not be relationships among their dependent variables. In the simplest case, these are independent equations with correlated errors. Given this mathematical scope, CMP is

appropriate for two broad types of situations; (i) those in which a truly recursive data-generating process is posited and fully modeled; and (ii) those in which there is simultaneity but instruments allow the construction of a recursive set of equations, as in two-stage least squares (D. Roodman, 2007). The study thus specifies the empirical model as:

Structural equation (a1)

$$Y_i = \beta_0 + \beta_1 \text{incidence}_i + \beta_2 \text{employment}_i + \beta_3 \text{education}_i + \beta_4 \text{male}_i + \beta_5 \text{Age}_i + \beta_6 \text{mstatus}_i + \beta_7 \text{size}_i + \beta_8 \text{urban}_i + e_i \quad (17)$$

Reduced equation (b1)

$$\text{Incidence} = \beta_0 + \beta_1 \text{type1}_i + \beta_2 \text{type2}_i + \beta_3 \text{employment}_i + \beta_4 \text{education}_i + \beta_5 \text{male}_i + \beta_6 \text{Age}_i + \beta_7 \text{mstatus}_i + \beta_8 \text{size}_i + \beta_9 \text{urban}_i + \varepsilon_i \quad (18)$$

Structural equation (a2)

$$Y_i = \alpha_0 + \alpha_1 \text{depth}_i + \alpha_2 \text{employment}_i + \alpha_3 \text{education}_i + \alpha_4 \text{male}_i + \alpha_5 \text{Age}_i + \alpha_6 \text{mstatus}_i + \alpha_7 \text{size}_i + \alpha_8 \text{urban}_i + e_i \quad (19)$$

Reduced equation (b2)

$$\text{Depth} = \alpha_0 + \alpha_1 \text{type1}_i + \alpha_2 \text{type2}_i + \alpha_3 \text{employment}_i + \alpha_4 \text{education}_i + \alpha_5 \text{male}_i + \alpha_6 \text{Age}_i + \alpha_7 \text{mstatus}_i + \alpha_8 \text{size}_i + \alpha_9 \text{urban}_i + \varepsilon_i \quad (20)$$

Structural equation (a3)

$$Y_i = \theta_0 + \theta_1 \text{severity}_i + \theta_2 \text{employment}_i + \theta_3 \text{education}_i + \theta_4 \text{male}_i + \theta_5 \text{age}_i + \theta_6 \text{mstatus}_i + \theta_7 \text{size}_i + \theta_8 \text{urban}_i + e_i \quad (21)$$

Reduced equation (b3)

$$\begin{aligned} \text{Severity} = & \theta_0 + \theta_1 \text{type1}_i + \theta_2 \text{type2}_i + \theta_3 \text{employment}_i + \\ & \theta_4 \text{education}_i + \theta_5 \text{male}_i + \theta_6 \text{age}_i + \theta_7 \text{mstatus}_i + \theta_8 \text{size}_i + \theta_9 \text{urban}_i + \varepsilon_i \end{aligned} \quad (22)$$

Where $\beta_0, \alpha_0, \theta_0$ are the intercepts and β_1 measures the change in poverty for a unit change in the incidence of financial exclusion holding other factors fixed. Similarly, $\beta_2-\beta_8$ measures the change in poverty for a unit change in employment status of household head, education, male, age, age, marital status, size, urban respectively in equation (17). Further, α_1 measures the change in poverty for a unit change in the depth of financial exclusion holding other factors fixed while $\alpha_2-\alpha_8$ measures the change in poverty for a unit change in the employment status of household head, education, male, age, marital status, size, urban respectively in equation (19). Further, θ_1 measures the change in poverty for the unit change in the severity of financial exclusion, holding other factors fixed while $\theta_2-\theta_8$ measures the change in poverty for a unit change in the employment status of household head, education, male, age, marital status, size, urban in equation (21) and ε_i measures the error term.

Source, Description, and Justification of Selection of Data

The main data source for this thesis is the seventh round of the Ghana Living Standards Survey (GLSS 7). The GLSS is a multi-purpose household survey, which collects information on many different dimensions of living conditions, including education, health, employment and household expenditure on food and non-food items. The questionnaires used for the round seventh is identical to all the other rounds. GLSS collects sufficient information to estimate the total consumption of each household. This covers the consumption of both food and non-food items.

Food and non-food consumption commodities may be explicitly purchased by households, or acquired through other means. The sample size used for the study is 13,609 household heads, which form the household-level analysis.

The data set was chosen because it provides detailed information on household financial activities, financial behaviours, and financial assets, including saving, insurance, account ownership, financial institution, account usage, and financial other financial activities. The study used s12aq1 questions in the survey to identify household account ownership. Further, question s12aq8a is also used to classify household heads with access to credit from heads who did not have access to credit. Further, question s12aq16 is used to classify insurance users from non-users and finally question s12aq5_a, s12aq5_b, s12aq5_c, and s12aq5_d is used to classify the usage of accounts (ATM, checkbook, E-zwich, e-banking) respectively in the study.

Measurement of Dependent Variables

Household consumption expenditure

The dependent variable household consumption expenditure is measured by Ghana Statistical Service (GSS) as the sum of the value of goods and services purchased by households, consumed from home production, or received as gifts or payment in kind. The components of consumption expenditure used to construct this aggregate fall into two main groups: (i) food items, and (ii) non-food items.

Food consumption comprises food consumed inside the household from a variety of sources (food purchases, self-produced food, food received as gifts, remittances and payments in kind) and food consumed outside the household

Non-food items refer to education expenditure (such as tuition fees, textbooks.), health (medical care and health expenses) and a wide range of other non-food expenses (such as domestic fuel and power, tobacco products, clothing and footwear, transport, recreation, personal care, miscellaneous goods).

Measurement of Independent Variables

Financial exclusion

The measurement of financial exclusion has gone through phases over time. Formally, financial exclusion covers individuals without a bank account in a formal financial institution (Demirguc-Kunt & Klapper, 2012). Recent measures of financial exclusion broadly cover account ownership and use of financial products, insurance, remittance and mobile banking (Demirguc-Kunt et al., 2018; Gloukoviezoff, 2007). The study deviates from the traditional measure of financial exclusion by employing multidimensional approach where seven indicators of financial exclusion namely; account ownership, credit access, insurance ownership, and use of financial products (checkbook, ATM, E-zwich, and E-banking) are employed in generating the index of financial exclusion.

Table 1: Variables used in Generating Financial Exclusion Index

Variable	Categories	Frequency	Percentage
Account	Yes	7,638	56.12
	No	5,971	43.88
Credit	Yes	966	7.10
	No	12,643	92.90
Insurance	Yes	3,119	22.92
	No	10,490	77.08
Checkbook	Yes	3,995	29.36
	No	9,614	70.64
ATM	Yes	2,175	15.98
	No	11,434	84.02
E-zwich	Yes	116	0.85
	No	13,493	99.15
E-banking	Yes	161	1.19
	No	13,447.	98.81

Source: Author's Construct, 2019

The study employed the Additive index and Principal Component Analysis (PCA) in the measurement of financial exclusion. While each approach is unique in its way, PCA comes with conditions, which need to be satisfied. First, it requires that the index is generated from components (usually component 1) having eigenvalues more than one (Koomsion and Ibrahim, 2018). Second, the “rule of thumb” of retaining components that capture variations or possess a cumulative percentage of 70% or 90% (Koomson and Ibrahim, 2018). Third, the use of the scree plot (Koomson and Ibrahim, 2018); and finally, the use of Kaiser-Meyer-Olkin (KMO), a post-estimation test which is expected to produce a coefficient that is greater than 70% to indicate sample adequacy.

Unfortunately, PCA retained 47% of the variation in the sample. This means that large variation in the data set cannot be explained, for this reason, measuring financial exclusion generated using PCA will lead to a loss of about 53% of the

characteristics of the indicators use generating index and as such the study resort to the additive index. Appendix A shows the results of the PCA.

Table 2: Financial Exclusion by Additive Index

Financial Exclusion	Frequency	Percentage
0	4,919	36.14
1	2,953	21.70
2	3,005	22.08
3	1,898	13.95
4	686	5.04
5	123	0.91
6	24	0.18
7	1	0.00
Total	13,609	100

Source: Author’s Construct, 2019

Measurement of incidence, depth, and severity of financial exclusion

The study let $(F_1, F_2, F_3 \dots F_n)$ to be a vector of household heads level financial exclusion and let $Z > 0$ be the average (mean) of the financial exclusion (F_i) . The study further let $G_i (Z - F_i)$ to represent the deviation of a household head i from the average of financial exclusion index while $Q = Q(F, Z)$ be the number of excluded households heads from the mean of the index and $N = N(F)$ be the total number of households; then for household i the level of financial exclusion is given by the formula, $F_\alpha = \frac{1}{N} \sum_{i=1}^Q \left(\frac{G_i}{Z}\right)^\alpha$ where α measures exclusion aversion. Now for the incidence of financial exclusion where alpha equal zero ($\alpha=0$), the equation becomes;

$$F_0 = \left(\frac{Q}{N}\right) \left(\left(\frac{Z-F}{Z}\right)^0\right) \tag{23}$$

This equation reduces to equation (24) and measures the headcount index of household heads without any form of the financial product. Thus, the incidence of

financial exclusion measures the proportion of household heads totally excluded from the financial services.

$$F_0 = \frac{Q}{N} \quad (24)$$

Further, for the depth of exclusion ($\alpha=1$), the equation becomes;

$$F_1 = \left(\frac{Q}{N}\right) \left(\left(\frac{Z-F}{Z}\right)^1\right) \quad (25)$$

Thus, the depth of financial exclusion measures how far the number of excluded household heads are from the mean of the financial exclusion index. Depth of financial exclusion reveals the number of financial products excluded household heads is excluded from these financial products.

Following the earlier conceptualization, the severity of financial exclusion where alpha equals two ($\alpha=2$), the equation becomes;

$$F_2 = \left(\frac{Q}{N}\right) \left(\left(\frac{Z-F}{Z}\right)^2\right) \quad (26)$$

The severity of financial exclusion thus reveals the level of inequality of the ownership and usage of financial products among household heads. The study employed this method to generate incidence, depth, and severity of financial exclusion across rural and urban dwellers, sex of household head, administrative regions and the ecological zone in Ghana.

In light of the discussion, three different estimation method is used to study the phenomenon (OLS, IV, and CMP) to appreciate the arguments made. Also,

literature has it that rural dwellers are more excluded from the financial services unlike those in urban areas (Osei-Assibey, 2009). Indeed, Global Findex reports also revealed that 28% of men and 35% do not have a bank account, with variation across developing countries depending on the country's characteristics (Demirguc-Kunt et al., 2018). The study will thus limit the sample along these rural-urban and gender differences to see the outcome. Also of great importance is the association among the classes of financial exclusion measures and household head poverty status. Finally, the study conducts dominance analysis to determine the relative superiority among incidence, depth and severity of financial exclusion.

Variable Definition

Table 3: Definition and Measurement of Variables

Variable	Type	Definition	A prior sign
Expend	Continuous	Natural logarithm of Household consumption expenditure	
Incidence	Dummy	The proportion of household head without any financial product	-
Depth	Dummy	The number of household heads which falls below the mean of the financial exclusion index	-
Severity	Dummy	The inequality of the usage of financial product among household heads	-
Employment	Categorical	Employment status of the household head	++
Education	Categorical	Highest educational level obtained by the household head	+
Male	Dummy	Sex of household head	+
Age	Continuous	Age of household head	+
Marital status	Categorical	Marital status of the household head	++
Size	Continuous	The number of people in each household	+

Table 3 continued

Urban	Dummy	The residence or location of the household head	-+
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Source: Author’s Construct, 2019

Post Estimation Test

To ensure the model's estimates are consistent, the study first tested for the presence of endogeneity in the model using Durbin (score) and Wu-Hausman statistic. The null hypothesis for the test of endogeneity is that variables are exogenous as against the alternative hypothesis of endogeneity. The study thus expects to reject the null hypothesis of exogeneity. The study further performed Anderson canon test, Cragg-Donald Wald test and Sargan statistic to check for weak identification, and overidentification. The null hypothesis for weak identification is that the instruments are weakly identified. However, Sargan test the null hypothesis that instruments are valid. Therefore, the study expects to reject the null hypothesis for the weak identification test and fail to reject the null hypothesis for the overidentification test.

Chapter Summary

In conclusion, the study examined the effect of financial exclusion on poverty: issues of measurement and relationships in Ghana. This chapter presented the methods used to test the hypotheses of the study. The study first employed the FGT methods to generate classes of financial exclusion for rural and urban dwellers, the administrative regions in Ghana and the ecological zones. The study further performed a test of independence using chi-square to determine the

association among classes of financial exclusion measures and poverty. The study further employed multiple regression analysis, IV estimation and CMP to examine the effect of incidence, depth, and severity of financial exclusion on household consumption poverty. Finally, the study limited the analysis to the rural and urban differences in the incidence of financial exclusion on consumption poverty and determined the relative superiority among incidence, depth, and severity of financial exclusion.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter discusses the result obtained from the study. The chapter starts by reporting descriptive statistics of the variables used for the study. The chapter presents the discussion of continuous variables using summary statistics while categorical and dummy variables employ frequency and percentages. Further, the chapter presents the incidence, depth, and severity of financial exclusion by region, sex, ecological zone, and residence of the household head. Also, the chapter presents sensitivity analysis for depth and severity of exclusion. Finally, the discussion of results obtained from the testing of the hypotheses of the study follows. The chapter ends with a summary from the discussion of the results.

Descriptive Statistics

To begin with, Table 4 presents a summary of the variables in the study. The total sample of household heads used for the analysis is 13,609 respondents. As noted from Table 4 the minimum and maximum household consumption expenditure are approximate, GHC 86 and GHC 228,002 respectively with a mean value of GHC 12,385. Again, 25% of household heads had a consumption expenditure of GHC 5,790 while 75% of household heads equally had consumption expenditure of GHC 15123. A comparison of the third quartile household expenditure GHC 15,123 with the maximum expenditure of GHC 228,002.2 reveals that household consumption expenditure is positively skewed. Further, the

age of the household head sampled for the study ranges from a minimum of 15 years to a maximum of 99 years. As noted, the first quartile age i.e. 25% of household heads was 33 years. Similarly, the second quartile i.e. 50% of the household heads are approximately 43 years while the third quartile i.e. 75% of the household heads are 55 years. This reveals that about 75% of the household heads used for the analysis are within the working group. Further, within each household, the number of dependents ranges from a minimum of a member to a maximum of 28 members with a mean approximating to 4 members. Again about 25% of the household heads have two members, 50% of the household heads have 3 members while 75% of household heads have 5 members respectively.

Besides, the household head's financial exclusion index ranges from a minimum of zero (no financial product) to a maximum of seven financial products. On average, household heads have two financial products at a time. This speaks of the level of financial exclusion among household heads in Ghana. Again, 25% of household heads have no financial products. Also, 50% of household heads have a single financial product while 75% of household heads have just two financial products. This evidence shows that Ghanaian household heads have high financial exclusion. Similarly, the employment status of household heads shows that about 16% are unemployed, 82% are employed while one percent are retired household heads. Another significant descriptive is the educational level of household heads. Noted from Table 4, about 54% of household heads have a basic level of education, 15% have a secondary level of education, two percent of household heads have both training college and polytechnic education while about six percent have a university

education. Also, household heads residing in rural areas represented an approximate of 44% while that of the urban residence amount to 56% of the household heads.

Table 4: Summary Statistics of Continuous Variable

Variable	Mean	Std. Dev.	Min	Max
Consumption expenditure	12385.34	11613.27	86.25273	228002.2
Age	45.174	15.495	15	99
Size	3.825	2.635	1	28
Financial exclusion index	1.335	1.294	0	7
	Frequency	Percentage		
Employment status				
Unemployed	2262	16.62	-	-
Employed	11185	82.19	-	-
Retired	162	1.19	-	-
Education level				
None	43	0.32	-	-
Basic	7302	53.66	-	-
S_H_S	2104	15.46	-	-
Training college	315	2.32	-	-
Polytechnic	309	2.27	-	-
University	833	6.12	-	-
Others	2702	19.86	-	-
Marital status				
Married	6816	50.08	-	-
Consensual union	1422	10.45	-	-
Separated	677	4.97	-	-
Divorced	960	7.05	-	-
Widowed	1614	11.86	-	-
Residence				
Rural	6000	44.09	-	-
Urban	7609	55.91	-	-
Total	13609			

Source: Author's Construct, 2019

Further, Figure 3 presents a graphical view of the index of financial exclusion with their respective percentages. As noted, household heads with zero

financial products represent 36.1%. Again, 21.7% of household heads have just a single financial product. Further, 22.1% of household heads have two financial products, 13.9% of household heads have three financial products, 5% of household heads have four financial products while an approximate of 1% have five financial products. It is clear from Figure 3 that no household head has six or seven financial products used for the study. Thus, household heads in Ghana have a high level of financial exclusion, which is worrisome especially to the financial growth of the economy.

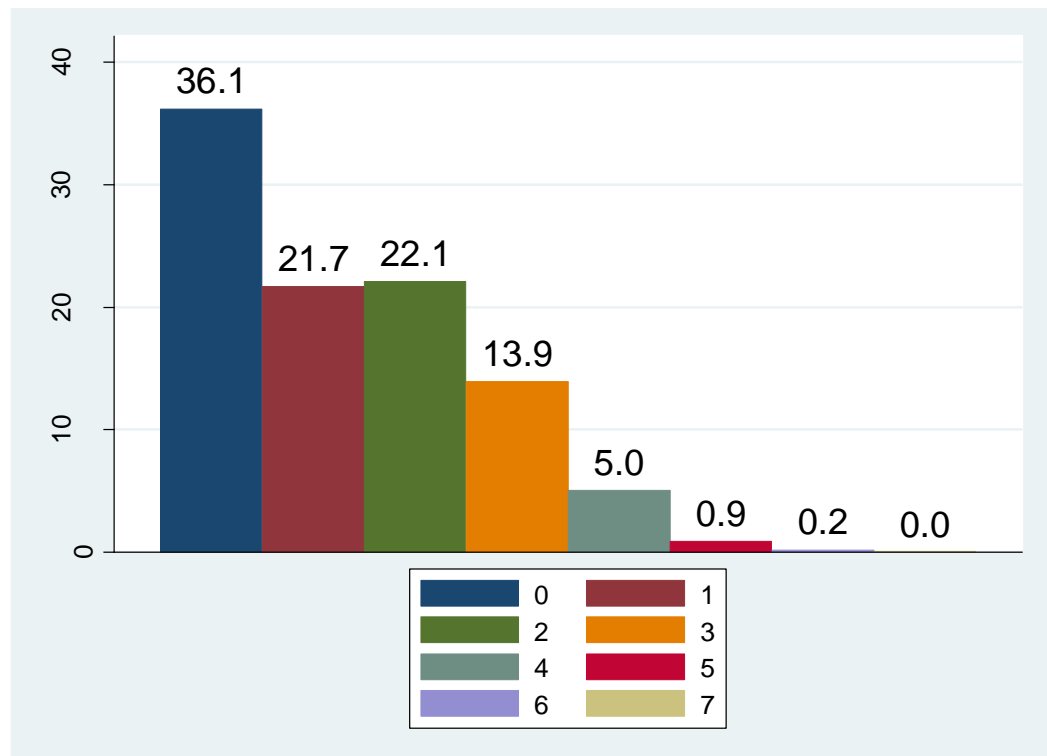


Figure 3: Overall Distribution of Financial Exclusion

Source: Author's Construct, 2019

Further, Figure 4 presents the distribution of financial exclusion across the administrative regions in Ghana. As illustrated, household heads with no financial products are at maximum in the Northern region, Upper West Region and Upper

East region. This is followed closely by Western, Brong-Ahafo, Volta region and Ashanti region. Also, of critical importance is the financial exclusion in the Greater Accra region. As observed from Figure 4, household heads with no financial product in Greater Accra and Central region are 22% and 32% respectively. Again, for household heads with three financial products, the Greater Accra Region, Eastern Region, and Western region respectively recorded 30%, 21% and 21% which are among the highest ownership of financial products across regions. The most predominant observation is that across regions, household heads with six or seven financial products are zero percent except for the central region recording 1% in the ownership of six financial products.

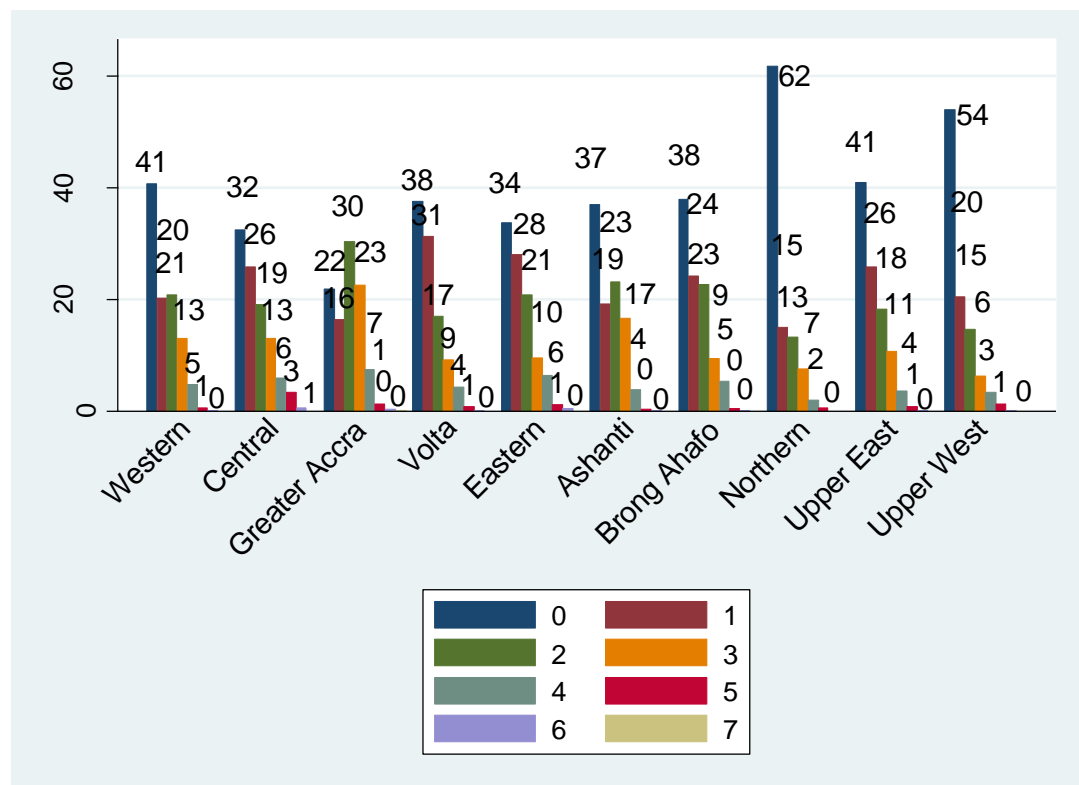


Figure 4: Distribution of Financial exclusion Across Region
 Source: Author’s Construct, 2019

Furthermore, Figure 5 shows financial exclusion across rural and urban dwellers. Household heads in rural areas have high financial exclusion compared to urban dwellers. That is, a household head with no financial product in rural areas represent an approximate of 48% while that of the urban dwellers represent 27%. Similarly, approximately 18% of household heads in rural areas have two financial products compared to urban dwellers of 25%. Again, 8% of household heads in rural areas have three financial products which can be compared with 18% in urban areas. The discussion continues that urban dwellers have low financial exclusion compared to rural dwellers. This observation can be attributed to the fact that urban dwellers have easy access to financial institution compared to rural dwellers.

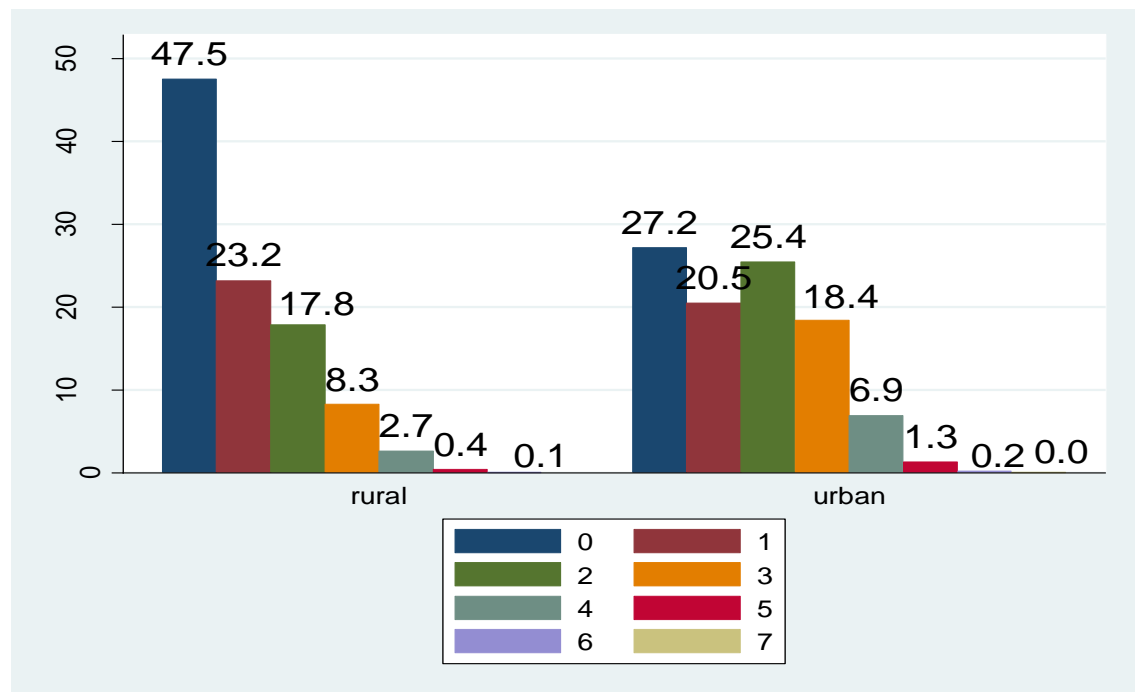


Figure 5: Distribution of Financial exclusion Across Residence
Source: Author’s construct, 2019

Figure 6 also shows financial exclusion across the gender of the household head. From Figure 6, a female-headed household with no financial product

represented an approximate of 41%. Similarly, female-headed households with a single financial product represented an approximate of 26% while those with two financial products approximately represent 20%. Again, approximately 11% of female-headed households have three financial products, 3% have four financial products while an approximate of 1% have five financial products. In contrast, male-headed households with no financial product represented an approximate of 40%. Similarly, male-headed households with two financial products represent 23% while a male-headed household with three financial products amounted to an approximate of 16%.

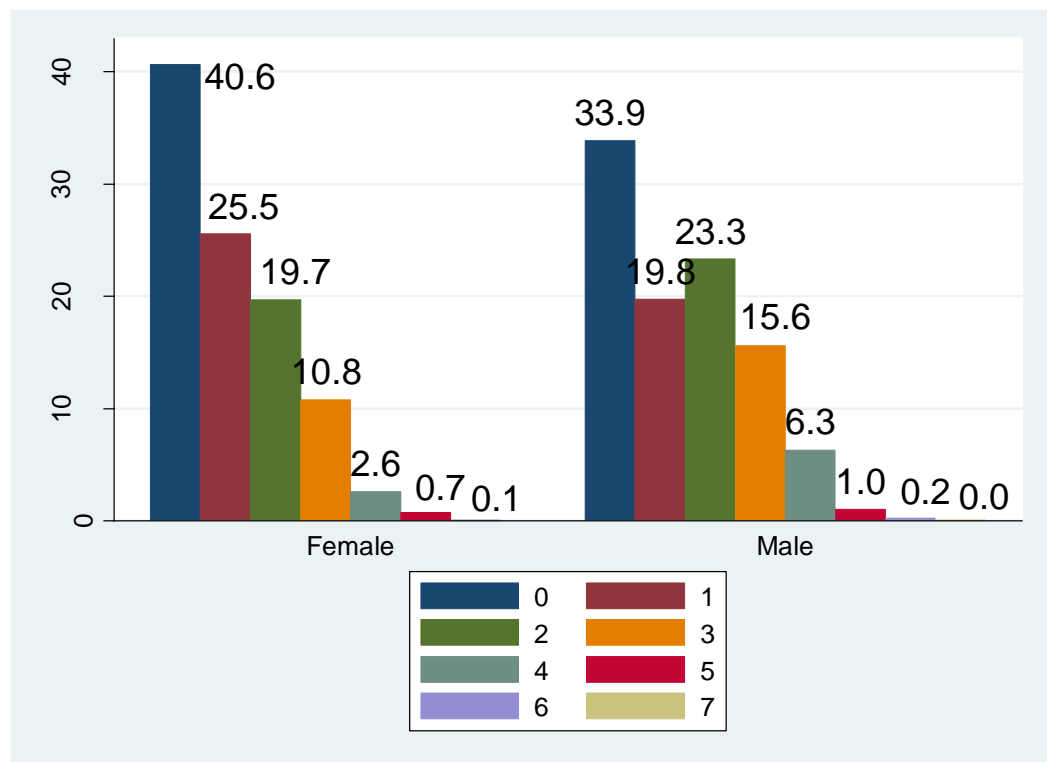


Figure 6: Distribution of Financial Exclusion across Gender
 Source: Author’s Construct, 2019

The discussion follows that female-headed households have high financial exclusion compared to male-headed households. Some reasons advanced in

literature for this trend are alluded to the fact that males handle many financial activities within the household as compared to females (Kumar, 2013). Also, women usually bank with their husbands as such they refuse to take personal financial products (Kumar, 2013).

Further, Figure 7 shows financial exclusion across the employment status of the household head. From Figure 7, an unemployed household head with no financial product represented an approximate of 53%. Similarly, unemployed household head with a single financial product represented an approximate of 22% while those with two financial products represented 15%. Again, approximately 9% of unemployed household heads have three financial products, 2% have four financial products. In contrast, 33% of employed household heads have no financial product, which is a 20% reduction compared to unemployed household heads.

Similarly, an approximate of 22% of employed household heads have a single financial product, 24% of employed household heads have two financial products, 15% of household heads have three financial products while 6% of household heads have four financial products. What is most predominant is the level of financial exclusion by retired household heads. Noted from Figure 7, an approximate of 32% and 33% of retired household heads respectively have two and three financial products. However, retired household heads represent only about 1.2% of the sample used for the analysis. Thus, it is evident from the distribution that unemployed household heads have a high level of financial exclusion as compared to unemployed and retired household heads.

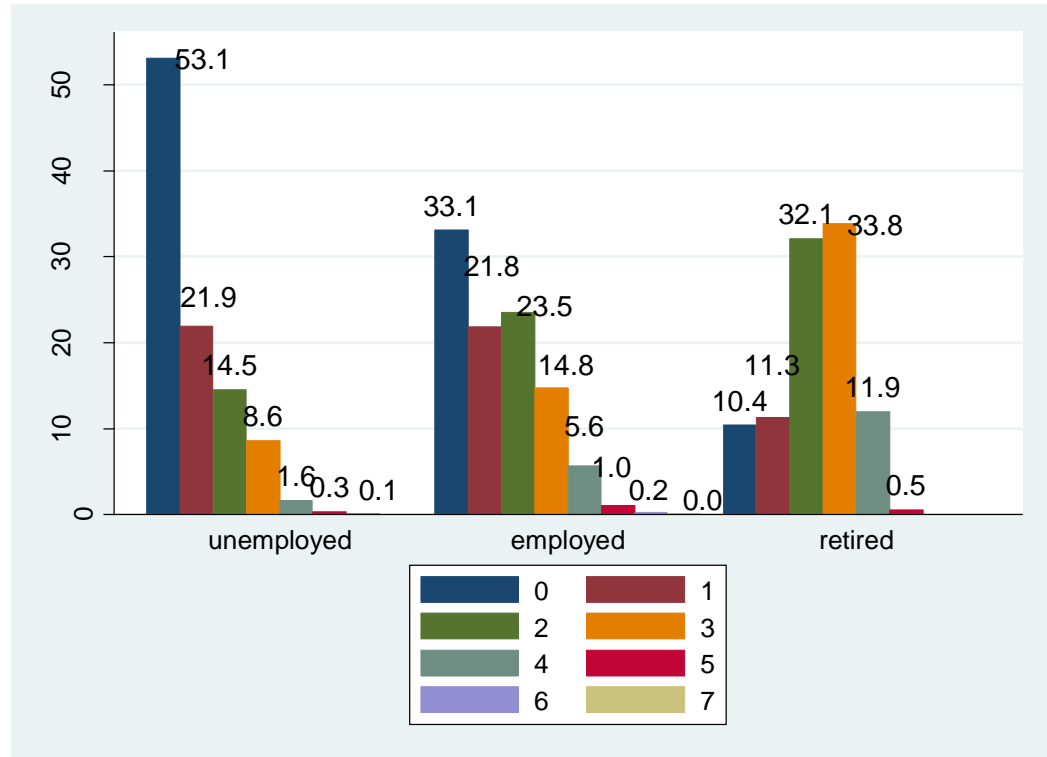


Figure 7: Distribution of Financial Exclusion Across Employment status
Source: Author’s Construct, 2019

It is interesting to observe in Figure 8 the distribution of financial exclusion across ethnicity of the household head. It is evident here that Ashanti and Fante's ethnicity have low financial exclusion as compared to Dagarte and Ewe ethnicity. Household heads with no financial product in Asante represent 34.1% which can be compared to Fante and Ewe of 32.5% and 33.9% respectively. Consequently, Dagarte had the highest household heads with no financial product representing 50.6% in this category. To ascertain plausible reasons for the high level of exclusion witnessed by Dagarte might demand a study of characteristics of the Dagarte ethnicity, which is beyond the scope of this study. To sum up, differences exist in financial exclusion across ethnicity and thus strategic measures need to be put place to address financial exclusion problem in the country.

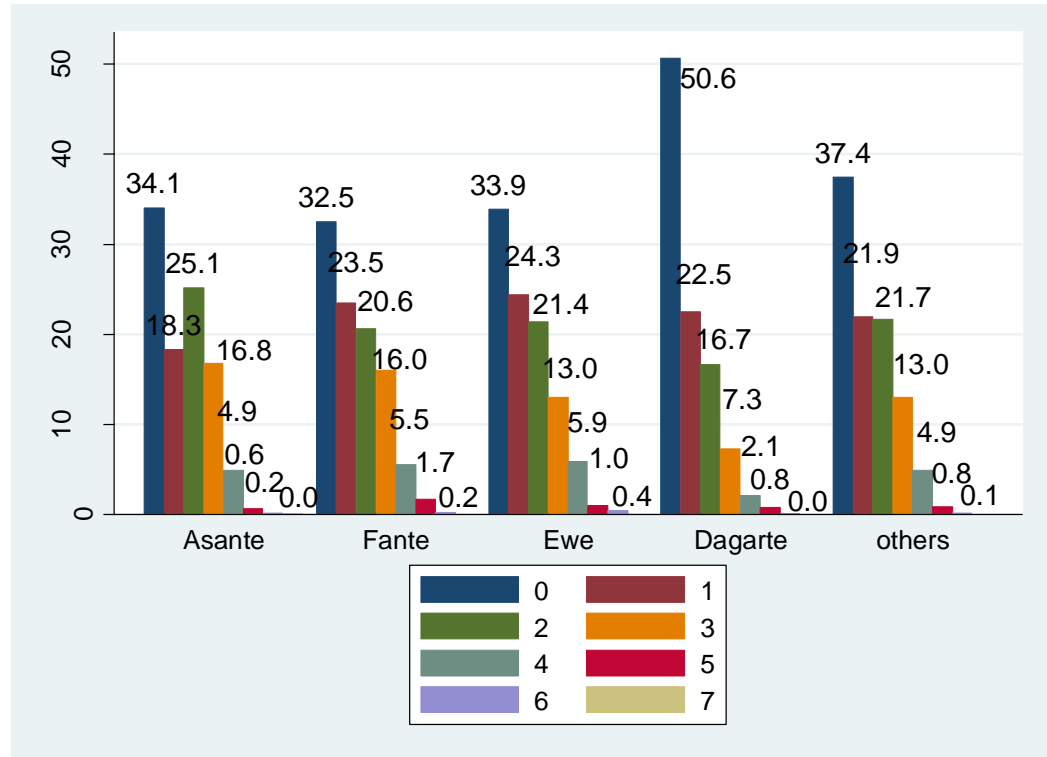


Figure 8: Distribution of Financial Exclusion Across Ethnicity
 Source: Author’s Construct, 2019

Generally speaking, the age of the household head has been a major determinant in many economic analyses. Figure 9 presents the distribution of financial exclusion across the age of household head. As noted, respondents aged 60 years and above represented the highest household head with no financial product. Undoubtedly, old age deters many household heads from using a financial product like digital ATM and electronic banking. Also notable is the level of financial exclusion among household heads age between 15 to 25 years. About 42% of such household heads have no financial product. This is followed by approximately 26% of household heads having a single financial product among age 15 to 25 years. Further, 18% of household heads have two financial products between age 15 to 25 years. A general observation of the age distribution of

household head reveals that active labour force between age 26 to 35 years and 36 to 45 years respectively have a low level of financial exclusion as compared to other categories.

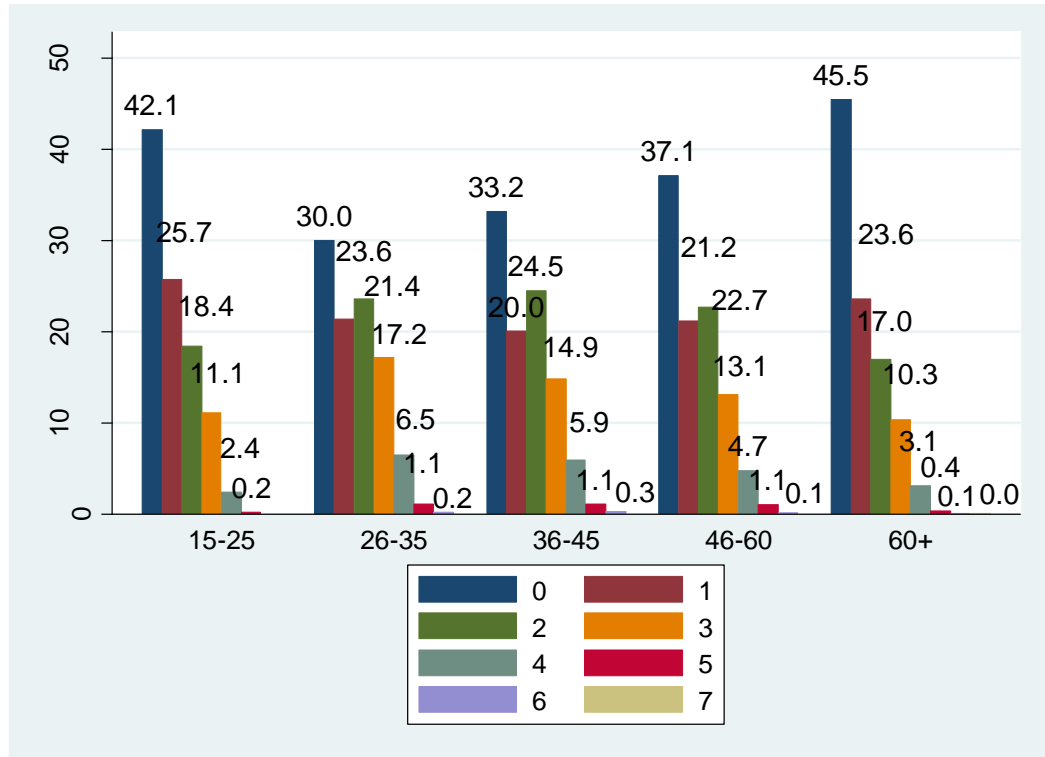


Figure 9: Distribution of Financial Exclusion Across Age
Source: Author's Construct, 2019

To conclude, differences exist in the level of financial exclusion among household heads in Ghana as witnessed in the discussions. Stakeholders need to intensify efforts in seeking a solution to address the problem of financial exclusion.

Incidence, Depth, and Severity of Exclusion

To begin with, Table 5 presents results on incidence, depth, and severity of financial exclusion across the administrative regions in Ghana, sex of household heads, the residence of household heads, and ecological zone of household heads. Worthy to

note is the national level of incidence, depth of exclusion and severity of financial exclusion. Noted from Table 5, the national incidence, depth, and severity of financial exclusions are 36.14%, 16.45%, and 7.49% respectively. The study infers that the level of incidence of financial exclusion in Ghana is approximately 36%. About the incidence of financial exclusion, Greater Accra had the lowest incidence exclusion of 21.82% which is comparatively lower than the national level of incidence of financial exclusion.

This means that on average, about 22% of household heads in Greater Accra have no financial products, which is worrisome. The fact that Accra is the heart of Ghana i.e. the administrative capital city of Ghana with about 90% of all industrial activities and financial institutions located in this region signal that financial exclusion is a serious problem that needs attention in the country. Thus, household heads in this jurisdiction are not only empowered with geographical accessibility to the financial institution and their products but are also encouraged economically to undertake business initiatives owing to the availability of a favourable business environment. Although financial exclusion is comparatively lower regarding the national incidence, 22% is still alarming.

Again, the Central region, Eastern region, and Ashanti region followed with the incidence of exclusion of 32.43, 33.73% and 37.02% respectively, which are all below the national level of incidence of financial exclusion with exception of Ashanti region. The meaning of these figures is that approximately 32% of household heads, 34% of household heads and 37% of household heads in Central region, Eastern region, and Ashanti region respectively do not use any financial

product. For instance, Volta, Western and Brong-Ahafo region incidence of financial exclusion lies closely above the national level of financial exclusion, which suggests that financial exclusion, is a major problem in these areas. In particular, Upper East, Upper West and Northern region had the highest incidence of financial exclusion, constituting 40.91%, 54.02%, and 61.81% respectively. This represents the highest financial exclusion in this category. Interestingly, these three regions constitute the highest incidence of poverty (GSS7, 2018; GSS6, 2013) and that suggests some form of a trend between household heads that experience financial exclusion and their poverty status.

About the depth and severity of financial exclusion, the findings are consistent with theoretical assumptions, that as more emphases are placed on the most excluded, the greater the level of financial exclusion (Foster et al., 2010). Consistent with Ghana Living Standard Survey reports, around five, six, and seven, areas with a high incidence of financial exclusion had high depth and severity of financial exclusion while areas with a low incidence of financial exclusion had low depth and severity of exclusion. That is, the Greater Accra region had the lowest incidence of financial exclusion and as a result, had the lowest depth and severity of exclusion of 14.76% and 8.43% respectively. This means that about 15% of household heads fall below ownership of single a financial product with 8% inequality across households in Greater Accra.

Particularly, Upper West, Northern regions and Upper East are worth mentioning at this point. The highest depth and severity of financial exclusion occurred in the Northern region with 28.13% and 12.8% respectively. Thus, about

28% of household heads in the Northern region fall below the ownership of single financial products with inequality across household representing 13%. This signifies the fact that as well as financial exclusion is the subject of discussion, the Northern region faces the greatest level of financial exclusion, while Upper West and Upper East closely follow with a depth of financial exclusion representing 224.58% and 18.62% whereas the severity of financial exclusion represent 11.17% and 8.47% respectively.

Similarly, large differences exist in male and female incidence, depth and severity of financial exclusion. Noted from Table 5, the incidence of financial exclusion for females stood at 40.63% as compared to men 33.86%. These figures connote that about 41% of female household heads have no financial product while that of male-headed households represents an approximate of 34%. This finding is consistent with the World Bank, (2016). Further, the study noted that a female's incidence of financial exclusion is above the national incidence of financial exclusion, which calls for systematic measures to bridge the gap. Again, concerning depth and severity, women fall short in this category. The male-headed household depth and severity of financial exclusion stood at 15.41% and 7.01% while that of females records 18.49% and 8.41% respectively. This means that about 15% of male-headed household falls below ownership of single financial product while inequality across male household heads ownership of financial product represents 7%. Similarly, about 19% of female-headed household falls below ownership of single financial product while the inequalities across female-headed household are about 8%.

Further, Table 5 also presents the incidence, depth, and severity of financial exclusion across the residence and ecological zone of household head in Ghana. Indeed, Osei-Assibey (2009) raised a concern that concerning how sparsely populated rural communities are in Ghana, in addition to unequal infrastructure deficit, financial exclusion is likely to be high in rural areas due to unavailability of the financial institution. Consequentially, the study observed a disparity between urban and rural incidences of financial exclusion of 27.15% and 47.54% respectively. Thus, about 27% of household heads in urban areas have no financial product compared to about 48% of rural dwellers. It follows that 12.36% of urban dwellers fall below ownership of a single financial product as compared to 21.63% of rural dwellers. The inequalities among the ownership of financial products in urban and rural household heads portray the same pattern, representing an approximate of 6% and 10% respectively.

Admittedly, savannah regions in Ghana are areas with a high level of poverty (GSS7, 2018; GSS6, 2014). Presently, it is of no surprise to observe a high incidence of financial exclusion in rural and urban savannah zones, representing 54.58% and 42.90% respectively. It is worthy to note that both rural and urban savannah incidence of financial exclusion is above the national incidence of financial exclusion, which calls for concern to address this financial exclusion issue in these zones. Again, the incidence of financial exclusion in the rural forest and urban forest stood at 46.13% and 26.44% respectively. Besides, rural forest zones have a high incidence of financial exclusion than the urban forest, which is consistent with the finding of Osei-Assibey, (2009). Evident from these findings is

the fact that urban dwellers have a low incidence of financial exclusion as compared to rural dwellers. Some reasons for this observation could be ready access to financial products couple with the enabling environment for economic activities to thrive in an urban location. Again, contrasting urban coastal incidence of financial exclusion of 23.12% with rural coastal of 41.50% also affirm the assertion that rural zones experience high financial exclusion than urban zones. Similarly, the incidence of financial exclusion in Accra is 25.46%, which is relatively below the national incidence of financial exclusion. Thus, about 26% of household heads in Accra have no financial product which is quite alarming. Further, comparing urban forest incidence of financial exclusion of 26.44% with a rural forest of 46.13% buttresses the point that urban centers have quite low financial exclusion than rural zones.

Now, concerning intensity (depth) and severity of financial exclusion the story is not different. Savannah regions had the highest depth of financial exclusion as well as the severity of financial exclusion. As noted, the depth of financial exclusion for the rural forest is at 21% compared to urban forest of 12.03% while that of rural savannah records 24.84% compared to urban savannah of 19.52%. This finding reveals that about 21% of household heads in rural forest zones fall short of the ownership of single financial products compared to that urban forest of 12%. Further, rural coastal had 18.89% depth of financial exclusion compared to urban coastal 10.52%. This means that areas with a high incidence of financial exclusion experience a high depth of financial exclusion and vice versa. It also means that there is a great disparity in terms of the number of household heads who fall short

of the ownership of the single financial product in rural and urban coastal zones. More so, household heads' severity of financial exclusion is more prone to areas with a high incidence of financial exclusion just as with depth and is consistent with Foster, Thorbecke, and Greer's exposition. As noted, for instance, rural savannah incidence of financial exclusion is 54.58% with corresponding severity of financial exclusion 11.31% as compared to the incidence of financial exclusion in Accra 25.46% with its severity of financial exclusion 4.79%. The story is clear from the discussion that savannah regions of the country suffer from financial exclusion.

Table 5: Incidence, Depth, and Severity of Exclusion by Region

Region/Exclusion	Incidence (%)	Depth (%)	Severity (%)
Western	40.72	18.53	8.43
Central	32.43	14.76	6.72
Greater Accra	21.82	9.93	4.52
Volta	37.57	17.10	7.78
Eastern	33.73	15.35	6.99
Ashanti	37.00	16.84	7.66
Brong-Ahafo	37.90	17.25	7.85
Northern	61.81	28.13	12.80
Upper East	40.91	18.62	8.47
Upper West	54.02	24.58	11.19
Female	40.63	18.49	8.41
Male	33.86	15.41	7.01
Urban	27.15	12.36	5.62
Rural	47.54	21.63	9.85
Rural forest	46.13	21.00	9.56
Rural savannah	54.58	24.84	11.31
Rural coastal	41.50	18.89	8.60
Urban savannah	42.90	19.52	8.88
Urban forest	26.44	12.03	5.48
Urban coastal	23.12	10.52	4.79
Accra	25.46	11.58	5.27
Population	36.14	16.45	7.49

Source: Author's Construct, 2019

To conclude, several reasons have been advanced to account for the differences in gender, ecological zones, the residence of household head, etc. financial exclusion level in literature which some include; inadequate source of income, information asymmetry, cost of financial product, religious affiliation, among others (Demirguc-Kunt et al., 2018; Kumar, 2013). These reasons defer from one geographical location to another, from one advanced country to another and between a developing country and an advanced country. In Ghana and like many African countries, a family setting where a male-headed household owns the responsibility of steering the affairs of the entire household can contribute to these gender differences in financial exclusion among households. Thus, there is a need to bridge this gender gap to realize the full benefit of inclusive finance. Further rural areas have shown to be prone to high incidence, depth and severity of financial exclusion for various reasons outline in literature. Financial exclusion, therefore, can be inferred to be a rural phenomenon. Thus, there is the need to bridge this rural-urban financial exclusion gap especially because of the benefit product offers.

Sensitivity Analysis

To determine how responsive depth and severity of financial exclusion react to mean of the financial exclusion index, two mean values were chosen below the mean of the financial exclusion index as well as above the mean of the financial exclusion index to ascertain the responsiveness of depth and severity of financial exclusion to the changing mean. The mean used as a reference point to generate

coefficient for depth and severity is 1.34. Table 6 present the results of sensitivity analysis on the depth and severity of financial exclusion.

From Table 6, taking rural forest as the reference point, an upward movement of the mean 0.7 to 1 increases the depth of financial exclusion from 13.18% to 23.07%, a difference of 9.89%. Now, considering values chosen above the mean of the financial exclusion index, regarding rural forest, a movement from 1 to 1.7 increases the depth of exclusion from 23.07% to 35.16%. Similarly, an increase in the mean value from 1.7 to 2.0 increases the depth of financial exclusion from 35.16% to 40.11%, a difference of 4.95%. Comparatively, as the mean value increases, the depth of financial exclusion increases continuously. Again, using Accra as the reference point, as the mean value increases from 0.7 to 1, the depth of financial exclusion increases from 7.27% to 12.73%. By contrast, an increase in the mean from 1 to 1.7 increases the depth of financial exclusion from 12.73% to 20.07%, a difference of 7.34% and a further increase of the mean from 1.7 to 2.0 increases depth of financial exclusion further from 20.07% to 23.55%.

Concerning the severity of financial exclusion using the rural forest as the reference point, as the mean increases from 0.7 to 1, the severity of financial exclusion increases from 3.77% to 11.53%. Also, as the mean increase from 1 to 1.7, the severity of financial exclusion increases from 11.53% to 23.29%. More so, as the mean increase from 1.0 to 2.0, the severity of financial exclusion increases from 23.29% to 27.33%, That is, the pattern of the severity of financial exclusion behaves in the same way as the depth of financial exclusion.

To sum up, two observations have emerged from the sensitivity analysis for both the depth and severity of financial exclusion. First, the rate of reduction of depth and severity of financial exclusion for mean value chosen below the mean of the financial exclusion is higher compared to the mean chosen above the mean of the financial exclusion. That is, as the mean decreases from 1.34 to 0.70, the rate of reduction of financial exclusion is higher for mean valued chosen below the mean of the financial exclusion than a similar increase in the mean above the financial exclusion average i.e. from 1.7 to 2.0. Secondly, the mean below (1.34) leads to lower levels of financial exclusion while the mean above 1.34 leads to high levels of financial exclusion. The explanation is that the mean value exceeding the 1.34 increases the gap between household heads who experience financial exclusion with household heads that fall above the mean of the financial exclusion index. On the other hand, a lower mean value below 1.34 decreases the gap between household heads who are financially excluded. The conclusion is that the depth and severity of financial exclusion are very responsive to the changing mean.

Table 6: Sensitivity of Analysis of Depth and Severity

Ecological Zone/Exclusion	Depth (%) Mean=0.7	Depth (%) Mean=1	Depth (%) Mean=1.7	Depth (%) Mean=2
Rural Forest	13.18	23.07	35.16	40.11
Rural Savanah	15.60	27.29	41.41	47.06
Rural Coastal	11.86	20.75	32.23	37.37
Urban Savanah	12.26	21.45	32.29	36.43
Urban Forest	7.55	13.22	21.40	25.65
Urban Coastal	6.61	11.56	18.49	21.95
Accra	7.27	12.73	20.07	23.55
Population	10.33	18.07	28.06	32.53

Table 6 continued

Ecological Zone/Exclusion	Severity (%) Mean=0.7	Severity (%) Mean=1.29	Severity (%) Mean=1.7	Severity (%) Mean=2
Rural Forest	3.77	11.53	23.29	27.33
Rural Savanah	4.46	13.65	27.54	32.23
Rural Coastal	3.39	10.38	21.03	24.91
Urban Savanah	3.50	10.72	21.61	25.20
Urban Forest	2.16	6.61	13.49	16.32
Urban Coastal	1.89	5.78	11.77	14.16
Accra	2.08	6.36	12.93	15.43
Population	2.95	9.04	18.31	21.69

Source: Author's Construct, 2019

Association between Financial Exclusion Measures and Poverty

The second objective seeks to establish an association between classes of financial exclusion measures and household poverty status in the economy. However, before proceeding to such analysis, it is prudent to ascertain whether there are differences in mean consumption expenditure between household heads who have no financial product (totally excluded) and household heads who have at least a single financial product (marginally excluded). From Table 7, the p-value of 0.00 leads to rejecting the null hypothesis that no differences in the variance at a 1% significance level and conclude that the variances differ. The observation here is that there is a significant difference between household consumption expenditure of totally excluded household heads and those that are marginally excluded from the financial services.

As noted, the mean consumption of expenditure for marginally excluded household heads is GHC 13,176 as compared to that of totally excluded household heads of GHC 7,460 with a difference of GHC 5,717. In conclusion, differences exist in mean consumption expenditure between household heads who are

marginally excluded from the financial services and household heads who are totally excluded from the financial services and are significant at 1% and thus marginally excluded household heads exhibit higher purchases than totally excluded household heads.

The study proceeds to investigate whether there is an association between non-poor household heads and poor household heads experiencing financial exclusion using chi-square analysis. The null hypothesis for the Chi-square independence test is that there is no association between household heads who are financially excluded and the poverty status of household heads. The alternative hypothesis states that there is an association between financially excluded household heads and their poverty status. From the p-value of 0.00 in Table 7, the study rejects the null hypothesis at a 1% significance level and concludes that there is indeed an association between financially excluded household heads and their poverty status. That is totally excluded household heads experience higher poverty status than marginally excluded household heads.

From Table 7, 68.40% of non-poor household heads are marginally excluded (have at least one financial product) from the financial services whereas 31.60% of non-poor households are totally excluded (have no financial product). This suggests that there are household heads who have money to spend and can afford a financial product but due to some reasons, they have chosen not to consume any financial product. Some of the reasons could be that the price of the financial product is expensive and although these household heads could afford the financial product due to the price of the financial product, the financial product might worth

not consuming. Other reasons may be that these wealthy household heads are located in rural areas where bank outreach by the financial institutions is minimal.

Again, the percentage of poor and very poor household heads who are marginally excluded from the consumption of financial product represent 40.76% and 30.87 respectively as against totally excluded household head 59.24% and 69.13%. As noted, a great number of household heads who are very poor are marginally excluded from the consumption of financial products although the majority of such household heads suffer from total financial exclusion. These findings highlight the problem of financial exclusion is not just the inability to afford the financial product due to poverty but has deeper and hidden mechanisms. More efforts need to be advanced toward the understanding of the financial exclusion mechanism. Thus, financial exclusion has an association with the household head's poverty status.

To sum up, it is significant to infer that the consumption of the financial product by marginally excluded household heads is motivated by their purchasing power while totally excluded household heads low consumption of financial products are premised on similar reasons. The fact remains that a significant number of non-poor household heads are totally excluded from the consumption of financial products whereas a similar number of poor and very poor household heads are marginally excluded. Notwithstanding, it is evident that totally excluded household heads (household with no financial product) are associated with poor and very poor household heads whereas marginally excluded household heads

(household heads with at least a financial product) are associated with non-poor household heads.

Table 7: Association between Financial Exclusion and Poverty Status

Financial exclusion/Poverty	Marginally excluded (obs=8690)	Totally excluded (obs=4,919)	χ^2 (P-value)
Very poor	30.87	69.13	1000 (P<0.00)
Poor	40.76	59.24	
Not Poor	68.4	31.6	
Total	63.86	36.14	
Mean	13176	7460	32.60 (P<0.00)
Difference	5717		

Source: Author’s Construct, 2019

Effect of Incidence, Depth, and Severity of Exclusion on Household

Consumption Poverty

To estimate the third objective “the effect of incidence, depth and severity of financial exclusion on household consumption poverty” the study employs three estimation techniques, Ordinary Least Square estimation (OLS), Instrumental Variable estimation (IV) and Conditional Mixed Process estimation (CMP). The choice of OLS is informed by the fact that the dependent variable the log of household consumption expenditure is continuous and served as the appropriate proxy of the Utilitarian school of thought for the measurement of household economic wellbeing (Asselin & Dauphin, 2001). To appreciate the understanding of the coefficients and their expected signs, the study presents a correlation analysis. Appendix C provides a correlation matrix on the association between the dependent variable and the explanatory variables used for the study.

It worthy to note that the variables that were not significant at most ten percent alpha levels have not been included in the model hence these variables did not appear in the correlation table presented in Appendix C. A stepwise regression of the effect of incidence of financial exclusion on household consumption expenditure is done to appreciate the principle of parsimony and is reported in Appendix D. The main variable of interest, incidence, depth and severity of financial exclusion, is measured in literature from both demand and supply variables (Buckland & Simpson, 2008; Kumar, 2013; Osei-Assibey, 2009). OLS results based on this demand-side variable will then be biased and inefficient due to endogeneity resulting from the omission of relevant variables.

To confirm the existence of endogeneity, the study tested for endogeneity using the Wu–Hausman test (Hausman, 1978) and Durbin (score) test and they both (at 5% alpha level) lead to a rejection of the null hypothesis that financial exclusion (incidence, depth, and severity) is exogenous as shown in Appendix E. This gives credence to the treatment of incidence, depth, and severity of financial exclusion as an endogenous variable. Therefore, using the type of financial institution and type of insurance as instruments representing the supply variables, the study corrects for this endogeneity using instrumental variable estimation. To check for instrument relevance, the study conducts a weak instrumentation test using the F-statistic of the first stage regression (Staiger & Stock, 1994). The F-statistic of 8338.92, which is greater than the Wald statistics (19.93, 11.59, 8.75, and 7.25) values shown in Appendix F. This confirms the rejection of the null hypothesis of weak instruments and concludes good instruments for the estimation.

The study proceeds to perform the overidentification test with the joint null hypothesis that the instruments are valid. From Appendix G, both the Sargan's score and Basman had (p-value=0.7670) and (p-value=0.7673) respectively leads to the failure of rejecting the null hypothesis that the instruments are valid. Therefore, the study concludes that instruments are valid. To test for instrument exogeneity, the studied appeal to intuition (Wooldridge, 2015) by saying that type of financial institution and type of insurance should not have a direct effect on household consumption expenditure unless through one's participation in the consumption of financial products.

However, Cameron and Trivedi (2005) gave a clue that the only way to ensure instrument exogeneity is by strictly ruling out the correlation between the instrument and the dependent variable (y). The reason is that if the predicted variable depends on both the instruments and the instrumented, then the omission of the instruments from the model suggest that the instruments are in the error term, which will cause the instrumented to correlate with the error because the instrument explains the dependent variable as well. Instrumental variable estimation under such circumstances will be biased and inconsistent. Conversely, our instruments have a positive significant relationship with the dependent variable as shown in the Appendix C. The study, therefore, employed Conditional Mixed Process (CMP) estimation, which treats the structural, and the reduced form equation as simultaneity phenomenon and thus both household consumption poverty and financial exclusion (incidence, depth, and severity) are endogenous. The justification here is that the rho (ρ), which represent the correlation between the

errors, should be significant in all the three different models. Having shown that instrumental variable and conditional mixed process technique relevance, the study proceeds to the analyses and discussion of the results from the study.

Table 8 reports the effect of the incidence of financial exclusion on household consumption poverty. Column (2) displays the IV results, which include the variable of interest (incidence) in addition to all control variables. The negatively significant coefficient of the incidence of financial exclusion implies that a unit increase in the incidence of financial exclusion would decrease household consumption expenditure by 44.2% and it is significant at 1% alpha level. This is because financial exclusion comes with many inadequacies such as instability in operations through lack of loanable funds, and increased extra cost in obtaining credit in fringe markets to expand operations, etc. This result is consistent with the literature that financial exclusion negatively affects household head's consumption expenditure (Barboni et al., 2017).

Many of the control variables in Column (2) are also consistent with the literature. For example, a unit increase in the employment status of household head increases consumption expenditure by 23.7% compared to the unemployed household head. Further, evidence suggests that educational level head positively affects household consumption poverty. For instance, an additional year of university education will increase consumption expenditure by 65.6% as compared to heads with no education. Whereas household heads with polytechnic and training college education consumption expenditure increases by 36.2% and 45.1% respectively and is statistically significant at 1%. However, household heads with

basic education affect household consumption expenditure by 20.1% and are marginally significant. Again, an additional year to the age of head increases consumption expenditure by 1.0%. Further evidence suggests that as household size increases by a unit, household consumption expenditure will increase by 10.3% which can be inferred that large family size has a low propensity to save as a greater percentage of their income will go into consumption.

Table 8: The Effect of Incidence of Exclusion on Household Consumption

Poverty

VARIABLES	OLS Expend	IV expend	CMP Expend
Incidence (base=marginally excluded)			
Totally excluded	-0.296*** (0.012)	-0.442*** (0.017)	-0.442*** (0.017)
Employment (base=unemployed)			
Employed	0.254*** (0.015)	0.237*** (0.015)	0.237*** (0.015)
Retired	0.295*** (0.061)	0.270*** (0.061)	0.270*** (0.061)
Education (no education)			
Basic	0.209** (0.102)	0.201* (0.103)	0.201* (0.103)
SHS	0.337*** (0.104)	0.306*** (0.104)	0.306*** (0.104)
Training	0.419*** (0.109)	0.362*** (0.109)	0.361*** (0.109)
Polytechnic	0.503*** (0.110)	0.451*** (0.110)	0.451*** (0.110)
University	0.713*** (0.105)	0.656*** (0.106)	0.656*** (0.106)
Others	-0.155 (0.103)	-0.136 (0.103)	-0.136 (0.103)
Sex (base=female)			
Male	-0.089*** (0.015)	-0.083*** (0.015)	-0.083*** (0.015)
Age	0.001** (0.000)	0.001** (0.000)	0.001** (0.000)

Table 8 continued

Size	0.104*** (0.002)	0.103*** (0.002)	0.037*
Marital status (base=married)			
Consensual union	0.028 (0.021)	0.037* (0.021)	-0.109*** (0.029)
Separated	-0.113*** (0.029)	-0.109*** (0.029)	-0.111*** (0.026)
Divorced	-0.118*** (0.026)	-0.111*** (0.026)	-0.132*** (0.022)
Widowed	-0.139*** (0.022)	-0.132*** (0.022)	-0.207*** (0.021)
Never married	-0.211*** (0.021)	-0.207*** (0.021)	0.103*** (0.002)
Residence (base=rural)			
Urban	0.518*** (0.012)	0.497*** (0.012)	0.497*** (0.012)
Constant	8.134*** (0.106)	8.225*** (0.107)	8.225*** (0.107)
Observations	13,609	13,609	13,609
R-squared	0.401	0.395	
Insig_1			-1.190*** (0.006)
Insig_2			-0.433*** (0.006)
atanhrho_12			0.152*** (0.012)

Source: Author's Construct, 2019

Table 9 reports the effect of the depth of financial exclusion on household consumption poverty. Column (2) highlight the IV results and the variable of interest (depth) of financial exclusion in addition to all control variables supported by literature for the analysis. The negative coefficient of the depth of financial exclusion indicates that when the depth of financial exclusion increases by 1 unit, household consumption expenditure will decrease by 77.2% as compared to household head marginally excluded from the ownership of the financial product. This result is consistent with the theory, which postulates that as more emphases are placed on the most excluded, the situation of the most excluded worsens. The

study thus expects intensity (depth) of exclusion to decrease consumption expenditure by more than the incidence of financial exclusion.

Again, control variables in Column (2) are also consistent with the literature. For example, a unit increase in the employment status of household head increases consumption expenditure by 23.1% compared to the unemployed household heads. Further, evidence suggests that educational level head positively affects household consumption poverty. For instance, an additional year of university education will increase consumption expenditure by 65.4% as compared to heads with no education. Whereas household heads with polytechnic and training college education consumption expenditure increases by 36.0% and 44.9% respectively and is statistically significant at 1%. However, household heads with basic education affect household consumption expenditure by 20.1% and are marginally significant. Again, an additional year to the age of head increases consumption expenditure by 1.0%. Further evidence suggests that as household size increases by a unit, household consumption expenditure will increase by 10.3%.

Table 9: The Effect of Depth of Exclusion on Household Consumption Poverty

VARIABLES	OLS expend	IV Expend	CMP Expend
Depth (base=marginally excluded)			
Totally excluded	-0.516*** (0.021)	-0.772*** (0.029)	-0.772*** (0.029)
Employment (base=unemployed)			
Employed	0.254*** (0.015)	0.231*** (0.015)	0.237*** (0.015)
Retired	0.295*** (0.061)	0.286*** (0.060)	0.270*** (0.061)
Education (no education)			
Basic	0.209**	0.201*	0.201*

Table 9 continued

	(0.102)	(0.103)	(0.103)
SHS	0.337***	0.302***	0.306***
	(0.104)	(0.104)	(0.104)
Training	0.419***	0.360***	0.361***
	(0.109)	(0.109)	(0.109)
Polytechnic	0.503***	0.449***	0.451***
	(0.110)	(0.110)	(0.110)
University	0.713***	0.654***	0.656***
	(0.105)	(0.106)	(0.106)
Others	-0.155	-0.131	-0.136
	(0.103)	(0.103)	(0.103)
Sex (base=female)			
Male	-0.089***	-0.082***	-0.083***
	(0.015)	(0.015)	(0.015)
Age	0.001**	0.001**	0.001**
	(0.000)	(0.000)	(0.000)
Marital status (base=married)			
Consensual union	0.028	0.029	0.037*
	(0.021)	(0.021)	(0.021)
Separated	-0.113***	-0.108***	-0.109***
	(0.029)	(0.029)	(0.029)
Divorced	-0.118***	-0.107***	-0.111***
	(0.026)	(0.026)	(0.026)
Widowed	-0.139***	-0.120***	-0.132***
	(0.022)	(0.021)	(0.022)
Never married	-0.211***	-0.221***	-0.207***
	(0.021)	(0.020)	(0.021)
Size	0.104***	0.103***	0.103***
	(0.002)	(0.002)	(0.002)
Residence (base=rural)			
Urban	0.518***	0.498***	0.497***
	(0.012)	(0.012)	(0.012)
Constant	8.134***	8.269***	8.225***
	(0.106)	(0.105)	(0.107)
Observations	13,609	13,609	13,609
R-squared	0.401	0.395	
Insig_1			-1.746***
			(0.006)
Insig_2			-0.433***
			(0.006)
atanhrho_12			0.152***
			(0.012)

Source: Author's Construct, 2019

Furthermore, the effect of severity of financial exclusion on household consumption poverty is reported in Column (2) of Table 10 in addition to all the control variables. As noted, if the severity of financial exclusion increases by a unit, consumption expenditure will decrease by 134.5% as compared to household head marginally excluded from the ownership of the financial product and it is statistically significant at 1%. This result is also consistent with Foster, Thorbecke and Greer's postulation that as alpha level increases, the condition of the totally excluded worsens. Thus, the study expects the financial severity of financial exclusion to decrease consumption expenditure by more than that depth of financial exclusion. Employment, education, age, marital status, and household size also have a significant effect on household consumption expenditure as observed from the previous analysis.

Table 10: The Effect of Severity of Financial Exclusion on Household Consumption Poverty

VARIABLES	OLS Expend	IV expend	CMP
Severity (base=marginally excluded)			
Totally excluded	-0.899*** (0.037)	-1.345*** (0.051)	-1.345*** (0.051)
Employment (base=unemployed)			
Employed	0.254*** (0.015)	0.237*** (0.015)	0.237*** (0.015)
Retired	0.295*** (0.061)	0.270*** (0.061)	0.270*** (0.061)
Education (no education)			
Basic	0.209** (0.102)	0.201* (0.103)	0.201* (0.103)
SHS	0.337*** (0.104)	0.306*** (0.104)	0.306*** (0.104)
Training	0.419***	0.362***	0.361***

Table 10 continued

	(0.109)	(0.109)	(0.109)
Polytechnic	0.503***	0.451***	0.451***
	(0.110)	(0.110)	(0.110)
University	0.713***	0.656***	0.656***
	(0.105)	(0.106)	(0.106)
Others	-0.155	-0.136	-0.136
	(0.103)	(0.103)	(0.103)
Sex (base=female)			
Male	-0.089***	-0.083***	-0.083***
	(0.015)	(0.015)	(0.015)
Age	0.001**	0.001**	0.001**
	(0.000)	(0.000)	(0.000)
Marital status (base=married)			
Consensual union	0.028	0.037*	0.037*
	(0.021)	(0.021)	(0.021)
Separated	-0.113***	-0.109***	-0.109***
	(0.029)	(0.029)	(0.029)
Divorced	-0.118***	-0.111***	-0.111***
	(0.026)	(0.026)	(0.026)
Widowed	-0.139***	-0.132***	-0.132***
	(0.022)	(0.022)	(0.022)
Never married	-0.211***	-0.207***	-0.207***
	(0.021)	(0.021)	(0.021)
Size	0.104***	0.103***	0.103***
	(0.002)	(0.002)	(0.002)
Residence (base=rural)			
Urban	0.518***	0.497***	0.497***
	(0.012)	(0.012)	(0.012)
Constant	8.134***	8.225***	8.225***
	(0.106)	(0.107)	(0.107)
Observations	13,609	13,609	13,609
R-squared	0.401	0.395	
Insig_1			-2.303***
			(0.006)
Insig_2			-0.433***
			(0.006)
atanhrho_12			0.152***
			(0.012)

Source: Author's Construct, 2019

Effect of Incidence of Exclusion on Household Consumption Poverty by Gender and Locality

Literature has it that males have lower financial exclusion than females (Demirguc-Kunt et al., 2018). To investigate this claim, the effect of the incidence of financial exclusion on household consumption expenditure is limited across gender lines. Notably from Table 11, given that the head of the household is female if the incidence of financial exclusion increases by a unit, household head consumption expenditure will decrease by 29.60% as compared to marginally excluded household heads. Similarly, given that the head of the household is a male, if the incidence of financial exclusion increase by a unit, household head consumption expenditure will decrease by 49.2% as compared to household heads marginally excluded from the consumption of the financial product and is statistically significant at 1% alpha level. This means a household head excluded from the financial services will hurt more for the male-headed household than the female-headed household.

This is expected and is consistent with the fact that males are less financially excluded than females across the globe. Again, noted from Table 11, given that the head of the household is female, a unit increase in the employment status of household head increases consumption expenditure by 16.4% compared to the unemployed female household head. However, given that the head of the household is male, a unit increase in the employment status of household head increases consumption expenditure by 28.3% as compared to the unemployed male head. Further, given that the retired household head is a male, increases household head

consumption expenditure by 28.8% compared to unemployed household head and is statistically significant at 1%. Further, the educational level of household heads had different contributions to consumption expenditure taken gender difference into account. Consequently, the educational level of the female head had a positive significant effect on household consumption expenditure. However, only polytechnic and university education affects consumption expenditure positively for male-headed households. Other control variables age, residence, marital status are consistent with literature as expected from the study.

Besides, geographical location plays an important role in matters of financial exclusion (Leyshon & Thrift, 1995; Osei-Assibey, 2009). The incidence of financial exclusion is again limited along residence-rural and urban dimensions. Noted from Table 11, if a rural household head is excluded from financial services, consumption expenditure will decrease by 40.3% compared to rural head marginally excluded from the ownership of financial products. However, for urban household heads excluded from the consumption of the financial product, consumption expenditure will decrease by 49.9% as compared to urban heads marginally excluded from the ownership of financial products. Accordingly, this is consistent with the fact that urban dwellers are less financially excluded than rural dwellers, which in turn means that household heads, excluded in an urban centre will suffer from exclusion greatly than rural household heads.

Table 11: Gender Differences in the Incidence of financial Exclusion on Consumption Poverty

VARIABLES	Male Expend	Female expend	Urban expend	Rural expend
Financial exclusion				
Totally excluded	-0.296*** (0.027)	-0.492*** (0.021)	-0.403*** (0.021)	-0.499*** (0.026)
Employment (base=unemployed)				
Employed	0.164*** (0.023)	0.283*** (0.019)	0.308*** (0.020)	0.118*** (0.021)
Retired	0.231** (0.113)	0.288*** (0.072)	0.056 (0.162)	0.233*** (0.061)
Education (no education)				
Basic	0.303** (0.145)	0.037 (0.142)	0.237 (0.149)	0.111 (0.135)
SHS	0.454*** (0.149)	0.127 (0.143)	0.332** (0.151)	0.228* (0.136)
Training	0.663*** (0.157)	0.115 (0.150)	0.465*** (0.159)	0.203 (0.142)
Polytechnic	0.665*** (0.176)	0.249* (0.149)	0.581*** (0.173)	0.340** (0.141)
University	0.850*** (0.157)	0.458*** (0.145)	0.766*** (0.157)	0.539*** (0.137)
Others	0.005 (0.146)	-0.307** (0.143)	-0.122 (0.149)	-0.116 (0.136)
Age	-0.001* (0.001)	0.002*** (0.001)	0.001** (0.001)	0.000 (0.001)
Marital status (base=married)				
Consensual union	0.031 (0.043)	0.038 (0.024)	0.132*** (0.029)	-0.110*** (0.029)
Separated	0.023 (0.038)	-0.249*** (0.048)	-0.122*** (0.043)	-0.081** (0.038)
Divorced	0.051 (0.034)	-0.284*** (0.042)	-0.074** (0.038)	-0.146*** (0.033)
Widowed	-0.036 (0.029)	-0.297*** (0.048)	-0.166*** (0.031)	-0.098*** (0.030)
Never married	-0.103*** (0.038)	-0.240*** (0.025)	-0.154*** (0.034)	-0.204*** (0.026)
Size	0.142*** (0.005)	0.090*** (0.003)	0.095*** (0.003)	0.128*** (0.004)
Residence (base=rural)				
Urban	0.500*** (0.021)	0.487*** (0.015)	- -	- -
Sex (base=female)				

Table 11 continued

Male	-	-	-0.108***	-0.045**
	-	-	(0.023)	(0.019)
Constant	7.989***	8.312***	8.147***	8.839***
	(0.154)	(0.146)	(0.154)	(0.141)
Observations	4,268	9,341	7,793	5,816
R-squared	0.404	0.399	0.293	0.349

Source: Author's Construct, 2019

General Dominance Analysis

According to Foster, Thorbecke, and Greer (1984), higher alpha (α) values reflect greater aversion in poverty as such there is the expectation that the severity of financial exclusion will have a greater negative effect on household consumption poverty than the depth of financial exclusion. Further, the study expects the depth of financial exclusion to have a greater negative effect on consumption poverty than the incidence of financial exclusion. Indeed, the IV results in Tables 8, 9 and 10 have revealed a pattern that confirms this expectation. The study, therefore, conducts dominance analysis to determine the relative superiority among incidence, depth, and severity of financial exclusion. Dominance analysis determines the relative importance of each independent variable used in the estimation model based on their contribution to the overall model fit statistic. Noted in Table 12, incidence, depth, and severity all have a dominance statistic of 0.032.

However, in terms of ranking of the statistics, the severity of financial exclusion is ranked over depth of financial exclusion whereas in-depth financial exclusion is ranked over the incidence of financial exclusion. This confirms the expectation that the severity of financial exclusion is superior to the depth of financial exclusion while depth financial exclusion is superior to the incidence of

financial exclusion. Also, as noted from Table 12, the residence of the household head i.e. rural or urban had the greatest contribution to the overall fit statistic. Household size and employment status of the household head follows with second and sixth positions. In conclusion, the severity of financial exclusion generally dominates the depth of financial exclusion whereas the depth of financial exclusion generally dominates the incidence of financial exclusion.

Table 12: General dominance Analysis

Expend	Domin. Stat	standardized Domin. Stat	Ranking
Incidence	0.032	0.090	5
Depth	0.032	0.090	4
Severity	0.032	0.090	3
Employment	0.027	0.075	6
Education	0.018	0.050	8
Male	0.002	0.007	9
Age	0.002	0.006	10
Marital status	0.023	0.064	7
Size	0.078	0.219	2
Urban	0.111	0.309	1
Fit Statistic/observation		0.36/13609	

Source: Author's Construct, 2019

Chapter Summary

In conclusion, the chapter presented a detailed discussion of the explanatory variables used for the analysis. The study went further to present a discussion on incidence, depth, and severity of exclusion across the administrative region, residence, ecological zone, and gender. Further, the study discussed the association among classes of financial exclusion measures and household head poverty status. Further, the study discusses the effect of incidence, depth, and severity of financial exclusion on household consumption poverty. Besides, the study disaggregated the

effect of incidence of financial exclusion on household consumption expenditure across residence and gender and finally performed dominance analysis to determine the relative importance of each of the explanatory variables' contribution to the overall fit statistic of the model.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

Introduction

This chapter aims to elaborate on the findings of the study, draw conclusions upon these findings and also to provide policy recommendations. The chapter begins with a summary, then concludes and makes policy recommendations. The chapter ends with limitations of the study, and give directive for further research base on the limitations encountered from the study.

Summary

The study sought to examine the effect of financial exclusion on household consumption poverty in Ghana. Specifically, the study estimated incidence, depth, and severity of financial exclusion in Ghana; Test the association between classes of financial exclusion measures and poverty status in Ghana; and finally, determined the effect of incidence, depth, and severity of financial exclusion on household consumption poverty in Ghana. Accordingly, two hypotheses guided the study. The first hypothesis stated that there was no association between financial exclusion and household consumption poverty while the second hypothesis addressed the issue that classes of financial exclusion do not affect household consumption poverty.

The study employed Blanks' theory of poverty, the neoclassical theory of poverty measurement, which relates poverty to inadequacies in financial access and usage. The study further explained how the welfarist school of thought used income or consumption expenditure as a proxy to measure household economic wellbeing,

thus differentiating poor from the non-poor population (Asselin & Dauphin, 2001). The study further employed the FGT methods to solve the first objective i.e. incidence, depth, and severity of financial exclusion. Further, the study used the Chi-square independence test to investigate the association between classes of financial exclusion and household head poverty status. Finally, the study employed the ordinary least square, instrumental variable estimation, and conditional mixed process to investigate the effect of financial exclusion on household poverty.

Beginning with the descriptive statistics, the study found that the mean of the financial exclusion index is approximately one i.e., household head on average owned a single financial product. The study revealed that widowed, consensual union and divorced household heads have a higher level of exclusion as compared to single and married heads. Again, household heads with no religion and those who are traditionalists had a higher financial exclusion than heads in other religious denominations. Further, heads with age between 15-23 years had higher financial exclusion than heads belonging to other age categories. Further, among the four ethnic groups (Asante, Fante, Ewe, Dagarte) used for the analysis, Dagarte had the highest financial exclusion within the category. Again, household heads who are not employed had higher financial exclusion compared to heads with employment. Similarly, heads with basic and no education had greater financial exclusion than heads with training, polytechnic and university education.

With objective one, the study estimates incidence, depth, and severity of financial exclusion across the region, residence, ecological zone, and gender. For the ten administrative regions, Northern, Upper West, Upper East, Brong-Ahafo

and Western had a higher incidence, depth, and severity of financial exclusion respectively. Again, as consistent with other studies, the study found that rural dwellers mostly suffer from financial exclusion than urban residents for incidence, depth, and severity of financial exclusion. Similarly, the study found females to experience financial exclusion than males. Finally, rural savannah, urban savannah, rural forest and rural coastal zones respectively had higher incidence, depth, and severity of financial exclusion.

The second objective came out with the findings that there is an association between classes of financial exclusion measures and household head poverty status. Particularly, poor household heads generally experience financial exclusion compared to non-poor households. The third objective, the findings revealed that incidence, depth, and severity of financial exclusion hurt household consumption expenditure. Particularly, the severity of financial exclusion had the greatest negative effect on household consumption expenditure. This was followed by a depth of financial exclusion and finally incidence of financial exclusion. Similarly, household size, education, employment status, and gender were all significant and consistent with other empirical studies. Again, urban dwellers had a greater reduction in household consumption expenditure than rural settlers while the male-headed household suffers more from financial exclusion than excluded female-headed households. Finally, dominance analysis confirmed that the severity of financial exclusion dominates the depth of financial exclusion while the depth of financial exclusion dominates the incidence of financial exclusion.

Conclusions

The study, in line with empirical literature, revealed that there is a high financial exclusion in the country. Particularly, the Northern region, Upper West, Upper East, and Volta region have high financial exclusion. Consistent with the World Bank report, female household heads have higher financial exclusion than male-headed households. Similarly, savannah zones in the country experience higher financial exclusion than the rest of the country. Again, rural dwellers have higher financial exclusion than urban dwellers. Furthermore, poor household heads experience financial exclusion more than non-poor household heads. This suggests that financial exclusion is poverty-driven in the country. Finally, financial exclusion decreases household consumption expenditure in the country. This suggests that an effort to boost household head consumption expenditure must consider financial inclusion.

Recommendations

Based on the findings from the study, the following recommendations are proposed.

The study recommends that the Government of Ghana through the ministry of finance should promote an enabling environment for inclusive finance in Ghana. This could be achieved by making household heads account ownership prerequisites for every transaction in the economy. This will encourage household heads to have access to other financial products like loans and insurance as many household heads who do not have a bank account with a financial institution are mostly denied loans from these banks.

Further, the study recommends that the Government of Ghana must endeavor to reduce poverty in all forms as financial exclusion is associated with household head's poverty status in the country. This can be achieved through formal education of household heads. Educated household heads had a greater increase in their household consumption expenditure, which translates into a reduction in household heads poverty status and thus reducing financial exclusion in Ghana. Also, the employment status of household heads greatly reduced poverty. Consequently, financial exclusion will decrease because of the positive association with household head poverty status. Thus, the government should increase the quality of education as well as the employment status of household heads to reduce poverty and financial exclusion in the country.

Further, the Government should provide an enabling environment for businesses to thrive in the country. This can be achieved through ensuring building the capacity of financial institutions in the country. Thus, ensuring that agricultural producer gets credit to expand their farming, availability of employment opportunities to household heads irrespective of the level of skills acquired. This will help households to generate a source of income to escape possible poverty traps and thus avoiding financial exclusion.

Suggestions for Further Research

Regarding, the limitation highlighted i.e. the use of the mean of the index as a baseline for the measurement of depth and severity and the unidimensional approach of consumption poverty, future research should endeavor to navigate

around that mean limitation. Also, future studies should consider a multidimensional approach to the measurement of poverty. Future studies can also consider pooling cross-sectional units over time to study the phenomenon of financial exclusion in the country.

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B: Independence Test of Incidence and Explanatory Variables

Variable	Included Percentage/Chi	Excluded Percentage/Chi	Total
Employment Status	Pearson chi2(2) = 344.6347 Pr = 0.000		
Unemployed	47.19	52.81	100.00
Employed	65.27	34.73	100.00
Retired	86.25	13.75	100.00
Education Level	Pearson chi2(6) = 1800 Pr = 0.000		
No education	46.39	53.61	100.00
Basic	63.56	36.44	100.00
S_H_S	80.78	19.22	100.00
Training college	95.59	4.41	100.00
Polytechnic	95.99	4.01	100.00
University	95.94	4.06	100.00
Others	41.64	58.36	100.00
Age Categories	Pearson chi2(4) = 168.5175 Pr = 0.000		
15-23	48.93	51.07	100.00
24-35	65.68	34.32	100.00
36-45	65.30	34.70	100.00
46-59	64.11	35.89	100.00
60-96	55.21	44.79	100.00
Ethnicity	Pearson chi2(4) = 163.0552 Pr = 0.000		
Asante	67.65	32.35	100.00
Fante	65.92	34.08	100.00
Ewe	66.28	33.72	100.00
Dagarte	49.34	50.66	100.00
Others	60.62	39.38	100.00
Marital Status	Pearson chi2(5) = 178.4673 Pr = 0.000		
Married	64.49	35.51	100.00
Consensual Union	58.04	41.96	100.00
Separated	66.16	33.84	100.00
Divorced	60.78	39.22	100.00
Widowed	53.20	46.80	100.00
Never Married	67.90	32.10	100.00
Religious Affiliation	Pearson chi2(7) = 604.2636 Pr = 0.000		
No Religion	43.05	56.95	100.00
Catholic	66.02	33.98	100.00
Protestant	70.32	29.68	100.00
Pentecostal	70.01	29.99	100.00
Other Christian	65.28	34.72	100.00
Islamic	55.77	44.23	100.00
Traditionalist	33.97	66.03	100.00
Other	93.71	6.29	100.00
Total	62.78	37.22	100.00

Source: Author's Construct, 2019

C: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) expend	1.00												
(2) incidence	-0.34	1.00											
(3) depth	-0.34	1.00	1.00										
(4) severity	-0.34	1.00	1.00	1.00									
(5) typ_fin	0.38	-0.72	-0.72	-0.72	1.00								
(6) insu_t	0.17	-0.44	-0.44	-0.44	0.18	1.00							
(7) employ	0.23	-0.16	-0.16	-0.16	0.19	0.04	1.00						
(8) educat	-0.18	0.15	0.15	0.15	-0.15	0.00	-0.14	1.00					
(9) male	0.08	-0.02	-0.02	-0.02	0.08	-0.04	0.10	-0.03	1.00				
(10) Age	-0.07	0.10	0.10	0.10	-0.16	0.05	-0.17	0.24	-0.14	1.00			
(11) m_stat	-0.19	0.00	0.00	0.00	-0.03	0.00	-0.10	-0.03	-0.44	-0.07	-0.02		
(12) Size	0.26	0.06	0.06	0.06	-0.06	-0.01	0.03	0.18	0.19	0.14	0.09	1.00	
(13) urban	0.36	-0.24	-0.24	-0.24	0.27	0.11	0.06	-0.17	-0.08	-0.08	-0.08	-0.20	1.00

Source: Author's Construct, 2019

D: Stepwise Regression of Incidence of Exclusion on Household Consumption Poverty

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	ols1	ols2	ols3	ols4	ols5	ols6	ols7	ols8	ols9	ols10
Varia	Expend	Expend	Expend	Expend	Expend	Expend	Expend	expend	Expend	expend
FE	-0.57** (0.01)	-0.53** (0.01)	-0.39** (0.01)	-0.39** (0.01)	-0.39*** (0.01)	-0.38*** (0.01)	-0.36*** (0.01)	-0.36*** (0.01)	-0.29*** (0.01)	-0.28*** (0.01)
Emp		0.360*** (0.02)	0.30*** (0.02)	0.30*** (0.02)	0.32*** (0.02)	0.23*** (0.02)	0.17*** (0.02)	0.16*** (0.02)	0.18*** (0.02)	0.14*** (0.01)
Retire		0.69*** (0.07)	0.51*** (0.06)	0.51*** (0.06)	0.43*** (0.06)	0.46*** (0.06)	0.39*** (0.06)	0.40*** (0.06)	0.28*** (0.05)	0.17*** (0.05)
Basic			0.169 (0.117)	0.161 (0.117)	0.167 (0.117)	0.198* (0.114)	0.157 (0.111)	0.148 (0.105)	0.155 (0.0996)	0.126 (0.0950)
S.H.S			0.269** (0.118)	0.254** (0.118)	0.282** (0.118)	0.362*** (0.116)	0.350*** (0.112)	0.379*** (0.106)	0.300*** (0.101)	0.254*** (0.0960)
Traini			0.261** (0.124)	0.254** (0.124)	0.276** (0.124)	0.363*** (0.122)	0.367*** (0.118)	0.413*** (0.112)	0.415*** (0.106)	0.466*** (0.101)
Poly			0.47*** (0.125)	0.45*** (0.125)	0.47*** (0.125)	0.51*** (0.123)	0.51*** (0.119)	0.58*** (0.113)	0.47*** (0.107)	0.47*** (0.102)
Unive			0.68*** (0.120)	0.66*** (0.120)	0.68*** (0.120)	0.73*** (0.117)	0.69*** (0.114)	0.76*** (0.108)	0.67*** (0.102)	0.64*** (0.0975)
Others			-0.137 (0.12)	-0.143 (0.12)	-0.164 (0.12)	-0.116 (0.12)	-0.0879 (0.11)	-0.193* (0.11)	-0.117 (0.10)	-0.0361 (0.010)
Male				0.06*** (0.0139)	0.07*** (0.0139)	0.06*** (0.0137)	-0.09*** (0.0163)	-0.11*** (0.0155)	-0.06*** (0.0147)	-0.04*** (0.0141)
Age					0.003*** (0.00)	0.056*** (0.00)	0.046*** (0.00)	0.030*** (0.00)	0.023*** (0.00)	0.016*** (0.00)
Cons							-0.089*** (0.0227)	0.010 (0.0217)	0.023 (0.0206)	-0.08*** (0.0198)
Separ							-0.352*** (0.03)	-0.153*** (0.03)	-0.141*** (0.03)	-0.175*** (0.03)

D continued

Divor							-0.390***	-0.17***	-0.16***	-0.18***
Size								0.09***	0.10***	0.11***
								(0.002)	(0.002)	(0.002)
Urban									0.47***	0.36***
									(0.01)	(0.01)
Const	9.19***	8.89***	8.75***	8.73***	8.55***	7.41***	8.14***	8.11***	7.95***	8.17***
	(0.010)	(0.017)	(0.12)	(0.12)	(0.12)	(0.13)	(0.13)	(0.12)	(0.11)	(0.11)
Obser	13,808	13,808	13,808	13,808	13,808	13,808	13,609	13,609	13,609	13,609
R2	0.116	0.146	0.199	0.200	0.204	0.235	0.300	0.371	0.435	0.487

Source: Author's Construct, 2019

E: Post Estimation Test

Test of endogeneity

Ho: variables are exogeneous

Durbin (score) chi2(1)	=	238.141	(p = 0.00)
Wu-Hausman F (1,13575)	=	241.777	(p = 0.00)

Post Estimation Test

Test for Weak Instruments

Summary Statistics

	Adjusted Partial				
	R-sq.	R-sq.	R-sq.	F (2,13575)	Prob > F
Incidence	0.6304	0.6295	0.5513	8338.92	0.00
Minimum eigenvalue statistic					8338.92
Critical Values				of endogenous regressors:	1
Ho: Instruments are weak				of excluded instruments:	2
				10% 15% 20% 25%	
2SLS Size of nominal 5% Wald				test 19.93 11.59 8.75 7.25	
LIML Size of nominal 5% Wald				test 8.68 5.33 4.42 3.92	

Post Estimation Test

Test of Over-Identification

Tests of overidentifying	restrictions:
Sargan (score) chi2(1) =	0.0878 (p = 0.767)
Basman chi2(1) =	0.0876 (p = 0.767)

Source: Author's Construct, 2019