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Evaluating the relationship between financial inclusion, social inclusion and multidimensional poverty reduction

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Abstract

Evaluating the Relationship Between Financial Inclusion, Social Inclusion and Multidimensional Poverty Reduction

by

Rotimi Mathew Nihinlola

MSc, The University of Sheffield, United Kingdom, 2005

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

The problems of high levels of poverty, financial exclusion and social exclusion are well documented in literature; a large population of poor people lack adequate access to financial services and social services including healthcare, electricity, education and water. Globally there are over 700 million people living in extreme poverty and in Ghana, over 6 million face this challenge. Progress is being recorded but there is no research that has examined the relationship between financial inclusion, social inclusion and poverty reduction in a country where multidimensional poverty is high. The purpose of this within-subject quasi-experimental correlational study is to determine the influence of financial inclusion and social inclusion on multidimensional poverty reduction using secondary data collected from Ghana Household Living Standards survey (GHLSS). Luhmann's social systems theory underpinned the study with its focus on the society as a social system wherein no one should be excluded to ensure social stability. The research question was - what is the relationship between independent variables (IVs) namely financial inclusion, and social inclusion categories (healthcare, electricity, education, and water), and the dependent variable (DV), multidimensional poverty status among Ghanaians? Factorial ANOVA was adopted for the analysis of the data covering 18,000 households. The study revealed that all the IVs, except health inclusion, have significant influence on the DV with education inclusion having the biggest influence. The study outcome can enable reforms required for accelerating multidimensional poverty reduction through a focused multidimensional policy and programmatic action for advancing increased access to education, electricity, financial, and water services for the poor.

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Dedication

I dedicate this research study to my Lord Jesus Christ and for the benefit of the vast population of poor people suffering financial and social exclusion across the world. My ultimate professional commitment is to contribute to global efforts aimed at achieving universal access for all to financial and social services. The greatest motivation for my interest in the plight of the financially and socially excluded poor and the pursuit of this research study is rooted in a personal value, which I gained from the teachings of Jesus Christ, that every life matters and that we ought to be good neighbors to fellow members of society who are in need of help.

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Chapter 1: Introduction to the Study

The focus of this study is to determine the nature of the relationship between financial inclusion, social inclusion, and multidimensional poverty reduction using, as target population, the poor in Ghana who earn and spend less than $1.90 a day. It is established in the literature that poverty is multidimensional in nature and that a large proportion of poor population suffer exclusion from many essential services including financial and social services (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017; Allen, Demirguc-Kunt, Klapper & Periac, 2016; Fosua, 2017). The outcome of the study will fill a gap in knowledge as, currently, there is no evidence on the relationship that exists between financial inclusion, social inclusion, and multidimensional poverty status in a country or region where multidimensional poverty is prevalent. This contribution has the potential of informing changes in policy and programmatic actions towards greater poverty reduction impact in the developing regions.

In this chapter I will define and demonstrate alignment of the key elements of the study namely; the research problem and the purpose that form the basis of the enquiry, the variables, research question to be addressed, and the related hypotheses to be tested. I will also cover other important topics including; theoretical foundation, nature of the study, research design and methodology, definitions, assumptions, delimitations, and limitations of the study.

Background

Poverty used to be viewed and measured mainly from monetary perspective but increasingly researchers are examining poverty from a multidimensional perspective

(Alkire, Roche & Vaz, 2017). The capability approach to poverty popularized by Amartya Sen, a Nobel Laureate, postulates that aside from monetary dimensions the poor also suffer significant deprivations in many social dimensions including limited access to healthcare and education (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). Literature is also replete with evidence of exclusion of large poor population from financial services (Allen, Demirguc-Kunt, Klapper & Periac, 2016).

Following continued intervention there is evidence of increase in financial inclusion evidenced by more unbanked poor having access to financial services although the evidence of its direct impact on poverty reduction remains controversial (Agbola, Acupan & Mahmood, 2017; Miled & Rejeb, 2015). However, extant evidence of poverty reduction is typically about increase in income or expenditure of the poor - monetary deprivation dimension (Mwangi & Atieno, 2018) - whereas poverty has other social exclusion dimensions (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). Evidence of the relationship between financial inclusion and poverty in a multidimensional context is required by stakeholders to aid policy and intervention design (Abhijit, Duflo, Glennerster & Kinnan, 2015; Kumi-Boateng, Mireku-Gyimah & Stemn, 2015).

The gap that the study will address is the lack of knowledge of the relationship between financial inclusion, social inclusion and multidimensional poverty reduction in a country or region where multidimensional poverty is prevalent. Researchers have shown that financial inclusion is increasing based on the continued fall in the population of financially-excluded or unbanked poor globally including sub-Sahara African countries such as Ghana (Allen, Demirguc-Kunt, Klapper & Periac, 2016). Also, there are pockets

of evidence, though limited, where researchers have shown that some financial inclusion programs have resulted in a reduction of poverty level in relation to targeted participants but typically this is more in terms of their increased household income or expenditure levels (Agbola, Acupan & Mahmood 2017; Mwangi & Atieno, 2018). Researchers are keen, however, to have evidence of the influence of financial inclusion on multidimensional poverty reduction, in terms of improvement in all key areas of living, such as education and health, and not only in income growth (Abhijit, Duflo, Glennerster & Kinnan, 2015). Secondary data from Ghana Household survey will be used for the study as Ghana is a typical third world country with a large population of multidimensionally poor who suffer financial and social exclusion (Allen, Demirguc-Kunt, Klapper & Periac, 2016; Fosua, 2017).

Problem Statement

The problem of poverty, its causal factors, and the need for intervention for its reduction have been a subject of focus for policy and research. One of the 17 Sustainable Development Goals of the United Nations is the need to end poverty, in all its forms, by the year 2030 (Barbier & Burgess, 2019). Following continued policy and intervention actions, the number of people in extreme poverty dropped globally to 736 million in 2015 from approximately 2 billion in 1990, but the level is still considered to be high and unacceptable, especially in developing nations (Benevenuto & Caulfield, 2019). In Ghana, where the target population for the study is domiciled, income poverty rate markedly dropped from 7.6 million in 1991 to about 6.2 million in 2006 but across Ghana multidimensional poverty remains prevalent with majority of poor households suffering

deprivations in the area of financial services as well as in social dimensions namely primary education, healthcare, electricity, and water and sanitation (Kumi-Boateng, Mireku-Gyimah, & Stemn, 2015).

Part of the poverty challenge is its multi-dimensional nature which involves a lack of access by the poor to basic human needs such as food, safe drinking water, sanitation facilities, health, shelter, education and information (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). Whereas 756million are considered to be in extreme poverty using monetary estimation but according to multidimensional poverty concept which considers other poverty dimensions a total of 1.3 billion people are living in poverty (Benevenuto & Caulfield, 2019). Poverty challenge therefore is comprised of not only the lack of adequate income but also lack of access to other essential services (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

The poor lack access to two types of services: financial services -financial exclusion (Allen, Demirguc-Kunt, Klapper, & Periac 2016; Fosua, 2017) - and essential social services – socio-exclusion (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). A large population of poor people are still financially-excluded, and many of this poor people in developing regions of south Asia and sub-sahara Africa suffer social exclusions from access to electricity, clean water and basic healthcare (Alkire, Roche & Vaz, 2017; Allen, Demirguc-Kunt, Klapper & Periac, 2016; Fosua, 2017). In Ghana, positive progress has been recorded across the various indicators but challenges remain with a large proportion of the population still suffering limited access to financial services and social services namely basic school education, maternal and infant health care, clean

water and sanitation and clean home energy (Kumi-Boateng, Mireku-Gyimah & Stemn, 2015).

Key research interests on poverty have included search of evidence on the impact of financial inclusion intervention measures on the multiple dimensions of poverty (Abhijit, Duflo, Glennerster & Kinnan, 2015). One area of poverty alleviation intervention that is gaining increasing attention is financial inclusion. Financial inclusion is aimed at enabling more financially-excluded poor to open bank accounts and have access to financial services with the ultimate objective of reducing poverty (Varghese, Viswanathan, Mwangi & Atieno, 2018; Williams, Adegoke & Dare, 2017). Researchers have shown that financial inclusion is improving with the drop in the population of financially-excluded and unbanked poor across the world especially developing regions (Allen, Demirguc-Kunt, Klapper & Periac, 2016). Also, there are pockets of evidence, though limited, where researchers have shown that some financial inclusion programs have resulted in reduction of poverty level of targeted participants but only in terms of their increased household income (Agbola, Acupan & Mahmood 2017; Mwangi & Atieno, 2018). Extant research that attempted to investigate the relationship between financial inclusion and other poverty dimensions was in regions where multidimensional poverty is not prevalent such as in the Phillipines where only 1 out of 5 people are multidimensionally poor (Agbola, Acupan & Mahmood, 2017).

Although the aforementioned research regarding the level of financial and socio-exclusion and poverty, illuminates important findings, I have found no research that has examined the relationship of both financial inclusion and social inclusion on poverty

reduction from a multidimensional poverty perspective in a region where multidimensional poverty is high. Given such, further research is warranted that could examine the relationship between financial inclusion, social inclusion and multidimensional poverty status in an effort to address the documented problem of high level of poverty arising from financial and social exclusion in the world particularly in developing regions. The research study will be conducted using poor Ghanaians as target population based on the data from the Ghana Household Living Standards survey.

Purpose of the Study

The purpose of this within-subject quasi-experimental corelational study is to determine the influence of financial inclusion and social inclusion on multidimensional poverty reduction using secondary data collected from Ghana Household Living Standards survey. The Ghana Household Living survey covers 18,000 poor households in Ghana and incudes data on relevant variables for this study namely financial inclusion, social inclusion and multidimensional poverty status ("Ghana Living Standards Survey 2012-2013, Round Six", 2016). The study will enable researchers to determine if financial inclusion and social inclusion have significant influence on poverty reduction from a multidimensional perspective (Alkire, Roche & Vaz, 2017). Previous research efforts in financial inclusion have mainly focused only on the relationship between financial inclusion and poverty and researchers had been seeking evidence on that relationship (Agbola, Acupan & Mahmood 2017; Miled & Rejeb, 2015). This univariate approach presented a view of how financial inclusion as a single factor is a predictor of poverty status but poverty involves multiple deprivations suffered by the poor from many

services including financial exclusion and social exclusion - health exclusion, energy exclusion, water exclusion, education exclusion (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

The multiple deprivation situation would require a combined effort to address all these areas of exclusion if they all have significant impact on poverty status. This study therefore is a multivariate inquiry to seek evidence on whether or not each of these independent variables can have significant influence on multidimensional poverty and if there are any interaction effects between them. The outcome of the study will be helpful both for policy and practice. Currently, typical financial and social inclusion policy and intervention programs adopt an independent silo approach where only financial services, and also social services, are targeted at the population. But this study may indicate the need rather for an integrated and multi-prong model where the significant social exclusion services are delivered together with financial services in a multi-disciplinary and multidimensional manner so as to achieve greater impact on poverty reduction.

Research Questions (RQ) & Hypotheses

Research Question

What is the relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey?

Hypotheses

The null hypothesis and alternative hypothesis to be used to guide and interpret the analysis outcome are as follows:

Null Hypothesis (H_0): There is no statistically significant relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey?

Alternative Hypothesis (H_A): There is a statistically significant relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey?

Theoretical Framework

The theory that underpins the study is Luhmann's social systems theory. The Luhmann's social systems theory essentially looks at the society as a social system with members of that society as its constituent parts and each of which having its own role such that no member or groups in the system cannot be considered in isolation or exclusion of other parts (Kihlström, 2012). Central to the theory is, one, the question of achieving social order and, two, the roles of the excluded members in partly taking responsibility for their inclusion with the support of help systems and intervention agents such as the non-government organizations (Kihlström, 2012) This theory is applicable to my selected study because the study is focusing on certain members of society (the poor in Ghana) who are excluded from its financial and social services systems.

In line with propositions of the theory, whereas all Ghanaians are part of the social system of their country most poor Ghanaians who live on less than $1.90 a day are excluded from financial and social services as service providers consider the poor to be of low-priority focus (Allen, Demirguc-Kunt, Klapper & Periac, 2016). Due to the exclusion the affected poor Ghanaians have been marginalized and prevented from functioning

effectively as members of the system and to bridge the gap various stakeholders such as governments, civil society, and social enterprises are taking steps to address the gap through policies and programs that enable access to the essential services for all Ghanaians including the poor (Allen, Demirguc-Kunt, Klapper & Periac, 2016).

Nature of Study

The method I have chosen for my study is correlational quantitative quasi-experimental design and the statistical model that was used is factorial ANOVA. The purpose of my study was to determine if there is a relationship between financial inclusion, socio inclusion, and multidimensional poverty status. The design is appropriate given that the Ghana Living survey data used for the study cover the study variables relating to Ghanaians after the fact (ex-post) and also that there was no control group. The statistical model is also appropriate given that I was looking for mean differences of the outcome variable over two factors namely financial inclusion and social inclusion (Airou & Airout, 2017).

The data used for the study is secondary data collected from the Ghana Living Standards Survey, covering 18,000 participants, which focuses on the living conditions and well-being of households in Ghana ("Ghana Living Standards Survey 2012-2013 Round Six", 2016). The Ghana population is relevant for the study as Ghana is a poor country from a developing country with prevalence of financial and social inclusion and also is one of the African countries where some progress in financial inclusion is now being recorded (Abor, Amidu & Issahaku, 2018; Allen, Demirguc-Kunt, Klapper & Periac, 2016; Fosua, 2017). The variables was measured based on the coding and

measures used in the data source that is aligned with constructs adopted for this study and supported by extant literature. A factorial ANOVA model was adopted to determine whether or not there is a statistically significant relationship between the independent variables and the dependent variable. The purpose was to determine whether or not there is any interaction effect between the independent variables on the dependent variable.

Dependent variable

The dependent variable is the multidimensional poverty status and the measure used was the amount of annual expenditure of each household participant unit with higher amounts indicating lower poverty status. This measure partly aligns with monetary poverty measure which focuses on income and expenditure in exclusion of other poverty dimensions (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). However, the expenditure base data captured by the Ghana survey is comprehensive as it covers all household expenditure including the dimensions in capability approach-based poverty measurement index used by the United Nations Development Program namely electricity, healthcare, education, and water (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

Independent Variables

The independent variables (IVs), covered in the Ghana Living Standards Survey, are financial inclusion and the four social inclusion categories or dimensions covered by this study namely, electricity inclusion, healthcare inclusion, education inclusion, and water inclusion. The IVs, which are also the factors in the ANOVA model, are measured by access of persons to the services to which the IVs relate There are two groups for each

of the IVs namely, non-inclusion (no access) which takes zero value and inclusion (access) with value of 1.

Financial Inclusion

There are many measures for Financial Inclusion in literature and the most common is ownership of bank accounts which the world bank uses for tracking trends of financially excluded and unbanked populations (Allen, Demirguc-Kunt, Klapper & Periac, 2016). The limitation of this measure is that ownership of bank account might not translate to impact until the people actually use financial products – loans, savings, insurance and others - and it has been recorded also that a large portion of these accounts are inactive and unused (Allen, Demirguc-Kunt, Klapper & Periac, 2016). Some researchers have resorted to the use of access to products as the measure. Abor, Amidu, and Issahaku, (2018) in their study on Financial Inclusion adopted 'use of financial products in the last 12 months' as part of their measure of Financial Inclusion. The measure adopted for this study is the use of loan product as presented in Table 1. in chapter 3.

Social inclusion

The social inclusion categorical variables comprising electricity inclusion, healthcare inclusion, education inclusion, and water inclusion were measured in terms of whether or not there is access to the related social services namely electricity, healthcare, education, and clean water. Both the United Nations Development Program global Multi-dimensional Poverty Index and World Bank Multi-dimensional Poverty Index measure electricity access in terms of connection to and use of clean source of energy. Healthcare

was measured in terms of child, maternal and adult health and access to medical facility, whilst education access was measured in terms of child and adult school enrolment and attainment of basic education level. The measure for water access is in terms of proximity to source of standard drinking (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). This study has selected one key measure out of those measures contained in the two leading global multidimensional poverty indexes that are available in the Ghana survey data. The measures adopted for the study are defined in chapter 3.

Definitions

The following are the definitions of the key terms used in the study:

Poverty

Poverty has been defined in literature in many ways using varying constructs such as “extreme poverty”, “absolute poverty” and “relative poverty” (Benevenuto & Caulfield, 2019; Yamamori, 2019). People in extreme poverty are those living below the international poverty line (IPL) of $1.90 income daily (Benevenuto & Caulfield, 2019). The view of poverty in absolute terms considers certain services to be basic to good living including; food, safe drinking water, sanitation facilities, health, shelter, education and information, and deprivation from them results in impairment of a minimum standard of living and thereby poverty (Benevenuto & Caulfield, 2019). Poverty in relative terms considers the minimum standard of living which is considered to vary from society to society (Yamamori, 2019). Toru Yamamori (2019) talked of Peter Townsend as a key proponent of relative poverty concept who described the poor as people who are

relatively deprived because they cannot obtain the conditions of life which allow them to play the roles and are therefore unable to fulfil membership of society.

One other way poverty has been defined is in terms of lack of capacity rather than resources. Amartya Sen, a Nobel Laureate, stated that what is important is not the resources that the poor possesses but rather what it enables them to do (Hick, 2012). This perspective is at the root of the difference between income poverty and capability poverty. Whilst income poverty refers to lack of adequate income to afford basic necessities, capability poverty considers lack of ability to actually access essential services such as education and healthcare (Hick, 2012).

Multidimensional Poverty

For a long time, poverty was conceptualized, explained and analysed from the standpoints of income and expenditure levels (Permanyer and Hussain, 2018). But the definition of poverty by the United Nations include the non-monetary dimensions of poverty as it includes other components such as a lack of access to education, healthcare, clean water, and electricity (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). Based on a monetary view, the poor is seen as one who earns income or spends less than a certain amount required for minimum standard of living such as $1.90 a day threshold set by the World Bank (Benevenuto & Caulfield, 2019). The monetary view tends to give an incomprehensive picture of reality as someone who earns above the monetary minimum may still be poor in reality if he does not have access to other key services (Hick, 2012). Sen developed what is referred to as the ‘capability approach’ which looked at poverty in terms of what people are able to do or have the capacity to do rather than just how much

resources they have (Hick, 2012). According to Rod Hick (2012), Sen's capability approach questions the logic of using income as the basis for poverty measurement by drawing a separation between the opportunities, or capabilities a person has and their income which is the means to access the opportunities. Basically, the approach focuses on poverty primarily from the angle of living standards rather than the income perspective, similar to the direct concept of poverty (Hick, 2012).

Financial Exclusion and Inclusion

Financial exclusion has enjoyed increasing coverage in the literature. Financial exclusion is the converse of financial inclusion which is defined as access to formal financial services (Allen, Demirguc-Kunt, Klapper & Periac, 2016). Financially excluded are the people, usually the poor, who lack or have limited access to financial services including credit, savings and insurance due to various factors related to imperfections in the financial markets (Allen, Demirguc-Kunt, Klapper & Periac, 2016). The process of expanding access for the financially excluded to gain access to these financial services is referred to as financial inclusion.

Social Exclusion and Inclusion

The concept of social exclusion has been around for a long time and it has no universal definition, but many definitions highlight the fact that it is about excluded people not having the ability to participate fully in society. Excluded people lack access to resources and opportunities required to participate and be part of the decision making processes in the various spheres of society life - economic, social, political and cultural (Mihai, Titan & Manea, 2015). To enable social inclusion there is the need for the

process of creating access and equal opportunities for all members of society to enable them actualise their well-being (Mihai, Titan & Manea, 2015). Part of the definition of social exclusion is also the concept of multidimensionality of deprivations that people may suffer in a society at various levels including lack of access to essential services such as education, health, electricity, water and sanitation, housing among others (Mihai, Titan & Manea, 2015).

Assumptions

One key assumption, in this discipline and of this study, is that financial exclusion and social exclusion have causal impact on poverty and as such financial inclusion and social inclusion can lead to poverty reduction. There is extant research evidence that suggests that a relationship does exist between financial inclusion and poverty and also between social inclusion and poverty. But whilst the relationship can be proved, causation may not be. The assumption however subjectively appears true and intuitive because financially and socially excluded persons are also usually poor persons.

Another assumption is that healthcare, electricity, education and water are key social services people are excluded from. There are other aspects of social exclusion not covered in this study including non-participation or limited participation of the poor in political process, and also exclusion of the poor from security services. Due to lack of quantitative measures for these other variables we are unable, for now, to estimate their statistical significance and thus unable to prove that the four variables used in this study adequately represent social inclusion. The assumption however appears justifiable considering that the four basic services tend to have impact on virtually all other areas.

Scope and Delimitations

Four dimensions of social inclusion are included as variables in this study namely; healthcare inclusion, electricity inclusion, education inclusion, and water inclusion. Inclusion of social inclusion is important as past research tended to examine only the relationship between financial inclusion and poverty without looking at social inclusion dimensions of poverty. Given that poverty is being looked at increasingly from a multidimensional perspective it is important to look at poverty predictors from multiple dimensions. In this study the focus is thus on both financial inclusion and social inclusion dimensions as predictors of poverty status.

The sample is representative of total population and hence results are easily generalisable. The Ghana Living study survey being used as data source has the entire country population divided into 1,200 primary sampling units (PSUs) covering the 10 regions nationwide and through random sampling 15 households were randomly selected from each PSU to yield a total of 18,000 households for the survey. Although 18,000 households were covered out of total of 6.6 million households population the target population has a national spread (Ghana Statistical Service, 2016). However, given that this is a household-level survey only one person per household, and adult, is interviewed. The information provided by the household representative is accepted for the household as other household members are treated as dependents of the head.

The survey covers a wide range of data points on the prevailing financial and social conditions of the target population in Ghana. Household expenditures are covered in the data sample and this helps to evaluate the poverty status from the monetary

perspective given that people in extreme poverty live on less than $1.90 a day. The survey also covers data at household level to assess whether people are included or excluded from essential financial and social services in terms of whether or not they have access to such services.

Limitations

One key limitation of the study is related to the measurement of financial inclusion. Access or no access to loans service is the measure that has been adopted for financial inclusion while excluding other financial services including savings, insurance, payments, and bank accounts. Use of multiple financial services could make measurement to be more robust but most research studies on financial inclusion adopt only one service (either bank account ownership or access to loans) as the measure to avoid complexity of analysis. Use of loans has been adopted for this study and it is typically preferred because it is one service that is most demanded but most scarce and hence a good measure.

Another limitation of the study is the use of only four services as social inclusion variables namely; healthcare, electricity, education, and water. From literature there are other social services that the poor are typically excluded from such as security and environmental services (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017 Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). These other services are often excluded due to lack of quantitative basis to estimate them and future studies could include them for better outcomes once they can be quantitatively analysed.

There is evidence of increase in financial inclusion as more unbanked poor are having access to financial services with controversial evidence of its direct impact on poverty reduction (Agbola, Acupan & Mahmood 2017; Miled & Rejeb, 2015). However, extant evidence of poverty reduction is typically focused on increase in income or expenditure of the poor - monetary deprivation dimension (Mwangi & Atieno, 2018) whereas poverty has other social exclusion dimensions (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

Significance

This research will involve an examination of whether or not financial inclusion (access to financial services) and social inclusion (access to essential social services) can result in poverty reduction and if there is any interaction effect between both factors. Previous research efforts have focused on seeking evidence on the impact of financial inclusion on poverty reduction in isolation of social inclusion whereas poverty is multidimensional in nature (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). Although there is evidence that financial inclusion is improving with some evidence of its impact on poverty reduction however the reduction is measured only in monetary terms - increase in income or expenditure - in exclusion of other poverty dimensions (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017; Mwangi, & Atieno, 2018). Measurement of impact in monetary terms gives an incomplete view; someone who may not be deemed to be poor because they earn or consume more than the $US1.9 daily per the International Poverty Line set by the World Bank, may in fact be poor because they are deprived of access to essential social services (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

Alternative poverty measures such as the United Nations Development Programme Global Multidimensional Poverty Index have been developed to capture all poverty dimensions (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). To better inform economic policy and program design in developing countries it is important to know the difference in the impact of both financial inclusion as well as social inclusion on poverty reduction in terms of improvement in in all key areas of living, such as education and health, and not only in income growth (Abhijit, Duflo, Glennerster & Kinnan, 2015). The outcome of the study will therefore be helpful both for policy and practice in terms of the use of multidimensional framework for poverty reduction. Currently, financial inclusion policy and intervention programs are designed with only financial services being offered to target populations. This study may however indicate the need for a more integrated and multi-pronged approach where financial and social services are offered together so as to achieve greater poverty reduction outcomes. The study outcome has the potential of enabling change agents such as governments, civil society, and social enterprises to push for greater inclusion for marginalized poor Ghanaians through policies and programs design aimed at achieving universal access to essential services for all in Ghana (Allen, Demirguc-Kunt, Klapper & Periac, 2016)

Summary

The knowledge of the relationship between financial inclusion and social inclusion and poverty reduction in a developing society like Ghana is essential for informing policy and practice but that knowledge is currently missing in literature which presents a research problem. The purpose of this study is to examine that relationship.

The research questions, hypothesis, theoretical framework, and nature of the study are all aligned for inquiry into the problem. The next chapter will focus on review of literature on key elements of the research problem in terms of existing knowledge about them.

Chapter 2: Literature Review

In this chapter there will be a review of literature focused on the research problem, which is the missing knowledge that the outcome of this study can potentially provide. As mentioned in chapter1 there has been a lot of research regarding the prevalent high levels of financial exclusion, social exclusion and poverty. There are assumptions that financial and social inclusion can lead to poverty reduction but the problem is that extant evidence of poverty reduction is typically focused on increase in income or expenditure of the poor - monetary deprivation dimension (Mwangi & Atieno, 2018). Given that poverty has other social exclusion dimensions (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017) there is need for evidence of the relationship between financial inclusion and poverty in a multidimensional context to aid policy and intervention design (Abhijit, Duflo, Glennerster & Kinnan, 2015; Kumi-Boateng, Mireku-Gyimah & Stemn, 2015).

Poverty, in the past, had been typically defined from narrow income and monetary dimension perspective but it is now being increasingly viewed from multidimensional lens given that the poor suffer multiple deprivations from various services simultaneously (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). The purpose of this study therefore is to determine the relative influence of financial inclusion and social inclusion on multidimensional poverty reduction using Ghana Living study survey data. This knowledge will help inform policy and program design in an effort to address the problem of a high level of poverty in a multidimensionally poor country like Ghana arising from financial and social exclusion (Abhijit, Duflo, Glennerster & Kinnan, 2015;

Kumi-Boateng, Mireku-Gyimah & Stemn, 2015). Major sections of this chapter are around key elements of the problem will be reviewed in terms of the existing knowledge that is established in literature about them. The key elements to be reviewed in literature include poverty, multidimensional poverty and its dimensions, financial exclusion, and selected social exclusion components including electricity, healthcare, education, and water. The literature search strategy will also be covered which includes databases and engines consulted, the terms used for the search and scope of the review.

Literature Search Strategy

A number of databases and search engines including Walden library databases, Google scholar and several online academic libraries were accessed to review and gain existing knowledge mostly from peer-reviewed journals on the subject of study. The key terms and combinations of terms used in mining the databases include; poverty, multidimensional poverty, financial exclusion and inclusion, social inclusion, electricity and energy exclusion and inclusion, healthcare exclusion and inclusion, education exclusion and inclusion, and water exclusion and inclusion. The scope of the literature review covers recent literature from years 2014 to 2019 and the types and sources of literature include; books, peer reviewed articles, and professional journals.

Theoretical Foundation

The foundation for this study is rooted in Luhmann's social systems theory. The Luhmann's social systems theory recognizes different social systems which include systems of economy, politics, legality, education, family, art, science, religion, media and others (Kihlström, 2012). The proposition of the theory is that these various systems exist

in society comprising members who are the constituent parts and each member's participation in and membership of the system is critical for the functioning of the whole (Kihlström, 2012). The social systems function by two other kinds of systems namely *interaction systems* - physical interaction of the members - and *organization systems* - actions of formal organisations (Kihlström, 2012).

The one key assumption of the theory is that every member of the society need to be fully integrated and included into the systems to which they belong because, according to the theory, this is central to achievement of social order. Formal organisations within the social systems have rules for exclusion and inclusion and when there is exclusion there are help support systems to enable inclusion. To maintain social order intervention agents such as the non-government organizations provide support to excluded members to get themselves included so as to maintain social order (Kihlström, 2012).

This theory is relevant to my selected study, firstly, because the study focuses on a significant proportion of poor people in Ghana, similar to poor people in many parts of the developing world, who suffer financial and social exclusion and to examine whether or not their inclusion can result in poverty reduction. The social systems involved are financial service system and various social services systems – health system, electricity system, education system, and water system. By the functioning or malfunctioning of the organising system (formal organisations) in those social systems a large population of persons may become `excluded. In many developing countries the poor population are excluded from financial and social services; providers of these services considered the poor to be of low-priority focus (Allen, Demirguc-Kunt, Klapper & Periac, 2016).

Secondly, in line with the theory, to stabilize the social systems the intervention agents comprising governments, civil society, and social enterprises are pushing for inclusion for the marginalized and excluded poor Ghanaians through policies and programs aimed at achieving universal access to essential services for all in the society (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). Thirdly, the theory proposes that there may be interdependency or inter-relationships between social systems and one of the assumptions of this study is that there are possible interactions between the variables, financial and social services systems, being examined (Kihlstrom, 2012). Part of the statistical analysis in the study is to determine whether or not there is any interaction effect.

The foregoing paragraphs indicate the relevance and alignment of the social systems theory to the research question for the study. The research question is about whether or not there is a relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey and if there is any interaction effect. The question recognises the existence of certain social systems – financial and social services systems. The question seeks to probe the effect of the inclusion in or exclusion from these systems on the well-being of the target population and whether or not there is any interaction or interdependence among these systems. These conditions – existence of social system (s) and their function, effect of inclusion or exclusion of the population from them, and interdependence among the systems - are some of the key postulations of the social

system theory (Kihlstrom, 2012. The study is grounded in these postulations and the outcome will validate the relevance of the theory.

Literature Review

Target Population for the study - Financially and socially excluded poor in Ghana

Ghana has been selected as the geography for the study and Ghanaians who participated in the Household Standards Living survey 2016 are the subjects for the study. Ghana is a suitable location for the study given that Ghana is a third world developing poor country where financial and social exclusion remain a challenge and is at unacceptably high levels (Abor, Amidu & Issahaku, 2018; Allen, Demirguc-Kunt, Klapper & Periac, 2016; Fosu, 2018). More importantly and of relevance to the study is the fact that Ghana is also one of the few African countries, where due to various policy and intervention actions of the government, that has recorded progress and met many of the United Nations Millennium Development goals between 1990 and 2015 (Antoh & Arhin, 2018).

However, with all of the progress challenges of poverty and financial and social exclusion remain. Poverty rates were almost halved from 52% to 29% but rural poverty is much higher as over 40% of people in rural locations live on less than $1.90 a day (Periac, 2016; Antoh & Arhin, 2018). Financial inclusion rate increased by 18% between 2011 and 2017 but financial exclusion rates remain higher than average global levels and likewise social exclusion across other key social services – healthcare, water, electricity, and education (Allen, Demirguc-Kunt, Klapper & Periac, 2016; Antoh & Arhin, 2018).

Poverty – headcount and reduction trend

One of the sustainable development goals (SDGs) set by the United Nations in 2015 is to end poverty "in all its form" by 2030 (Barbier & Burgess, 2019). Much progress has made in terms of global poverty reduction; poverty rate dropped by billions to about 10% by 2015 translating to about 735million of world population and the resolve of the United Nations member nations is to lift out of poverty by year 2030 all of these 735 million poor and others that may fall into that trap between now and then (Benevenuto & Caulfield, 2019). The picture of poverty reduction trend painted above, which is reported as the lowest rate in history, was arrived at using the World Bank's International Poverty Line of $1.90 a day based on 2011 purchasing power parity (Benevenuto & Caulfield, 2019).

There is a difference between levels of poverty and categories of the poor which is visible when poverty trend is measured and the difference is at the root of many controversies on poverty trends reports. Some researchers have disagreed with the World Bank's narrative that the population has dropped significantly based on the $1.90 a day yardstick; critics suggested rather that the global poverty level has been understated (Deeming, 2015). One of the arguments is that the world Bank's unidimensional poverty line is rather narrow, arbitrary and not related enough to human requirements (Deeming, 2015). Another argument is that the report on the poverty reduction in the last decade hides the issue of inequality which is growing in importance in social policy for development Deeming, 2015.

The reduction in global poverty level, when disaggregated, reveals that some regions still have a great poverty challenge such as sub-Sahara Africa region which still has many of its countries experiencing high poverty rate (Deeming, 2015). A few African countries, however, have recorded falling poverty rates such as Ghana where poverty rate is falling due to growing national economy and combined impact of several policy actions of the government; income poverty rate has dropped in Ghana from 52% in 1996 to 29% with extreme poverty falling to 18% over the same period (Antoh & Arhin, 2018). The increase in prosperity however was more in favour of the rich leading to rising inequality and high rural poverty standing at 34% (Antoh & Arhin, 2018; Fosua, 2017).

Poverty Measures

The main measure used by the World Bank since 1990 in analyzing and monitoring poverty trends is the international poverty line (IPL). The line has changed a few times over the years, from $1.02 in 1990 (1985 PPP-adjusted dollars), to $1.08 in 2000 (1993 PPP adjusted dollars), to $1.25 in 2008 (2005 PPP-adjusted dollars), and to $1.90 in 2015 (2011 PPP-adjusted dollars) (Klasen et al., 2016). The IPL is derived from an average of poverty lines of a sample of poor countries and it represents the minimum required a day to meet basic needs and anyone who earns or consumes below that line is deemed to be in extreme poverty (Klasen et al., 2016). The use of income distribution to measure poverty has been around for a much longer period including the use of GDP per capita of income at national levels (Permanyer & Hussain, 2017). The development of an

internal measure moderated by PPP based on the international comparison program (ICP) was started by the World Bank the in 1990 (Benevenuto & Caulfield, 2019).

There are many criticisms of this measure, one of which is that it is rather narrow-based as it measures only income or monetary poverty by using only income as the yardstick to the exclusion of other dimensions or deprivations such as education and infrastructure (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). The United Nations Development Program uses a different and more comprehensive poverty index – Multidimensional Poverty Index – which covers all dimensions – monetary, education and infrastructure (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). This multidimensional index, called the global MPI, is aligned with the concept of capability poverty espoused by Sen which stated that having resources is not the key but rather what it enables you to afford (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

Multidimensional Poverty, Dimensions and Measurement

As stated in chapter one, poverty is increasingly been defined in multidimensional terms which is referred to as multidimensional poverty. The use of monetary poverty-based measurement concept is increasingly giving way to the use of the multidimensional concept due to the realization that the monetary view might be understating the global poverty level (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). The United Nations, in setting the poverty goal in 2015 as one of the 17 Sustainable Development Goals, aligned with the multidimensional view and specified that it aims to end poverty in all its forms by 2030 (Barbier & Burgess, 2019). Poverty in all forms implies all its dimensions.

The increasing acceptance of the multidimensional poverty views has given rise to the development of multidimensional measures because if poverty indeed is multidimensional then it makes sense to measure it in a multidimensional way (Alkire, Apablaza, Chakravarty & Yalonetzky, 20178). Many multidimensional poverty indexes have been developed including the Multidimensional Poverty Index (Global MPI), which was jointly developed by the United Nations Development Programme (UNDP) and Oxford Poverty and Human Development Initiative (OPHDI). The global MPI, which was developed in 2010 and revised in 2018 to align with 2015 United Nations Sustainable Goals, is based on the Alkire–Foster (AF) methodology which measures poverty in three dimensions - health, education and monetary-based living standards (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). The index measures the dimensions by certain indicators: health by nutrition and child mortality; education by years of schooling and school attendance; and living standards by cooking fuel, sanitation, drinking water electricity, housing and assets (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

Another global MPI index was recently developed by the World Bank and built upon the UNDP global MPI by incorporating both monetary and non-monetary dimensions (Alkire, Roche & Vaz, 2017). The index added two other dimensions to make five altogether namely education, basic infrastructure (water, sanitation and electricity), health and nutrition, and security (Alkire, Roche & Vaz, 2017). Using the MPI, someone is considered to be multidimensionally poor if they suffer deprivation in up to one or more dimensions (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). One area where

the MPI is superior to other measures is its additional focus on intensity and not only incidence and thus avoiding the risk of leaving the poorest behind (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

Financial Exclusion and Inclusion Dimension

Financial exclusion had been around for some time with some progress recorded recently but there is still a large population of poor and low- income people in the world who lack access to formal financial services (Allen, Demirguc-Kunt, Klapper & Periac, 2016). The most affected regions are the developing world including Africa, south and central America, middle East and south Asia more than half of the population are affected (Allen, Demirguc-Kunt, Klapper & Periac, 2016). In the absence of formal access, the unbanked poor including those in Ghana resort to informal means of saving their funds such as in their houses and under their beds with risks of theft and unplanned spending while some patronise "loan sharks" for lending needs which are grossly inadequate thus leaving the excluded people disadvantaged financially and economically (Allen, Demirguc-Kunt, Klapper & Periac, 2016). Lack of access of the poor to financial services deny them the empowerment needed to lift themselves out of poverty given that the financial system is the life blood of commerce and business (Allen, Demirguc-Kunt, Klapper & Periac, 2016).

According to the latest World Bank report on financial inclusion the population of financially-excluded persons has dropped to 736 million as at 2017 compared to over a billion in 1990 (Allen, Demirguc-Kunt, Klapper & Periac, 2016). Although the global exclusion rate has dropped the picture is different across different regions of the world. In

the OECD financial exclusion is almost non-existing whilst it is still high in the developing regions including Africa (Allen, Demirguc-Kunt, Klapper & Periac, 2016).

One of the key drivers of the reduction in global rate is the rise of the digital revolution and the use of mobile phones and the internet to overcome some of the costs constraints that hindered banks from serving the poor around limited branch locations in remote places (Allen, Demirguc-Kunt, Klapper & Periac, 2016; Lashitew, vanTulder & Liasse, 2018). Many mobile telephone companies and financial technology companies in collaboration with banks are serving the poor loans, savings and payment services on their mobile phone and in less than 10 years, the number of mobile money accounts have grown remarkably to 12% and 2% of adults in sub-Sahara Africa and globally, and presently in a number of countries the number of mobile accounts has exceeded the number of traditional banks accounts (Lashitew, vanTulder & Liasse, 2018). Another key driver of progress is policy actions of governments; governments are adopting poor-friendly banking regulations such as bank account opening with minimal requirements (Allen, Demirguc-Kunt, Klapper & Periac, 2016).

Financial services for the poor have gone through comprehensive transformation. Initially, it involved offering only small loans (micro-credit), a solution popularized by Professor Yunus of the world re-known Grameen Bank of Bangladesh (Agbola, Acupan, & Mahmood, 2017; Miled & Rejeb, 2015). Over time, banking the unbanked progressed to offering of full-scale financial services, comprising credit, savings, insurance and payments (Agbola, Acupan & Mahmood, 2017; Miled & Rejeb, 2015). Increasingly, microfinance now referred to more as financial inclusion is leveraging strongly new

innovative models and technology which make the activity more commercially viable and scalable to reach more population (Lashitew, vanTulder & Liasse, 2018).

Financial Exclusion, Inclusion and Poverty

Financial inclusion is usually often associated with poverty alleviation agenda for many reasons, one of which is the positive correlation between the unbanked population and the poor population; most of the people who are financially excluded are also poor (Allen, Demirguc-Kunt, Klapper & Periac, 2016). The lack of access of the poor to financial services deny them the empowerment needed to lift themselves out of poverty given that the financial system is the life blood of commerce and business (Allen, Demirguc-Kunt, Klapper & Periac, 2016). It is expected that poverty level should ameliorate if more people have access to banking, and this relationship is a subject of continuing enquiry. While there is positive progress in terms of more people gaining access to financial services with some evidence of income growth the question of whether or not financial inclusion can reduce poverty is yet to be fully answered in literature and this inquiry is important because poverty reduction is the ultimate aim of financial inclusion (Abhijit, Duflo, Glennerster & Kinnan, 2015; Kumi-Boateng, Mireku-Gyimah & Stemn, 2015).

Some definitions of poverty may indicate why financial inclusion alone may not be the only driver of poverty reduction. According to the World Bank, poverty is not only to be defined in terms of monetary deprivations because aside from limited income or consumption capacity the poor suffer lack in other important aspects of well-being, such as access to quality health care, electricity, clean water and sanitation, and education

(Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). The definition indicates that poverty is multi-dimensional in nature; the poor has multiple needs key for well-being which he is excluded from, namely finance, health, education, energy, clean water, food and shelter etc. (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). The existence of multiple poverty dimensions - financial exclusion and social exclusion (health exclusion, energy exclusion etc) – imply that financial inclusion applies to only one of the dimensions and therefore there is the need to examine the impact of financial exclusion on poverty in a multidimensional manner, considering social exclusion aspects.

Social Exclusion and Inclusion Dimension

There is no universal definition of social exclusion but lack of participation in society is a common feature of most of the definitions found literature. Social inclusion is thus the process of enabling the excluded population to participate fully in the economic, social, political and cultural life of the society to which they belong by ensuring they have access to the necessary resources (Mihai, Titan & Manea, 2015). In essence, the fight against social exclusion is about a call for achieving an inclusive society in which there is equal access for all to the opportunities available in the society for actualisation of well-being. The social exclusion concept also acknowledges the multidimensionality of deprivations that people may suffer in a society at various levels – social, economic and political (Mihai, Titan & Manea, 2015).

There is a connection between social exclusion and poverty; social inclusion as explained requires that people have access to resources required for them to participate in economic activities, among others, and this is required for employment and economic

growth which are key elements needed to fight against poverty (Mihai, Titan, & Manea, 2015). Essentially, social inclusion recognises multiple dimensions of poverty which concept is also well aligned with the view of poverty canvassed by Sen Amartya, a Nobel Laureate, who is famous for postulating capability poverty construct and for developing the capability approach to poverty measurement (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). Capability approach recognizes the societal context to poverty unlike the monetary poverty concept which recognizes only the income or expenditure level of persons in determining their poverty status (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). For the purpose of this research study the only four dimensions of social exclusion covered include energy, health, water and education and these are the key non-monetary dimensions also covered by the Global Multidimensional Poverty Index.

Electricity Exclusion and Inclusion

Electricity or energy exclusion is often referred to in the literature as energy poverty and it has many definitions, one of which is that it is the lack of access to reliable and safe energy services leading to inability to realise essential capabilities (Khannaa, Li, Mhaisalkarc, Kumard & Liang, 2019). This definition, in alignment with Sen capability poverty concept, recognises the multidimensional view of energy poverty in contrast to some other definitions and constructs that view energy, in monetary terms, as simply lack access to energy due to insufficiency income capabilities (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017; Khannaa, Li, Mhaisalkarc, Kumard & Liang, 2019). The energy gap is more predominant in developing regions of the world; there are about one billion

people representing 13% of world population who are without access to modern electricity and sub-Sahara African countries including Ghana are the most affected with 83% households lacking access to clean energy sources (Njiru & Letema, 2018).

Although Ghana has made good progress at expanding electricity inclusion with over 70% of its population, having access to electricity, rural areas have lower access with only 40% of the rural population connected to electricity grid (Adusah-Poku & Takeuchi, 2019). One of the United Nations sustainable development goals is to ensure, that by 2030, there is universal access to affordable, reliable and modern energy services through the expansion of infrastructure, upgrading of technology, and investing in research and mobilizing partners to facilitate wider access to renewable, modern and sustainable energy services for all from all sources - water, wind or solar sources (Khannaa, Li, Mhaisalkarc, Kumard & Liang, 2019).

In the literature there are a number of measures of energy poverty including the multidimensional index which covers ten indicators grouped into three broad dimensions and three energy sources namely electricity for lighting, electricity for cooking such as LPG and stoves and others including biomass, charcoal, firewood, dung cake, kerosene, crop residue (Sadath & Acharya, 2016). This index is tailored after the MPI of UNDP and Oxford Poverty and Human Development Initiative which is also grounded in the capability approach of Sen (Sadath & Acharya, 2016). The three dimensions have equal weight of 33.33% and each indicator within each dimension also have equal weighting that sums up to the value and weight of the dimension. As in MPI anyone who suffers in more than one dimension is energy poor (Sadath, & Acharya, 2016).

Electricity Exclusion, Inclusion and Poverty

Electricity or energy access has strong implications for nations both at macro and micro economic levels and in this light the United Nations General Assembly declared the year 2012 as the ‘‘International Year for Sustainable Energy for All’’ (Sadatha & Acharyab, 2016). According to United Nations, energy is central to virtually every aspect of development because of its inter-linkages with many economic activities (Khannaa, Li, Mhaisalkarc, Kumard & Liang, 2019). In the absence of clean energy people resort to alternatives that have negative impacts, such as use of biomass including firewood, charcoal, and dung cake which expose women to health hazards like chronic respiratory problems (Sadatha & Acharyab, 2016). Access to electricity at home also creates a conducive learning environment for children, and better healthcare environment at hospitals (Sadatha & Acharyab, 2016). A macro-economic analysis of the causal factors reveals a link between energy poverty and the size and health of national economies.

Healthcare Exclusion and Inclusion

Health is wealth, as it is commonly said, and the promotion of health inclusion is one of the priority United Nations Sustainable Development Goals (SD Goal 3) whose objective is to ensure healthy lives and well-being for all at all ages by year 2030 (Pettigrew, Maeseneer, Anderson & Haines, 2015). There is a large section of population who suffer from healthcare exclusion or deprivation otherwise referred to as health poverty and accordingly the SD Goal 3 is aimed at addressing the various aspects of the health challenge including reproductive and child health, communicable and non-communicable diseases, and environmental health (Pettigrew et al., 2015). Although

health poverty remained at unacceptable high levels, some positive progress has been recorded over the last decade between 1990 and 2013; worldwide life expectancy at birth increased by 6·2 years and healthy life expectancy at birth increased by 5·4 years (Pettigrew, Maeseneer, Anderson & Haines, 2015). The improvements recorded vary across regions and the developing regions such as sub-Sahara Africa countries including Ghana still have high incidence of ill-health and health poverty (Pettigrew, Maeseneer, Anderson & Haines, 2015).

Health Exclusion and Poverty

There appears to be a relationship between ill-health and poverty. According to the manifesto of the Millennium Development Goals Commission on Macroeconomics and Health, chaired by Jeff Sachs, there are strong linkages between health, poverty reduction and long-term economic growth and that defeating disease is much central to eradicating extreme poverty (Horton, 2019). In Ghana there has been some progress in healthcare access for the poor but due to poor sanitation conditions there is high of incidence of diseases such as cholera and malaria which are leading causes of death, poverty and low productivity (Appiah-Effah, Duku, Azangbego, Aggrey, Gyapong-Korsah & Nyarko, 2019).

Education Exclusion and Inclusion

Quality education has long been recognized as a critical contributor to human and sustainable economic development and the United Nations members nations has committed to ensuring the provision of quality education, equitable and inclusive education for all levels for their people (Kaniewska & Klimski, 2017). So far positive

progress has been recorded and significant improvement has been recorded in terms of increased access to education (Kaniewska & Klimski, 2017). In developing countries education access has grown from 83% in 2000 to 91% in 2015 and number of children not attending primary school has dropped by almost 50million from 100 million to 57 million by 2015 (Kaniewska & Klimski, 2017).

Although good progress has been recorded there, however, remains a long distance to cover as there are still many out-of-school children with a significant proportion of this domiciled in sub-Sahara Africa (Kaniewska & Klimski, 2017). Some progress has been recorded in Ghana with increasing in primary school enrolment but much effort is required to achieve full enrolment and ensure education is of good quality (Dzidza, Jackson, Normanyo, Walsh & Ikejiaku, 2018). Education inclusion remains a top priority United Nations Sustainable Development Goals because lack of education deprives people of the opportunity to acquire the tools they require to improve their own lives (Kaniewska & Klimski, 2017).

Education Exclusion and Poverty

Education is related to poverty as there is an interdependent relationship between lack of education and poverty (Kaniewska & Klimski, 2017). In general, the relationship between poverty and lack of education is cyclical in nature; children of the poor tend to be in a vicious circle of poverty, of which they can hardly escape; children of the poor have limited access to schooling and thus less empowered for future success and prosperity (Mihai, Titan & Manea, 2015). In today's economy completion of post-secondary education can make a

difference between being in poverty and having a secure economic future (Mihai, Titan & Manea, 2015).

Water Exclusion and Inclusion

Water is very essential for living and Jemmali (2016) argued that there is sufficient fresh water supplies on planet earth but the problem rather is mismanagement and bad economics which has made a large section of world population experience limited access to sufficient quantity required for various uses. This situation is referred to as water scarcity or exclusion or poverty whereby access to safe water and basic sanitation facilities is limited for over 2 billion people living in areas affected by water stress (Jemmali, 2016). The most hit are the developing regions and Sub-Saharan African countries in particular (Jemmali, 2016). Water poverty or scarcity is either physical when fresh water is not available in sufficient quantity or economic when making water available is expensive both in terms of time and capital investment (Jemmali, 2016).

Although there is progress generally in terms of access to clean water and sanitation but real threats exist: globally about 750 million people, mostly in rural areas, lack access to clean drinking water; 170 million people rely on untreated surface water; 1.8 billion people have used a source of drinking water with fecal contamination (Bhaduri et al., 2016) stated that almost two-thirds of the world population, amounting to 4 billion people, is affected by severe water scarcity during the last month of the year. Some level of progress has been recorded in Ghana too but much work is required to ensure full access to good drinking water and sanitation conditions; access rate to good sanitation is

abysmally low at 21% (Appiah-Effah, Duku, Azangbego, Aggrey, Gyapong-Korsah & Nyarko, 2019).

The multidimensional nature of water poverty is the construct behind the development of a composite multidimensional index referred to as Water Poverty Index (WPI) and after refinements by others the index has been in use in many countries to evaluate in a holistic manner to cover all aspects of water scarcity and poverty (Anju, Vicky & Kumar, 2017; Jemmali, 2016). The index has five components namely resources, access, capacity, use and environment. Another measure used to assess the overall availability of water resources supplies, discussed by Jemmali (2016), is the Falkenmark indicator called also ‘‘water stress index’’ and ‘‘water crowding index’’. The logic underpinning this index is straightforward: if we could assess how much water is required for attaining a basic person’s need, then the water availability per capita can be a relevant measure of water scarcity. Following Falkenmark index the water conditions in a country could be classified in an ascending order from the worst situation to the best one as: absolute scarcity, scarcity, stress and no stress (Jemmali, 2016). Hydrologists commonly consider 1700 cubic meters per person as the minimum national threshold for meeting agricultural, industrial environmental water requirements and availability below this threshold represents a state of ‘‘water stress’’ while below 1000 m3 and 500m3 thresholds, a country is said to be experiencing ‘‘water scarcity’’ and ‘‘absolute scarcity’’ respectively (Jemmali, 2016).

Water Exclusion, Inclusion and Poverty

In the literature, water exclusion is associated with poverty across many dimensions including sanitation, health, production among others. Jemmali (2016) reported that lack of water has negative consequences for poverty and the effort to alleviate poverty needs to include solution for access to water and sanitation facilities. Many methods of assessing physical and economic water scarcity have been developed including multidimensional index which was developed based theoretically on the Amartya Sen's capability approach (Jemmali, 2016). The core characteristic of a multidimensional measurement approach is its focus not only on the measures of water availability and access but also on the measures of people's capacity to access water (Anju, Vicky & Kumar, 2017; Jemmali, 2016). According to these approaches, people can be ''water poor'' in the sense of not having sufficient water for their basic requirements as it is not available and they often have to walk a long way to get enough water and if they have access to water nearby, supplies may be restricted for different reasons (Jemmali, 2016).

Summary and Conclusions

This study attempts to shift research slightly away from investigating how financial inclusion alone may lead to poverty reduction into examination of that correlation from a multidimensional perspective that includes social inclusion. As earlier noted, extant research works on financial exclusion have examined the relationship between financial inclusion and poverty reduction in isolation of other poverty dimensions. But as also earlier noted this univariate view is rather narrow given that

poverty is multidimensional in nature as the poor tend to suffer multiple deprivations and exclusions at the same time – financial exclusion, and social exclusions in areas of electricity, healthcare, education, and water others.

In view of the multidimensionality of poverty, any assessment of its dependence on any of the dimensions needs to be carried out by taking into consideration all the other key dimensions. The current lack of knowledge of the relationship between financial inclusion, multidimensional poverty and other dimensions is a gap that this study seeks to address by examining, using quantitative design method and factorial ANOVA model, whether or not there is a relationship between between financial inclusion and social inclusion (electricity, healthcare, education, and water) and multidimensional poverty and any interaction effects that may exist within that relationship. The contribution of this study to the discipline is significant in terms of its potential to inform policy and program design for more effective and wholistic action towards poverty reduction.

Chapter 3: Research Method

The research method to be discussed in this section is aligned to the research problem and the related research question and hypotheses addressed in chapter 1. The research problem under enquiry is the lack of knowledge of the relationship between financial inclusion (access to financial services), social inclusion (access to essential social services) and multidimensional poverty status and any interaction effect that may exist within that relationship (Agbola, Acupan & Mahmood 2017; Miled & Rejeb, 2015). As earlier stated, extant research efforts had focused on seeking evidence on the impact of financial inclusion on poverty reduction in isolation of the influence of social inclusion dimensions (Agbola, Acupan & Mahmood, 2017; Miled & Rejeb, 2015). The purpose of this research is to examine the relative influence of financial inclusion and social inclusion on multidimensional poverty reduction so as to enable researchers to determine whether financial inclusion in association with social inclusion has significant influence on poverty reduction given that poverty is multidimensional in nature (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

One of the key elements to cover in this section is about data for the study and this includes the data source, instrumentation for data collection and methods to analyse the data. The target population for data collection is another topic and this will cover the type of population targeted, the sample size and sampling method. The various elements in the section will be presented in a manner that demonstrates alignment and consistency among each element of the study with justification supported by references to existing literature.

Research Design and Rationale

Concisely state the study variables (independent, dependent, covariate, mediating, and/or moderating variables, as appropriate.

Variables

The study variables will include multidimensional poverty status, a scale variable, as the dependent variable while financial inclusion and social inclusion, categorical variables, would serve as the independent variables. Financial inclusion refers to access to financial services. Social inclusion is a group variable with four categories of access to social services namely, electricity inclusion, healthcare inclusion, education inclusion, and water inclusion.

Research Design

The research method for the study is quantitative, as the inquiry is focused on the impact of the independent variables - financial inclusion and social inclusion - on a dependent variable - poverty status (Bhattacherjee, 2012). The research design chosen for the study is within- subjects quasi-experimental in nature given that the focus is on information about whether or not the target population sample has received the interventions – access to financial services and social services (Campbell & Stanley, 1963). The statistical model that will be used for the data analysis is factorial ANOVA that will look at the mean differences of the outcome variable over five factors namely, financial inclusion and the four categories of social inclusion namely electricity inclusion, healthcare inclusion, education inclusion, and water inclusion.

The ANOVA model that was adopted is as follows:

$$Y_{ijklmn} = \mu + a_i + b_j + c_k + d_l + e_m + f_{ijklmn} + \varepsilon_{ijklmno}$$

Where,

Y= measures the value of outcome of all intervention effects (all IVs including the grand mean and residual) on multidimensional poverty status of individuals

μ = the grand mean, the average mean for all individuals

a_i = measures of effect of financial inclusion on multidimensional poverty status

b_j = measures of effect of electricity inclusion on multidimensional poverty status

c_k = measures of effect of healthcare inclusion on multidimensional poverty status

d_l = measures of effect of education inclusion on multidimensional poverty status

e_m = measures of effect of water inclusion on multidimensional poverty status

f_{ijklmn} = measures of effect of interaction of the independent variables on multidimensional poverty status

ε_{ijklmn} = measures of effect of error or noise of other residual factors on multidimensional poverty status

Index *ijklmn* = indicates the level of the factors e.g. *i* is the level of financial inclusion (non-inclusion, inclusion); j indicates level of electricity inclusion (non-inclusion, inclusion) etc.

Methodology

Population, Sampling and sampling procedure

The survey covered a nationally representative sample of 18,000 households in 1,200 enumeration areas out of which a total of 16,772 households successfully

participated in the survey. The sample was obtained by using stratified sampling administered at two levels: at the first level the entire country population was divided into 1,200 primary sampling units (PSUs) covering the 10 regions nationwide using probability proportional to population size (PPS); and at the second level 15 households were randomly selected from each PSU to yield a total of 18,000 households for the survey. The total household population in the country was 26.3 million while the number of households was 6.6 million population ("Ghana Living Standards Survey 2012-2013 Round Six", 2016).

This sample is nationally representative, as it is in line with general sampling principles. Firstly, the selection followed an appropriate sampling design – stratified sampling, and secondly, the sample was randomly selected from the population, and lastly, the sample is large enough in relation to the total population of Ghana (Emerson, 2015). With the use of random sampling the study avoids sample selection bias and validity problems that attend non-random sampling methods (Emerson, 2015).

The data from Ghana living conditions survey is relevant for the inquiry. As earlier stated, the survey includes data about all the variables to be analysed in the study. Also, Ghana is in sub-Sahara Africa where financial, social exclusions and multidimensional poverty are most prevalent in the world and therefore a good case and source of data for this study (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). Whilst poverty is falling in other regions, the poor population is rising in Africa with over half of the world poor living in Africa currently and 9 out of 10 poor in the world are estimated to be located in Africa by 2030 (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017;

Horton, 2019). Ghana, a developing third world economy, is located in west African sub-region of sub-Sahara Africa and is one of the African countries adjudged to be taking positive steps towards poverty reduction; it is recording an increasing financial inclusion rate, which is driven by mobile financial services revolution (Abor, Amidu & Issahaku, 2018).

Data Source

The data used for the study is secondary data collected for the sixth round of the Ghana Living Standards Survey (GLSS6) which focuses on the living conditions and well-being of households in Ghana. This data is sourced from the National Data Archives of the Ghana Statistical Service (GSS) and was compiled from surveys conducted in 2012/13 following earlier rounds of the survey done in1987/88, 1988/89, 1991/92, 1998/99, and 2005/06. The data is available to the public on the website of GSS and no formal approval is required. GSS grants access to data for interested researchers upon submission of relevant information including their names, institutions to which they belong and the purpose for data use. research.

The survey was conducted by the Ghana Statistical Service, an agency of the government of Ghana with the support of international organisations including the United Kingdom Department for International Development (UK-DFID), UNICEF, UNDP, and the International Labour Office (ILO) for this work ("Ghana Living Standards Survey 2012-2013 Round Six", 2016).

The Living Standards Measurement Study (LSMS) is a research project that was initiated in 1980 by the World Bank and some countries including Ghana, have been

implementing it ("Ghana Living Standards Survey 2012-2013 Round Six", 2016). The initiative is to provide data and insights that can enable policy and decision-makers to measure socio-economic indicators in their countries and develop programs and interventions to address challenges in the various sectors. Key sectors and aspects of living conditions covered include health, education, economic activities and housing conditions, among others ("Ghana Living Standards Survey 2012-2013 Round Six", 2016).

Among other benefits this data source is suitable for my study as it includes data on all variables to be covered in this study ("Ghana Living Standards Survey 2012-2013 Round Six", 2016). Given that this is secondary data, it is rather cost-efficient as it saves time, manpower and other resources required for conducting primary research while it also provides access to large and generalizable data samples across diverse and heterogenous populations that could have been difficult to collect as an individual. In terms of ethics, secondary data minimizes exposure to ethical dilemmas due to the lack of contact with participants, although there is still the need to read the metadata to ensure that the participants in the original study were treated in an ethical manner (Pienta, O'Rourke & Franks, 2011).

Instrumentation

The main instrument used for data collection is the questionnaire administered in five different components including; Household Questionnaire, Non-farm Household Questionnaire, Community Questionnaire, Governance, Peace and Security Questionnaire, and Prices of Food and Non-food Items Questionnaire ("Ghana Living

Standards Survey 2012-2013 Round Six", 2016). The five questionnaires were designed to cover the different aspects of the socio-economic life of the participants with the household questionnaire covering both the demographic characteristics of participants such as education, health, and housing conditions, and household income and expenditure ("Ghana Living Standards Survey 2012-2013 Round Six", 2016). The questionnaires were administered over a twelve-month period, from October 2012 to October 2013 by thirty teams with each team comprising a supervisor, senior interviewer/editor and three interviewers. Data collected were collated at data capture centers setup in the regional offices of the Ghana Statistics Service and the project implementation team members observed interviews and checked completed questionnaires to ensure consistency of responses and to ensure data quality. Questionnaires were asked in major national languages to ensure inclusion of participants that were not proficient in the English language.

Operationalization of Constructs

Variables

The variables were measured based on the coding and measures used in the data source that is aligned with definitions and constructs adopted for this study and supported by extant literature.

Dependent variable

Multidimensional poverty status will be measured by the amount of annual expenditure of each household participant unit with higher amounts indicating lower poverty status. This measure partly aligns with monetary poverty measure used by the

World Bank which focuses on income and expenditure in exclusion of other poverty dimensions (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). However, the expenditure base data captured by the Ghana survey is more comprehensive than that of the World Bank International Poverty Line; it covers all household expenditure including the dimensions capability approach-based United Nations Development Program multidimensional poverty measurement covering healthcare, electricity, education, and water (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

Independent Variables

The independent variables (IVs) are financial inclusion and the four social inclusion categories or dimensions covered by this study namely, electricity inclusion, healthcare inclusion, education inclusion, and water inclusion. The IVs, which are also the factors in the ANOVA model, were measured by access of households to the services to which the IVs relate. There are two groups for each of the IVs namely, non-inclusion (no access) which takes zero value and inclusion with value of 1.

Financial Inclusion

There are many measures for Financial Inclusion in literature and the most common is ownership of bank accounts which the world bank uses for tracking trends of financially excluded and unbanked populations (Allen, Demirguc-Kunt, Klapper & Periac, 2016). The limitation of this measure is that ownership of bank account might not translate to impact until the people actually use financial products – loan, savings, insurance and others - and it has been recorded also that a large portion of these accounts are inactive and unused (Allen, Demirguc-Kunt, Klapper & Periac, 2016). Some

researchers have resorted to rather the use of access to products as the measure. Abor et al (2018) in their study on Financial Inclusion adopted ‘use of financial products in the last 12 months’ as part of their measure of Financial Inclusion. The measure adopted for this study is use of loan product as stated in Table 1.

Social inclusion

The social inclusion categorical variables comprising electricity inclusion, healthcare inclusion, education inclusion, and water inclusion are measured in terms of whether there is access to the related social services namely electricity, healthcare, education, and clean water. Both the United Nations Development Program global Multi-dimensional Poverty Index and World Bank Multi-dimensional Poverty Index measure electricity access in terms of connection to and use of clean source of energy; healthcare in terms of child, maternal and adult health and access to medical facility; education access in terms of child and adult school enrolment and attainment of basic education level; and water in terms of proximity to source of standard drinking (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). This study has selected one key measure out of those measures contained in the two leading global multidimensional poverty indexes that are available in the Ghana survey data. The measures adopted for the study are stated in Table 1. on the next page.

Table 1. *Variables, Definitions and Measurements*

Variable	Definitions	Measurement
Multidimensional Poverty Status	Annual household expenditure	Higher amount means Lower poverty status
Financial Inclusion	Received a bank loan in the last 12 months	1=if yes; 0=otherwise
Electricity Inclusion	Household connected to national grid	1=if yes; 0=otherwise
Healthcare Inclusion	Last treatment from a medical practitioner	1=if yes; 0=otherwise
Education Inclusion	One member has up to middle school level	1=if yes; 0=otherwise
Water Inclusion	Household connected to pipe-borne supply	1=if yes; 0=otherwise

Data Analysis Plan

Software used for analyses.

The software used for analyses in this study is the SPSS (Statistical Package for the Social Sciences) which was first launched in 1968 on mainframe computers and subsequently on personal computers (McCormick, Salcedo & Poh, 2015). SPSS is also known and referred to as IBM SPSS after it was acquired by IBM in 2009 and is used for editing and analyzing all sorts of data and from any source (McCormick, Salcedo & Poh, 2015). The data for this study to be fed into SPSS for analysis is secondary data obtained from log files from a public website. The SPSS has been upgraded a few times and it is the SPSS version 24 that is used for this analysis.

Research Question

The research question is; what is the relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey?

Hypotheses

The null hypothesis and alternative hypothesis to be used to guide and interpret the analysis outcome are stated as follows:

Null Hypothesis (H0): There is no statistically significant relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey?

Alternative Hypothesis (HA): There is a statistically significant relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey?

Statistical tests that will be used to test the hypothesis(es) and interpretation of results (key parameter estimates, confidence intervals etc.)

The statistical model adopted was to determine whether or not there is a statistically significant relationship between the independent variables and the dependent variable and if there is any interaction effect between the independent variables. The key descriptive statistic that will be employed include the means difference of the variables. The main inferential statistics are the *p* value of ANOVA of each independent variable at the 0.05 level of significance. The interaction effect between the independent variables on the outcome variable was assessed based on the p value of the interaction term at the 0.05

level of significance. The outcome of the analysis was to determine if the null or alternative hypothesis should be retained or rejected.

Threats to Validity

One key threat to internal validity is selection and the threat could arise from non-equivalence of the various groups selected. The 18,000 household participants selected for the survey were drawn from various regions across the country and across different socio-economic classes ("Ghana Living Standards Survey 2012-2013 Round Six", 2016). However, the threat is controlled by the selection method adopted; the subjects were selected by stratified random sampling and therefore all across the regions had equal chance of being in the groups, and thus there is equivalence. The other key potential threats to internal validity such as history, maturation, and mortality were not relevant to this study given that there was no control group and also that this is a secondary data analysis (Michael, 2018).

The key threat to external validity for the study is related to the representativeness of the sample population. This threat is real because the sample population should be representative enough to make the study outcome generalizable to a wider group (Michael, 2015). This threat is controlled by the sampling method adopted which made the selected sample to be nationally representative. Stratified sampling design was used in two stages: the first stage involved division of the entire country population into 1,200 primary sampling units (PSUs) covering all the 10 regions nationwide using probability proportional to population size (PPS); and at the second stage 15 households were

randomly selected from each PSU to yield a total of 18,000 households for the survey ("Ghana Living Standards Survey 2012-2013 Round Six", 2016).

Ethical Procedures

As indicated earlier the data being used is secondary data and thus there is no direct engagement with the participants. In terms of ethics, there is minimal exposure to ethical dilemmas in this study due to the lack of contact with participants, although there is still the need to read the metadata to ensure that the participants in the original study were treated in an ethical manner (Pienta, O'Rourke, & Franks, 2011). From the metadata it is stated that the consent of the participants were obtained and the participants were adults, household heads, who were capable of given such informed consents (NIH-OER, 2008). Very importantly also the data obtained did not have identifying information that can be linked to identify the participants and as such as they are protected from any harm that may arise from the publication of research outcomes ((NIH-OER, 2008).

Summary

In this chapter the research method and its related key elements have been covered including the variables, research question and hypotheses for testing the variables, data source, data collection plan and instruments for collection, and research design and statistical model for analyzing and interpreting the data. Validity threats and ethical factors were also addressed. Very importantly, in the chapter, the alignment of all the elements of research method was demonstrated providing a sound basis for the tests, analyses, and conclusion that will be covered in next chapters.

Chapter 4: Results

The purpose of this quantitative research was to evaluate the relationship between financial inclusion, social inclusion and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey. For the analysis, a factorial ANOVA statistical model was adopted and the dependent variable was the multidimensional poverty status while the independent categorical variables covered included financial inclusion and four social inclusion categories namely; electricity inclusion, healthcare inclusion, education inclusion, and water inclusion. The aim of the analysis was to determine, firstly, whether there is a statistically significant relationship between the independent variables and the dependent variable, and secondly, whether there is any interaction effect between the independent variables on the dependent variable.

The research question is: what is the relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey? The hypotheses for testing included the following:

Null Hypothesis (H_0): There is no statistically significant relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey;

Alternative Hypothesis (H_a): There is a statistically significant relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey.

The rest of the chapter covers the description of data collection process, the sample and its representativeness to the Ghana national population. The results of the study are also documented comprising the test of key assumptions, descriptive and inferential statistics including tables and statistical analyses. This chapter concludes with a summary that provides a brief transitional overview of Chapter 5.

Data Collection

The Data

The data used for the study is secondary data collected from the Ghana Living Standards Survey. The survey focused on all key indicators of living conditions and well-being of households in Ghana including all variables covered in the study. The data collection instrument was questionnaires administered on participants over a 12-month period by 30 teams using both the English language and other local languages. Six different questionnaires were used for the survey namely: Part A, Part B, Section 10, Community, Price and Governance, Peace and Security questionnaires. Part A and Part B questionnaires were relevant for the study. Part A covered data on four of the independent variables – health, education, electricity and water, and Part B includes financial inclusion (the last independent variable) and expenditures (dependent variable).

Data Sample and National Population

The sample is comprised of a total of 18,000 participants out of which a total of 16,772 households successfully participated in the survey translating to over 93% participation rate. To arrive at the sample stratified sampling procedure was conducted in two stages; first by diving the entire country population into 10 regions and 1,200

primary sampling units (PSUs) and then selecting 15 households from each PSU by random sampling thus leading to a nationally representative sample. The total household population in the country was 26.3 million while the number of households was 6.6 million population ("Ghana Living Standards Survey 2012-2013 Round Six", 2016).

Results

Descriptive Statistics

Total sample size for the study was 18,000 households out of which 16,772 households participated (Table 1). The dependent variable is MULTIDPOV (Total Household Expenditure serving as a measure of Multidimensional Poverty Status). The independent variables were: FINCINCL (Access to Loan product by a member of the Household serving as measure of Financial Inclusion); EDUCINCL (Access to primary education by a member of the Household as measure of Education Inclusion); HEALTHINCL (Access to formal health facility by a member of the Household as measure of Health Inclusion); WATERINCL (Access to portable water / Household connection to water grid as measure of Water Inclusion); and ELECTINCL (Access to Electricity / Household connection to electricity grid as measure of Electricity Inclusion).

Each of the independent categorical variables have two groups namely; 1 for Yes (Access) and 0 for No (No Access). The number of persons with "Access" (Table 2) were higher for WATERINCL (14,084), EDUCINCL (10,354) and ELECTINCL (10,196) than FINCINCL (1,368) and HEALTHINCL (2,126). The number of persons with "No Access" (Table 2) were much higher for FINCINCL (15,399) and HEALTH (14,641) than ELECTINCL (6,571), EDUCINCL (6,413), and WATERINCL (2,683).

Table 2: *Between-Subjects Factors*

	Value Label		N
FINCINCL	0	No	15399
	1	Yes	1368
EDUCINCL	0	No	6413
	1	Yes	10354
HEALTHINCL	0	No	14641
	1	Yes	2126
WATERINCL	0	No	2683
	1	Yes	14084
ELECTINCL	0	No	6571
	1	Yes	10196

Assumptions

In using the factorial ANOVA model for this quantitative study two key assumptions were considered and tested. The first is the normality of distribution of the dependent variable for each combination of the independent variables *(Field, 2009).* Another key assumption is the homogeneity of variances for each combination of the groups of the independent variables (O'Neill & Mathews, 2000). Both of the aforementioned assumptions were tested before the research question was examined.

Normality

The normality test for dependent variable MULTIDPOV was undertaken and the Skewness statistic and standard errors were used for the test of normality of the distribution (Kim, 2013; Tabachnick & Fidell, 2014). From Table 3, skewness statistic (3.442) indicates significant positive skewness of the distribution as it is greater than 1 and higher than standard error (0.019) when doubled (Kim, 2013; Tabachnick & Fidell, 2014). Additionally, the histogram plot (figure 1) showed deviation from normal

distribution with the tail skewed towards the right. Given that ANOVA requires approximately normal data, consequently and before proceeding with further analysis, the dependent variable MULTIDPOV had to be log transformed to MULTIDPOV_LOG using log base 10 to normalize the data (Tabachnick & Fidell, 2014).

The log transformed dependent variable data was subjected to a further normality test. The skewness statistic (-0.09) and standard error (0.019) indicate a normal distribution post transformation with skewness statistic less than 1 and less that standard error when doubled. The normality of distribution of the transformed variable is visible looking at the histogram (figure 2) which shows a more normal distribution. Hence, the assumption of normality was no longer violated.

Table 3: *Descriptive Statistics*

			Statistic	Std. Error
MULTIDPOV	Mean		8427.3395	60.6345
	95% Confidence Interval for Mean	Lower Bound	8308.4895	
		Upper Bound	8546.1895	
	5% Trimmed Mean		7461.2527	
	Median		6409.4443	
	Variance		61662964.64	
	Std. Deviation		7852.57694	
	Minimum		118.09	
	Maximum		149921.25	
	Range		149803.16	
	Interquartile Range		6535.07	
	Skewness		4.332	0.019
	Kurtosis		37.649	0.038

Table 4: *Descriptive Statistics – post log transformation*

			Statistic	Std Error
MULTIDPOV_LOG	Mean		3.7985	0.00257
	95% Confidence Interval for Mean	Lower Bound	3.7934	
		Upper Bound	3.8035	
	5% Trimmed Mean		3.7999	
	Median		3.8068	
	Variance		0.111	
	Std. Deviation		0.33294	
	Minimum		2.07	
	Maximum		5.18	
	Range		3.1	
	Interquartile Range		0.43	
	Skewness		-0.09	0.019
	Kurtosis		0.412	0.038

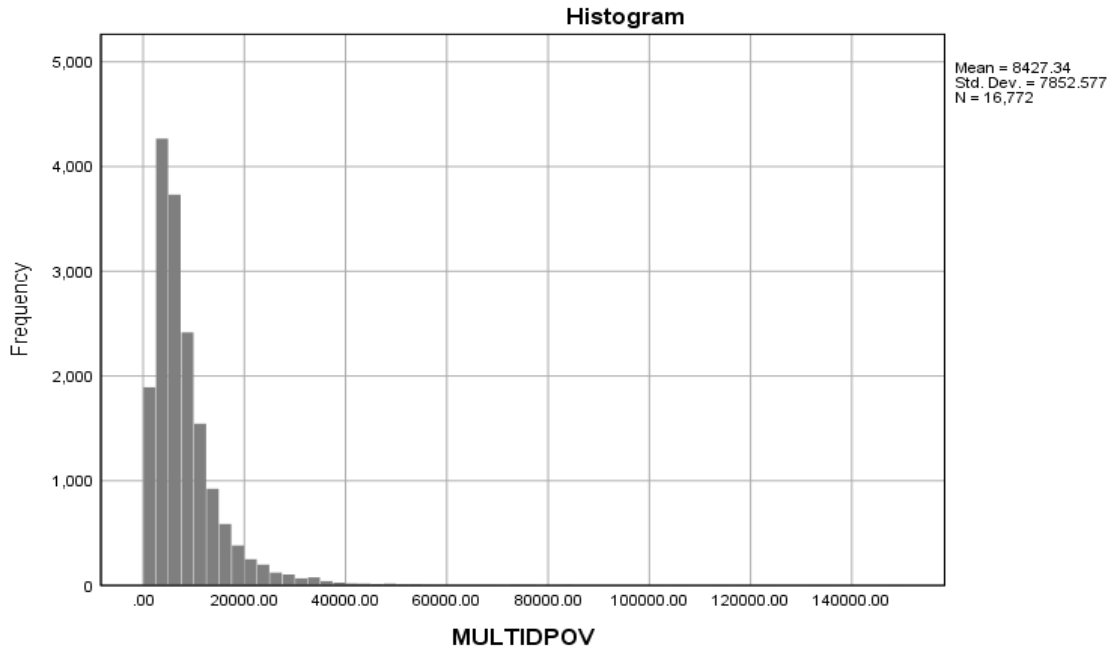

Figure 1. Normality test showing positively skewed distribution

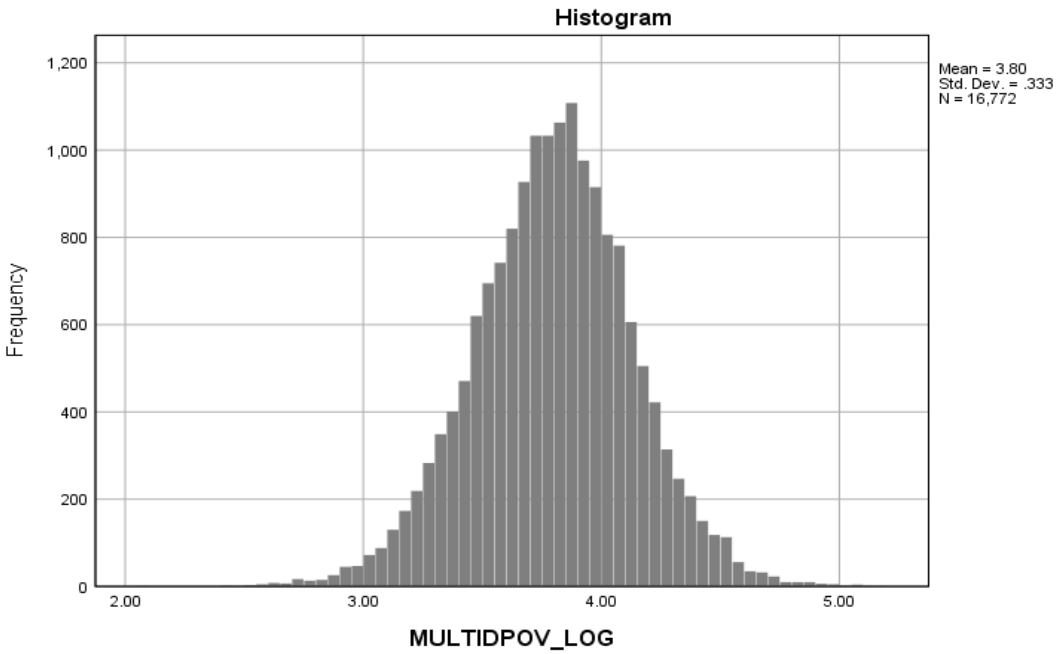

Figure 2. Normality test showing normal distribution after transformation

Homogeneity

The homogeneity of the variances' assumption was tested using the Levene's test to examine the null hypothesis that the error variance of the dependent variable is equal across the groups of independent variables. The variances of the dependent variable (MULTIDPOV_LOG) across levels of the independent variables (FINCINCL, EDUCINCL, HEALTH, WATER, and ELECTINCL), were tested for equality of error variances. Results indicated that the distribution did not violate the assumption of homogeneity of variance ($p > .05$) as it failed to detect any significant difference based on mean ($F= 1.245$, $p = .164$ *which is* $> .05$) indicating equal variances. This information is presented in Table 5. Consequently, the hull hypothesis is retained that there was an equal distribution of error variances across levels of the independent variables.

Table 5: *Levene's Test of Equality of Error Variance*

		Levene Statistic	df1	df2	Sig.
MULTIDPOV_LOG	Based on Mean	1.245	31	16735	0.164
	Based on Median	1.24	31	16735	0.168
	Based on Median and with adjusted df	1.24	31	16583.9	0.168
	Based on trimmed mean	1.246	31	16735	0.164

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: MULTIDPOV_LOG

Analysis of Main Effect and Interaction Effect

A five-way factorial ANOVA model used for the analysis was as stated in Chapter 3, namely:

$MULTIDPOV\_LOG_{ijklmn} = \mu + FINCINCL_i + EDUCINCL_j + HEALTHINCL_k + WATER_l + ELECTINCL_m + f_{ijklmn} + \varepsilon_{ijklmno.}$ The analysis aimed at investigating two effects, firstly the main effects, $_{i,j,\ k,\ l,\ m\ and\ n,}$ which is whether or not there is a relationship between each of the independent variables FINCINCL, EDUCINCL, HEALTHINCL, WATERINCL, and ELECTINCL and the dependent variable MULTIDPOV_LOG (Frankfort-Nachmias & Nachmias, 2008). The second (the interaction effect) is whether or not there is a five-way interaction effect, f_{ijklmn}, between the five independent variables (Frankfort-Nachmias & Nachmias, 2008)

Main effects

For the main effects (Table 6.), the analysis revealed that, except for HEALTHINCL, there existed a statistically significant main effect for $FINCINCL_i$ *(F = 32.76, p = .00 < .05*), $EDUCINCL_j$ (*F = 42.08, p = .00 < .05*), $WATERINCL_l$ (F = 5.78, *p = .016 < .05*), and $ELECTINCL_m$ (F = 35.00, *p = .00 < .05*). There was no significant main effect for $HEALTHINCL_k$ (*F = 0.24, p = .62 > .05*). The above results show that all the independent variables, except HEALTHINCL, have a significant relationship with the dependent variable MULTIDPOV_LOG.

The Pairwise Comparison mean difference statistics (Tables 7 - 13) provide an in-depth view of the main effect for levels within each variable group; the two groups for each of the IVs are "Access" (Yes = 1) and "No Access" (No = 0). The means difference explains the main effect of these variables in terms of groups that have "Access" versus group with "No Access" to the respective services and prediction of impact on the dependent variable (I – J). For FINCINCL the mean difference (Table 7.) was statistically significant *(I – J = 104, p = .00 < .05).* The mean difference (Table 8.) was statistically significant for EDUCINCL (I – J = 117, *p = .00 < .05*). The mean difference for WATERINCL (Table 9.) was significant (I – J = .044, *p = .016 < .05*). Similarly, the mean difference for ELECTINCL (Table 10.) was significant (I – J = 107, *p = .00 < .05*). As noted above under the analysis of main effects, only HEALTHINCL had no significant main effect and the Pairwise Comparison statistics shows also its means difference (I-J) for the two groups (Table 11.) is almost nil (*I - J = .009, p = .62 < .05*).

There are other key insights from the results. One other key insight from the group-level variances analysis is the relative mean difference of the groups across the variables. EDUCINCL (*I – J = 117*) had the highest mean difference followed by ELECTINCL (*I – J = 107*), and thirdly FINCINCL (*I – J = 104*), and lastly WATER (*I – J = 0.04*). The absolute mean figures across the variable groups and cells are displayed in Table 12.

Table 6: *Tests of Between-Subjects Effects*

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	289.164[a]	31	9.328	99.471	0
Intercept	16457.863	1	16457.863	175503.352	0
FINCINCL	3.072	1	3.072	32.762	0
EDUCINCL	3.946	1	3.946	42.083	0
HEALTHINCL	0.023	1	0.023	0.243	0.622
WATERINCL	0.542	1	0.542	5.784	0.016
ELECTINCL	3.283	1	3.283	35.004	0
FINCINCL * EDUCINCL * HEALTHINCL * WATERINCL * ELECTINCL	0.003	1	0.003	0.029	0.864
Error	1569.328	16735	0.094		
Total	243788.743	16767			
Corrected Total	1858.492	16766			

Dependent Variable: MULTIDPOV_LOG

Table 7: *Pairwise Comparisons Financial Inclusion*

FINCINCL (I)	FINCINCL (J)	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
No	Yes	-.104[*]	0.018	0	-0.139	-0.068
Yes	No	.104[*]	0.018	0	0.068	0.139

Table 8: *Pairwise Comparisons Education Inclusion*

EDUCINCL (I)	EDUCINCL (J)	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
No	Yes	-.117*	0.018	0	-0.153	-0.082
Yes	No	.117*	0.018	0	0.082	0.153

Table 9: *Pairwise Comparisons Water Inclusion*

WATERINCL (I)	WATERINCL (J)	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
No	Yes	-.044*	0.018	0.016	-0.079	-0.008
Yes	No	.044*	0.018	0.016	0.008	0.079

Table 10: *Pairwise Comparisons Health Inclusion*

HEALTHINCL (I)	HEALTHINCL (J)	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
No	Yes	-0.009	0.018	0.622	-0.044	0.027
Yes	No	0.009	0.018	0.622	-0.027	0.044

Table 11: *Pairwise Comparisons Electricity Inclusion*

(I) ELECTINCL	(J) ELECTINCL	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
No	Yes	-.107*	0.018	0	-0.143	-0.072
Yes	No	.107*	0.018	0	0.072	0.143

Table 12: *Pairwise Comparisons All Independent Variables - a*

FINCINCL	EDUCINCL	WATERINCL	HEALTHINCL	ELECTINCL	Mean	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
No	No	No	No	No	3.649	3.629	3.668
				Yes	3.703	3.661	3.745
			Yes	No	3.679	3.622	3.735
				Yes	3.701	3.6	3.803
		Yes	No	No	3.589	3.577	3.602
				Yes	3.765	3.751	3.779
			Yes	No	3.678	3.643	3.714
				Yes	3.764	3.729	3.799
	Yes	No	No	No	3.691	3.668	3.714
				Yes	3.783	3.75	3.816
			Yes	No	3.769	3.703	3.835
				Yes	3.756	3.671	3.841
		Yes	No	No	3.725	3.709	3.741
				Yes	3.92	3.912	3.927
			Yes	No	3.752	3.709	3.795
				Yes	3.917	3.896	3.938

Interaction effect

The investigation of interaction effect was to determine whether or not there was a five-way interaction effect, f*ijklm*, between the five independent variables. The analysis showed that there was no statistically significant interaction between the independent variables. The interaction effect, f*ijklm,* between the IVs failed to achieve significance *(F= .029, p = .864 > .05).* The means square of the intercept, grand mean μ (0.000) however was statistically significant.

Table 13: *Pairwise Comparisons All Independent Variables - b*

FINCINCL	EDUCINCL	WATERINCL	HEALTHINCL	ELECTINCL	Mean	95% Confidence Interval for Difference[b]	
						Lower Bound	Upper Bound
Yes	No	No	No	No	3.761	3.685	3.837
				Yes	3.754	3.587	3.92
			Yes	No	3.763	3.617	3.908
				Yes	3.862	3.562	4.163
		Yes	No	No	3.684	3.628	3.74
				Yes	3.883	3.827	3.939
			Yes	No	3.625	3.52	3.729
				Yes	3.87	3.75	3.99
	Yes	No	No	No	3.844	3.771	3.917
				Yes	3.935	3.843	4.026
			Yes	No	3.827	3.672	3.981
				Yes	3.847	3.62	4.074
		Yes	No	No	3.873	3.823	3.924
				Yes	4.041	4.016	4.066
			Yes	No	3.906	3.778	4.034
				Yes	4.026	3.972	4.08

Summary

In this chapter the factorial ANOVA model was used to evaluate the relationship between financial inclusion, social inclusion and multidimensional poverty status among Ghanaians using Ghana Household Living Standards Survey data. The analysis aimed at finding both main effects and interaction effect. The outcome was that there were main effects with four of the independent variables including $FINCINCL_i$, $EDUCINCL_j$, $WATERINCL_l$, and $ELECTINCL_m$ having a significant relationship with the dependent

variable MULTIDPOV_LOG, the only exception being HEALTHINCL$_k$. There was however no significant 5-way interaction between the independent variables.

In-depth review of the findings is covered in Chapter 5 including interpretations of the findings in relation to the peer-reviewed literature and the theoretical framework underpinning the study. Chapter 5 also covers a discussion of the limitations for generalizing the study outcomes, validity and reliability including recommendations for future research including factoring other social inclusion variables for a more complete model. The chapter closes with a discussion on the implication for positive social change in terms of potential contributions for policy and practice towards achievement of greater poverty alleviation outcomes.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this quantitative study was to examine the nature of the relationship existing between financial inclusion, social inclusion, and multidimensional poverty reduction given that poverty is multidimensional in nature, based on the data from Ghana Household Living Survey (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). The research question and the hypotheses are restated below:

Research Question: what is the relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey?

Null Hypothesis (H_0): There is no statistically significant relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey?

Alternative Hypothesis (H_A): There is a statistically significant relationship between financial inclusion, social inclusion, and multidimensional poverty status among Ghanaians based on data from the Ghana Living Standards survey?

To answer the research question and test the hypotheses the research design adopted for this study was a correlational quasi experimental design and factorial ANOVA was the statistical model.

The aim of the study was to examine, firstly, whether there is a statistically significant relationship between the independent variables namely financial inclusion, social inclusion categories including education inclusion, water inclusion, health

inclusion, and electricity inclusion and the dependent variable, multidimensional poverty status, and secondly, whether there is any interaction effect between the independent variables on the dependent variable. This study was based on the utilization of secondary data from Ghana Living Standards Survey covering a total of 18,000 Ghanaian households out of which 16,677 households participated. Results of the factorial analysis of variance (ANOVA) found that there were positive main effects between all the independent variables, except one, on the dependent variable and there was no interaction effect. Specifically, the results were as follows:

(a) financial inclusion can positively affect multidimensional poverty status
(b) three of the social inclusion variables namely; education inclusion, water inclusion, and electricity inclusion can positively affect multidimensional poverty status
(c) education inclusion has the highest difference and influence on multidimensional poverty status, followed by electricity inclusion, and lastly water inclusion
(d) one social inclusion variable, health inclusion has no significant positive influence on multidimensional poverty status
(e) there is no significant interaction between all the independent variables.

Interpretation of Findings

The research question examined whether there was a statistically significant relationship between each of the independent variables and the dependent variable, and also whether there was any interaction effect between them. A five-way ANOVA

examined this question and resulted in a finding of significant main effects between all the independent variables, except health inclusion, on the dependent variable, and a finding that there was no interaction effect. There is confidence in the generalizability of the result to the wider population given that the sample was nationally representative as selection was by stratified random sampling. The next paragraphs contain a discussion of the above findings.

The significant positive relationship established between financial inclusion and most of the social inclusion variables on multidimensional poverty status confirm the multidimensional view of poverty now held by many scholars and organisations including the United Nations (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). Scholars such as Sen Amartya, who postulated the capability poverty approach, oppose the monetary view that measures poverty only in terms of whether someone earns income below the World Bank poverty line of $1.90 a day (Benevenuto & Caulfield, 2019; Hick, 2012). The multidimensional view rather considers whether the person has access to essential services that guarantee him good standard of living (Hick, 2012). The World Bank which promoted the monetary measure of poverty also recognizes that the poor have multiple needs critical for well-being which they are typically excluded from, namely finance, health, education, energy, clean water, food and shelter etc. (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). The multiple poverty dimensions or deprivations fall into two broad categories - financial exclusion and social exclusion.

In recognition of the view that poor persons suffer multiple deprivations beyond monetary dimension the United Nations adopted a poverty definition that includes non-

monetary dimensions of poverty such as a lack of access to education, healthcare, clean water, and electricity (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). Consequently, the goal of the United Nations is to end extreme poverty in all its forms and dimensions, by 2030 (Barbier & Burgess, 2019). To aid poverty measurement in line with the multidimensional poverty view new measures have been developed such as the Multidimensional Poverty Index (Global MPI) used by the United Nations Development Programme. The Global MPI measures poverty in multiple dimensions based on certain indicators including: health by nutrition and child mortality; education by years of schooling and school attendance; and living standards by access to cooking fuel, sanitation, drinking water, electricity, housing and assets (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

The finding that the inclusion or exclusion of persons from essential services listed can have influence on their poverty status confirms key postulations of Social Systems theory. One key postulation of the theory is that social systems such as the financial services system and social services (education, water, and electricity) systems have members who normally should fully participate in them (Kihlstrom, 2012). However, the theory recognizes that some members may be excluded due to malfunctioning of the system or action of certain actors which can have a negative impact on social disorder which is poverty in this case (Kihlstrom, 2012). It states further that the disorder can be corrected or stabilised by ensuring inclusion and integration of excluded members (Kihlstrom, 2012).

Through this research findings I have contributed some new knowledge to the field. The first contribution is the research evidence of multiple predictors of poverty in Ghana which is a country where multidimensional poverty is significantly present where evidence was lacking prior to now. There were assumptions but no evidence. There was evidence of a relationship between each of these predictors separately such as financial inclusion and poverty, but not multiple predictors in one multivariate model for such a country. There have been calls, for example, to examine the impact of financial exclusion on poverty in a multidimensional manner, considering social exclusion aspects (Abhijit, Duflo, Glennerster & Kinnan, 2015). Additionally, we have information on the relative influence of the variables; here we know that education access has the highest influence for reducing poverty, followed by electricity access, then financial services access and lastly water access.

The finding that financial inclusion can positively affect multidimensional poverty status aligns with documented position, in peer-reviewed literature, on the relationship between financial services and poverty. Financial inclusion is usually often associated with a poverty alleviation agenda due to the positive correlation between the unbanked population and the poor population; most of the people who are financially excluded are also poor (Allen, Demirguc-Kunt, Klapper & Periac, 2016). The importance of financial services for commerce and enterprise support the expectation that the poverty level should ameliorate if more people have access to banking and extant evidence confirm that financial inclusion can result in income growth (Allen, Demirguc-Kunt, Klapper & Periac, 2016). Poverty reduction is the ultimate aim of financial inclusion

stakeholders (Abhijit, Duflo, Glennerster & Kinnan, 2015; Kumi-Boateng, Mireku-Gyimah & Stemn, 2015).

The provision of evidence of the relationship between financial inclusion and poverty from a multidimensional perspective is a key contribution to literature. The existing evidence has typically been about impact of financial inclusion on income growth which is narrow given that poverty is multidimensional in nature. The calls for clearer evidence on the influence of financial inclusion on poverty status has been about need for evidence that relate to impact on standard of living of the poor. This study finding is aligned that search as the dependent variable measures multidimensional poverty status.

Another finding was that three of the social inclusion variables namely; education inclusion, water inclusion, and electricity inclusion can positively affect multidimensional poverty status. Essentially the study revealed that these variables can influence poverty reduction. From literature, it is held that all members of society should be socially included by ensuring that there is equal opportunity for access to all resources and services for actualization of well-being (Mihai, Titan & Manea, 2015). There is a connection between social exclusion and poverty; people need access to resources including education, electricity, water and others required for employment and economic growth which are key elements needed to fight against poverty (Mihai, Titan, & Manea, 2015).

As I confirmed in this study finding, education has long been considered as a key determinant of human and sustainable economic development (Kaniewska & Klimski,

2017). The theory is that the lack of access to education deprives people of the tools they require to improve their own lives and that it creates a vicious circle of poverty where uneducated children grow up economically disadvantaged and poor unable to train their own children. The children then end up less empowered for future success and prosperity (Mihai, Titan & Manea, 2015). In today's economy, completion of post-secondary education can make a difference between being in poverty and having a secure economic future (Mihai, Titan & Manea, 2015). This view that education can help in fighting poverty and driving economic development is behind the commitment of the United Nations and governments at various levels including that of Ghana to prioritize investment and provision of inclusive education for all (Dzidza, Jackson, Normanyo, Walsh & Ikejiaku, 2018; Kaniewska & Klimski, 2017).

This study finding is aligned with the position of peer-reviewed literature that electricity is of significant influence to economic condition at macro and micro levels (Khannaa, Li, Mhaisalkarc, Kumard & Liang, 2019). A macro-economic analysis of the causal factors reveals a link between energy poverty and the size and health of national economies. Consequently one of the United Nations sustainable development goals is to ensure, that by 2030, there is universal access to affordable, reliable and modern energy services through the expansion of infrastructure, upgrading of technology, and investing in research and mobilizing partners to facilitate wider access to renewable, modern and sustainable energy services for all from all sources - water, wind or solar sources (Khannaa, Li, Mhaisalkarc, Kumard & Liang, 2019).

In line with the study finding, researchers consider water to be very essential for living and that lack of access to it can lead to deprivations and disadvantages in other socio-economic areas (Jemmali, 2016). In the reviewed literature, researchers associated water exclusion with poverty across many dimensions including sanitation, health, production among others and that lack of water has negative consequences for poverty (Jemmali, 2016). It is stated in literature that efforts to alleviate poverty must include a solution for access to water and sanitation facilities due to its linkage to multidimensional poverty.

Health inclusion, unlike the other variables above, I have found not to have a significant influence on multidimensional poverty status and this is at variance with the position in peer-reviewed literature in Chapter 2. Jeff Sachs, the chair of the Millennium Development Goals Commission on Macroeconomics and Health, postulated that there are strong linkages between health, poverty reduction and long-term economic growth and that consequently improving health inclusion should facilitate eradication of extreme poverty (Horton, 2019). The common maxim is that health is wealth and thus the reasoning is that ill-health leads to poverty due to low productivity of sufferers (Appiah-Effah, Duku, Azangbego, Aggrey, Gyapong-Korsah & Nyarko, 2019).

The variance between this study finding and extant literature raises some questions that challenge existing knowledge in some ways that might require further investigation. One question is about significance. The study finding is that there is no significant relationship between health inclusion and poverty status. There is a relationship which is not significant, contrary to extant knowledge. The factor of

significance can be used to challenge the extant knowledge. If the logic for the connection of ill-health to poverty is that ill-health impairs productivity, then how many people are out of unemployment due to ill-health versus total population? And what type of illnesses can keep people out of employment and how many are sufferers of these versus total population?

Another question can be around the direction of the relationship. Which one influences the other? Does lack of access to healthcare have impact on poverty or the reverse; is lack of access to healthcare due to poverty? Put differently, are you sick because you are poor or are you unable to pay for healthcare when you fall ill because you are poor? So which is the dependent variable and which one is the predictor? One other question is around social justice. Is the rationale for the fight for health inclusion for the poor based on fundamental right for all person to health or is it based on evidence that ill-health is a significant predictor of poverty and thus its inclusion is a means to fight poverty? The above questions may be research questions for which further research may be required to provide answers.

Outcome of further rigorous research may help to establish whether the long-held position, in literature, of positive association of health inclusion with poverty reduction is not just an assumption versus fact. This study finding may not be at variance with the need to ensure health inclusion for all as it is being championed by the United Nations (Pettigrew, Maeseneer, Anderson & Haines, 2015). This study might rather be indicating that the drive for health inclusion maybe more on the basis of social justice rather than a weapon for poverty reduction.

The last finding of the study is that there is no significant five-way interaction effect between the independent variables. With this finding I am neither confirming nor disconfirming any part of extant literature. If there was an interaction effect it would have been a contribution of new knowledge. This finding however does not also invalidate multidimensionality of poverty as all of the predictor variables, except one, are found to have individual influence on multidimensional poverty status. Lack of interaction effect between them shows that they do not significantly increase or decrease the ability of each other in predicting the dependent variable.

Limitations of the study

As stated in Chapter 1 there are a few limitations to this study. One limitation is related to the measurement of some of the variables particularly financial inclusion and multidimensional poverty status. The use of 'Access to loans product' was the measure adopted for financial inclusion which excludes other financial services such as savings, insurance, payments, and bank accounts (Allen, Demirguc-Kunt, Klapper & Periac, 2016). Whilst the use of loans is common in analysis of financial inclusion because it is the most demanded financial service and yet most scarce, however, the use of only one product is limiting and may not be representative enough. There are people who do not request loans due to religion, cultural belief or fears. Total household expenditure has been used as the measure for 'multidimensional poverty status' being the best available measure available in the source data for the study. While this is a useful measure due to its inclusion of household expenditure comprising all dimensions (health, education, electricity, water etc.) it may not be as perfect a measure as one of multidimensional

poverty indexes such as global MPI developed by the UNDP and Oxford Poverty and Human Development Initiative (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017 Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

Another limitation of the study is the restriction of the number of social inclusion variables in the study to only four namely; healthcare, electricity, education, and water. Other social inclusion variables have been omitted from the study model such as security and environmental services (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017 Alkire, Apablaza, Chakravarty & Yalonetzky, 2017). These other services are often excluded due to lack of quantitative basis to estimate them but their inclusion in future research would enrich the analysis and study outcomes.

Recommendations

Following from limitations and findings of the study there are a few potential areas of further research work. From limitations, the first is to use other measures for financial inclusion and multidimensional poverty status. A more comprehensive measure, a composite, for financial inclusion that incorporates all key financial services can lead to a more robust finding on the relationship between financial inclusion and multidimensional poverty. For multidimensional poverty status an MPI could be used for measurement. Secondly, from limitations, more social inclusion variables should be included such as security and environmental services (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017 Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

The study findings threw up a few research questions on the relationship between heath inclusion and multidimensional poverty status. There is the need to establish the

objective for the popular push for health inclusion agenda; whether it is for poverty reduction or for other causes such as advance of social justice in terms of defence of a human right. Firstly, further investigations may be carried out on whether or not ill-health is a significant predictor of productivity and poverty. Further analysis can also be done by investigating if the influence of ill-health on poverty varies across ill-health groups. We can also investigate if there is a significant relationship between poverty status and health inclusion where the former is the predictor and later the outcome variable. This investigation will be the reverse of what was done in this study.

Implications for Social Change

Findings from this study have a number of profound social change implications requiring actions that have potential for high impact for financial and social inclusion and poverty reduction. All the variables covered by the study represent significant social problems that continue to attract priority attention at national, regional and global levels with various actions being taken by various stakeholders in private and public sectors. Reduction and ultimate eradication of poverty and multidimensional poverty, remains the ultimate number one item on the development agenda of both the United Nations and the World Bank. The United Nations aims to eradicate poverty in all its form by 2030 while the World Bank seeks to achieve a poverty free world (Barbier & Burgess, 2019; Beegle, Kathleen & Christiaensen, 2019). The other variables also represent key development objectives: universal basic education, universal access to water, and universal access to electricity are United Nations sustainable development goals number 4, 6, and 7 respectively.

Part of the challenge facing stakeholders in addressing the above-named social problems is the sheer size of the problems. Despite positive progress that has been recorded over the years in each of these areas the problems remain severe and standing at unacceptably globally high levels: 756 million are living in extreme poverty and about 1.5 billion live in multidimensional poverty; 258 million children are out of school; over 1 billion lack access to clean energy; 736 million remain financially excluded; and over 2 billion lack access to clean water and sanitation (Allen, Demirguc-Kunt, Klapper & Periac, 2016; Benevenuto & Caulfield, 2019; Jemmali, 2016; Kaniewska & Klimski, 2017; Kumi-Boateng, Mireku-Gyimah, & Stemn, 2015; Mekonnen & Hoekstra, 2016); Njiru & Letema, 2018). Essentially greater effectiveness is required in policy and programmatic intervention for accelerated progress to be achieved.

To inform policy and intervention redesign and reforms new knowledge is required. One aspect of this knowledge which has been missing and that has now been provided through this study is an evidenced-based knowledge about the relationship between poverty and its multiple predictors using data from a country where multidimensional poverty is prevalent. The predictors covered in this study are education inclusion, electricity inclusion, financial inclusion, health inclusion and water inclusion. The knowledge contributed through the study findings present two specific implications for a new approach for policy and practice reforms.

Multidimensional approach for Intervention

The multidimensionality of poverty has been confirmed with the finding that four variables have influence over it, namely education inclusion, electricity inclusion,

financial inclusion, and water inclusion. Often, poverty alleviation or reduction policy and programs are hinged on only one of the predictor variables as instrument; there are many policies and programs on financial inclusion aimed at poverty reduction, for example. Given that poverty is multidimensional in nature a unit-factor approach would be less optimal than a multi-dimensional approach.

In the field of financial inclusion evidence of impact has been rare or not strong enough to justify the investments so far which has made stakeholders to call for greater impact in terms of more 'value for money'. Based on this study findings the answer might not lie in putting more investment in financial inclusion alone but rather in adopting an integrated "bundle" approach where financial inclusion is pursued in addition to or along with other interventions. So essentially the poverty reduction impact result that financial inclusion stakeholders are looking for might elude them unless there is a change in intervention approach because the poor will remain multidimensionally poor even if financially-included unless most of their other needs across dimensions are met as well (Alkire, Apablaza, Chakravarty & Yalonetzky, 2017 Alkire, Apablaza, Chakravarty & Yalonetzky, 2017).

Value-based approach for intervention

Often the rationale behind many policy and intervention actions for poverty reduction or expansion of access to financial and social services lack evidence-based value justification. From the study findings, education, among all the variables considered, has the highest influence on poverty status followed electricity inclusion, then financial inclusion and then water inclusion. Any policy or intervention based on

these findings will prioritize focus and investment accordingly. Health inclusion, which according to the study has no significant influence, often take center stage of poverty alleviation programs. Health agenda may be a priority for other reasons based on their associated value judgement rationale (politics, human rights etc.) but not for poverty alleviation. The disconnect between investment and impact results and slow progress often recorded in development fields may largely be a consequence of non -value based actions.

Policy and Practice Reforms

The two social change implications discussed above can serve as a framework for action for stakeholders to enhance effectiveness of their activities in financial and social inclusion space for the benefit of the excluded population and their own objectives. Governments and civil society have social objectives while private sector service providers and investors have commercial objectives.

Policy makers

Policy makers need to replace the silo approach with an integrated policy approach for poverty reduction to ensure optimal impact. Policies should incorporate multiple instruments to enable multi-prong actions for addressing the multiple needs of the poor including access to education, electricity, financial services, and clean water. The policies should also prioritize investment of resources according to relative value contribution for optimal impact. Additionally, the policies should provide a framework to incentivize and facilitate full participation and mobilization of for-profit and non-profit private sector players for maximum intervention action. In an exploratory study of the

evolution of private sector participation in provision of public services in Spain, Sweden, Lithuania and the United Kingdom, it was highlighted that their respective governments played key roles by putting in place enabling policy frameworks and instruments such public-private partnerships (PPPs), procurement services model, incentives and subsidies including tax breaks and removal of restrictions of services provision by public monopolies (Eurofund, 2015). In some African countries mobile money regulations have been enacted to enable mobile network operators to provide payment and remittances services to unbanked population (Lashitew, vanTulder & Liasse, 2018). More policy actions in line with this study finding is required.

Civil society

There are numerous civil society organisations especially international non-governmental organisations (NGOs) who are involved in funding and activating various programs to advance financial and social inclusion in Africa and other developing regions. These organisations typically commit enormous resources to support various poverty reduction programs such as financial inclusion programs, water supply projects, rural electrification projects, basic education access programs. These organisations, based on multidimensionality of poverty, need to rather adopt a multidimensional intervention approach that facilitates access to a bundle of services needed by their targeted poor beneficiaries. Secondly, their investment in these programs should be value-based; more investment, support and focus should be directed at segments that have higher poverty reduction impact based on evidence.

Private sector service providers

Globally including developed countries, there is an increasing participation of private sector players including for-profit and non-profit firms who are serving as provider of services previously provided exclusively by public sector agencies (Eurofund, 2015). These players are entering this space due to business opportunities created by supply and access gaps resulting from shortfalls in public spending and inefficiencies in the operations of public sector utilities (Eurofund, 2015). The entry of private sector players into the public services space to bridge gaps and ensure access for all aligns with postulations of Social Systems theory (Kihlström, 2012).

In Africa, the trend of increasing participation of private sector firms providing services to the poor is observed across each of the financial and social inclusion areas covered by the study. Commercial banks and non-bank players such as mobile network operators and financial technology companies are increasingly providing financial services to the poor which space used to be dominated by government sponsored development banks and pro-poor programs (Lashitew, vanTulder & Liasse, 2018). Many privately-owned renewable energy and mini grid solar companies are selling affordable energy supply devices to poor households (Warnecke & Houndonougbo, 2016). There are mini water grids or community water suppliers. Similarly, there are education inclusion investors who have developed models for offering quality but affordable basic education services for poor children.

Globally or in Africa the framework for intervention by service providers (public and private) is more silos-based operating as financial service providers, electricity providers, water supplier, education service providers. The fact that their clients' condition is multidimensional thus indicating that their poor clients have multiple needs opens a strategic opportunity for them to deliver services as a bundle of services. This cross-selling logic is not new in business; mobile telephone operators who used to sell only telephone call and data services to their clients later started offering them payment services in addition and now they are teaming up with banks to add banking services also. The strategy for multiple offerings was due to the realization that the same clients needed those other services too and they served them either directly or through inter-disciplinary collaborations (Megan, 2014). Similarly, in serving their poor clients private sector players need to start creating organisations, structures, platforms, models and strategies that enable offering of bundle products to meet financial and social inclusion needs of the poor simultaneously.

Conclusion

The multidimensional view of poverty which has been on the rise among scholars and other stakeholders was confirmed by this study. With the study finding we learn that all of the independent variables covered, except health inclusion, have significant influence for reducing multidimensional poverty namely; education inclusion, electricity inclusion, financial inclusion, and water inclusion. From the study we further learn that education inclusion has the biggest influence for reducing poverty, followed by electricity

inclusion, then financial inclusion, and then water inclusion. There are limitations to the study which then provide an opportunity for future research.

The findings have two profound implications for stakeholders as they address the challenge of poverty and also the problems in each of the financial and social exclusion dimensions. Firstly, policy and programs should adopt an integrated multidimensional approach as opposed to the common silo approach. Secondly, poverty reduction policy and programs must be prioritized and based on value to ensure optimal outcomes: education inclusion is primary and others follow according to the value position stated above. These implications provide a framework for social change action for the various stakeholders including policy makers, civil society organisations, and private sector service providers. The implications and recommended action should enable accelerated achievement of multidimensional poverty reduction outcomes through a more focused, impactful multidimensional policy and programmatic approach to advancing education inclusion, electricity inclusion, financial inclusion, and water inclusion.

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