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POVERTY DYNAMICS IN GHANA: EVIDENCE FROM MONETARY AND NON-MONETARY POVERTY

BY

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DECLARATION

I hereby certify that this thesis is original and my own and that neither part nor the whole has ever been presented in this University or any other institution for an award of any academic degree. All references of others made to the work have duly been acknowledged.

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We, the undersigned supervisors, certify that this is an original work we supervised the candidate to produce. We are also convinced that it (the thesis) meets all required standards set by the University of Ghana for an award of a Doctor of Philosophy Degree.

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ABSTRACT

Poverty and the fight to overcome it is far from over in Sub-Saharan Africa where more than half of the world's poor is found. Even though Ghana has made great strides in combating the problem of poverty, the battle is yet to be won in the country given the multidimensional nature of the problem. This study analysed poverty dynamics in Ghana using both monetary and non-monetary measures of poverty for the period 2009 to 2014. Using a panel of 4,366 household heads interviewed in the first two-waves of the Ghana National Socioeconomic Survey database, the study draws a distinction between chronic and transient poverty using both monetary and non-monetary measures and assessed the relationships that exist between the two phenomena. The results showed that whereas the chronic monetary poor for the period stood at 9.3 per cent, the chronic non-monetary poor for the data ranged between 74 per cent and 1.6 per cent for different non-monetary variables. Using a multinomial logit regression, the study discovered that the dynamics of poverty are driven by household demographic characteristics, human capital, economic, geographic and asset-related factors. The results revealed the different magnitude of factors underpinning the movement in and out of poverty are different for transient and chronic poverty in Ghana. The results of the monetary poverty measures were also compared with the results of non-monetary poverty measures and showed that monetary poverty does not exactly predict all the various aspects of non-monetary poverty and depending on the number of deprivations a household suffers from, different factors determine the deprivations. The study recommended separate policies to fight monetary poverty and non-monetary poverty. The study further, recommended that four of the non-monetary poverty deprivations, children's nutritional status, adults' nutritional status, adults' schooling and sanitation should be given more attention as they showed an upward trend in the study period. Again, realizing that the determinants of chronic and transient poverty were different, the study recommended different and appropriate short and long-term policies to deal with each.

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DEDICATION

This thesis is dedicated to my wife, Mrs. Praise Akua Arthur and my two kids, Nhyiraba and Madi.

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LIST OF ACRONYMS

EAs: Enumeration Areas

EGC: Economic Growth Centre

FGT : Foster, Greer and Thorbecke

GDP Gross Domestic Product

GLSS Ghana Living Standard Survey

GSS: Ghana Statistical Service

JHS: Junior High School K

LEAP: Livelihood Empowerment Against Poverty

MDG: Millennium Development Goals

MICS: Multiple Indicator Cluster Survey

MPI: Multidimensional Poverty Index

NDPC: National Development Planning Commission

OPHI: Oxford Poverty and Human Development Initiative

SDGs: Sustainable Development Goals

UNDP: United Nations Development Programme

UNICEF: United Nations Children's Emergency Fund

VIP: Kumasi Ventilated Improved Pit

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CHAPTER ONE

INTRODUCTION

1.0 Background

The canker of poverty, no matter the form it is viewed, on the welfare of individuals, is far from being eradicated. The phenomenon of poverty has been studied in terms of one's financial ability to acquire some necessities of life or in terms of capabilities. Again, the issue has been seen in some cases as either subjective using the perception of individuals or objective using variables like household income or consumption. Over the years many studies of the problem have concentrated on the use of cross-sectional data to highlight these aspects of poverty. Currently, there is increasing attention given in the literature to the dynamic form of poverty given the rise in the collection of panel data. Analysis of poverty dynamics is the study of poverty in an inter-temporal state of a particular individual or household (Yaqub, 2000b).

Again, there is a shift from the use of a single indicator to measure poverty to the use of multiple indicators to measure poverty giving rise to multidimensional poverty measures. Different outcomes are arrived at with the use of different approaches to measure the phenomenon of poverty. Using the objective monetary measure, it is estimated that over 736 million people are globally believed to be living on less than $1.90 a day. Of this figure more than half is found in sub-Saharan Africa, and in Ghana alone, about 6.8 million people live in poverty (GLSS 7; The World Bank, 2018). However, using the global multidimensional Poverty Index (MPI), one of the measures of non-monetary poverty, it is estimated that in 2019 alone out of the 101 country data, 1.3 billion people were multidimensionally poor. Of the figure, two-thirds lived in middle-income countries (Poverty, Oxford & Human Development Initiative., 2019). Because of its varying and subjective nature, there is no international consensus on the best indicator of poverty. Analysis of poverty has grown from the predominant use of a monetary

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approach to assessment to the currently more preferred means of assessment using multidimensional analyses that incorporates the use of monetary and non-monetary indicators.

Historically, the objective monetary approach of defining and measuring poverty was pioneered in the nineteenth and early twentieth centuries by the seminal works of Booth (1887) and Rowntree (1908), when studying poverty in London and York respectively. These early measures considered poverty as consisting of "earnings insufficient to obtain the minimum necessaries for the maintenance of merely physical efficiency" (Rowntree, 1908, p. x). Great advances were made in this approach with the works of Sen (1976) in the late 70s and 80s which resulted in the contribution of Foster, Greer and Thorbecke who provided a group of monetary poverty measures predominantly used to assess poverty worldwide (Foster, Greer & Thorbecke, 1984).

This widely used indicator of monetary poverty, however, has not been free from criticism. It is criticized that the aspects of human well-being are complex, going beyond just the amount of income one earns or the amount of money available for consumption. Some critical commodities that are necessary to enhance human welfare are either not available in the free market, hence, not possessing price or, when available, do not have prices that reflect the true value of the commodity. In his critique of the monetary indicator of poverty measurement, Gunewardena (2004) provided various aspects of human welfare that are not captured by the monetary measure asserting that "even the best measure of poverty within the monetary approach is at best a measure of private consumption" (P.56). The author further provided areas that the monetary measure leaves out which include the following:

(a) personal heterogeneities (which comprise people's different physical characteristics connected with a disability, illness, age, or gender, that make their needs diverse)

(b) environmental diversities (for example, climatic conditions, rainfall, flooding etc.)

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(c) variations in social climate (this includes public facilities such as health care and education, the prevalence or absence of crime and violence, and the nature of community relationships)

(d) differences in rational perspective (someone relatively poor in a rich community may need a higher level of income to "function" than an absolutely poor person in a poor community) and

(e) intra-household inequality.

The failure of, or rather the lack of consensus on the use of the monetary approach to reflect the other non-monetary aspects of poverty has led to the search for a better approach can measure those aspects ignored in the objective indicator approach. This attempt to capture the complex nature of poverty could be seen in the Human Poverty Index of the 1990s developed by the United Nations Development Programme (UNDP, 1997) and in the year 2010 Global Multidimensional Poverty Index (MPI), developed by the Oxford Poverty and Human Development Initiative (OPHI). In 2018, in its Poverty and Shared Prosperity Report, the World Bank made the first attempt to measure multidimensional poverty at the global level using data from 119 countries (The World Bank, 2018). This study used both monetary and non-monetary measures of well-being.

For more comprehensive results in fighting poverty, the Sustainable Development Goals (SDGs) established by the United Nations in 2015 assimilated the concept of multidimensionality of poverty in its targets. Goal 1.2 is targeted at addressing poverty "in all its dimensions." Relying on the estimates of monetary poverty indicators alone will fail to provide the needed information and the data necessary to eradicate poverty in all its dimensions. There is therefore the need to extend research in poverty using the best measures

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that can bring to light the multifaceted nature of poverty to fashion out policies that will eradicate or reduce them.

Again, very critical to the discussion of poverty is the static or dynamic nature of the measure of poverty. The nature of poverty is studied either by static or dynamic approach depending on the availability of data – be it cross-sectional or panel. Studies that investigate the dynamic nature of poverty categorise poverty into always poor (chronic), sometimes poor (Transient) and non-poor (Baulch & Hoddinott, 2000). On the other hand, the outcome of the static analysis of poverty using the Foster, Greer & Thorbecke (1984) measures is captured in poverty incidence (which is the percentage of the total population considered poor), poverty gap or depth (which is the magnitude of poverty below the poverty line) and the poverty severity (which places more value on the poorest of the poor) without considering the changing nature of these measures with time. Static poverty analysis also combines trend analysis that adds a sense of direction to the analyses by introducing time and offering the possibility of comparing different scenarios. What lacks in the trend analysis, however, is the identity of the individuals or households being analysed in the various cross-sectional data. But, analysis of poverty dynamics brings out the inter-temporal changes in the poverty status of a particular individual or household. It presents the nature of mobility of individuals or households in and out of poverty at different points in time (Yaqub, 2000b).

Although static poverty analysis based on cross-sectional data is very important as they help in understanding the nature of risk associated with poverty at a given point in time, they fail to provide the type of risk factor associated with the process of poverty with time. Thus, for policy purposes, studies into the dynamic nature of poverty are more useful as they distinguish between the chronic and the transient poor and offer the means to identify their respective

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determinants (Seff & Jolliffe, 2017). When a country can know its poor citizens that are chronically poor and transient poor, appropriate and different policies can be applied. These groupings are crucial in assessing which aspects of poverty will respond to long-term policies that affect variables like asset allocation and physical capital accumulation as well as the aspect of poverty that may require a much shorter-term policy that affects variable changes such as cash transfers or safety nets designs (Baulch & Hoddinott, 2000). In Africa, a scan through the literature shows that a large percentage of the studies on poverty are centred on static monetary-based measures using cross-sectional data. Nonetheless, there are also non-monetary-based studies which also used cross-sectional data (Ayadi, El Lahga & Chtioui, 2009; Datt & Jolliffe, 1999; Glewwe, 1991; Grootaert, 1997). In Ghana, the story of poverty analysis is not different as a greater proportion of the literature on poverty is on static analysis (Adjasi & Osei, 2007; Canagarajah & Pörtner, 2002; Cooke Hague, Tiberti, Cockburn & El Lahga, 2016). Over the years, spanning 1988 and 2013, policies concerning the alleviation of poverty have had to rely substantially on the results derived from these static data sets. Besley and Kanbur (1993) criticised policies designs such as poverty alleviation which is based on such cross-sectional data that lacks a temporal dimension that they may lead to the problem of inclusion (providing resources to individuals who are, in fact, not poor) and errors of exclusion (omitting individuals who are truly poor but are not captured). A better way is to have the ability to include and exclude qualified and unqualified elements respectively. Working with panel data takes the researcher closer to that option. Studying poverty dynamics offers the opportunity to understand the processes that make someone move into and out of poverty which may be either chronic or transient (Baulch & McCulloch, 2002). Chronic poverty is poverty that lasts for an extended period usually five years and beyond while transient poverty is poverty in a short time (Hulme, Moore & Shepherd, 2001). Studies have found that factors that determine whether

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someone is poor or not poor i.e. one's poverty status, are not the same factors that determine the transition of a person in and out of poverty (Jalan & Ravallion, 2000).

Making use of the available cross-sectional data, some studies in Ghana have managed to go beyond the static monetary poverty analysis to consider non-monetary poverty indicators. Appiah-Kubi and Amanning-Ampomah (2007) used the fuzzy set theory to examine multidimensional poverty in Ghana using GLSS3 and GLSS4 data. Agyire-Tettey, Ackah, Tsiboe-Darko and Asuman (2019) also examined the multidimensional poverty of children in Ghana using cross-sectional data. The Ghana Statistical Service likewise has also produced a report on non-monetary poverty in Ghana as well as multidimensional poverty in Ghana (GSS, 2013, 2020a).

To better appreciate the progress made in respect of the SDGs, an understanding of the complete view of poverty in its multidimensional form is crucial so that the most effective policies are designed to help meet such goals. There is a need to investigate the phenomenon of poverty in the country using both monetary and non-monetary aspects. Furthermore, providing a poverty analysis in monetary and non-monetary measures carried out in a dynamic framework will provide a greater advantage to policymakers to fight the problem of poverty in its multidimensional forms. Whereas some of the previous studies done in Ghana considered the multidimensional aspect of poverty, they were limited as they relied on only cross-sectional data leaving a gap in the dynamics of poverty. Furthermore, these studies did not compare the extent to which the multidimensional poverty indicators and the monetary poverty indicators do predict appropriately the poverty groups that exist in the country. This study intends to help in this area.

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The study uses various methods to allow for the analyses of well-being using both monetary and non-monetary variables. The Ghana-Yale Socioeconomic Panel Survey data by Economic Growth Centre (EGC) provides rich information on household consumption expenditure as well as information needed for the computation of non-monetary poverty indicators. Having two waves of the panel – 2009/2010 and 2013/2014, provides us with the opportunity to study the phenomenon of poverty in both a dynamic nature and also a multidimensional way. This study is, therefore, set to explore the nature and determinants of poverty dynamics in Ghana using both monetary and non-monetary poverty indicators as well as comparing the extent to which the much-used monetary measure predicts the various aspects of non-monetary deprivations.

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1.1 Problem Statement

The analysis of poverty should focus on poverty in its broadest, multi-dimensional sense. Again, given that people can be poor one-time while others can be persistently poor, it is equally important that in the study of poverty, its dynamics are disaggregated to know the transient poor as well as the chronic or persistent poor. Lumping up both one-time poor and persistent poor and applying one policy to it leads to inefficiencies in policy impact (Barrett, 2005; Hulme et al., 2001).

Irrespective of its conceptualisation, poverty, whether in a static form or dynamic form, possess a great challenge to the dignity of humanity both at the global and national levels (Chilosi, 2011). The past two decades have seen frantic efforts by the world to find a measure that truly reflects the multi-faceted problem of poverty after Sen's (1976) capability approach to conceptualizing poverty. Until then, and even now, due to inadequate data, many countries depend on the objective monetary measures of poverty to estimate the number of the poor in a country which oftentimes underestimate the problem as this measure does not encompass all the aspects of human well-being (Boarini, Johansson & d'Ercole, 2006; The World Bank, 2018). Using the monetary poverty line, it has been estimated that over 736 million people are globally poor living on less than $1.90 a day (The World Bank, 2018). However, when broadened to include other non-monetary deprivation it has been estimated that about 1.3 billion people are multidimensionally poor worldwide (Poverty et al., 2019). The key policy issue facing the world is how to eradicate poverty in all its forms as rightly captured in Goal 1.2 of the SDGs.

Lying at the epicentre of the issue of eradication of poverty are the empirical issues on the identification of the poor and the measurement of poverty. Owusu and Yankson (2007) well

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noted that how poverty is defined and measured determines who is considered poor (Transient or chronic) which also has a huge impact on the strategies a country adopts in reducing it. The authors continued to say that the definition and the measurement of poverty are important because they form the basis upon which the analysis of the poor is done.

The past decade has seen an increasing number of cross-sectional data in Ghana. As a result, the literature on poverty in Ghana is mostly concentrated on static poverty (Adjasi & Osei, 2007; Coulombe & Wodon, 2007; Sackey, 2005). As stated, these snap-shot studies of poverty shed little light on the specific events and processes which cause households to become poor and utterly fail to predict one's vulnerability to becoming poor in the future (Baulch & McCulloch, 2002; Chaudhuri, 2003; Christiaensen & Subbarao, 2005; Ligon & Schechter, 2003). These studies have also mainly been carried out using the monetary measures of poverty.

However, with these cross-sectional data, some authors have also carried out studies on the non-monetary aspect of poverty relying greatly on the single index for the measure of non-monetary poverty – the Multidimensional Poverty Index (MPI) developed by the Oxford Poverty and Human Development Initiative (OPHI) (Agyire-Tettey, Ackah, Tsiboe-Darko & Asuman, 2019; GSS, 2013, 2020a; Kumi-Boateng, Mireku-Gyimah & Stemn, E, 2015; NDPC/GSS/UNICEF, 2020). This index is criticized on several grounds. First, it is criticised for the concept used in its aggregation of indicators. Again, the inclusion of some indicators is also challenged. Finally, the MPI is criticised for the choice of weights used in the index (Demombynes, 2010; Dotter & Klasen, 2014). Using microdata from the last two rounds of the GLSS (1991/1992 and 1998/1999), Appiah-Kubi, Amanning-Ampomah & Ahortor (2007) applied the fuzzy-set theoretic framework to compare levels of deprivation in

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Ghana over time. Diallo (2007) spoke of the shortcoming of this method by saying that the measurement is based on the union of the different dimensions of poverty.

Carrying out inter-temporal comparisons of the nature of poverty in Ghana has been quite problematic due to the lack of panel data that provides information for the same individuals or households over some time. Many authors have therefore resorted to using different cross-sectional data available to perform some form of trend analysis. More often than not, these results have not reached the same conclusions. Using a new poverty line of GH¢ 1,314 (equivalent to about $1.83/day (using the exchange rate prevailing in January 2013 in Accra) the Ghana Living Standard Survey round 6 data, estimated that 31.9 per cent of the population was poor. However, using the Population and Housing Census Data of 2010, the Ghana Statistical Service (GSS) found that about 42.7 per cent of the population was multidimensionally poor. Similarly, using the Multiple Indicator Cluster Survey (MICS), the GSS estimated that 55 per cent of the population was multidimensionally poor. Again, in 2017, the GSS estimated monetary poverty from GLSS 7 and found 23.4 of the Ghanaian population poor which also stands in contrast with the multidimensional poverty estimate of 45.6 per cent using the same data (GSS, 2013, 2020a).

Although poverty studies based on cross-sectional data are useful to the nation, they are deficient in providing all the necessary information for alleviating poverty within a poor group. The static poverty indices used are not able to "say anything about dynamics within these groups, in other words about the extent of movements into and out of poverty within the groups" (Mckay & Lawson, 2002. page 19). Again, as noted by Barrett (2005), policymakers' and researchers' greatest concern revolves around chronic poverty. The lack of poverty dynamics studies leaves policymakers to spend the same resources on all the poor which should

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not be done. This is especially, in the case where one class of policies such as safety nets are all that is needed to effectively block the descent of the transitory poor into chronic poverty while a different class of interventions such as cargo nets are what must be implemented to help the chronically poor find a way out of poverty. Absence of the knowledge of the poverty dynamics affects the policy selection to be applied to a given poor sub-population.

It is in the light of this lack of poverty dynamics study using both monetary and non-monetary poverty measure together in the literature and the obvious vacuum left with regards to how best monetary and non-monetary poverty measures target the same group of the poor in the analysis of poverty in Ghana that has necessitated the current study. Using a two-wave panel, spanning from 2009/2010 to 2013/2014, this study investigates the poverty dynamics of Ghanaians using both the consumption expenditure of the households and selected non-monetary poverty variables of the households. Using a purely quantitative approach which best suits the nature of the data selected for the study this study estimates the dynamics of poverty in Ghana and explores the extent to which the monetary poverty measures correctly predict other aspects of poverty.

1.2 Objectives of the Study

The main objective of the study is to analyse poverty dynamics in Ghana using evidence from both monetary and non-monetary variables. The sub-objectives that were followed in the analyses are;

1. To investigate the determinants of monetary poverty dynamics in Ghana.
2. To investigate the determinants of poverty dynamics in Ghana using the non-monetary measures of poverty.
3. To analyse the relationship between monetary and non-monetary poverty.

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1.3 Research Questions

To provide the appropriate responses to the objectives stated above the study was guided by the following questions.

1. What are the determinants of poverty dynamics in Ghana using monetary measurement of poverty?
2. What are the determinants of non-monetary poverty dynamics in Ghana?
3. To what extent do monetary poverty and non-monetary poverty estimates relate?

1.4 Significance of the Study

To broaden the understanding surrounding the discussions on poverty, there is a need to include the time dimension of poverty in the academic discourse of poverty in Ghana. This study is intended therefore to have the following significance.

Firstly, the study provides a theoretical conceptualization of the non-monetary poverty indicators. Furthermore, the study uses utility analysis in the money metric poverty to construct consumption expenditure that facilitates the aggregation of households or individuals below the poverty line. These aggregations help in the comparison of well-being across individuals or households. The study, therefore, contributes to deepening knowledge aggregation of poverty in the study of the phenomenon.

Secondly, the application of panel data in investigating the dynamic nature of poverty further contributes to deepening the methodology used in studying the subject matter. Until now, the study of poverty analysis has mostly been done without panel data. This study does not only

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study the dynamics of monetary poverty using panel data but it does so using the non-monetary poverty measures as well and further draws out the points of similarities and divergence.

Thirdly, the use of the quantitative methodology to examine the microdata available on poverty dynamics in Ghana is the first of its kind in Ghana. This provides a good baseline study for further research using this data.

Finally, this study provides appropriate measures of poverty estimates and spells out the drivers of both monetary and non-monetary aspects of poverty which have greater policy implications than previous measures that depend solely on monetary measures or non-monetary measures thereby contributing to shaping policies on poverty.

1.5 Organisation of the Thesis

This thesis is organised into seven chapters. Chapter one has been dedicated to giving a background to the study, providing the problem being investigated as well as the objectives and questions of the study. Chapter two of the thesis is devoted to the literature review. The chapter contains a review of the conceptual and theoretical underpinnings of the study. Empirical studies on the issue are also reviewed in the chapter. Key variables and their nature in the study of poverty are reviewed in the chapter. Chapter three consists of the methodology. Here the framework for the analysis of the data is spelt out. Data and sampling techniques are also provided. The first empirical results of the study are provided in chapter four of the thesis while chapters five and six are devoted to the results of the second and third objectives respectively. The final chapter – chapter seven, is devoted to the summaries, conclusions and recommendations of the study.

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CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter is dedicated to reviewing the theoretical and empirical literature related to monetary and non-monetary poverty as well as the dynamics as a means to provide an inductive and deductive background for the study. Specifically, the review is guided by the theoretical factors that drive people into and out of poverty. The chapter begins by providing the conceptual and theoretical contexts of the poverty phenomenon. The events associated with the entry into and exit of poverty are also reviewed. The empirical literature associated with the topic under consideration is also reviewed to provide a validation of the theories as given.

Issues related to poverty are so broad and so diverse. Sawhill (1988) noted in her studies on "Poverty in The U. S.: Why Is It so Persistent?" that the literature on poverty lacks "a widely accepted theory of income distribution that might help one choose between competing model specifications and their varying results" (p. 1112). She further observes that "few researchers have approached the task of analyzing the effects of different variables on the poverty rate in the context of a coherent overall model of the process by which income is generated" and that "we are swamped with facts about people's incomes and about the number and composition of people who inhabit the lower tail, but we don't know very much about the process that generates these results" (p. 1085).

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This observation makes it a herculean task in trying to have all the theories that provide the logic and relations of the many variables that affect poverty. Beginning with the ontology of the phenomenon of poverty, the study reviews the position of the liberal view and the

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communist views of nature and the causes of poverty. The study finally reviews some of the key theories that fall under these broad ideologies.

2.1 The Concept of Poverty

Poverty is as old as human history. Early philosophers in the fields of morality, economics and politics spoke about its causes and how it has to be handled by society as a whole. It is considered a subject of social ethics which belongs to both moral philosophy and political philosophy. In the field of political philosophy, Rawls' (1921) theory of Justice provided the ambience for the discourse on poverty while in the field of economics, it is associated with the theory of choice (Asselin, 2015).

Stark (2009) reviewed the major concepts of poverty at the global level which according to her, have been the major driving force in shaping international or global programmes to fight poverty. According to her "… the politicians who shaped post-Cold War approaches to poverty drew on liberal theory and three basic liberal conceptions of poverty: poverty as a matter of morality, poverty as a matter of justice, and poverty as a matter of utility. There are other conceptions, but these form the core of three major instruments which epitomize post-Cold War approaches: …" (Page 392). The following section provides the two key liberalists' views of poverty.

2.1.1 The Utilitarian /Behaviourist Concept of poverty

Riding on the powerful writing of early philosophers the utilitarian view of the causes of poverty was very pervasive in the early Enlightenment era. Rawls (1921, P. XVII) noted that "during much of modern moral philosophy the predominant systematic theory has been some form of utilitarianism. One reason for this is that it has been espoused by a long line of brilliant writers who have built up a body of thought truly impressive in its scope and refinement. We

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sometimes forget that the great utilitarians, Hume and Adam Smith, Bentham and Mill, were social theorists and economists of the first rank; and the moral doctrine they worked out was framed to meet the needs of their wider interests and to fit into a comprehensive scheme." Under the overarching principles of liberalism, the concept of utility was well espoused by Jeremy Bentham that humans are governed by two sovereign matters, pleasure and pain. According to Bentham, by utility, an individual or community produces benefit, advantage, pleasure, good, or happiness or prevents the happening of mischief, pain, evil, or unhappiness to the party whose interest is considered (Bentham, 1907). Adam Smith, a proponent of this theory postulated that as individuals are left alone with no or minimal government intervention in the market, they will make choices that will maximize their utility and ultimately the social utility. This leads to what they usually call the double root of maximization (Asselin, 2015). According to this school of thought, poverty is largely an outcome of the free market that corresponds to an individual's own set of choices in their own economic decisions. Therefore, people should be held responsible for their experience of poverty (Davis & Sanchez-Martinez, 2015). The argument explains that these poor individuals have consistently chosen paths that have together, culminated in their poor state. These paths include, according to Rank, Yoon and Hirschl (2003, page 4) "… a wide set of characteristics, ranging from the lack of an industrious work ethic or virtuous morality to low levels of education or competitive labour market skills".

Also called the behaviourist view of poverty, the notion of the poor being blamed for their poor state had been inherited at the beginning of the nineteenth century (Blank, 2003; Davis & Sanchez-Martinez, 2015). "Poverty had been regarded by many writers as a necessary element in society since only by feeling its pinch could the labouring poor be inspired to work. Thus, it

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was not poverty but pauperism or destitution which was regarded as a social problem"(Rose, 1986, p. 10).

The utilitarian or behaviourist perspective on poverty has not always been negatively seen. Viewed from the angle that "the individual's happiness depends upon the aggregate happiness of the group to which she belongs, individuals will necessarily be concerned about collective well-being"(Stark, 2009, p. 381).

In trying to address poverty having the behaviourist position in view, it leads to two strands of approaches depending on how one sees the generation of poverty. To the proponents that poverty is self-selected, policies like general poverty alleviation is not an option. However, to the proponents that see the general utility of the state lying in the individuals', the state should interest itself in relieving poverty, or at least keeping it manageable, because insecurity is destabilizing.

2.1.2 The Capability Approach in Conceptualizing Poverty

Developed by Sen (1992) the capability approach rode on Rawls' (1921) theory of justice to expand the concept of poverty and how it should be tackled at the policy level and so is different from the utility concept of poverty. Developed in the context of social contract theory, which is an ethical theory different from teleological theories like the utilitarianism, it places poverty in the discussion of justice as fairness which is before that of the concept of good that is maximized in the utilitarian ideology (Rawls, 1921). Sen (1992), made a distinction between Rawls' "primary goods" (which included resources such as incomes, wealth, opportunities, the social bases of self-respect, etc.) which to Sen (1992) is a means to freedom instead of focusing on the extent of freedom. According to Sen (1992) "to judge equality-or for that matter

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efficiency- in the space of primary goods amounts to giving priority to the "means" of freedom over any assessment of the "extents" of freedom, and this can be a drawback in many contexts. The practical importance of the divergence can be very great indeed in dealing with inequalities related to gender, location, and class, and also to general variations in inherited characteristics" (Sen, 1992).

Thus, he viewed equity in the space of freedoms rather than the space of achievements. He termed the space of freedom capabilities, which specifies the extent of freedoms, and for the space of achievement, he called "functionings" which describes the type of outcomes expected from capabilities. The term "functionings" is used to define what well-being of an individual. To him, the well-being of a person can be seen in terms of the quality (the "well-ness) of the person's being. Living is seen as consisting of a set of interrelated "functionings", consisting of beings and doings. A person's achievement in this respect can be seen as the vector of his or her functionings. The relevant functionings may range from elementary things such as being adequately nourished, being in good health, avoiding escapable morbidity, premature mortality, etc., to more complex achievements such as being happy, having self-respect, taking part in the life of the community, and more. According to Sen (1992), the functionings are constituted by a person's being, and an evaluation of well-being has to take the form of an assessment of these constituent elements. Poverty in this equity framework espoused by Sen (1992) is defined in reference to the capabilities identified as basic capabilities, and by unacceptable deficiencies in these basic capabilities. Policy outcomes from this concept of poverty must target empowering the poor.

To Sen (1992), income which is used as a proxy by the utilitarianists of one's utility is a necessary aspect of an individual's means of attaining their functions but not sufficient.

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Individuals' activities and states depended on resources (which go beyond one's private income) and an individual's ability to transform these resources into activities and states which become the outcomes. Sen (1992) emphasised that the "outcomes" should characterise the quality of life of an individual which meant a shift from the monetary indicators which to him was an indirect measure of the outcome of non-monetary indicators for evaluating well-being or deprivation (Laderchi et al., 2003). Once the emphasis is on outcomes then it must be realised that due to differences in individual idiosyncrasies, different individuals will need a different amount of resources to transform into a similar amount of valuable achievements which he called functions. In tackling poverty, therefore, "the emphasis is put on the idea of the adequacy of monetary and other resources for the achievement of certain capabilities rather than their sufficiency. Again, "the roles of externalities and social goods are brought into the picture as other influences over capabilities"(Laderchi et al., 2003, p. 254). Thus, in the framework of analysis of poverty individual's income used to purchase commodities that they derive utility from combined with the utility derived from publicly provided goods and services and the individual's characteristics (such as age, gender, physical capabilities) help the individual to achieve a certain function.

The practical application of the capabilities approach must consider what will constitute the list of the basic capabilities one needs to attain in other to be considered as non-poor. Secondly, the measurement of those constituents of the basic capabilities must be determined. The poverty line needed to separate the poor from the non-poor is also one of the issues not easily overcome under the capability approach. Finally, the problem of aggregation arises under this approach. Generally, many studies rely on full aggregation. Some of the methods applied include the use of factor analysis to aggregate the deprivations, using fuzzy sets applications, Borda rankings/counting or simple averages. In aggregation, the concept of union or

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intersection can be applied. In the union approach, a person is considered poor when they are deprived in any one of the dimensions while in the intersection a person is considered poor when they are deprived in all the dimensions.

2.2 Other Monetary Poverty Theories

In reviewing theories of poverty Laderchi, Saith & Stewart(2003, p. 243) grouped the theories into four approaches and remarked that "each is a construction of reality, involving numerous judgements, which are often not transparent". They also asserted that these approaches point to different people considered poor. Using empirical work from Peru and India they demonstrated that there exists a "significant lack of overlap" between the monetary and the capability measures. Thus, contending that the definition given to poverty does matter in the effort to plan policy to eradicate it. This section of the chapter briefly reviews the two broad approaches to the issues of poverty relevant to this study – monetary and non-monetary approaches.

2.2.1 Other Monetary Theories of Poverty

The monetary approach to the phenomenon of poverty lies in the assumption of utilitarianism – that individuals derive utility from consumption which they maximize or seek to maximize (Diallo, 2007; Laderchi et al., 2003). The concept assumes that welfare can then be measured in terms of the total consumption enjoyed which is also proxied by either total expenditure or income data. An individual is considered poor when he/she falls short of some minimum level of resources meant to achieve a certain amount of utility, which is termed the poverty line. This approach to poverty was given impetus by the early work of Booth (1887) and Rowntree (1908) in London and York respectively. Rowntree's study, first published in 1901, became

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the first to develop a poverty standard for individual families, based on estimates of nutritional and other requirements (Maxwell, 1999).

The approach of both Booth and Rowntree in seeing poverty as an objective condition out there that needed to be measured paved the way for the later interest in the measurement of poverty among scholars (Laderchi et al., 2003). Rowntree measured three categories of an item which were termed basic needs - food, house rent, and household sundries consisting of boots, clothes, and fuel. He used different methods to set basic requirements for each category. For example, for food, he used nutritional standards established by nutritionists for males, females, adults, and children. However, for household sundries, he depended on a qualitative approach by asking people their views on what they considered to be basic requirements. For house rent, he used what the households were paying (Asselin, 2015).

Based on the scientific approach adopted by the Rowntree (1908), modern research has built on the work and developed a more advanced and standardized instrument for the measurement of the poor albeit using a money matrix.

Modern use of the monetary approach involves measuring the welfare of individuals by either the income one receives or the consumption one can make. It is argued that consumption is a better measure of welfare than income and also a better instrument for long-term income as it avoids some of the short-term fluctuations in income and access to resources (Deaton, 1997). As to the scope that the consumption measure can take, it is argued that it can take both market and non-market goods theoretically. However, when applied practically the measure has always been biased towards private goods (Laderchi et al., 2003).

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Another area of concern with the monetary poverty approach has been how to differentiate the poor from the non-poor. Should this distinction be an absolute one or a relative one? The literature presents various approaches that provide an absolute measure to distinguish the poor from the non-poor. Some believe there should be a minimum positive expenditure that should make one escape poverty. This minimum expenditure should be what at least one receives when they participate in activities like work. However, there is a debate about what should constitute this efficiency wage. There is also the "cost of the minimum poverty level of utility" argument raised (Ravallion, 1998). This states that the poverty line should be the one that will cover the cost of the "minimum level of utility". What constitutes the minimum level of utility is, however, contentious. The most popular approach is the use of the nutritional requirement needed. In this approach, the average expenditure of a food consumption basket needed to derive a specified amount of calories is calculated (GSS, 2014b). The last issue raised in the monetary approach is the problem of aggregation. This concerns the translation of the identified poor into an aggregated value for the whole population. The common practice is to use the Foster, Greer and Thorbecke (FGT) (1984) measures of alpha that ranges from 0 to 2. Alpha 0 measures the incidence of poverty- the percentage of the population that is poor. Alpha 1 measures the poverty gap that measures the average distance between the incomes of the poor and the poverty line. Alpha 2 measures the depth of poverty which captures how sensitive the poorest is by attaching a higher weight to the poorest at the bottom of the poverty line. Below are some of the theories under monetary poverty.

The Absence of an Effective Market or Underdevelopment

Expressed in many ways the theory of the cause of poverty has been long attributed to the absence of a workable market or differently stated as underdevelopment (Blank, 2003; Zambakari, 2012). When this happens there is no way to develop trade and take advantage of

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comparative advantage. Within the conceptual framework of comparative advantage theory, first elucidated by David Ricardo, a strong theoretical foundation was provided for free trade right from the 19th century.

The argument for this cause of poverty states that the poor lack long-term planning for investment because they lack access to credit facilities or the infrastructure of a market economy that would allow them to do long-term planning and investment thereby resorting to day-by-day decisions. As Taylor, Zezza and Gurkan (2009, p.1) put it "without good access to markets, a poor household cannot market its products, obtain inputs, sell labour, obtain credit, learn about or adopt new technologies, insure against risks, or obtain consumption goods at low prices. Equally important, it cannot use its scarce resources like land and labour efficiently. Its decision-making is constrained. Cut off from markets, it is forced into self-sufficiency, whether for food, labour, or other items. Its subjective valuations, rather than market prices, then determine how its resources are used". The importance of robust access to the market and other institutions in alleviating poverty was examined by Dorward, Poole, Morrison, Kydd, & Urey(2003). They stressed that, alone, the market should not be seen as the panacea of the poor but should be developed alongside other institutions. "We stress that although we see improved market access as a critical driver of sustained and broad-based poverty-reducing development, it is neither a magic bullet nor a sufficient condition for such development: other social, political and technical processes of change are also vital" (p. 2). Delgado, Hopkins & Kelly (1998) suggested strong theoretical underpinning for the development of the market in the agriculture sector in Sub-Saharan Africa which will lead to both forward and backward linkages.

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The Non-Participation Theories

This group of theories blame poverty on the inability of the poor to participate in the existing market to take advantage of and improve their lots. The reasons for non-participation are myriad and may range from factors like being too young to be part of the market to deficiencies in human capital. One major theory in this area is the human capital theory.

Human Capital Theory

This theory was first developed by Becker(1975). It explains an individual's decision to invest in education or training in the lifetime of the person. One's expected returns from this decision of investing in education are compared with how much will be invested in education today. When an individual expects his or her future stream of returns to be great, the person will invest more in higher levels of education and training. However, if the expected returns are little individuals may choose not to invest at all or invest only in lower levels of education. Investments in education and training have both direct expenses (e.g., tuition) and foregone earnings during the investment period. Individuals who believe they will be compensated by sufficiently higher lifetime earnings will choose to invest. The theory postulates that people who expect to work less in the labour market or have fewer labour market opportunities, such as women or minorities, are less probable to invest in education and training. As a result, these women or minorities may have lower earnings and may be more likely to be poor. This has been given a boost by the "Feminization of poverty theory" which says female-headed households are more prone to be poor than male-headed households although much empirical evidence has contradicted this theory(Buvinic & Gupta, 1997). The theory also explains individuals' lifetime earnings. Young people who have long years of working are more likely to invest in human capital than older people whose expected years of earnings are small. The pace of human capital investment, and as a result productivity, slows as workers grow older.

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This leads to slower growth of earnings. At the end of a person's working life, their skills may have depreciated and that results in a lack of continuous human capital investment in the ageing process. The depreciation contributes to the downturn in average earnings near retirement age.

Dual Labour Market Theories

Seen in different forms, the dual labour market theory was developed from the economic literature on dualism and Marxist theories of social class. The dualism theory conceptualised the economic system as comprising modern and traditional systems separate and parallel within the same society. Other versions see it as the restructuring of modern institutions to maintain differentiation between a modern sector with advanced technology and capital-intensive enterprises and a traditional sector comprising of labour-intensive, smaller enterprises, local technology and lack of formal education entry requirement (Berger & Piore, 1980). This theory sees the market as the problem causing poverty rather than being a solution to it (Blank, 2003). Opponents of international globalization argue in dualism lines suggesting that richer countries export poverty by setting up low-wage jobs overseas making it possible for them to always enjoy cheap imports. Other version sees the market as creating "vicious circles" and "backwash effects" that direct profits to a single group of firms making these firms more and more different from the "backward firms" in terms of factor proportion, market power, wage rates and employee characteristics making the "backward firms" starved with resources and "sickly". The Marxists have characterised capitalism as creating a "reserve army of the unemployed". This "army of the unemployed," ensures low-cost labour to the owners of capital. The institutionalists describe the economy as composed of primary and secondary labour markets. Workers in the primary sector wield greater political and economic powers and can protect themselves from economic cycles and establish for themselves jobs with better working conditions and higher benefits. The economic turbulences are therefore borne by the workers

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in the secondary labour market as they frequently suffer from unstable jobs and lower remunerations (Blank, 2003). Similar to this view is expressed by Joseph Schumpeter in the "creative destruction" argument where an economy, amid rapid technological change, may by necessity create large amounts of displacement and unemployment. The new jobs created as a result of the technology change may not be open to workers with older and obsolete skills who experience long-term unemployment and lower income. Poverty in theory is created by the nature of the arrangement of the market itself leading to the poverty of the labour force at the mercy of the effects of a dualised system. Poverty, according this theory is more structural rather than behavioural (Rank Yoon & Hirschl, 2003).

2.3 Relevance of Theories Reviewed to the Study

Creswell (2009) Mentions several purposes for conducting a theoretical literature review including the provision of a framework for establishing the importance of the study as well as getting a benchmark for comparing the results with other findings. The study depended on the ideas and variables offered by the various theories reviewed above as well as the works of other authors in selecting the appropriate independent variables that affect the nature of one's poverty status. Again, based on the theories the appropriate framework to understand the linkages that exist among the variables was also derived. From the Utilitarian theory, the study chose demographic variables of the household heads to include in the independent variables as these factors can determine one's poverty status. Again from the dual market theory as well as the Absence of an Effective Market or Underdevelopment theories, the study includes rural-urban dwellings of the households. The human capital theory under the Non-Participation Theories enabled the inclusion of education as a factor that can determine one's poverty status. Other authors that included these variables too in their study are Gaiha, Imai and Kang (2011), Adepoju (2012) as well as Bhatta and Sharma (2006).

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The Capabilities theory was the sole foundation for the dependent variables selected for the study of non-monetary poverty which is children and adult nutrition variables, children and adult education, as well as standard of living variables.

2. 4 Empirical Literature

2.4.1 Non-Monetary Poverty

Many authors have studied non-monetary poverty using different approaches. This section provides a brief review of some of those studies. Baulch and Masset (2003) using data from Vietnam investigated the extent to which monetary poverty and non-monetary poverty tell the same story. In the study, they used the nutritional status of children and adults as well as education to measure the non-monetary aspect of poverty by setting various cut-offs for each of the dimensions. For monetary poverty, they used the poverty lines needed to obtain 2,100 calories per person per day. Using two-wave panel data their results revealed that there was an overlap and a modest correlation between subgroups of the chronically poor.

Using a composite index Njong (2010) compared poverty across the various strata and urban/rural areas in Cameroon. Taking 33 non-monetary indicators the study constructed a composite index using multiple correspondence analysis. The results showed that the monetary poverty estimate was lower than the non-monetary poverty. Whereas monetary poverty was about 40 per cent, the non-monetary poverty recorded was about twice that of monetary poverty, at 80.6 per cent for Cameroonians. Using the same methodology Noglo (2014) conducted a study into the populace of Togo by applying the basic needs definition of poverty. The study found that both monetary and non-monetary results correlated positively. Pamen, Gankou and Emini (2010) used the principal component analysis and the stochastic dominance test and sought to provide evidence of the transition or dynamics in poverty, without relying

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on a poverty line. They constructed a composite index of poverty using multiple-component analysis of a set of non-monetary household living conditions indicators.

Some studies also adopted an innovative mixed-methods approach. Roelen (2017) used this method to investigate poverty among children in Ethiopia and Vietnam. Their findings indicated that monetary and non-monetary poverty are distinct constructs that are linked. They, however, cautioned that the constructs cannot serve as a proxy for one another.

Studies that have adopted the fuzzy set approach do so to avoid the dichotomization of poverty into poor and non-poor. Rather, the studies treat multidimensional poverty as a matter of degree determined in terms of their position in the distribution of some aspects of the individual's living conditions. Applying the fuzzy set approach, Ciani, Gagliardi, Riccarelli and Betti(2019) measured the non-monetary poverty in the Mediterranean area. In Ghana Appiah-Kubi, Amanning-Ampomah and Ahortor (2007) combined monetary and non-monetary variables using qualitative and quantitative indicators. Their study employed the fuzzy-set theoretic framework to compare levels of deprivation in Ghana over time between 1991 and 1999. Other studies that have used the same method include Ashagidigbi and Dahunsi (2018), Diallo (2007) and Ulman and Šoltés (2015).

Several studies have also adopted the new Alkire and Foster (2011) Multidimensional Poverty Index (MPI) to measure poverty. From Africa, some of the studies include the studies conducted by Brück and Workneh Kebede (2013), Alkire and Santos (2010), Agyire-Tettey et al.(2019), Seff and Jolliffe (2017), GSS (2013) and GSS (2020b).

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2.4.2 Monetary Poverty Dynamics

Determinants of Poverty Dynamics

A review of empirical works on the dynamics of poverty by Baulch and Hoddinott (2000) and Yaqub (2000) provides a starting point for understanding the nature of poverty over time using household longitudinal data. Baulch and Hoddinott (2000) identified three types of households when comparing thirteen different panel data in ten countries as follows: households that are always poor; are sometimes poor; or are never poor. One significant observation made was the fact that the percentage of households that fell in the *sometimes poor* category was much greater than those in the *always poor* category. Also using 19 datasets scattered among four continents- Africa, Asia, Latin America and Post-socialist countries, Yaqub (2000a) suggested that the reason for the large size of the households falling into *sometimes poor* category may be explained by the short nature of the panel which was either two or three waves.

The major determinants of poverty dynamics presented in the literature have been categorised under demographic factors, human capital variables, physical capital variables, geographical location variables, economic related variables and health variables (Neilson, Contreras, Cooper, & Hermann, 2008; Narayan, Kotikula, & Zaman, 2010; Woolard & Klasen, 2004, Jalan & Ravallion, 1998; McCulloch & Calandrino, 2003). The following section provides a review of the relationship found between these variables and the poverty dynamics.

Age and Poverty Dynamics

Works reviewed reveal that age, household size and gender are strong determinants of poverty dynamics. Concerning age, studies reveal that the household's or person's point in the life cycle does affect the chances of the person falling or exiting poverty. Both Fiess and Verner (2004) and Neilson, Contreras, Cooper & Hermann (2008) found that the probability of falling into

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poverty increases as one ages but is very low for young ages. Jalan and Ravallion (1998) in a study in rural China also found that the life-cycle hypothesis underpins their result. In the study, they estimated that transient poverty falls for household members with ages up to about 45 years of age but rises afterwards. One key finding of their study was the relative importance of determinants of chronic poverty over the determinants of transient poverty leading them to conclude that the determinants of total poverty reported in the literature are determinants of chronic poverty. If this result holds for other studies it has policy implications since policies that aim at variables that will reduce transient poverty may not be effective.

Household Size and Poverty Dynamics

Whereas it is clear in the literature that household size affects chronic poverty the results for transient poverty are not always straightforward. In Nepal, Dev Bhatta and Sharma, (2006) found that household size which was the only demographic variable significant in their model showed that the odds of being chronically or transiently poor increase with an increase in the size of the household. However, other studies such as Haddad and Ahmed (2003) in Egypt, and Jalan and Ravallion (2000) in China found that whereas chronic poverty is associated with increasing household size the same cannot be said for transient poverty. Eigbiremolen (2018) estimated that between 2010 and 2013 larger households living in Nigeria experienced a fall in their consumption giving credence to why these households were more likely to be chronically poor within that period. McCulloch and Calandrino (2003) also found in their study in rural Sichuan, China, that household size is strongly associated with being chronically poor. In a similar result, a larger household size was found to have a significantly positive association with the likelihood that a household is sometimes or always poor but negatively related to the likelihood that the household will never be poor (Kedir & McKay, 2002). Gonçalves and Machado (2015) also showed that family size increased the odds of a family being always poor,

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usually poor and occasionally poor. Other studies that showed that increasing the number of household members decreases the probability of being non-poor, while at the same time increasing the probability of being poor include Dartanto and Nurkholis (2013).

Bigsten and Shimeles (2004) analyzed the dynamics of poverty using spells and component approach for ERHS 1994-1997 and found that while most households in the rural areas were transiently poor, household size, while it reduces the probability of leaving poverty also reduces the probability of entering poverty. Contrarily, Adepoju (2012) found that the majority of the rural residents of rural South Western Nigeria suffered from chronic poverty and household size increased the probability of the household staying chronically poor while household size decreased the odds of exiting transient poverty.

Gender and Poverty Dynamics

For static measures, poverty rates are usually low among female-headed households than their male counterparts. These findings also show up in some studies on poverty dynamics. For instance, Glewwe, Gragnolati, Zaman and Glewwe (2002) found that between the period of 1993 to 1997 female-headed households experienced a greater reduction in the poverty rates than their male counterparts in Vietnam. A development they attributed to the larger proportion of female-headed households who lived in urban areas (40.5% in 1997–98) where there was a lower incidence of poverty. Muller (1997) in a study using Rwanda data found, however, that female-headed households (and perhaps elderly heads) were associated with a higher chronic poverty index.

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Marital Status and Poverty Dynamics

The utility model of poverty explains why households that are headed by married couples have the potential of reducing poverty compared with single heads. Rodgers (1991) provided two reasons underlying this. Firstly, married couples can better take advantage of economies of scale than single heads, especially in the purchase of housing and other goods. Secondly, there is better economic support for the other partner in case one is laid off. Lerman (2002) provides a third reason for the negative relationship between marriage and poverty reduction as the couple's ability to cope well with the dual responsibility of raising children and earning enough income.

Ethnicity and Poverty Dynamics

Studies have found a strong correlation between household members' ethnic background and poverty status of the member. Fiess and Verner (2004) found that in Rio Grande do Norte and the Northeast regions the ethnic background of the household members was a contributive factor to becoming poor.

Employment and Poverty Dynamics

There seems to be a direct relationship between the percentage of agricultural labour in a state and the propensity for the state to remain in poverty for years (Adelman, Vashishtha, & Adelman, 2018). Households with a greater proportion of elderly family members in an economically-active age group reduce the probability of the household being both transient and chronically poor (Gonçalves & Machado, 2015,). Glewwe

Gragnolati & Zaman (2002) found similar results in the case of Vietnam where household heads involved in white-collar, sales, or production jobs had a greater chance of leaving poverty than those involved in agriculture.

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In many studies households where the head is an employer there is less likelihood for the household to be poor (Kedir & McKay, 2002). Also, wage workers and pensioners are found in some studies to be more likely to be non-poor.

Physical Asset and Poverty Dynamics

A study by Adams and He (1995) revealed that for the poor who moved in and out of poverty, changes in physical assets such as ownership of farmland and changes in household labour acquired through education and migration accounted for about one-quarter of the changes in their incomes. In Kenya Muyanga, Ayiekox and Bundiy (2006) found that household physical assets like radios, wheelbarrows and farm machinery and livestock vary inversely with the levels of transient and chronic poverty. Asset contribution to the dynamics of poverty has also been studied by Radeny, van den Berg and Schippe (2012).

Education and Poverty Dynamics

Like static poverty, education has been found in the literature on the dynamics of poverty to contribute to the reduction of both transient and chronic poverty. Gonçalves and Machado, (2015) in a study in Brazil found that adults with secondary and college education or those with a higher proportion of average or highly-qualified skilled workers lessen the probability of the household being always, usually, churning or occasionally poor as compared with the probability of it being non-poor. In a qualitative study among the dwellers of Eastern Tarai in Nepal, Dhakal (2015) obtained a unanimous response from all sites across all social and economic classes that investment in education was considered an important avenue necessary for increasing human capability and upward mobility.

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Geography and Poverty Dynamics

Muyanga Ayiekox and Bundiy (2006) found that cash crops like coffee and tea that are grown in the highland regions are associated with low chronic and transient poverty as against the high levels of chronic and transient poverty in the low-lying areas as well as dry areas in Kenya. Neilson et al.(2008) found that households that lived in the Metropolitan areas in Chile fared better in terms of their poverty than those that lived in the other parts of the region. However, they found rural dwellers left poverty more frequently than urban dwellers.

2.5 Determinants of Poverty and Poverty Dynamics in Ghana

Major determinants of static poverty in Ghana have been identified in some previous studies on the subject. Kyereme and Thorbecke (1991) estimated the determinants of poverty using the calorie gap and found that among other variables, an increase in education from no primary education to primary education reduced the calorie gap by 405,600 calories. Other variables that had a similar direction of effect were the age of the household head and the male household head.

Using the GLSS 4 Sackey (2005) examined the effects of human and financial capital as well as physical assets on the incidence of poverty in both urban and rural Ghana. Using a binary variable for poverty (poor being one and non-poor being zero) the study concluded that to reduce poverty growth-oriented policies should be targeted at among other things investment in the schooling of the populace, provision of institutional credit and an enabling environment for labour market activities. Using the same data (GLSS 4) collected in 1998-1999, Adjasi and Osei (2007) found that having a household head who is educated has a lower probability of being poor. Again they found a similar result that higher education has more dividends in reducing poverty than lower levels of education. Further their results showed that if the

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household is urban-based it has a lower propensity to be poor than those outside. Household heads that work in the agriculture sector are more likely to be poor compared with those employed in the administrative and managerial sectors the results added.

Coulombe and Wodon (2007) fitted separate regressions for both urban and rural poverty. Using three different cross-sectional surveys and using the logarithm of consumption per equivalent adult as the dependent variable, they concluded that generally, welfare levels in the country were improving. Also, Sackey (2005) found that education increased consumption (reduced poverty) only at secondary school and higher, further reinforcing the call for greater investment in the educational sector.

Poverty dynamics in Ghana have not received an in-depth study in Ghana mainly as a result of panel data constraints. However, some studies have been carried out using different data and methodologies. In a study by Lawson, Gordon and Schluchter (2012), entitled 'The dynamics of poverty-environment linkages in the coastal zone of Ghana' the authors explored the perception of women in some coastal areas of Ghana and the linkages between poverty and the environment. The study used a qualitative case study approach to ask respondents about their perception of whether they see themselves as poor or not based on some outcome variables. This study falls short of any generalisation for the entire population.

It is obvious from the literature that a greater portion of available literature in Ghana on poverty is on the static nature of poverty with few focusing on the aspect of the dynamic part. This calls for more study into the dynamic aspect of the phenomenon.

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2.6 Trend of Poverty in Ghana

Ghana is one of the countries in sub-Saharan Africa that has seen a tremendous reduction in static poverty. The country achieved the target of halving poverty by 2015 thereby reaching the MDG target. Trends in poverty as depicted by the Ghana Living Statistics Survey data from 1991 to 2013 reveal a drop in headcount ratios. The incidence of poverty is estimated to have fallen by about 31 per cent from 51.6 per cent in 1991 to 24.2 per cent (GSS, 2007, 2014b). The annual rate of poverty reduction by the figures shows a slowdown. In the 1990s, the poverty rate was reduced by an average of 1.8 percentage points per year. However, between 2006 and 2013 this had reduced to about 1.1 percentage points per year (Cooke et al., 2016). The latest report of the GLSS 7 conducted in 2016/2017, shows a marginal reduction in the national incidence of poverty from 24.2 in 2013 to 23.4 per cent (GSS, 2018).

The GLSS surveys of 2005 and 2013 show that whereas urban poverty reduced from 12.4 to 10.6 per cent, rural poverty remained high, albeit reducing from 43.7 reduced to 37.9 per cent over the same period. Thus, rural poverty in 2013 was about 400 per cent of that of urban poverty. Due to this pattern, poverty in Ghana has been considered to be a rural phenomenon.

In terms of regional patterns, poverty in Ghana is high in the three northern regions, Upper West, Upper East and Northern Regions. Except for 2013 when the Upper East saw a drop in rates below 50% all three regions have recorded figures above 50% for the periods of the survey contrary to the rest of the regions which have an incidence of poverty below 40%. The highest incidence of poverty recorded in the country at the regional level was 89% from the Upper West in 2013, while the lowest has been 5% in Greater Accra. The endemic nature of poverty within the three Northern regions in the country has been attributed to factors that are of colonial origin and also a current choice of infrastructural investments by successive

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governments as well as environmental factors. Kambala (2022) provides an empirical justification for the historical hypothesis that the dynamics of colonial rule contributed significantly to the development divergence between the North and the South which has led to the nature of high poverty in the region. He examined the asymmetric regional distribution of past colonial public investments in education, health and infrastructure to show that the dynamics of colonial rule explain a significant portion of the development disparity between the two regions (North and South). By economic activity of household heads, poverty incidence in Ghana is highest among households self-employed in the agricultural sector. Heads who are paid employees, and self-employed in non-agricultural sectors are less likely to be poor (GSS, 2014b). The figures show that the poverty rate among household heads self-employed in the agricultural sector is still very high (from 45% to 39% between 2005 and 2013) even though it showed some reduction.

2.7 Lessons Learnt from Empirical Literature

Overall, the review of the empirical works reveals that the study of poverty has been done using different approaches as the available data may allow. From the methodological angle, the studies on poverty have been conducted using simple correlational methods such as the principal components analysis by Pamen, Gankou and Emini (2010) and multiple correspondence analysis by Njong (2010) to a more complex analysis where variables are fussed such as Ciani, Gagliardi, Riccarelli and Betti (2019). The studies of poverty have also been done in pure qualitative and quantitative approaches as well as using mixed methods such as the study by Roelen (2017).

In the majority of the study, the outcome variable of monetary poverty is taken to be a dichotomy of poor and non-poor. However, other studies that investigated poverty in dynamics

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include other categories in the dependent variable. A more recent analysis of the issue of poverty has been in the discourse of the Multidimensional Poverty Index (MPI) (Alkire & Foster,2011). This group of analysis follow the reasoning underlying the need for a more simple and single index to measure the problem of non-monetary poverty just like the measurement of monetary poverty is carried out. Major issues raised in discussing poverty have also been around the type of analysis that must be done concerning the non-monetary poverty analysis. While several authors avoid the aggregation of the dependent variables to form a single index other authors are of the view that a single aggregated dependent variable is more appropriate for the study of poverty. In reviewing the literature, it was revealed that major determinants of both monetary and non-monetary poverty have been demographic, human, geographical and asset variables with each of these factors having different magnitudes of significance on the dependent variables chosen

2.8 Conceptual Framework

Based on the review of the literature, this section uses the various theories and ideas discussed above to explain a person or a household's poverty status and the factors that determine the status. Figure 1 describes the relationship between demographic factors, human capital factors, asset factors and geographical factors that lead to poverty. These factors, based on the reviewed work are selected based on the two main theories that were chosen to underpin the study- the utility theory and the capabilities theory. The utility theory which was developed by early scholars like Hume, Adam Smith, Bentham and Mill, states that an individual or community with their unique characteristics will produce and make choices that will maximize their utility and ultimately the social utility (Asselin, 2015; Bentham, 1907).

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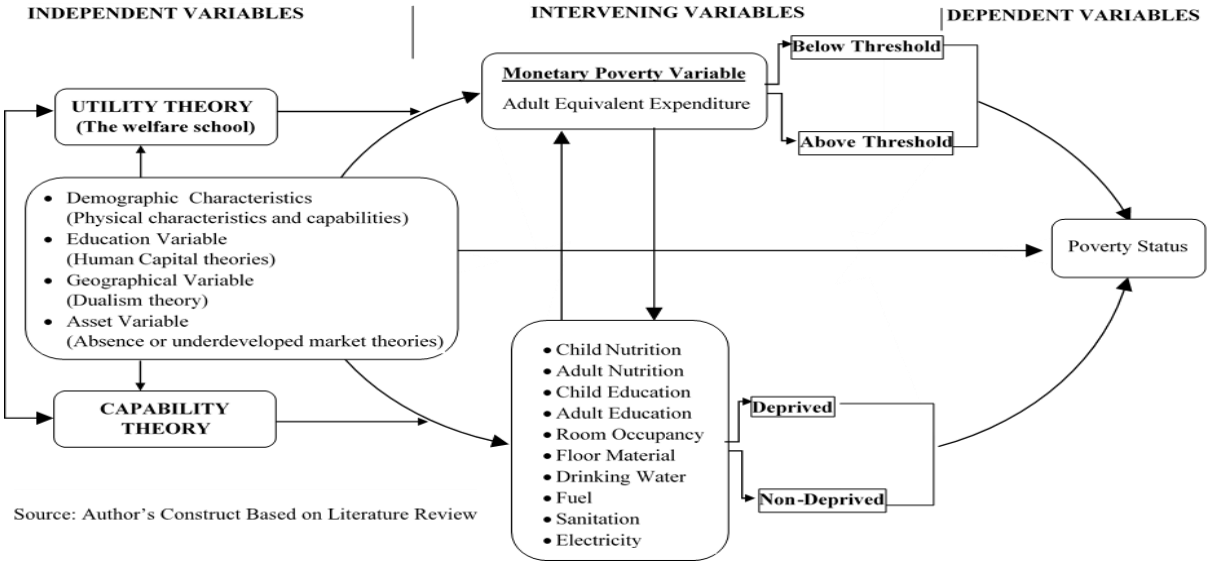
Figure 1: Conceptual Framework of Monetary and Non-Monetary Poverty



Utility theorists compare the concept of welfare with the idea of utility which must be maximized (Diallo, 2007; Ravallion, 1992). Given that this utility cannot be observed directly, the resources of the individuals or households in the form of incomes are used to measure the welfare of the group. The concept of welfare is also proxied by average annual equivalent expenditure per household. This framework, therefore, uses adult equivalent expenditure as a measure of monetary poverty which is influenced by the household demographic, educational, geographic and asset variables. Other supporting monetary theories that were used in the framework are the human capital theory, the dual labour market theory and the absence or underdeveloped market theory. The human capital theory extends the work of Adams Smith in explaining an individual's accumulation of income. It postulates that knowledge increases an individual's cognitive abilities leading to greater productivity and efficiency. The theory postulates further that people who expect to work less in the labour market or have fewer labour market opportunities, such as women or minorities, are less probable to invest in education and training and therefore will stand a lower chance of being productive and efficient(Becker, 1975; Buvinic & Guota, 1997).

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The capabilities theory which is developed by Sen (1992), conceptualised poverty as being limited in capabilities and defined it as the space of freedom. The theory posits that social arrangements should be evaluated according to the extent of freedom people have to promote or achieve the plural functionings (achievements) they value(Alkire, 2007). Whereas utility theorists draw a direct link between welfare and income only, the capability theory considers welfare from the angle of freedom and fulfilment. The theory, therefore, views poverty as a deprivation of these freedoms and evaluates multidimensional poverty according to capabilities. The study of poverty according to this theory, therefore, involves the identification and analysis of other attributes not necessarily monetary, which act directly on the individual welfare. Three main attributes were chosen for the study which is health measured by the nutritional status of children below 5 years and the nutritional status of adult heads, education also measured by the years of school attendance and child's school attendance and standard of living measured by housing, water, sanitation and electricity

2.9 Conclusion

This chapter was devoted to reviewing both the theoretical and empirical literature underlying the study. The chapter began by first placing the entire discussion in the context of the two competing concepts of poverty – the utilitarian school and the capability school of conceptualizing poverty. It was shown that many theories that explained the monetary approach to poverty have been influenced by the liberal wave of ideas that swept the world in the early 19th century. However, other competing theories like dualism which is from the communists' quarters, have dwelt alongside these major theories in history. It was demonstrated that the capability concept of poverty underpins the non-monetary approach to poverty and that the idea was greatly influenced by Rawls' theory of justice. The chapter also sheds some light on some studies that have been conducted following the monetary and non-monetary approaches

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to poverty. Major determinants of dynamic poverty were also reviewed. The chapter ended by throwing some light on the situation in Ghana. It was seen that whereas many studies have been done on the static nature of poverty, few have been done on the dynamics of poverty in terms of monetary and non-monetary indicators.

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CHAPTER THREE

METHODOLOGY

3.0 Introduction

In this chapter, the study provides the methodology by which the various objectives of the study were analysed.

3.1 Research Design

The study focuses on poverty analysis based on monetary as well as non-monetary indicators. This approach allows for a comparison of changes in consumption poverty and deprivation. This also enables the test between monetary poverty and non-monetary poverty measures. It also provides a means to analyse poverty from a dynamic perspective. To carry out this study the general approach used was the quantitative method as it involved generalizing the entire poverty state of Ghana using appropriate samples from the longitudinal data (Creswell, 2014). The study used both the utilitarian approach as well as the capability approach in conceptualizing poverty. Under the monetary poverty approach the study followed the Foster, Greer and Thorbecke (1984) (FGT) indices to measure the poverty incidence, depth and severity. In an attempt to know what dynamics are there in monetary poverty, the study relied on the "spell approach" in a transition matrix. Finally, under the monetary poverty approach, a multivariate measure is carried out to identify the determinants of the dynamics of poverty.

The study corroborates the monetary poverty findings using the non-monetary approach and attempts to draw some comparisons between the two measures. Inquiry into non-monetary poverty hinged on the conceptual framework of the capability approach by Sen (1976). The study employed longitudinal data to analyze both monetary and non-monetary poverty.

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3.1.1. Population

The data used was secondary data which were collected in two different periods by the Economic Growth Centre (EGC) at Yale University and the Institute of Statistical, Social, and Economic Research (ISSER) at the University of Ghana, Legon was used. The first wave was conducted in 2009/2010 while wave two was completed in 2013/2014. The survey is a regionally representative data for the 10 regions of Ghana. In Wave 1 a total of 5009 households from 334 Enumeration Areas (EAs) were included compared with 5010 households from 334 enumeration areas in wave two. In each EA, an average of fifteen households were selected.

3.1.2 Sampling Technique and Sample Size

A two-stage stratified sample design was used for the survey. Stratification was based on the 10 old regions of Ghana. The first stage involved selecting geographical precincts, or clusters, from an updated master sampling frame constructed from the 2000 Ghana Population and Housing Census. A total of 334 clusters (census enumeration areas, or EAs) were selected from the master sampling frame. The clusters were randomly selected from the list of EAs in each region. The selection was based on a simple random technique. A complete household listing was conducted in 2009 in all the selected clusters to provide a sampling frame for the second stage selection of households. In the second wave, the selection of the clusters was based on the 2009 sampling frame. Below is the breakdown of the EAs by region.

Table 3. 1: List of Enumeration Areas

Region	Number of EAs	Per cent
Western	31	9.3
Central	28	8.4
Greater Accra	39	11.7
Volta	33	9.9

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Eastern	43	12.9
Ashanti	60	18.0
Brong Ahafo	34	10.2
Northern	38	11.4
Upper East	16	4.8
Upper West	12	3.6
Total	334	100.0

Source: Ghana Socioeconomic Panel Survey. Report of the Baseline Survey (2009)

The second stage of selection involved a listing of all the households in the selected enumeration areas (clusters) and a simple random sampling of 15 of the listed households from each selected cluster. The data from the baseline Ghana Socio-Economic Panel Survey consists of a nationally representative sample of 5009 households in the 334 enumeration areas (EAs) containing 18,889 household members. The data from the second wave covered a sample of 4,774 households containing 16,356 household members. For wave two due to movements in and out of the household the study ended up with a panel consisting of a sample of 4,366 households that contained 16,356 members. These households were all households that could provide the information for the study in the two waves.

3.2 Data Analysis

3.2.1. Conceptual Framework: Monetary Poverty

The conceptualization of the monetary poverty analysis in this study was based on the utility maximization of the consumer in the household. The standard microeconomics theory begins with an assumption that a household's (or an individual's) objective is to maximize utility subject to a given constraint. In this context, the household heads maximize their utility by choosing the outcomes that are best for themselves and their families. Yet this utility is not observable. For the empirical study, there is a need for a good proxy variable for household

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welfare which comes from the consumption of commodities and home production activities. A good tool will be household consumption expenditure.

What household consumes in goods and services are restricted by family income. Thus, the budget constraint is the income of the household. This income consists of the earned M^e and unearned M^u. Earned income comes from business activities which are either from the farm, non-farm or both. Unearned (or non-labour) income $M^u$is comprised of government transfers (e.g. LEAP in Ghana) or private transfers (e.g., money received from family members in a form of remittances). This income further depends on the household characteristics, the household's physical and human capital ownership, whether the household has a high dependency ratio or the household has small land ownership, a few livestock and other physical assets that entitle them to government transfer. Furthermore, a household may send some of the members to participate in the non-farm sector in the expectation of receiving remittances.

The earned income M^u can be regarded as the overall income received from all factors of production. Alternatively, it is the earnings from the sale of crop output, which depends on the production function of the household, price of the outputs and inputs, land, sales of livestock etc. and wage earning as a labourer. This can be expressed as

$M^u = Public + Private\ transfers = f(P, H, D)$ 1

where P is a vector of physical capital, H is a vector of human capital and D is a vector of demographic composition and household characteristics.

$M^e = f(Y, p, w)$ 2

Where Y is the total output, p is the price of the output and w is the wage earned.

The output Y is also assumed to be a Cobb-Douglas production function specified as;

$Y = AP^{\alpha}H^{\beta}$ 3

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where P is the quantity of physical capital, H is the human capital and α and β are parameters. Further, the wage earned w is given by

$w = \alpha_1 H + \alpha_2 Exp + \alpha_3 Exp^2$ 4

where H is the human capital, Exp and Exp^2 are the experiences and their squared value. α_1,α_2, α_3 are parameters.

The total income of the household M^T is obtained after adding the two sources of income given as

$M^T = M^e + M^u = f(P, H, D)$ 5

From the above, the household's problem is choosing the level of consumption, C and home production activity level x subject to the budget constraint given his/her welfare function. $U(C, x)$ can be expressed as;

$Max\ U(C, x)$ 5a

Subject to $C + x = M^T$ 6

Applying the duality theory that allows one to express consumer decisions in terms of expenditure (cost) functions, the money needed to maximize utility (5a) by household where C is replaced with the function in (5)

$Max\ U(f(P, H, D), x)$ 7

Taking the first order condition of (7) means the marginal utility from both consumption and home production activities should be zero. The framework shows that a household's welfare depends on several factors identified above. Choosing the household's welfare at any period to be measured using per adult equivalent consumption expenditure results in equation (8) below. This shows that at every moment the consumption of an individual depends on P, physical capital, H human capital and D is a vector of demographic as well as home production

$c_{it} = f(P, H, D, x)$ 8

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From this conceptual framework, a household's welfare is affected by the assets the household owns and their returns, and the demographic composition of the household such as household size, and location.

3.2.2 Measuring Poverty and Its Decomposition

This section outlines the methods that the study used to measure poverty and how the chronically poor were differentiated from the transient poor. The study used the widely applied class of decomposable poverty measures by Foster, Greer and Thorbecke (FGT). This method shows the property of consistency and additive decomposability (Foster et al., 1984). This is shown below;

$$P_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^{\alpha} \quad \text{.........9}$$

Where z is the poverty line, y_i is the household's consumption expenditure per adult equivalent; I the household; q is the number of poor people in the population of size n, and α is the poverty aversion parameter that takes values of zero when measuring incidence P_0, one when measuring poverty gap or depth P_1 or two when it is measuring the severity of poverty P_2.

In measuring monetary poverty two nutritionally based poverty lines were used. The first is the food poor or the extreme poverty line which was based on per adult equivalent expenditure per year of GH¢ 792.05 which is needed by a household member to meet its nutritional requirements. The study termed any individual whose total expenditure fell below the amount as severely poor. The second line which the study called moderately poor, is the upper poverty line of GH¢1,314 per adult equivalent expenditure per year. This amount is assumed to be enough to include both essential food and non-food consumption. Therefore, two levels of measurement were used for the monetary poor- the normal poor (Upper poverty) and the severely poor (Lower poor).

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3.2.3. Empirical Classification of the Chronic and Transient Poor

Decomposing inter-temporal poverty into a long-run component-*chronic poor* and short-run component-*transient poor* can be done in two ways – The "Spell" approach and the Component Approach. Using the "spell" method *transient poor* household is one that is poor (by the poverty line) in only one or more periods, while the household that is poor in all periods is considered to be chronically poor.

On the other hand by using the component approach developed by Jalan and Ravallion (1998) the transient poor household is the one whose portion of expected poverty over time is due to consumption variability while the chronic poor household is the one whose portion of expected poverty overtime is due to consumption which results when inter-temporal variability of the consumption has been smoothed out.

Mckay and Lawson (2002) explain that when a panel is only two waves the component approach cannot properly capture the inter-temporal mean of consumption. Therefore, in this study, the "spells" approach in which a household that is poor in only one period is considered transient poor, while a household that is poor in both periods is classified as chronically poor was adopted following Alisjahbana and Yusuf (2003), Brück and Workneh Kebede (2013), and Dartanto and Nurkholis (2013).

This study, therefore, used the transition matrix and the simple-first-order Markov model to analyse the movements of households in and out of poverty and to understand the relationship between poverty entry and exits. The processes are seen in Figure 1.

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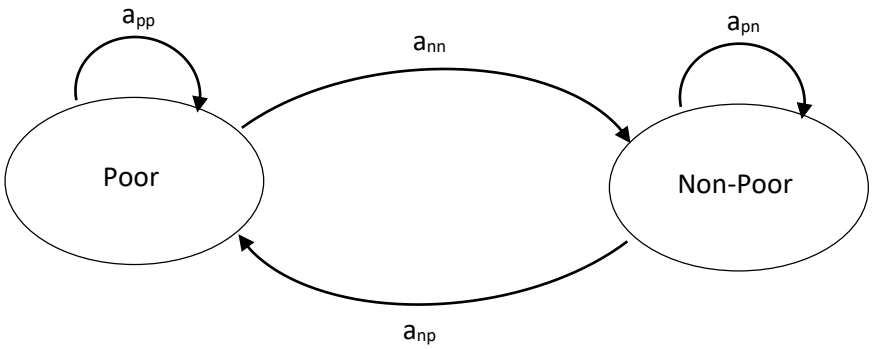
Figure 2: Markov Model of Poverty Transitions



Source: Adapted from Baulch and McCulloch (2002)

Where a denotes probability, p is poor and n is non-poor. Thus,

a_{pp} = probability of staying poor

a_{nn} = probability of staying non-poor

a_{pn} = probability of exiting poverty

a_{np} = probability of entering poverty

3.3.4 Estimating the Determinants of Chronic and Transient Poverty

The study also sought to identify the correlates of poverty dynamics. To do this, the study applied the multinomial logit regression model. This model has been used by a variety of authors including Gaiha, Imai and Kang (2011), Adepoju (2012) as well as Bhatta and Sharma (2006).

Following the argument by Bhatta and Sharma (2006), the study categorised the dependent variable into three discrete variables (non-poor, transient poor and chronically poor).

The probability(P_{ij}) that a household i belongs to a particular poverty status j was modelled as a function of the explanatory variables X_i as seen in equation 11 below.

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$$P_{ij} = Prob(Poverty = j) = \frac{e^{X_i^1 \beta_j}}{1+\sum_{k=1}^{2} e^{X_i^1 \beta_k}} \; for \; j = 0, 1, 2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 11$$

Where β_j a vector of coefficients, and Xi is the vector of the independent variables.

Dependent Variable

P_{ij} is the probability of a household (i) in the panel having the status of (j) which can take 0 as Poor and 1 as non-poor in a static regression and a dynamic model takes on values of 0 as non-poor, 1 as transient poor and 2 as chronically poor. The base category was chosen in each category of regression.

Independent Variables

The independent variables (X_i) included in the study consisted of demographic information of the household head which were gender, Age and age squared to investigate the life cycle hypothesis. Household size is also included in the regressors. Human capital variables like the education of the head were also added. Employment status was included. Region and rural-urban locations were included to cater for locational effects. Household Head saving, renting status, ownership of tools, dwelling type and the household head receiving transfer are all variables included in the model as control variables.

In estimating the determinants in a panel usually, the common thing to do is to use the characteristics of the initial period variables as explanatory variables in the regression analysis (Kedir & McKay, 2002). Thus, following Haddad and Ahmed (2003), Neilson et al., (2008) as well as Kedir and McKay (2002) the values of the variables in the initial period, in this case, 2009/2010, were used in the regression. This was done to minimize the effects of measurement errors on the model.

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3.3 Measuring the Non-Monetary Poverty

One limitation of the monetary measures of poverty is that the use of income is a misplaced idea since income should be seen as means of achieving an end which shows one's well-being such as health, education etc. Such ultimate ends can be properly conceptualised in terms of the capabilities framework Sen (Sen, 1976, 1992). Thus, using Sen's capability approach allows us to track well-being outcomes rather than simply tracking well-being input (income) over time. A very important assumption of this framework is that individuals are different in their ability to convert commodities and related characteristics into functions as a result of their characteristics and the different social and environmental factors they face. In addition, the functions or achievements also depend on the public provision of certain key services apart from the private ones, which are not captured in the monetary measures of well-being. Thus, monetary poverty measures lead to an insufficient view of one's well-being (Hulme & Mckay, 2005). This study applied the capability framework in choosing some variables that captured the non-monetary poverty of these heads.

In deciding the dynamics of the non-monetary poor i.e. either transient or chronic poor, the study adopted the 'spells' approach as the study used only a two-wave panel (Stephen Klasen & Gunther, 2009). Similar to the money metrics the study defined an individual as chronically poor if poor in the non-income dimension in all the waves. Those who are poor in either period are defined as transitory poor and those who were poor in neither period are defined as the non-poor.

Following Klasen and Gunther (2009) and Baulch and Masset (2003) the study set 'poverty lines' for the non-income dimensions that are based on some reasonable (but arbitrary) notions of who should be considered poor in the relevant dimension.

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3.3.1 Dimensions of Non-Monetary Poverty

Many authors have expressed the possibility of including a wide range of dimensions in the analysis of non-monetary poverty in theory. In practice, however, they recommend a few variables which are considered appropriate on the ground that they are those that are critical and commonly agreed upon (Baulch & Masset, 2003; Stephen Klasen & Gunther, 2009). For instance, Baulch and Masset used only Nutrition proxied by child and adult nutritional status and education measured by whether primary and lower secondary school-age children have been attending the appropriate level of school. Klasen and Gunther similarly used education and health proxied by nutritional status. United Nations Economic Commission for Europe (2016) in a seminar presentation argued for each country to select MPI that suits its data sources and policy purposes. As a member of the United Nations committed to the SDGs, the first goal which is "End poverty in all its forms everywhere" the study deems it appropriate as a baseline study to provide a wide range of the variables that have been considered to constitute the non-monetary poverty variables in the analysis (Santos, 2019). Following the GSS (2013) the study selects three broad dimensions of well-being namely Health, measured by adult nutrition using BMI and children's using the anthropometric measures, Education, and standard of living measures which are made up of ten sub-variables altogether. Table 1 provides explanations of these dimensions and how they were measured with their cut-offs.

Table 3. 2: The Dimensions, Indicators, and Deprivation Thresholds for Non-Monetary Poverty

Dimension of non-monetary poverty	**Indicators**	**Unit for analysis**	**Deprivation standard**
Health	Nutritional Status	Children under 5years	-2 or -3 standard deviations of the US reference population
	Nutritional Status	Adults	BMI cut-offs

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Dimension of non-monetary poverty	Indicators	Unit for analysis	Deprivation standard
Education	Years of schooling		Any school-aged child is not attending school up to class 8 (i.e. from kindergarten to Primary 6)
	Child School Attendance	Adults	No household member has completed 5 years of education
Standard of living	Housing	Overcrowding	At least 3 people per room
		Flooring	household dwelling made with earth, mud or dung floor
	Water	Excluded and other unprotected sources.	if a household obtains its drinking water from the excluded and other unprotected sources (.i.e. unprotected dug-out well, unprotected spring, cart with small tank/drum, tanker truck, surface water such as river, stream, pond etc, other
	Sanitation	Toilet	The household's toilet facility is not improved but it is improved but shared with other households.
	Energy	Cooking fuel	The household mainly cooks with wood, charcoal, crop residue, sawdust or animal waste
		Electricity	the household is not connected to the national grid

Source: Adapted from GSS (2013)

3.3.1 Determinants of Non-Monetary Poverty Using Child Health and Child Education

Even though the ten dimensions chosen for the analysis of non-monetary deprivations capture broader dimensions of the problem of non-monetary poverty attention was also given to the analysis of child health as measured by malnutrition and child education as measured by the children under five who are deprived in education which are also prevalent in the literature. These two variables were chosen due to the high stake they possess in perpetuating poverty across generations. In his writings, Amartya Sen (1987, 1999) espoused the essence of

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variables such as nutritional status and health which have a direct effect on capabilities and functionings which further have the advantage of being direct measures of well-being and functionings, unlike income or asset. Furthermore, the two variables are very instrumental in leaping one into the next generation of the poor or freeing one from the next generation of the poor. Bird (2007) provided various links by which child malnutrition and child education deprivation leads to adult poverty which is later transmitted to children in the household.

Households with children that are stunted and wasting have long-term repercussions which can influence a child's likelihood of becoming a poor adult. Poor nutrition in children contributes greatly to child mortality. Such children are also at greater risk of developing certain chronic illnesses in adulthood. Stunting is further associated with mental impairment as well as impaired physical and mental development.

Literature reveals that schooling correlates strongly with adult income and can interrupt the intergenerational transmission of poverty. This may be due partly to the fact that educated mothers are more likely to send their children to school. Some externalities such as reduced fertility and infant mortality as well as improved family health are achieved. Again children who complete secondary education are more likely to be protected from being poor in later life.

The study, therefore, singles out these two non-monetary poverty measures to investigate their determinants for use in policy formulation and evaluation.

3.4 Estimating the Determinants of Non-Monetary Poverty

Modifying equation 11 above the study estimated the determinants of the non-monetary deprivation status of the household. The probability(D_{ij}) that a household i belongs to a particular deprivation status j was modelled as a function of the explanatory variables X_i as seen in equation 11 below.

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$$P_{ij} = Prob(Deprivation = j) = \frac{e^{X_i^1 \beta_j}}{1 + \sum_{k=1}^{2} e^{X_i^1 \beta_k}} \; for\; j\; 0, 1, 2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 12$$

Where β_ja vector of coefficients and Xi is the vector of the explanatory variables.

Dependent Variable

Dependent Variable

P_{ij} is the probability of a household (i) in the panel having the status of (j) which can take 0 as deprived and 1 as non-deprived in a static regression and a dynamic model takes on values of 0 as non-deprived, 1 as transient deprived and 2 as chronically deprived. The base category was chosen in each category of regression A household could be deprived in at least one, two, three or four(UNICEF, 2020). A base category was chosen for each category of regression.

Independent Variable

The independent variables (X_i) included in the study consisted of the same correlates used to model monetary poverty as discussed above.

3.5 Explanations of the Independent Variables

Table 3. 3: Description of Independent Variables

VARIABLES	CATEGORY	Levels
Head of Gender	Male	Reference Variable
	Female	Dummy
Age of Head	Age in years of the household head	Ratio
Household Size	Below 2 members	Dummy Reference Variable)
	Between_2_and_3	Dummy
	Between_4_and_6	Dummy
	Above_6	Dummy
Marital Status	Never Married	Dummy (Reference Variable)
	Married	Dummy
	Consensual	Dummy
	Separated	Dummy

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VARIABLES	CATEGORY	Levels
	Divorced	Dummy
	Widowed	Dummy
Ethnic	Non-Akan	Dummy (Reference Variable)
	Akan	Dummy
Head Education level	No Education	Dummy (Reference Variable)
	Preschool	Dummy
	Primary	Dummy
	JHS	Dummy
	SHS	Dummy
	Tertiary	Dummy
Employment status	Unemployed	Dummy (Reference Variable)
	Employee	Dummy
	Self-employed/family	Dummy
	Other contributing family	Dummy
Region(Admin)	Western	Dummy (Reference Variable)
	Central	Dummy
	Greater Accra	Dummy
	Volta	Dummy
	Eastern	Dummy
	Ashanti	Dummy
	Brong Ahafo	Dummy
	Northern	Dummy
	Upper East	Dummy
	Upper West	Dummy
Location	Rural	Dummy (Reference Variable)
	Urban	Dummy
Saving Status	No Saving	Dummy (Reference Variable)
	Home Saving	Dummy
	Institution	Dummy
	Multiple	Dummy
Renting Status	**Renting Status** (Yes)	Dummy
In-Transfer	Yes	Dummy
Ownership of Asset	Yes	Dummy
Type of Dwelling place	Bungalow	Dummy (Reference Variable)
	Semi-detached	Dummy
	Flat/Apartment	Dummy
	Room in a compound house	Dummy
	Room(s) (Other types)	Dummy
	Several buildings same comp	Dummy
	Several buildings in diff. com	Dummy

Source: Author's construct from Secondary Data (2009 & 2013)

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3.6 Measuring the Relationship between Monetary and Non-Monetary Poverty

The third objective of the study was to explore the extent to which monetary poverty predicts other dimensions of poverty which in this case is the non-monetary dimensions. Following Baulch and Masset (2003) this was done using three ways:

First, the study used a non-parametric approach by applying a chi-squared independence test between monetary and non-monetary poverty measures. The study used the observed frequencies of monetary poverty estimates as the expected frequencies and compared them with the non-monetary poverty measures as shown in equation 12. The study tested the null hypothesis that the two distributions of the monetary and non-monetary poverty measures are independent.

$$\sum x_{i-j}^2 = \frac{O-E^2}{E} \quad \text{.....12}$$

Where

O = Observed values (i.e. the values of the monetary poverty)

$\boldsymbol{E}$ = Expected values (i.e. the values of the non-monetary poverty)

X^2= the cell with Chi-square values

X_{i-j}^2= from the first cell (i) to the last cell (j)

Secondly, the persistence of the different aspects of poverty (i.e. chronic and transient) was compared for both the results of monetary poverty indicators and non-monetary poverty indicators using the immobility index. Where the index is zero, it meant there was complete mobility of variables and when the index is one it showed complete immobility. Between zero and one showed the degree to which there was mobility. Equation 13 was adopted in the calculation of the index

$$I = \frac{Trace\ (T)}{N} \quad \text{.....13}$$

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Where T is the sum of the cell frequencies along the leading diagonal and N is the sum of the sample in the panel.

Thirdly, the study examined whether the various subgroups of the monetary and non-monetary poor overlap. To do this, the Spearman rank correlation coefficient was used. Indices of the different dimensions of chronic poverty and transient poverty were developed for both monetary and non-monetary poverty and their correlation was calculated using the Spearman rank correlation coefficient. Equation 14 shows the formula used in the computation of Spearman's rank correlation measure.

$$r_s = 1 - \frac{6\sum d_1^2}{n(n^2-1)} \quad \ldots\ldots\ldots 14$$

Where

d=the difference in the ranks

n= the sample size

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CHAPTER FOUR

MONETARY POVERTY DYNAMICS IN GHANA: TRENDS AND DETERMINANTS

4.0 Introduction

This chapter is dedicated to the analyses of the data to answer the first research question. The main objective of the study is to analyse monetary and non-monetary poverty dynamics in Ghana using the two waves of panel data spanning 2009/2010 to 2013/2014. The first sub-objective of the study is to analyse the nature, the trend and the determinants of poverty dynamics in Ghana using the monetary measures of poverty. The main question that is being answered is "what are the nature, trend and determinants of poverty dynamics in Ghana using monetary measurement of poverty?" This was carried out as follows. Section 4.1 describes the data. In Section 4.2 the changes in household expenditure between 2009/2010 and 2013/2014 are examined while the poverty profile of the household is examined in Section 4.3. In Section 4.4 the transition of households between the two waves of data is examined by their poverty status while 4.5 looks at the decomposition of monetary poverty into chronic and transient forms. The examination of the determinants of monetary poverty is carried out in Section 4.6.

4.1 Descriptive Statistics

The analysis begins with the descriptive statistics of the demographic, human capital, physical capital and geographic factors that affect the poor households in Ghana. The variables that were used in the study have been described in the next section. Table 4.1 provides the summary statistics for the ratio variables of the independent variables while Table 4.2 provides the descriptive statistics for the categorical variables. In all, the sample used for the analysis in the two surveys was 4,366 households in a balanced panel.

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Table 4. 1: Descriptive Statistics of Ratio Variables

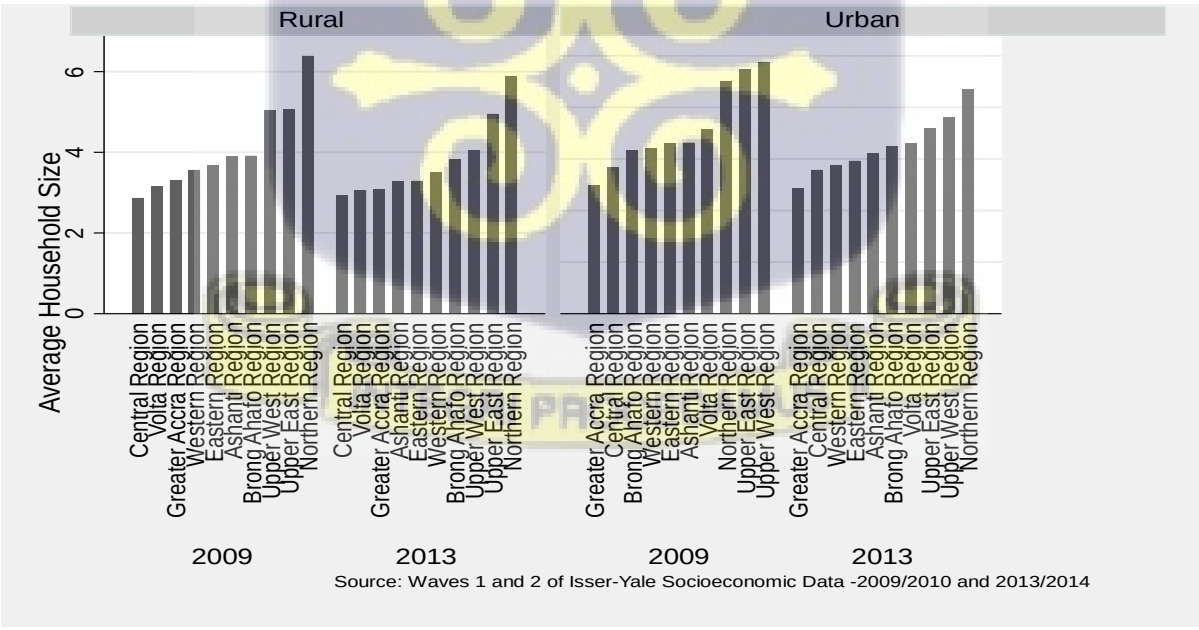
Year	Variable	Mean	SD	Min	Max	N
2009	**Age of Head**	47.74	14.91	15.00	109.00	4,366.00
	Household Size	4.96	2.64	1.00	20.00	4,366.00
2013	Age of Head	50.53	15.00	12.00	114.00	4,366.00
	Household Size	4.00	2.51	1.00	17.00	4,366.00

Source: Author's computations from Secondary Data (2009 & 2013)

4.1.1 Descriptive Statistics of Demographic Variables

Table 4.1 shows that the average size of the household in 2009 was about 5 with a maximum of 20 members and a minimum of 1 member. In 2013 however, the average household size had reduced marginally to about 4 members per household with the maximum also reducing to 17. Putting the household size into four categories- size below two members, between two and three, from four to six and above six, the statistics showed that the majority in 2009 and 2013 had family sizes above 3 forming about 70 per cent in 2009 and 58 per cent in 2013. Figure 4.1 shows the distribution of the household size in terms of location and the years. The distribution shows that household size was higher in rural areas for both waves, averaging almost 6 in 2009 and 5 in 2013.

Figure 4. 1: Distribution of Household Size



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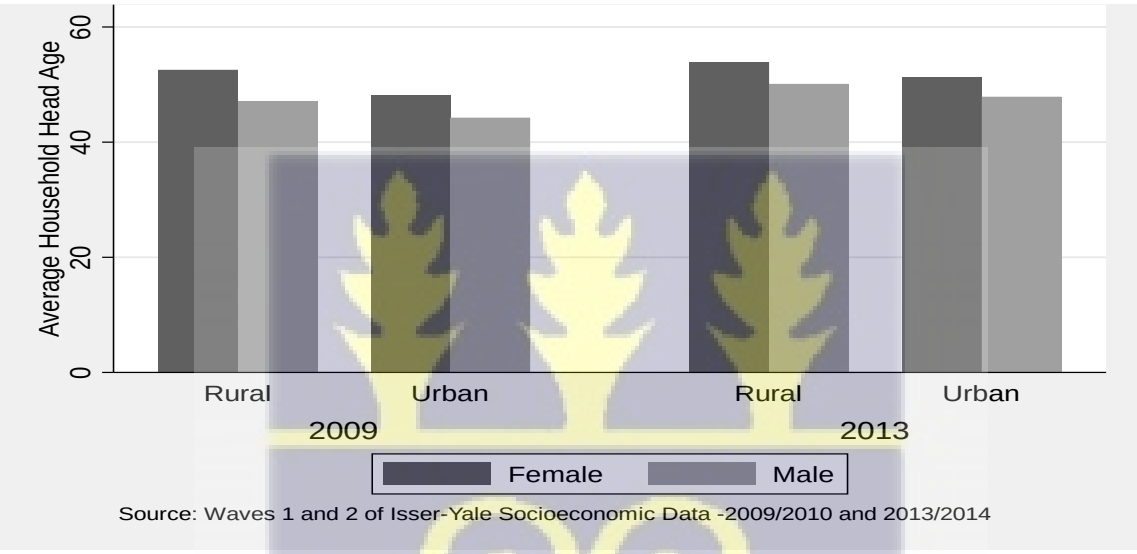
In terms of head age, the statistics show that the average age of household heads increased by three years between the periods considered. In terms of gender distribution, both waves show that female heads were older in age (see Figure 4.2. and Appendix 4.1). Whereas the national average household age was 48 in 2009 that of the females was 49 years while their male counterparts were 47 years. Similarly in 2014 female-headed households had an average age of 50.7 years while men inched up to 50.5 years. This disparity was the same between the rural and the urban population (Figure 4.2).

Figure 4. 2: Distribution of Household Head Age by Gender, Location and Year



Source: Waves 1 and 2 of Isser-Yale Socioeconomic Data -2009/2010 and 2013/2014

In Table 4.2 the other categorical variables for the two years are presented. For the two years, the sample shows a majority of the household heads being males forming about 68 per cent in 2009/2010 while female heads were 32 per cent. This composition did not change in 2013/2014.

4.1.2 Human Capital Variable

The human capital variable used in the analysis of monetary poverty was the highest educational qualification of the heads. Remarkably, a greater percentage (31%) of the household heads did not have any form of qualification in 2009/2010 similar to what pertained

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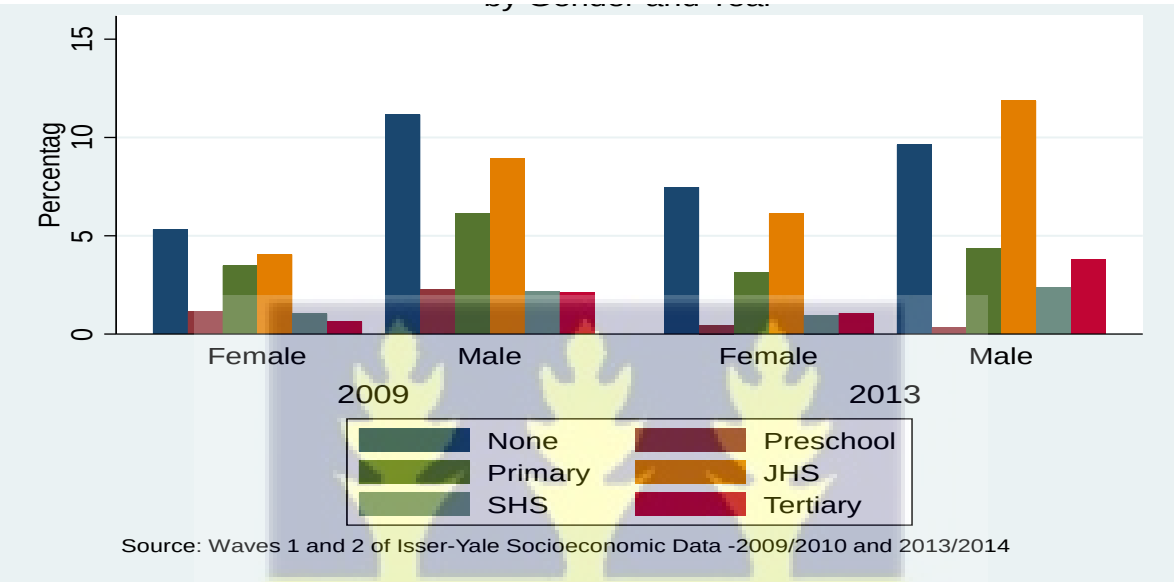
in 2013/2014 when they also formed 31 per cent. However, in both periods Junior High certificate holders formed the greater percentage of the sampled head with some form of educational attainment, being 27 per cent in 2009 and 38 per cent in 2013. The proportion of the heads with tertiary education in 2013/2014 was about twice the percentage in 2009/2010.

Figure 4. 3: Distribution of Household Head Education by Gender and Year



4.1.3 Employment Variable

The sample revealed that about 43 per cent of the household heads were employees and self-employed or family contributors apiece in 2009. In 2013 however, the percentage of households who were working as self-employed, family farm enterprise or non-farm enterprise increased by about 23 points making up about 66 per cent. The next highest employment type in 2013 was the other contributing family workers such as one being a house help followed by employees forming 12 per cent.

4.1.5 Geographic Variables

The table shows the distribution of the sample among the ten administrative regions of Ghana. It can be inferred from the Table that the majority of the sample, forming about 19 per cent

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were from the Ashanti region in both 2009/2010 and 2013/2014 followed by the Greater Accra region forming about 16 per cent of the sample. The Northern region followed with about 12 per cent of the sample. The Western, Central and Eastern regions all had samples equivalent to about 9 per cent in both waves. Brong Ahafo region had about 10 per cent of the sample while the two upper regions had percentages less than 5 per cent in both waves. The majority of the sample forming about 55 per cent was from the rural sector in 2009 while the urban sample was about 45 per cent. In 2013 rural sample formed 51 per cent while the urban was 49 per cent.

Table 4. 2: Descriptive Statistics of demographic and socio-economic Variables

Variable	2009/2010		2013/2014	
	Percentage	Observation	Percentage	Observation
Gender of heads				
Female	29.3	1277	35.4	1546
Male	70.7	3089	64.6	2820
Household Size				
Below 2	7.7	335	14	611
Between_2_and_3	22.6	988	28.4	1238
Between_4_and_6	45.7	1994	41.8	1827
Above_6	24	1050	15.8	691
Marital Status of Head				
Never Married	4.8	211	5.3	229
Married	66.9	2919	62.7	2737
Consensual	8.8	383	5.3	232
Separated	1.8	79	2.7	118
Divorced	8.1	354	9.8	429
Widowed	9.6	421	14.2	620
Ethnicity				
Non-Akan	52.3	2277	53.2	2321
Akan	47.8	2082	46.9	2046
Head Education				
None	30.5	1252	30.5	1333
Preschool	9.1	372	1.4	63
Primary	21.7	893	13.8	601
JHS	26.5	1088	37.8	1649
SHS	7	289	6.1	267
Tertiary	5.2	213	10.4	453
Employment Status				
Unemployed	7.4	323	7.4	321
Employee	43.2	1884	12.2	532
Self-employed/family	43.2	1887	66.2	2888

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Variable	2009/2010		2013/2014	
	Percentage	Observation	Percentage	Observation
Other contributing family	6.2	272	14.3	624

Source: Author's computations from Secondary Data (2009 & 2013)

4.1.6 Physical Capital

About 38 per cent of household heads in the first wave had no savings which are similar to the 39 per cent recorded in 2013/2014 who had no form of saving. Those who saved did so using home saving, institutional saving or multiple avenues. Out of those who saved, the percentage of household heads having some savings at home was about 34 in 2009/2010 and 20 in 2013/2014. Compared with institutional and multiple savings, however, home savings led in terms of the choice by the household heads among the avenues to save funds in the 2009/2010 wave while in wave two, the majority (22%) chose institutional savings over home savings(20%).

Table 4. 3: Descriptive Statistics of administrative, Location and Asset Variables

Variable	2009/2010		2013/2014	
	Percentage	Observation	Percentage	Observation
Region(Admin)				
Western	9.2	401	9.2	401
Central	9.2	401	9.2	401
Greater Accra	16	699	16	699
Volta	7.6	330	7.6	330
Eastern	9.6	418	9.6	418
Ashanti	18.9	825	18.7	816
Brong Ahafo	10	435	10	435
Northern	11.6	506	11.8	514
Upper East	4.8	211	4.8	211
Upper West	3.2	140	3.2	140
Location				
Rural	54.8	2391	50.7	2213
Urban	45.2	1975	49.3	2153
Saving Status				
No Saving	38.3	1644	38.7	1675
Home saving	34.1	1462	20	866
Institution saving	11	473	22	950
Multiple	16.7	716	19.3	837
Renting				
No	81.3	3550	82.3	3591

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Variable	2009/2010		2013/2014	
	Percentage	Observation	Percentage	Observation
Yes	18.7	816	17.8	775
In-Transfer				
No	74.2	3238	57.7	2520
Yes	25.8	1128	42.3	1846
Own Durables				
No	0.4	16	51.0	2228
Yes	99.6	4350	49.0	2138
Dwelling Type				
Bungalow	7.6	328	9.7	421
Semi-detached	3.9	167	9.6	417
Flat/Apartment	3.7	157	4.2	183
Room in a compound house	53.2	2285	50.1	2171
Room(s) (Other types)	23.3	1003	20.3	880
Several buildings same com	6.7	287	4.6	200
Several buildings diff. com	1.6	71	1.5	63

Source: Author's computations from Secondary Data (2009 & 2013)

About 19 per cent of the sampled heads lived in rented houses in 2009/2010 compared with 18 per cent in 2013/2014. The majority of the household heads, forming 74 per cent of the sample had not received a transfer from members outside the household at the time of the interview in 2009/2010 while the remaining 26 per cent had received a transfer in 2009/2010. In the year 2013/2014 however, those who received in-transfer had increased to about 43 per cent while those who did not receive in-transfers were about 58 per cent. In the year 2009/2010 about 99 per cent owned durables while in 2013/2014 this dropped to 42 per cent. Household heads with no durables constituted less than 1 per cent in 2009/2010. However, this had increased by more than half of the sample in 2013.

4.2 Changes in Household Expenditure between 2009/2010 and 2013/2014

This section compares consumption expenditure as a measure of household welfare among the various demographics as well as geographic factors between the two waves. Changes in this expenditure, therefore, indicate the welfare state of the household and the likely state of poverty

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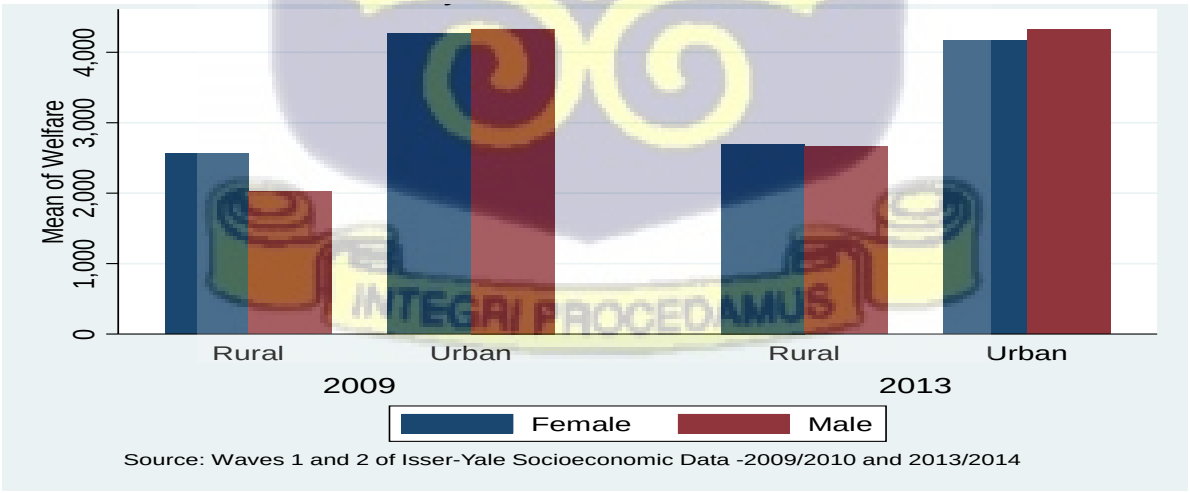
of the household. The summary statistics presented in Table 4.4 describe the mean values of expenditure per household for national, gender of the household heads, household size, educational level of the head, location and region. Between 2009/2010 and 2013/2014, based on the balanced panel national expenditure per household increased by about 10 per cent due to the general economic growth of the Country. Thus, overall, all things being equal this should have led to a reduction in the poverty rate using household expenditure. Comparing the gender of household heads, the table shows that male-headed households saw a much bigger increase in expenditure for the two periods. The male heads saw almost a 14 per cent increase in expenditure levels while the female-headed households had only about a 1 per cent increase in expenditures for the two periods. The figure shows that in terms of the absolute magnitude of expenditures female heads have higher amounts of expenditures compared with male heads for both periods. When disaggregated on location Figure 4.4 reveals that, for both waves, the average equivalent annual expenditure for female heads was higher than their male counterparts in the rural areas. However, the story is the opposite in the urban areas where both waves show that male heads enjoyed a little higher expenditure than female-headed households.

Figure 4. 4: Heads Average Equivalent Expenditure by Gender, Location and Year



Source: Waves 1 and 2 of Isser-Yale Socioeconomic Data -2009/2010 and 2013/2014

Concerning household size, the study shows that household sizes below 2 saw a reduction in expenditure per head by nearly 1 per cent. However, larger households saw a percentage

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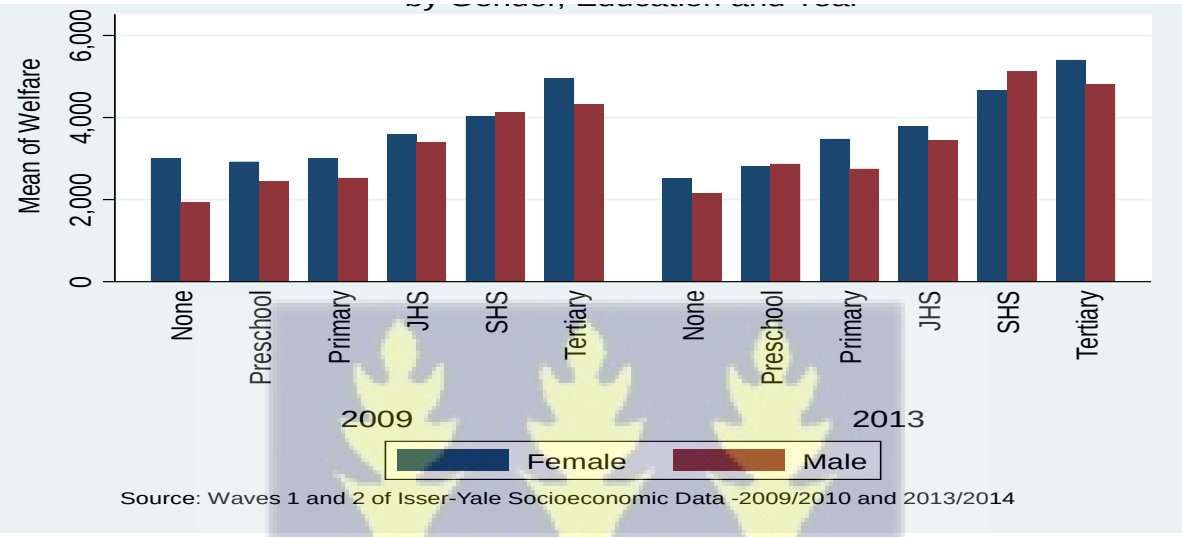
increase in average annual equivalent expenditure per head between 1 per cent for household sizes ranging from two to three to about 16 per cent for a household with a size above six. Except for household heads with no education, all household heads with some level of education had an increase in average equivalent annual expenditure with household heads with SHS qualification experiencing nearly a 13 per cent increase between the two waves.

Figure 4. 5: Heads Average Adult Equivalent Expenditure by Gender, Education and Year



As seen in Figure 4.5, all female-headed households except those with SHS qualification had higher per capita adult equivalent annual expenditure compared with male-headed households in 2009/2010. However, in 2013 male heads with only preschool education and SHS qualification had higher average equivalent annual expenditure than females.

Rural households had about a 25 per cent increase in per capita adult equivalent annual expenditure while urban households experienced a fall in average expenditures. All regions except the central region and Eastern regions recorded an increase in household expenditure between the period of 2009 and 2013.

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Figure 4. 6: Heads Average Adult Equivalent Expenditure by Region and Year

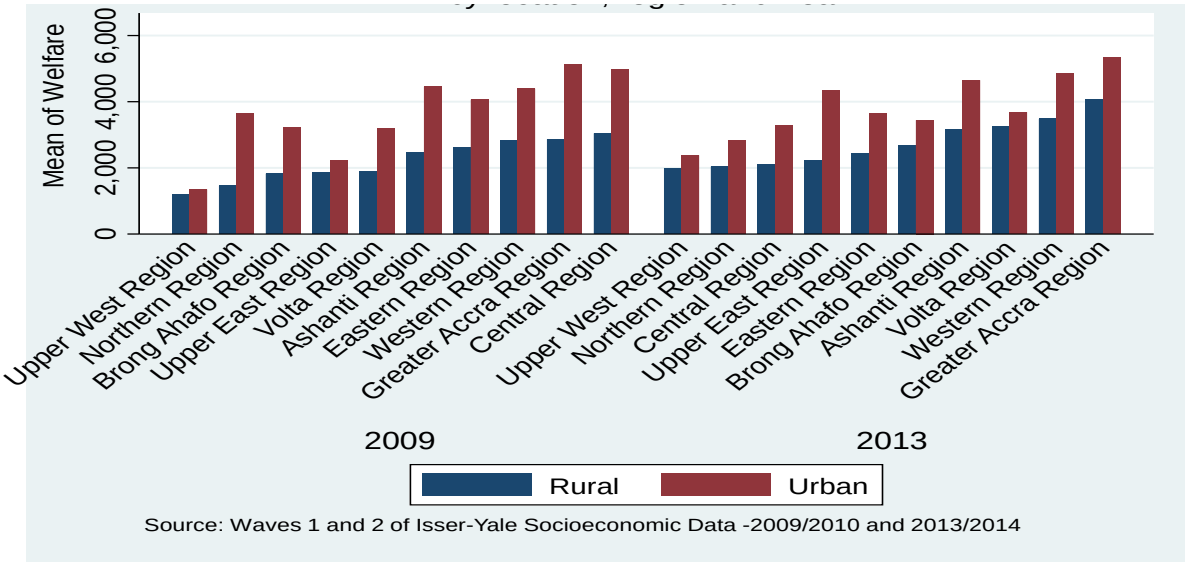

Figure 4.6 shows that when disaggregated on a regional basis, the Central region, which had the highest average equivalent annual expenditure in 2009 dropped to the third position from the bottom in 2013 whereas the Eastern region dropped in two places in 2013.

Table 4. 4: Average Annual Household Adult Equivalent Expenditure on Balanced Panels of 2009/2010 and 2013/2014

Items	2009/2010		2013/2014		Percentage Change
	Mean	SD	Mean	SD	
National	2,927.09	2,596.78	3,214.95	2,778.01	9.83
Gender					
Female	3,370.17	2,768.21	3,373.37	2,914.83	0.09
Male	2,743.85	2,500.07	3,128.14	2,696.67	14.01
Household Size					
Below 2	4,609.30	3,479.74	4,571.81	3,387.59	-0.81
Between 2 and 3	3,551.04	2,807.09	3,583.31	3,126.93	0.91
Between 4 and 6	2,925.50	2,507.11	2,935.41	2,278.54	0.34
Above 6	1,806.15	1,523.27	2,094.47	2,019.37	15.96
Education					
None	2,377.40	2,398.09	2,239.69	1,841.15	-5.79
Preschool	2,675.53	2,258.81	2,952.04	2,297.04	10.34
Primary	2,650.95	2,361.03	2,986.19	3,069.23	12.65

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Items	2009/2010		2013/2014		Percentage Change
	Mean	SD	Mean	SD	
JHS	3,330.24	2,814.88	3,476.52	2,703.30	4.39
SHS	3,774.55	2,730.98	4,754.35	3,430.22	25.96
Tertiary	4,427.36	2,904.50	4,564.43	3,373.02	3.10
Location					
Rural	2,023.57	1,687.78	2,535.47	2,273.96	25.30
Urban	4,021.22	3,045.93	3,913.43	3,062.11	-2.68
Region					
Western Region	3,095.50	2,133.90	3,646.56	2,527.35	17.80
Central Region	3,642.00	2,903.53	2,430.11	1,808.81	-33.28
Greater Accra Region	4,571.11	3,289.81	4,703.13	3,803.99	2.89
Volta Region	2,054.13	1,984.63	3,250.14	2,098.39	58.22
Eastern Region	2,815.25	2,521.78	2,785.83	1,933.09	-1.05
Ashanti Region	3,202.80	2,628.80	3,682.41	3,058.09	14.97
Brong Ahafo Region	2,082.23	1,722.37	2,937.99	2,559.89	41.10
Northern Region	1,878.85	1,532.58	2,055.74	1,662.61	9.41
Upper East Region	1,729.47	1,510.64	2,158.54	2,342.28	24.81

NB: SD=Standard Deviation
Source: Author's computations from Secondary Data (2009 & 2013).

4.3 Monetary Poverty Profile

4.3.1 Entire Data

This section examines the poverty profile of poverty in the country along the demographic, human and physical capital, geographic variables and location. Table 4.4 presents FGT poverty measures on the incidence or the headcount poverty which is referred to hereafter as "normal poor" in the study, which measures the percentage of the people living below the poverty line. In 2009 about 29.5 per cent of the population was poor. In 2013/2014 the rate dropped to 21.5 per cent. The poverty gap, which measures the proportion by which the mean expenditure of the poor falls below the poverty line, was 11.9 per cent in 2009/2010 but dropped to 8.7 per cent in 2013/2014. This means the mean expenditure of the poor is about 11.9 per cent below the poverty line in 2009/2010 and dropped to 8.7 per cent in 2013/2014. The severe poverty

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measure which tracks the depth of poverty was 7.8 per cent in 2009/2010 but in 2013/2014 dropped to 5.6 per cent. These figures conform to the falling trend of the national poverty incidence calculated by the Ghana Statistical Service using the Ghana Living Standard Survey (GLSS) data. In 2005/2006 the GLSS reported that the national absolute poverty incidence was 31.9 per cent with a poverty gap of 11.0 per cent. However, these figures dropped to 24.2 per cent and 7.8 per cent in 2012/2013 in the GLSS.

Table 4. 5: Poverty Status for 2009 and 2013

	2009/10		2013/14	
	Percentage of household	**Percentage change from the previous year**	**Percentage of household**	**Percentage change from the previous year**
	Upper Poverty Line (=GH¢1314/year=$1.83/day)			
Headcount	29.5	-	21.5	-27.1
Poverty gap	11.9	-	8.7	-26.9
Squared Poverty Gap	7.8	-	5.6	-27.3
	Lower Poverty Line (=Gh¢792.05/year=$1.10/day)			
Headcount	11.7	-	8.5	-27.4
Poverty gap	6.3	-	4.7	-25.4
Squared Poverty Gap	5.4	-	3.7	-31.5

Source: Authors' calculations from Secondary Data (2009 & 2013)

The extreme poverty rate, which measures the households whose standard of living is insufficient to meet their basic nutritional requirements even if they devoted their entire consumption budget to food, showed a downward trend from 11.7 in 2009/2010 to 8.5 per cent in 2013/2014.

4.3.2 Demographics

In Appendix 4.1 and 4.2 we present a table that shows the disaggregation of the poverty figures shown in Table 4.5. As shown in Figure 4.7, for both waves, male-headed households recorded higher rates of poverty for both normal poverty and extreme poverty. This is quite in contrast

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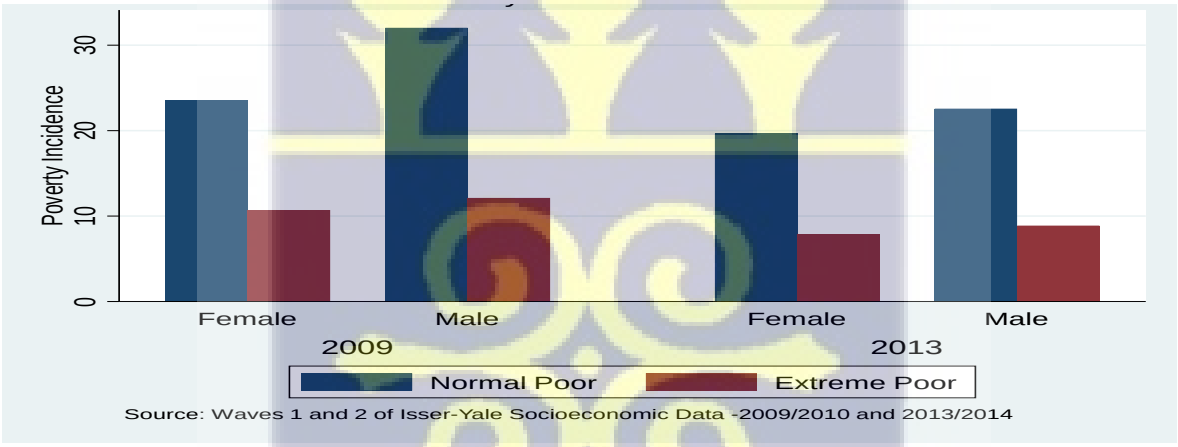
with the "feminization of poverty" theory which says poverty in female-headed households is higher than in male-headed households(Buvinic & Guota, 1997). Whereas male-headed households recorded 32 per cent normal poverty and about 12 per cent extreme poverty in 2009/2010, their female counterparts experienced 24 and 11 per cent normal and extreme poverty respectively in the same year. The same trend was observed in 2013/2014 where male-headed households' experienced higher percentages of normal poverty and extreme poverty rates compared with their female counterparts. Even though both male heads and female heads saw a reduction in their normal and extreme poverty rates for the two waves the percentage fall recorded for male heads in normal poverty was almost twice that of female heads while for extreme poverty the difference in the percentage fall is negligible.

Figure 4. 7: Heads Incidence of Poverty by Gender and Year



Comparing the distribution of poverty rates by gender across a location in Figure 4.8 the result shows that when viewing female and male-headed households normal poverty rates in the urban areas are almost the same for both male and female-headed households in both waves. The difference is only seen in the rural areas where male-headed households' normal poverty rates outstripped their female counterparts. As seen from Appendix 4.2 & 4.3 the rural population which constitutes about 55 per cent of the population contributed about 77 per cent

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of the national normal poverty rates with the remaining 23 per cent being urban contribution confirming the notion that poverty is more of a rural phenomenon than urban in the Ghanaian contest.

In terms of ethnic distribution, Non-Akans had the highest normal poverty in both waves being 38 per cent in 2009/2010 but dropping to 23 per cent in 2013/2014. It must, however, be noticed that the non-Akans formed the greater share of the population making up 52 per cent in 2009/2010 and 53 per cent in 2013/2014. In terms of the contribution to the national poverty rate, in 2009/2010 non-Akans contributed 67 per cent to the national normal poverty rate and 57 per cent in 2013/2014. Observing the national extreme poverty rate, about 16 per cent of the non-Akans were extremely poor compared with 7 per cent of the Akans in 2009/2010. In 2013/2014 however, the extreme poverty rate of the non-Akans reduced while the Akans' increased to 9 per cent and 8 per cent respectively.

Figure 4. 8: Head's Incidence of Poverty by Gender, Location and Year

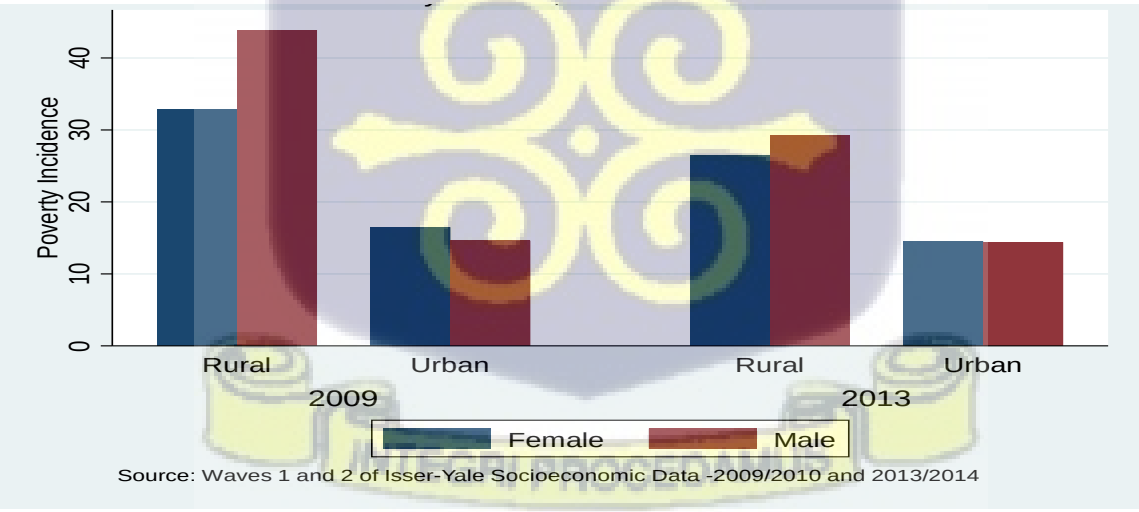

Figure 4.9 confirms the general notion that poverty in Ghana is a rural phenomenon although in 2013/2014 the contribution from rural poverty dropped to about 67 per cent. For both normal and extreme poverty rates, the rural areas suffered the most.

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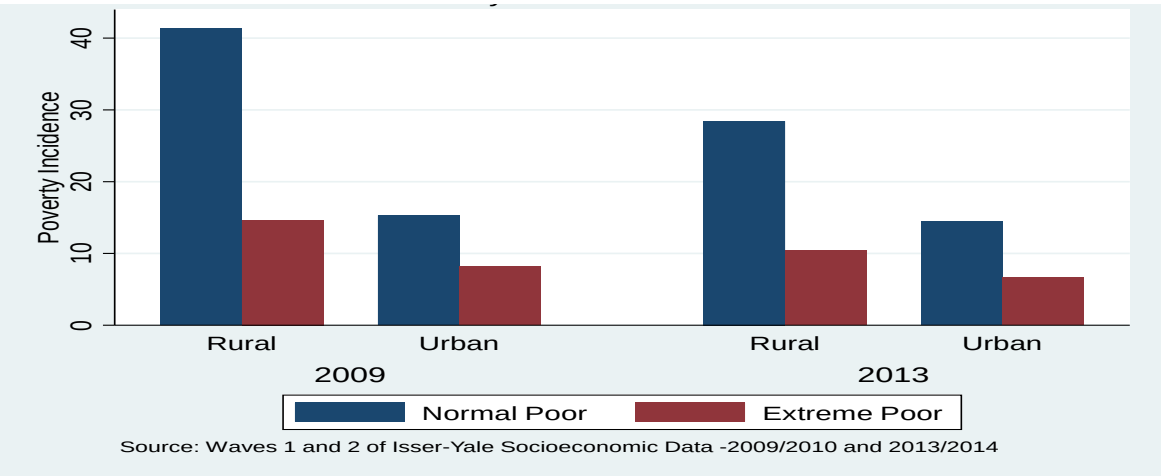
Figure 4. 9: Heads Incidence of Poverty by Location and Year



In terms of regional distribution the Northern region contributed the most to normal poverty nationwide in both waves, contributing about 19 per cent in 2009/2010 and 18 per cent in 2013/2014. Regional analysis in Figure 4.10 shows that the Upper West region had the highest normal poverty rate in 2009/2010 with about 64 per cent of the inhabitants being poor but formed just about 7 per cent of the national normal poverty rate. However, in 2013/2014 Upper east recorded the highest with about 49 per cent of the people being normally poor and contributing nearly 11 per cent to the national poverty rate. In terms of extreme poverty, the Upper West region again recorded the highest regional extreme poverty rate of 35 per cent and formed about 10 per cent of the national extreme poverty rate in 2009/2010. The Eastern region contributed the greatest (15%) to the national extreme poverty rate in 2009/2010. However, in 2013/2014 the Upper East recorded 33 per cent of the people being extremely poor making the region highest for both normal and extreme poverty rates in the year. The Upper East in the same year also contributed the greatest to the national extreme poverty rate by almost 19 per cent. The three most hardly hit regions by the canker of poverty in Ghana according to the data were the Northern, the Upper West and the Upper East Regions. In the south, the Central and

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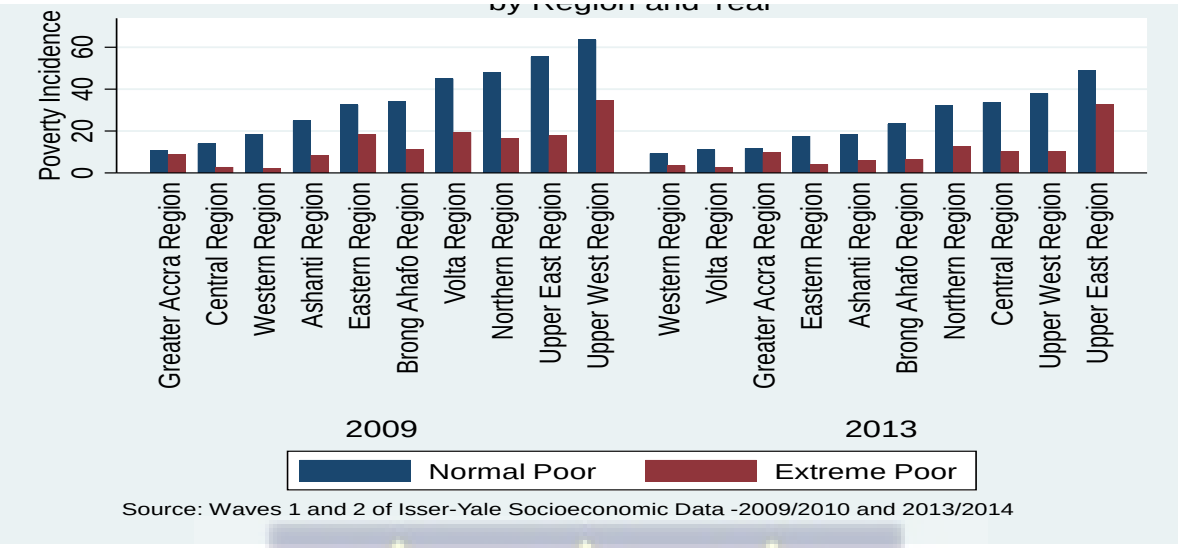
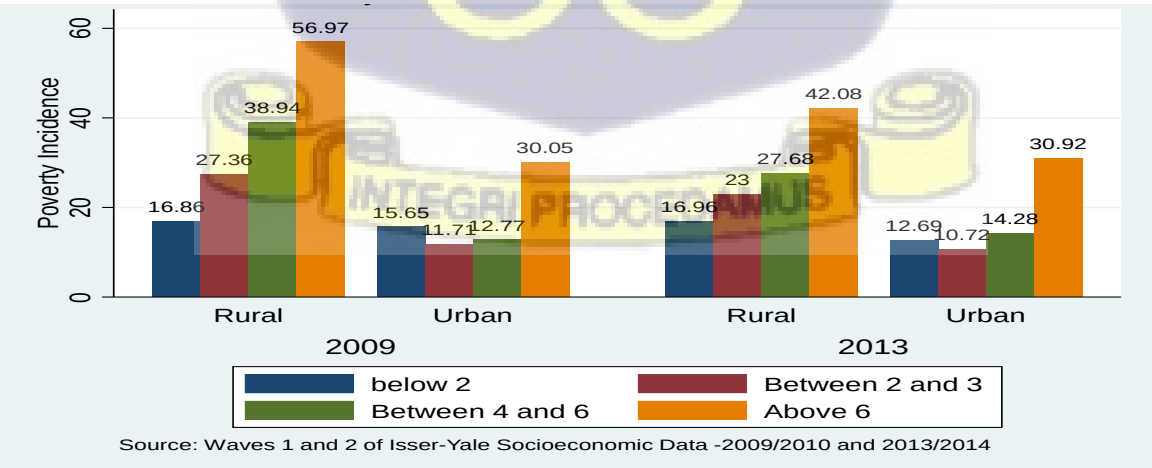
Volta regions have been very volatile in the two waves. These observations were also made by Adjasi and Osei (2007) in their analysis of GLSS 4 data.

Figure 4. 10: Head's Incidence of Poverty by Region and Year



The poverty profile for household size shows that normal or upper poverty was highest for household size above 6 in both waves and least for households with sizes below 2 for both in 2009/2010 and 2013/2014. Figure 4.11 shows that the trend remained the same across the rural and urban locations in Ghana for both waves although urban rates were relatively lower than the rural rates. This trend repeated itself across the ten regions of the country as shown in Figure 4. 12.

Figure 4. 11: Head's Incidence of Poverty by Household size, Location and Year



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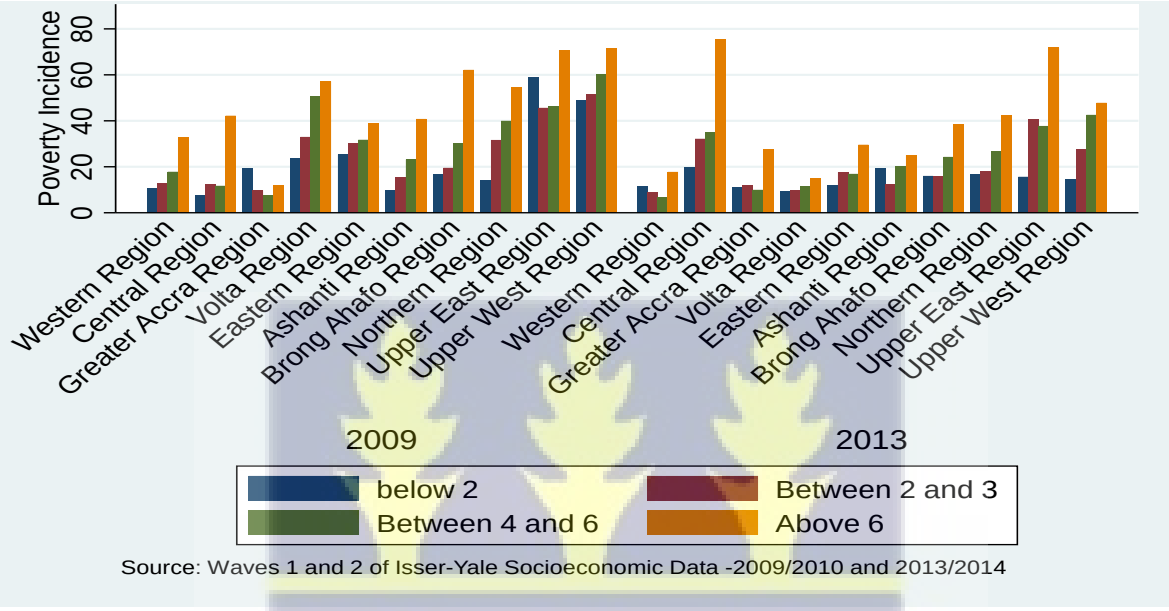
Extreme poverty rates for household sizes followed a similar pattern with the highest burden of the incidence being borne by households with sizes above six for both rural and urban dwellers. Even though the rate for the extremely poor for households with sizes above 6 was about 19 per cent in 2009/2010 and dropped to 15 per cent in 2013/2014 it still formed the highest for the period.

Figure 4. 12: Head's Incidence of Poverty by Household size, Region and Year



Considering the population in terms of marital status reveals that the married, contributing about 73 per cent of the national poverty rate in 2009/2010 also had the highest normal poverty rate of 32 per cent among the marital status category. In 2013/2014 however, the poverty rate among the widowed was the highest within the marital status category of the heads being 24 per cent but came second in terms of percentage contribution to national poverty after the married constituting almost 66 per cent of the national poverty rate. Again, extreme poverty was highest among the widowed in both waves. The rates were 13 per cent and 12 per cent in 2009/2010 and 2013/2014 respectively. This should call for attention to be given to policies concerning the widowed. The never-married had the least poverty rates in both periods. The married also formed the largest share of the national extreme poverty rate making up nearly 67

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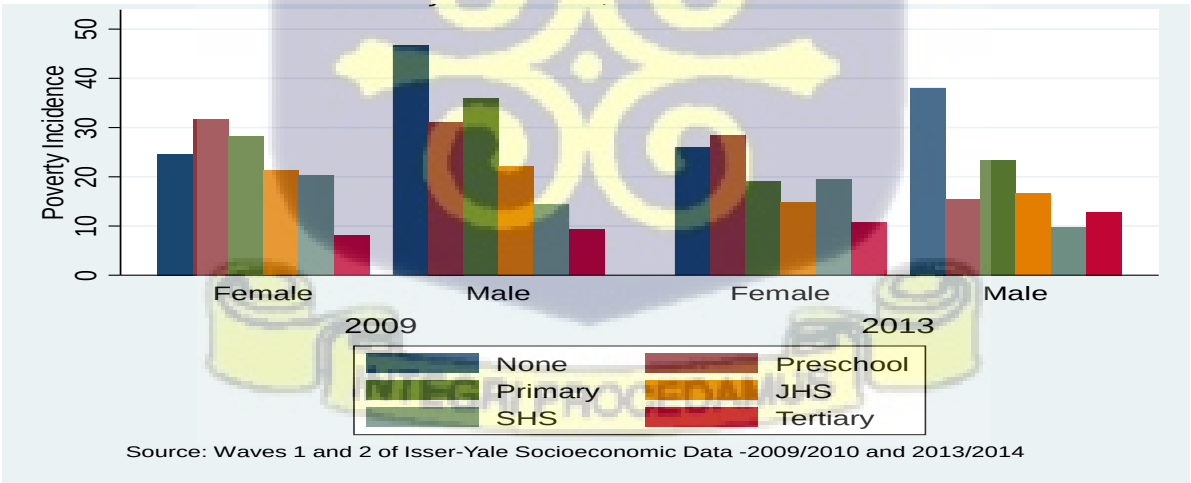
per cent in 2009/2010 and 63 per cent in 2013/2014. This may be a result of their sheer numbers which made up almost 67 per cent of the sample compared with the other subgroups.

4.3.3 Human Capital

For the education variable, normal poverty and the extreme poverty rate among heads with no educational qualification in both waves were the highest. In addition, the no-education heads formed the greatest share of the national normal poverty rate constituting 42 and 37 per cent in 2009/2010 and 2013/2014 respectively. The normal poverty rate was about 41 per cent and 33 per cent in 2009/2010 and 2013/2014 respectively. Similarly, extreme poverty was 17 per cent in 2009/2010 and 13 per cent in 2013/2014. The rates for both normal and extreme poverty reduced as heads' educational qualifications increased. Cross-tabulating, education and gender of the head reveal a reduction in normal poverty for both males and females. The pattern between males and females as shown in Figure 4. 13 reveals a fallen path of poverty as educational qualification increases for both male and female heads in both periods.

Figure 4. 13: Head's Incidence of Poverty by Education Gender and Year



Source: Waves 1 and 2 of Isser-Yale Socioeconomic Data -2009/2010 and 2013/2014

Figure 4.14 also shows that for the two waves poverty rates reduced with higher levels of educational qualifications for both rural and urban dwellers. It could be observed that with the

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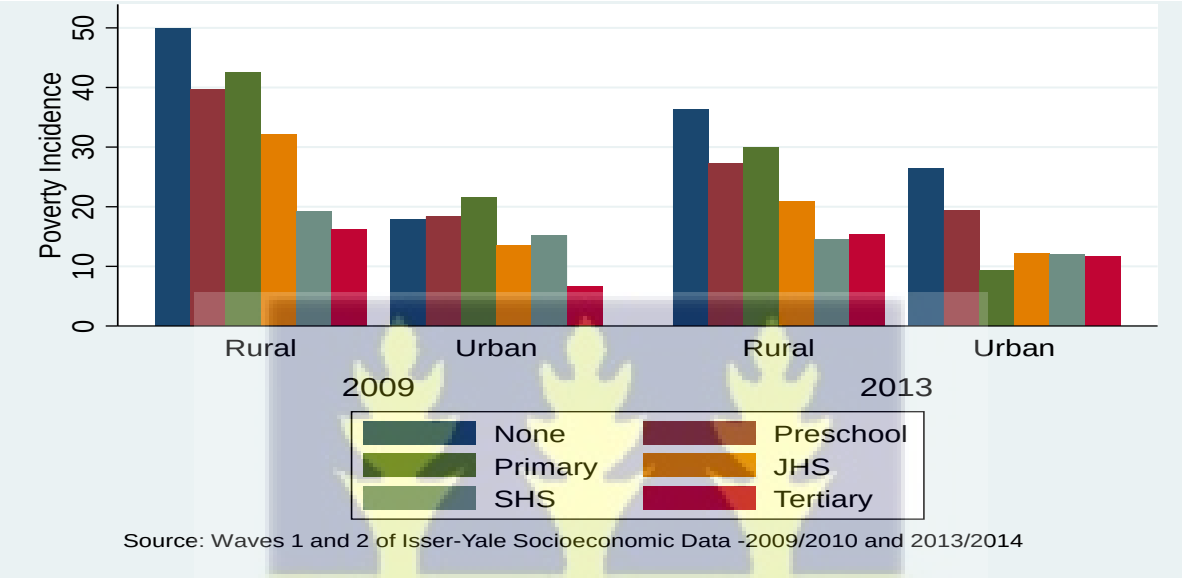
same educational qualification level, the rural poverty incidence is higher than the urban records. This confirms the dual market poverty theory. Rural settings in Ghana may be having low wage returns for the same educational qualification thereby giving rise to higher poverty rates in the rural areas compared with urban areas for similar levels of educational qualification.

Figure 4. 14: Head's Incidence of Poverty by Education Location and Year



Source: Waves 1 and 2 of Isser-Yale Socioeconomic Data -2009/2010 and 2013/2014

4.3.4 Employment

Poverty trends among the various groups of employment categories showed that poverty was highest among the unemployed being 42 per cent for the normal poor in 2009/2010 but dropping to 28 per cent in 2013/2014. In terms of contribution to the national normal poverty, the not-employed contributed just about 10 per cent in 2009/2010 with the self-employed contributing the most to the national poverty by 46 per cent followed by the employees who recorded 36 per cent but contributing the greatest share to the national normal poverty in 2013/2014 by 66 per cent (see Appendix 4.1).

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4.3.5 Physical Capital

The saving status of household heads revealed that heads with multiple savings or institutional savings had lower poverty rates. In 2009/2010 institutional savers had a 21 per cent poverty rate while multiple savers had 14 per cent normal poverty compared with the figures in 2013/2014 where multiple savers had 15 per cent of the poor and institutional savers had 13 per cent of the normal poverty rate. A similar pattern is seen in the extreme poverty rates. In 2009/2010 the extreme poverty rate was 17 per cent among heads with no savings, and 7 per cent for those with multiple savings. However, in 2013/2014, heads with no savings had a 10 per cent extreme poverty rate compared with 7 per cent recorded among the heads with multiple savings.

Poverty was high among non-renting household heads in both waves being 33 per cent in 2009/2010 and 25 per cent in 2013/2014. In terms of proportion to the national normal poverty rates, non-renters poverty contributed 91 per cent to national poverty in 2009/2010 and increased to 94 per cent in 2013/2014. Ownership of durables was associated with low normal poverty of 30 per cent in 2009/2014 and 15 per cent in 2013/2014 compared with non-durable asset-holding heads who had a poverty rate of 40 per cent in 2009/2010 and 27 per cent in 2013/2014. Normal poverty was low among heads that received in-transfer in 2009/2010 27 per cent but in 2013/2014 was higher than heads that had no in-transfers. In terms of dwelling types, poverty is high among heads that dwelt in huts or rooms built in the same compound and huts or rooms built in different compounds (see Appendix 4.1).

4.4 Trends of Poverty Transitions

Table 4.6 and Table 4.7 present the poverty transition matrix which records the rates at which households fell into poverty or escaped from poverty in the two waves. The data shows that

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more than half of the poor households (68%) in 2009/2010 escaped poverty in 2013/2014 while at the same time, 17 per cent of the non-poor households from 2009/2010 slipped into poverty in 2013/2014. Compared with the total poor of 2013/2014, those who slipped into poverty formed about 57 per cent. Between 2009/2010 and 2013/2014 32.5 per cent of the population was transiently poor while 9.3 per cent of the population was chronically poor.

Table 4. 6: Poverty Transition Matrix for 2009/2010 and 2013/2014

		2013/2014		
		Poor	**Not Poor**	**Total Row**
2009/2010	**Poor**	407 (31.6)	883 (68.4)	1,290 (29.5)
	Not Poor	534 (17.4)	2, 542 (82.6)	3,076 (70.5)
	Total Column	941 (21.5)	3,425 (78.5)	4,366 (100)

NB: Percentages are in the brackets
Source: Author's calculations from Secondary Data (2009 & 2013)

The overall mobility rate of households based on consumption expenditure and the poverty line is low. In fact between the two periods about 68 per cent of the household did not move at all. Thus, giving rise to a mobility rate of just about 32 per cent.

From Table 4.6 and Table 4.7, it can be inferred that taking the poor population at every point in time more than half (78%) of the poor population were transiently poor while more than 22 per cent of the poor at any point were always having their welfare below the poverty line thereby constituting the chronic poor.

Table 4. 7: Poverty Decomposition by Spell Approach

POVERTY STATUS	**NUMBER OF HOUSEHOLDS**	**PERCENTAGE**
Always Poor (Chronic)	407	9.3
Sometimes Poor (Transient)	1,417	32.5
Non-Poor	2,542	58.2
TOTAL	**4366**	**100**

Source: Author's calculations from Secondary Data (2009 & 2013)

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When decomposed between the rural and urban locations in Ghana, it can be seen that, of the 9.3 per cent national chronic poverty rate, the share of the contribution by the rural dwellers was the highest being 87 per cent compared with the urban centre which contributed 13 per cent. Similarly, the rural transient poverty rate is higher (68 %) in terms of contribution to the 32.5 per cent national figure compared with the contribution from the urban which was 32 per cent. Again this means the rural transient drove up the national transient poverty rate (See Table 4.8).

Table 4. 8: Poverty Decomposition by Spell Approach by Location

POVERTY STATUS	RURAL	URBAN	TOTAL
Always Poor (Chronic)	353 (86.7)	54 (13.3)	407
Sometimes Poor (Transient)	959 67.67	458 32.33	1,417
Non- Poor	1080 (42.5)	1462 (57.5)	2,542
TOTAL	**2391** **(54.8)**	**1974** **(45.2)**	**4366** **(100)**

NB: Percentages are in the brackets
Source: Author's calculations from Secondary Data (2009 & 2013)

Table 4.9 compares the computed national poverty dynamics with some results from the rest of Africa. Relatively Ghana has the lowest chronic poor as well as the percentage change from chronic to transient poverty which is 28 per cent as compared with the average of 68 per cent recorded in the selected studies shown in the table. This comparison is not without difficulty of doing such comparisons due to measurement disparities, sample differences, method differentiation, differences in the poverty lines used across the countries and also the different durations used in the spell analysis.

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Table 4. 9: A comparison of Ghana's results with Study from Africa

Source	Study Location	# of Panel	Date of Study	Poverty Type			Percentage
				Chronic	Transient	None	Chronic To Transient
Carter and May (1999)	South Africa	2	1993-98	22.7	31.5	45.8	72.1
Dercon and Krishnan (1998)	Ethiopia	2	1994-98	24.8	30.1	45.1	82.4
Grootaert and Kanbur (1995)	Cote d'Ivoire	2	1985-86	14.5	20.2	65.3	71.8
Grootaert and Kanbur (1995)	Cote d'Ivoire	2	1986-87	13.0	22.9	64.1	56.8
Grootaert and Kanbur (1995)	Cote d'Ivoire	2	1987-88	25.0	22.0	53.0	113.6
Hoddinott, Owens and Kinsey (1998)	Zimbabwe	4	1992/93-1995/96	10.6	59.6	29.8	17.8
Haddad and Ahmed (2003)	Egypt	2	1997-99	19.0	20.4	60.8	93.1
Arthur (Current Study)	Ghana	2	2009/10-2013/14	9.3	32.5	58.2	28.6

Source: Adapted from Baulch and Hoddinott (2000) and Haddad and Ahmed (2003)

4.5 Monetary Poverty Dynamics within the Household Characteristics

Looking into the disaggregation of the poverty of the households, as can be seen in Table 4.10, it can be seen that the chronic poor component of the male-headed households which was 11 per cent was more than that of the female-headed households which had 5 per cent component of them being chronic poor. Similarly, the transient poor component of the male-headed household (33 %) was more than the transient poor component of the female-headed household which was 31 per cent. Of the various categories of household sizes households with a size greater than 6 had the highest chronic poor component (20%) as well as the transient poor component (43%) with only 37 per cent of them not poor for the two periods under review. The chronic poor component of the poor households viewed under marital status was lower

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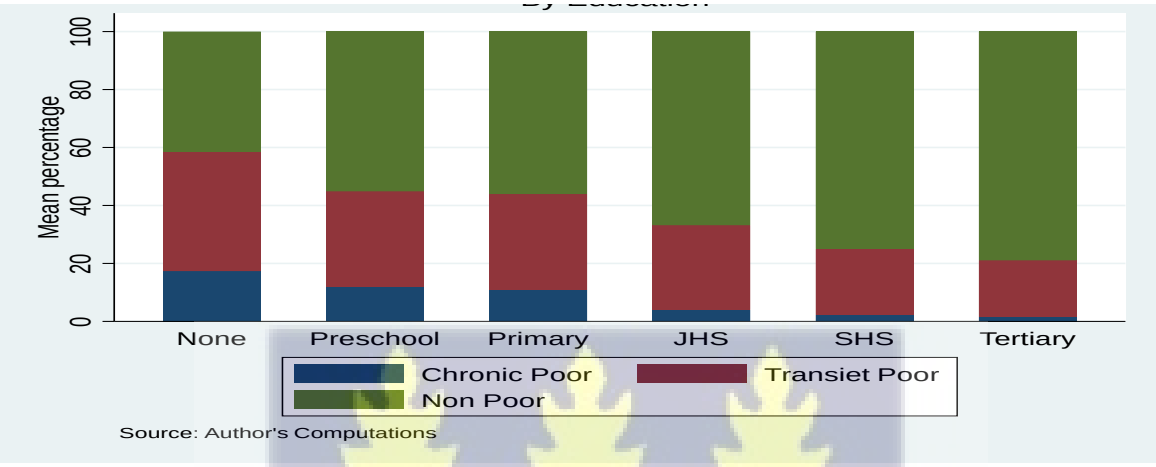
than the transient poor component. Among the chronically poor component, however, household heads that were married had the largest share of their poor being chronically poor (11 %). Under the ethnicity variable, the chronic poor share for non-Akans was higher (15 %) compared with that of the Akans which was 5 per cent.

Figure 4. 15: Poverty Spells Decomposition by Education



Heads that had no education had the highest chronic poor share and the share of transient poor. It is clear from Figure 4.15 that higher education is associated with lower poverty rates both transient and chronic. Heads with tertiary education had the least chronic and transient share thereby having the majority of the non-poor within the category of tertiary education heads. Transient poor was 40 per cent among the non-educated heads while it was down to just 18 per cent among those holding tertiary education. Again among the chronically poor only 3 per cent were from the head with tertiary while 15 per cent were with no education. Non-poor percentage of the tertiary qualified heads was therefore as high as 80 per cent. This is a confirmation of the strong relationship that has been found to exist between higher levels of education and poverty reduction. Dartanto and Nurkholis (2013) asserted in their study that better education increases the probability of being non-poor because a higher level of education

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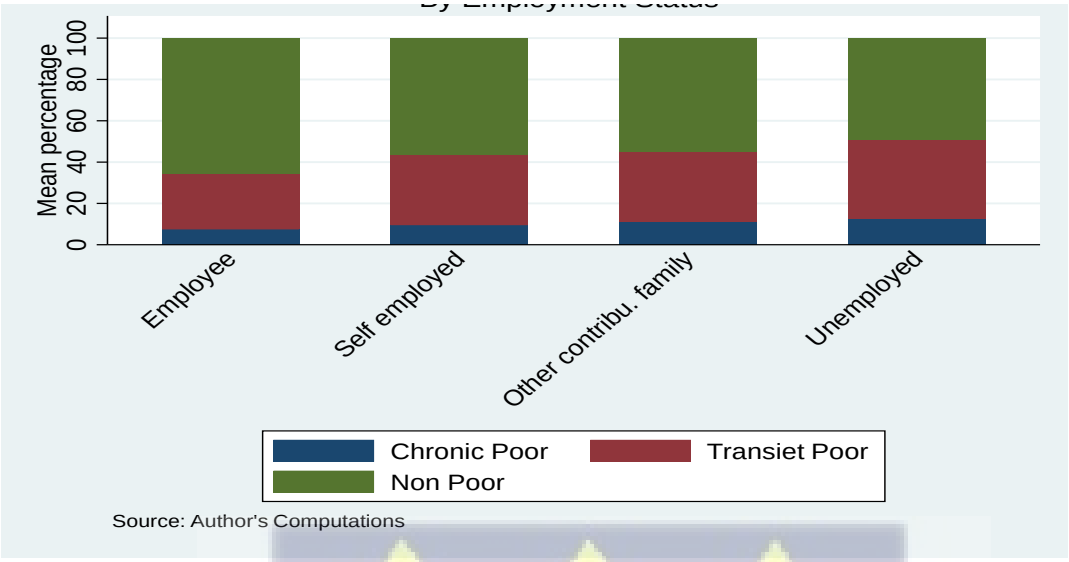
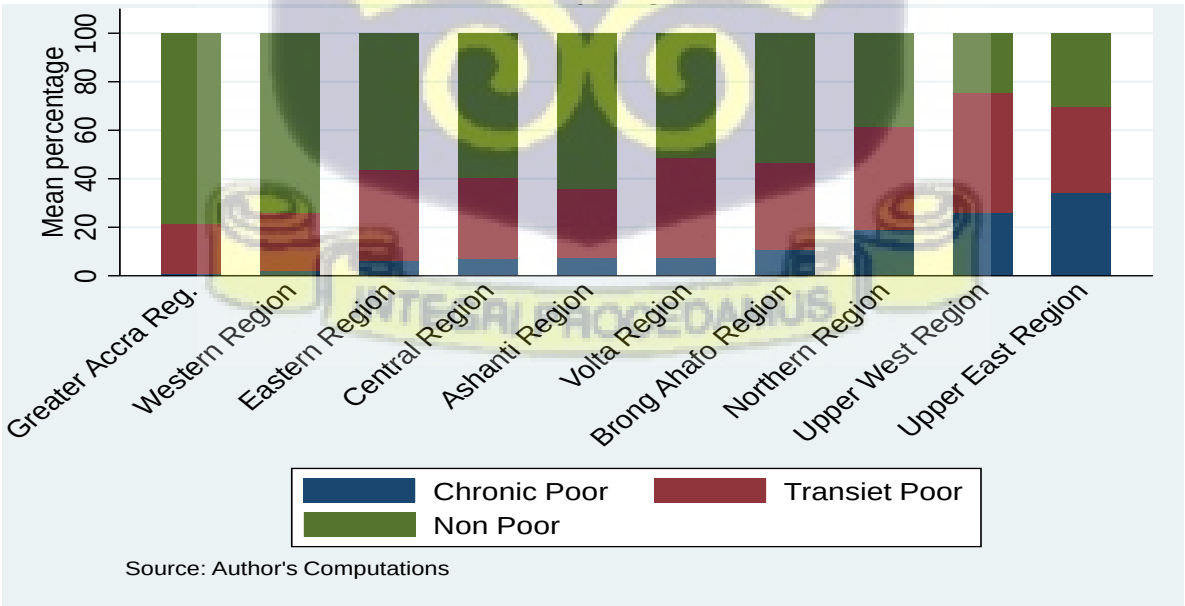
provides greater opportunities for a better job and, subsequently, a higher income. Biaye and Zwane (2011) found a similar relationship in their study.

Figure 4. 16: Poverty Spells Decomposition by Employment



The unemployed had the greatest portion of the poor falling under chronic poverty as well as those that fell under the transient poor population among the employment type. Figure 4.16 shows that chronic poverty was severe among the unemployed forming 16 per cent and 41 per cent of the transient poor.

Figure 4. 17: Poverty Spells Decomposition by Employment



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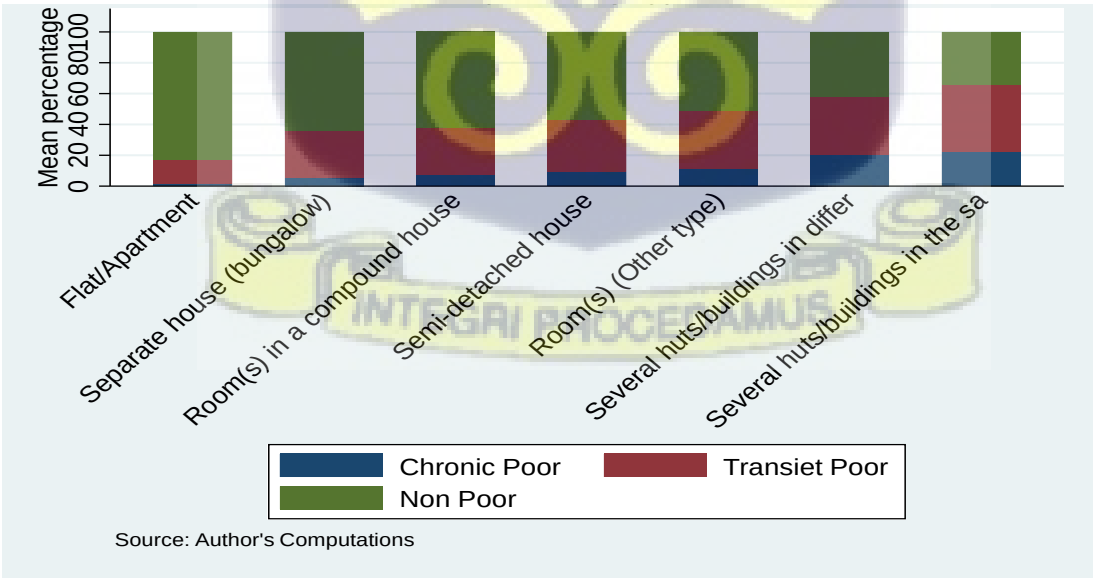
In terms of region, as shown in Figure 4.17, the three Northern regions topped the list of the largest proportion of the chronically poor. Upper East region had 34 per cent of the poor being chronically poor and 36 per cent transient poor. The Upper West region had the highest transient poor population forming 49 per cent. The region with the highest non-poor was the greater Accra region making up 79 per cent.

Rural dwellers had 15 per cent of the poor falling into the category of chronic poverty and 40 per cent of the rural poor being transient poverty. Household heads with no savings had the majority of their poor falling into the category of transient poverty. About 15 per cent of the non-saving poor fell in the category of chronic poverty. Institutional savers and multiple savers had the least of their poor fallen in the category of chronic poverty being just about 2 per cent. Poor heads that did not rent had proportionately greater percentages of chronically poor and transient poor compared with those who rented. Ownership of durables was associated with low levels of chronic poverty. Whereas the chronic poor heads with no durables formed 23 per cent they formed the minority in the transient poor making up 32 while those with durables were slightly higher than them at 33 per cent.

Figure 4. 18: Poverty Spells Decomposition by Dwelling Type of Household Head



Source: Author's Computations

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The type of dwelling occupied by heads of households reveals that the poor heads living in several huts or buildings in the same compound have the majority of them fallen into the category of chronic poverty.

Table 4. 10: Percentage of households in Chronic, Transient and Non-Poor Poverty

ITEM	CHRONIC POOR	TRANSIENT POOR	NON-POOR
Total	9.3	32.5	58.2
Head Gender			
Female	5.3	31.1	63.6
Male	11.0	33.0	56.0
Household size			
below 2	2.5	27.5	70.1
Between 2 and 3	3.8	25.3	70.9
Between 4 and 6	7.5	31.5	61.0
Above 6	20.2	42.5	37.3
Marital Status			
Never married	4.3	22.2	73.5
Married	11.4	32.2	56.4
Consensual union	5.8	34.4	59.8
Separated	1.8	36.0	62.2
Divorced	2.7	33.8	63.4
Widowed	7.5	35.6	56.9
Ethnic			
Non-Akan	13.4	34.9	51.7
Akan	4.9	29.8	65.3
Locality			
Rural	14.7	40.1	45.2
Urban	2.7	23.2	74.1
Saving status			
No Saving	14.6	39.8	45.6
Home saving	9.1	30.0	60.8
Institution saving	2.2	29.7	68.1
Multiple	2.0	22.6	75.5
Renting status			
No	10.9	35.6	53.4
Yes	2.3	18.7	79.0
In-Transfer			
No	9.5	33.2	57.4
Yes	8.9	30.4	60.7
Ownership of Durable			
No	23.4	31.9	44.7
Yes	9.3	32.5	58.3

Source: Author's calculations from Secondary Data (2009 & 2013)

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4.6 Determinants of Monetary Poverty Dynamics

To determine the group of factors that affect the dynamic nature of a household's poverty status in a more robust form the study carried out a multivariate regression analysis using multinomial logit analysis. The section begins with discussions on the model's predictive power poor.

4.6.1 Predictive Power of the Model

A multinomial logistic regression model was used to determine the variables that affect poverty dynamics. The explanatory variables have been discussed in chapter three above. Following Haddad and Ahmed (2003), Neilson et al., (2008) as well as Kedir and McKay (2002) the values of the variables in the initial period, in this case, 2009/2010, were used in the regression. This was done to minimize the effects of measurement errors on the model. The dependent variable- poor take the values of 0 for *Non-Poor*, 1 for *Transient Poor* (poor in any of the periods) and 2 for *Chronic Poor* (Poor in both periods). In Table 4.11 the study shows the model's ability to predict the various categories of poverty into their right groups. Overall the model predicts more than half (about 64 %) of household heads into their right poverty groups. For example, the model predicts about 89 per cent of the non-poor category into their right category. This is much better compared with Kedir and McKay (2002) and also Alisjahbana and Yusuf (2003).

Table 4. 11: Predicted Poverty Status Based on the Multinomial Logit Model

	PREDICTED			
	Non-Poor	Transient Poor	Chronic Poor	
ACTUAL				**Total**
Non-Poor	2,258	274	14	2,546
Transient Poor	899	497	37	1,433
Chronic Poor	129	216	42	387
Total	3,286	987	93	4,366

Source: Author's computation from Secondary Data (2009 & 2013)

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4.6.2 The Odd Ratios

Table 4.12 presents the odd ratios of the model. The odd ratio table describes the likelihood of the occurrence of the outcome of either being transient poor, chronic poor or non-poor compared with the likelihood that the outcome will not occur concerning each of the characteristics shown in the table. The base category for the result is non-poor.

4.6.2.1 Demographic Factors

All three variables used in the demographic characteristics of the households (gender, age of head and marital status) had odd ratios significant at different levels under chronic, transient and non-poor categories. The result shows that female headship reduces the odds of being chronically poor by 56 per cent all things being equal. This has not always been the case in other studies. Eigbiremolen (2018) found that female-headed households are more likely to remain chronically and transiently poor.

Household heads' age was significant in the transient poverty as well as the chronic poverty model. An increase in age increases the odds of being transient poor as well as chronically poor. Gaining one more year in age increases the odds of being transient poor by 0.018 times and 0.033 times of being chronically poor. Similar findings were made in the study by Bigsten and Shimeles, (2004) when studying poverty dynamics in Ethiopia.

The odds of transient poor or chronic poor are affected by the household size of the head. A household size that is greater than one has an increased odds of being chronically poor. The transient poor households with a size bigger than three have higher odds of being transient poor compared with the one-member household. Comparing the likelihood of a household with a size above two the odds of being chronically poor are about 9 times bigger for a household size

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greater than 6 and about 5 times for families of 4 to 6 as against the likelihood of staying non-poor.

Compared with household heads that never married the odds for all forms of the marital status of the heads are lower in becoming transient poor or chronic poor. The odds of becoming transient poor are 0.71 times lower for heads who are married compared with heads that are never married at all. Again, the odds are lower for becoming chronically poor by a factor of 0.3. Heads that have a consensual relationship have 0.417 times lesser odds of becoming chronically poor compared with heads who have never married. Becoming a divorcee head is associated with lower odds of becoming transient poor by 72 per cent and carried reduced odds of becoming chronically poor by 24 per cent. With ethnicity, the data reveals that, when compared with being a non-Akan, the odds of being chronically poor as an Akan reduces by about 50 per cent but does not significantly change the odds of being transient poor.

4.6.2.2 Human Capital Factors

The human capital theory asserts that investment in higher education leads to higher earnings and therefore an exit from the poverty trap (Becker, 1975). The odd ratio results show that all levels of educational attainment by a household head significantly reduce the odds of becoming transient poor by at least more than one-half compared with having no educational attainment at all. Similar results were found by Gonçalves and Machado (2015) in Brazil. Similarly, Adjasi and Osei (2007) found the same effect of education in Ghana. However, for chronic poverty, what significantly reduces the odds of remaining chronically poor is at least having JHS or SHS education, with even tertiary education qualification not being significant although it shows a reduction in the odds. The employment status of the head did not show up significant for both transient and chronic poverty.

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4.6.2.3 Geography and Location

The dualists theorists posit that poverty may be attributed to the dual nature of the economy which is either driven by traditional and modern sectors with their different characteristics that keep those in the traditional sector poor (Berger & Piore, 1980). Using the Western region as the base it can be observed that living in any of the regions in Ghana, a household has a greater odds of being transient poor rather than non-poor by a least multiple of 1.391 when one stays in the Ashante region and as high as 2.908 times when one is in the Upper West region. Except for the Greater Accra region, staying in any of the regions apart from the Western Region increases the odds of becoming chronically poor. Compared with the Western region, the odds of becoming chronically poor are as high as about 7 times the odds of not being poor when one stays in the Upper East and 5 times for staying in the Upper West, or the Brong Ahafo region. Again, choosing to stay in either the Ashanti, Northern, or Eastern regions compared with staying in the Western region increase the odds of being chronically poor by at least 3 times.

Table 4. 12: Results of Odd Ratios from the Multinomial Logit Regression

VARIABLES	Transient Poor		Chronic Poor	
	Odd Ratio	Standard Error	Odd Ratio	Standard Error
Head Gender(Male=0)				
Gender	0.846	(0.0922)	0.566**	(0.135)
Age of Head	1.018***	(0.00284)	1.033***	(0.00463)
Household Size(<2=0)				
Between_2_and_3	0.944	(0.110)	1.611*	(0.440)
Between_4_and_6	1.429***	(0.176)	3.581***	(0.989)
Above_6	2.434***	(0.382)	8.899***	(2.659)
Marital Status of Head(Never Married=0)				
Married	0.714*	(0.126)	0.308***	(0.122)
Consensual	0.893	(0.180)	0.417*	(0.190)
Separated	0.970	(0.274)	0.331	(0.238)
Divorced	0.718*	(0.143)	0.242***	(0.116)
Widowed	0.867	(0.180)	0.492	(0.217)
Ethnic (Non-Akan=0)				
Akan	1.006	(0.104)	0.496***	(0.0989)
Head Education(None=0)				
Preschool	0.674**	(0.106)	0.776	(0.184)
Primary	0.784**	(0.0834)	0.811	(0.139)
JHS	0.706***	(0.0719)	0.548***	(0.111)

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VARIABLES	Transient Poor		Chronic Poor	
	Odd Ratio	Standard Error	Odd Ratio	Standard Error
SHS	0.506***	(0.0925)	0.246***	(0.122)
Tertiary	0.642**	(0.130)	0.804	(0.380)
Employment(Unemployed=0)				
Employee	0.789	(0.122)	0.848	(0.199)
Self-employed/family	0.839	(0.127)	0.800	(0.184)
Other contributing family	0.984	(0.219)	1.502	(0.584)
Region(Admin)(Western=0)				
Central	1.749***	(0.325)	3.689***	(1.675)
Greater Accra	1.451*	(0.291)	0.651	(0.418)
Volta	1.706***	(0.343)	2.218*	(0.978)
Eastern	1.945***	(0.342)	2.551**	(1.091)
Ashanti	1.391**	(0.225)	2.832***	(1.117)
Brong Ahafo	2.022***	(0.358)	4.798***	(1.960)
Northern	1.755***	(0.345)	2.979***	(1.226)
Upper East	2.194***	(0.530)	6.588***	(2.889)
Upper West	2.801***	(0.738)	5.360***	(2.438)
Location (Rural=0)				
Urban	0.581***	(0.0546)	0.335***	(0.0731)
Saving Status(No Saving)				
Home Saving	0.699***	(0.0624)	0.718**	(0.109)
Institution	0.621***	(0.0877)	0.265***	(0.0943)
Multiple	0.571***	(0.0744)	0.265***	(0.0877)
Renting Status(Dummy)				
Rents	0.698***	(0.0815)	0.595*	(0.176)
In-Transfer(Dummy)				
Receives Transfer	0.975	(0.0863)	1.183	(0.185)
Asset(Dummy)				
Own Durables	1.348	(0.802)	1.269	(1.187)
Dwelling(Bungalow=0)				
Semi-detached	0.827	(0.221)	0.632	(0.326)
Flat/Apartment	0.544*	(0.180)	0.415	(0.339)
Room in a compound house	1.012	(0.158)	0.904	(0.301)
Room(s) (Other types)	1.342*	(0.222)	1.680	(0.570)
Several buildings same comp	1.809***	(0.380)	2.813***	(1.039)
Several buildings in diff. com	2.090**	(0.706)	2.262	(1.128)
Constant	0.249**	(0.166)	0.0264***	(0.0301)
Observations	4,002		4,002	
LR chi2(82)	1111.74			
Prob>chi2	0.0000			
Pseudo R2	0.1554			

*NB:*** p<0.01, ** p<0.05, * p<0.1. Base category=Non-poor; OR<1 reduces odds, OR> 1 increases odds*

Source: Author's computations from Secondary Data (2009 & 2013)

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The chances of being transient poor or chronically poor compared with the odds of not being poor at all reduces if one stays in the urban centres. The odds of being transient poor reduces by more than 50 per cent while the odds of being chronically poor for staying in the urban centres as against staying in a rural area reduces by about 30 per cent.

4.6.2.4 Physical Capital

Savings in the model provide one with a shock absorber whenever there is an economic shock that can cushion one from entering into poverty. From the results, all forms of savings reduced the odds of a household head becoming transient or chronically poor compared with not having any form of savings. The percentage reductions in the odds are, however, higher for heads that saved at homes reaching about 70 per cent for the transient poor and 76 for the chronic poor. Both home savings and institutional savings reduce the odds of being transient poor by at least 60 per cent while multiple savings reduce the odds by more than one-half. Renting reduced the odds of being both transient and chronically poor compared with not renting.

4.6.2.5 Dwelling Type of head

Household heads staying in a flat or an apartment reduce their odds of becoming transient poor by 54 per cent compared with heads staying in a bungalow. However, staying in the same compound with several huts increases the odds of becoming transient poor rather than being non-poor by about 81 per cent compared with staying in a bungalow. However, when it comes to the odds between chronic poor and non-poor it increases by about 1.813 times for heads staying in the same compound with several huts compared with staying in a bungalow. Further, dwelling in any other type of room compared with being in a bungalow makes the odds of becoming transient poor by 2 times greater than the odds of staying not poor.

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4.6.3 Marginal Effects

To be able to find the effect each of the variables has on the outcome of the poverty status of the household head the study reports the marginal effects in Table 14.13.

4.6.3.1 Demographic Variables

All the demographic variables of gender, household head age, household size, and marital status of the head are significant in determining the chronic poverty status of the household head.

Gender and Poverty Dynamics

The behaviourists' theory postulate that to be poor is a choice the poor makes by consistently choosing a path of behaviour including household size, Marital status etc (Rank, Yoon & Hirschl, 2003). The non-participationists theories such as Becker's(1975, 1993) human capitalists see being a female as having a much less chance of escaping poverty. The human capital theory also suggests that family labour is affected by the age of the members therefore when members are young their labour leads to less output and therefore leads to lower welfare levels (McKernan & Ratcliffe, 2013). The coefficient of gender with a male as the reference category is significant at 5 per cent for both chronic and non-poor categories with a negative sign for chronic poverty. This means that being a female head of a household reduces the probability of being chronically poor by about 2 per cent. This is in contrast with the human capital theory and other studies elsewhere such as Muller (1997) and McKernan and Ratcliffe (2013). The results also contrast with the feminization of poverty concept just as other studies contrast with the theory (Klasen Lechtenfeld & Povel, 2010; Rajaram, 2009). Indeed Klasen et al. (2010) in their study found that female-headed households are better off than their male counterpart. They concluded little evidence exists in Thailand and Vietnam to show that female heads are more prone to shocks than men. Glewwe, Gragnolati, Zaman and Glewwe (2002)

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found a similar outcome where being a male household head compared with female heads increased the probability of being poor. Finally from our results, the probability of being non-poor increases by about 5 per cent if a household is headed by a female rather than a male.

Age and poverty Dynamics

Increasing age is found in the literature to lead to increased poverty. Both Fiess and Verner (2004) and Neilson et al.(2008) found that the probability of falling into poverty increases as age increases. The results from the regression showed a strong relationship between poverty levels and household age. As age increases heads become more vulnerable to both transient and chronic poverty. Figure 4.19 a. and b. show the relationship between the predicted probabilities of poverty and the increasing age of household heads. In diagram a. as the household head's age increased the probability of transient poverty and chronic poverty increased with transient poverty taking higher probabilities at every age than the chronic poor. The probability of non-poor shows a downward trend as age increases. Diagram b, shows that whereas predicted probabilities for both transient and chronic poverty for both males and females increase with an increase in age there is some interesting observation about the rate of the increase. For transient poverty, as age increases for male heads, the rate of growth reduces. However, chronic poverty is the opposite. The rate of growth in predicted probabilities increases for males. So it looks like male heads have a change in the rate of growth in their poverty rates as they grow into old age with chronic poverty rate accelerating and transient poverty rate decreasing.

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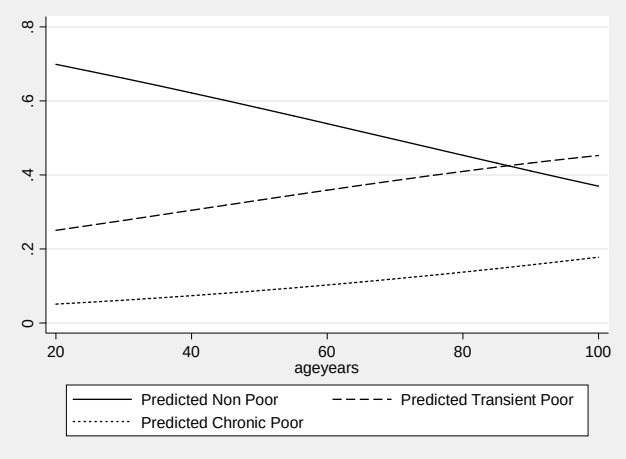
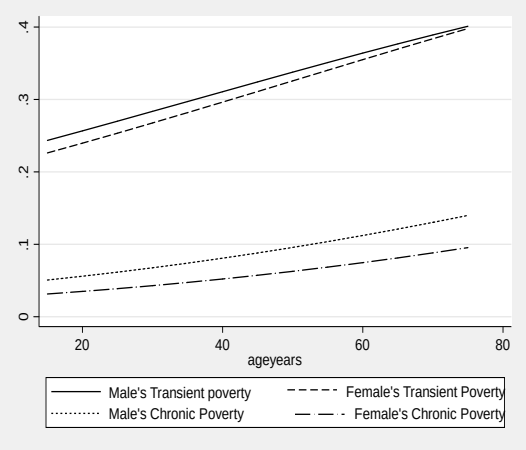
Figure 4. 19: Predicted Probabilities

a. By Age



b.by Gender



Source: Author's computations from Secondary Data (2009 & 2013)

Household Size and Poverty Dynamics

Increasing household size significantly affects the probability of the household being transient, chronic or non-poor. The probability of a household becoming transient poor or chronically poor increases with the size of the household. If a household has members from 4 to 6 their probability of becoming transient poor changes by about 6 per cent per movement from a single household to a household of 4 to 6 members. There is, however, a great jump in the probability of becoming transient or chronically poor for a family size greater than 6. Compared with a household size of fewer than 2 members a household made up of above six members increases their probability of becoming transient poor by as much as 14 per cent, by 13 per cent of becoming chronically poor and by about 27 per cent probability of becoming non-poor. This confirms the household size poverty trap found by Woolard and Klasen (2004) which was also found confirmed by Baulch and McCulloch (2002) in their study on Pakistan and Swanepoel(2005) in rural Ethiopia.

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Marital Status and Poverty Dynamics

All categories of head's marital status that appeared highly significant in the determinants of chronic poverty were not significant in the determinants of transient poverty status and had smaller coefficients in determining non-poverty status. A change in status from never married to married reduces the probability of being chronically poor by 4 per cent and improves the probability of becoming non-poor by 10 per cent. Consensual union status or separated status of the head compared with never-married reduces the likelihood of being chronically poor by about 2 per cent and 3 per cent respectively but does not determine transient poverty and non-poor status. Being a head who is a divorcee significantly reduces the probability of being chronically poor by 3 per cent and increases the probability of being non-poor by 9 per cent. Being a widow does not determine one's status of being either transient or staying non-poor but can affect a head's chronic poverty status by -0.02 units. McKernan and Ratcliffe (2013) and Rodgers (1991) using data from the US found related results where households headed by a male head without a female partner, were more likely to enter poverty than persons in two-adult households. Similarly in urban Indonesia Alisjahbana and Yusuf (2003) found that for both transient and chronic poverty, being married reduced the probability of being poor compared with the unmarried. Anyanwu (2014) found a similar result in a study done in Nigeria.

Ethnicity and Poverty Dynamics

Heads' ethnic background determines how long they stay poor. Being an Akan increases the probability of escaping chronic poverty by almost 3 per cent. However, being an Akan does not determine one's transient status of poverty or to stay out of poverty at all. Glewwe et al.(2002) in their study in Vietnam found that the probability of escaping poverty for the ethnic minority was about 63 per cent lower than the ethnic majority Kinh households. Among the

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reasons given for this include the minority group having to face high levels of intra-household gender inequities, linguistic barriers, and low levels of education.

Observed closely, the results show that household demographics (for example gender, age of head, household size and marital status) seem to have more influence on chronic poverty than on transient poverty. This was also observed in a study by Jalan and Ravallion, (2000). This study, however, departs a little from their study by noticing that education is a strong determinant of transient poverty.

Human Capital and Poverty Dynamics

It is a long-standing belief that education improves human capital and increases the chance of escaping poverty. From the results, all levels of heads' educational qualification significantly and inversely affect transient poverty status but only JHS and SHS significantly determined the chronic poverty status of the head. Similar studies that found this relationship include Alisjahbana and Yusuf (2003), Gonçalves and Machado (2015) and Haddad and Ahmed (2003). All levels of educational attainment by the head increase the probability of the head remaining non-poor. Having a head with a JHS level of qualification reduced the household's probability of experiencing transient poverty by about 7 per cent while at the same time, the probability of staying non-poor increased by 9 per cent. However, with SHS qualification the probability of escaping transient poverty as compared with no education falls by 13 per cent while the probability of staying non-poor increases by 16 per cent. Employment status is not significant for all levels of poverty status.

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Table 4. 13: Marginal Effects Multinomial Logit Estimate: Determinants of Poverty Dynamics

VARIABLES	Transient Poor		Chronic Poor		Non-Poor	
	Marginal Effect	Standard Error	Marginal Effect	Standard Error	Marginal Effect	Standard Error
Female headed household						
Female	-0.0303	(0.0236)	-0.0176**	(0.00756)	0.0479**	(0.0244)
Age of Head	0.00363***	(0.000608)	0.000964***	(0.000174)	-0.00460***	(0.000638)
Household Size(<2=0)						
Between_2_and_3	-0.0198	(0.0252)	0.0205*	(0.0123)	-0.000749	(0.0268)
Between_4_and_6	0.0594**	(0.0274)	0.0517***	(0.0149)	-0.111***	(0.0289)
Above_6	0.139***	(0.0372)	0.128***	(0.0334)	-0.267***	(0.0367)
Marital Status of Head(Ne						
Married	-0.0582	(0.0391)	-0.0435**	(0.0184)	0.102**	(0.0405)
Consensual	-0.0167	(0.0437)	-0.0230**	(0.00911)	0.0398	(0.0443)
Separated	0.00241	(0.0631)	-0.0260**	(0.0102)	0.0236	(0.0638)
Divorced	-0.0601	(0.0408)	-0.0316***	(0.00759)	0.0916**	(0.0415)
Widowed	-0.0244	(0.0447)	-0.0198*	(0.0105)	0.0441	(0.0457)
Ethnic (Non-Akan=0)						
Akan	0.0105	(0.0228)	-0.0258***	(0.00723)	0.0153	(0.0236)
Head Education(None=0)						
Preschool	-0.0806***	(0.0302)	-0.00454	(0.00757)	0.0852***	(0.0319)
Primary	-0.0508**	(0.0221)	-0.00458	(0.00566)	0.0554**	(0.0232)
JHS	-0.0692***	(0.0212)	-0.0163***	(0.00611)	0.0855***	(0.0221)
SHS	-0.127***	(0.0320)	-0.0288***	(0.00729)	0.156***	(0.0328)
Tertiary	-0.0902**	(0.0385)	-0.00287	(0.0162)	0.0931**	(0.0408)
Employment(Unemployed=0)						
Employee	-0.0505	(0.0328)	-0.00304	(0.00798)	0.0535	(0.0347)
Self-employed/family	-0.0363	(0.0327)	-0.00600	(0.00794)	0.0423	(0.0345)
Other contributing family	-0.00992	(0.0476)	0.0183	(0.0194)	-0.00833	(0.0510)
Region(Admin)(Western=0)						
Central	0.100**	(0.0455)	0.0617*	(0.0367)	-0.162***	(0.0456)

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VARIABLES	Transient Poor		Chronic Poor		Non-Poor	
	Marginal Effect	Standard Error	Marginal Effect	Standard Error	Marginal Effect	Standard Error
Greater Accra	0.0920*	(0.0480)	-0.0176	(0.0156)	-0.0744	(0.0484)
Volta	0.111**	(0.0481)	0.0270	(0.0247)	-0.138***	(0.0484)
Eastern	0.139***	(0.0427)	0.0312	(0.0248)	-0.170***	(0.0423)
Ashanti	0.0558	(0.0376)	0.0455*	(0.0251)	-0.101***	(0.0390)
Brong Ahafo	0.125***	(0.0437)	0.0772**	(0.0364)	-0.202***	(0.0428)
Northern	0.109**	(0.0465)	0.0439	(0.0270)	-0.153***	(0.0471)
Upper East	0.125**	(0.0580)	0.111**	(0.0504)	-0.236***	(0.0564)
Upper West	0.197***	(0.0614)	0.0754*	(0.0414)	-0.272***	(0.0590)
Location (Rural=0)						
Urban	-0.106***	(0.0196)	-0.0307***	(0.00674)	0.137***	(0.0201)
Saving Status(No Saving)						
Home Saving	-0.0747***	(0.0187)	-0.00754	(0.00512)	0.0822***	(0.0196)
Institution	-0.0897***	(0.0273)	-0.0294***	(0.00608)	0.119***	(0.0280)
Multiple	-0.106***	(0.0249)	-0.0305***	(0.00633)	0.137***	(0.0256)
Renting Status(Dummy)						
Rents	-0.0718***	(0.0238)	-0.0133	(0.00850)	0.0851***	(0.0246)
In-Transfer(Dummy)						
Receives Transfer	-0.00804	(0.0192)	0.00683	(0.00603)	0.00121	(0.0201)
Asset(Dummy)						
Own Tool	0.0611	(0.117)	0.00497	(0.0289)	-0.0660	(0.124)
Dwelling(Bungalow=0)						
Semi-detached	-0.0367	(0.0558)	-0.0125	(0.0132)	0.0491	(0.0578)
Flat/Apartment	-0.116**	(0.0583)	-0.0194	(0.0162)	0.135**	(0.0600)
Room in compound house	0.00397	(0.0343)	-0.00392	(0.0121)	-5.18e-05	(0.0356)
Room(s) (Other type)	0.0593	(0.0375)	0.0168	(0.0149)	-0.0760**	(0.0388)
Several buildings same comp	0.118**	(0.0491)	0.0403*	(0.0241)	-0.158***	(0.0504)
Several buildings in diff. com	0.161**	(0.0789)	0.0229	(0.0258)	-0.183**	(0.0808)

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VARIABLES	Transient Poor		Chronic Poor		Non-Poor	
	Marginal Effect	Standard Error	Marginal Effect	Standard Error	Marginal Effect	Standard Error
Observations	4,002		4,002		4,002	
Log-likelihood						
Model	-2984.295					
Intercept-Only	-3535.294					
Chi-square						
Deviance(df=3869)	5968.589					
LR (df= 82)	1101.999					
P-Value	0.000					
R2						
McFadden	0.156	McFadden(adjusted)		0.132		
Cox-Snell/ML	0.243					
Cragg-Uhler/Nagelkerke	0.292					
Count	0.648	Count(adjusted)		0.152		
IC						
AIC	6136.589					
AIC divided by N	1.552					
BIC(df=84)	6664.297					

*NB: **S.E.** =Standard Error. *** p<0.01, ** p<0.05, * p<0.1. Base category=Non-poor.*
Source: Author's computations from Secondary Data (2009 & 2013).

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Geographic Factors and Poverty Dynamics

The theories that attribute poverty to the lack of properly developed markets or general lack of development provide intuition into the regional distribution of household heads on their poverty status for the household (Blank, 2003; Zambakari, 2012). The results show that generally, staying in the Brong Ahafo region or the Upper East region increases households' probability of becoming chronically poor by about 8 and 11 per cent respectively at a 5 per cent significant level compared with staying in the Western region. Except for the heads in Greater Accra, all heads living in any of the regions reduce their chances of not being poor by as high as 27 per cent for households in the Upper West region and 10 per cent for households in the Ashante region compared with staying in the Western region. Adjasi and Osei (2007) found that apart from Greater Accra and the Ashanti regions, staying in any part of the regions in Ghana compared with the Western region reduced the welfare of the household. Using the urban-rural dummy the results show that staying in an urban location reduces the household's probability of becoming either transient by 0.106 or chronically poor by 0.0307 while increasing the probability of remaining non-poor by 14 per cent as opposed to staying in the rural area.

Physical Capital and Poverty Determinants.

As a risk-absorbing variable, savings are expected to provide a means to lift households from falling into poverty. All forms of savings increase the probability of being non-poor and, without any exception reduce the probability of becoming chronically poor and transient poor. At a 1 per cent level of significance, heads with no savings increase their probability of becoming transient poor compared with heads that saved at either home (reducing their probability by 7 %) or with an institution (reducing their probability by 9 %) or multiple saving which reduced the probability of being transient poor by almost 11 per cent. Home savings

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increase a household head's probability of becoming non-poor by at least 8 per cent. In a panel study, Teguh and Nurkholis (2013) found the effect of savings similar to our result in Indonesia. In all three models they used in their estimations, the models confirmed that non-poor households experiencing either economic or health shocks with sufficient savings should maintain their poverty status unchanged. Their study showed that having savings decreased the probability of a household being poor and transient poor.

Rent status had a negative and significant effect on the chances of heads becoming transient and a non-significant but negative effect on heads' chances of being chronically poor. Again renting does increase the probability of not being poor by 8 per cent. In-transfer did not have any significant effect on all the categories of poverty. Ownership of durables had no significant effect on the probability of being poor or non-poor. Dwelling in flats or apartments showed a significant negative effect on the heads probability of being transient poor and a positive significant effect on being non-poor. Heads living in a compound house with several huts are more likely to be transient poor and reduce their chance of being non-poor compared with heads in bungalows.

4.7 Summary

This chapter was devoted to the analysis of poverty dynamics using the monetary approach. The chapter revealed in the national trend analysis that monetary poverty in general has been on a decline. From 29.5 in wave one, the poverty rate dropped to 21.5 in wave two consistent with the national trend measured using the GLSS. Analysis of the trend and profile of poverty showed that, generally, poverty in Ghana is much endemic among male-headed households. Again, the notion of poverty in Ghana is a rural phenomenon was confirmed. In terms of the regional distribution, it was revealed that the three Northern regions have been much affected

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by poverty in the country between the periods considered. However, the data revealed that the southern Ghana, Central and Volta regions have been very volatile regions and have been hit by some high numbers of poverty. The chapter further examined the dynamic nature of the poverty profile in Ghana and found that there is, generally a low mobility rate of households between various poverty states. It was realised that within the poor population, at every point in time, more than half of the poor are transiently poor while more than 20 per cent of the poor at any point in time will have their welfare below the poverty line. What determines a household's dynamic poverty state is not exactly the same for the transient and chronic poor. What became clear, however, was the strong determinants of household demographic characteristics in explaining chronic poverty.

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CHAPTER FIVE

NON-MONETARY POVERTY DYNAMICS IN GHANA: TRENDS AND DETERMINANTS

5.0 Introduction

This chapter is dedicated to the analysis of the non-monetary poverty measures and their dynamics of it. The sub-objective two of the study which is analysed in this chapter involves a look at the nature, the trend and determinants of poverty dynamics in Ghana using the non-monetary measures of poverty. In all, ten indicators of non-monetary poverty measures were chosen. The variables include children's nutritional status measured by stunting, adults' nutritional status captured by the BMI of adult heads, years of school attendance by children of schooling going age, adults' school attendance, overcrowding, flooring material used, water source, cooking fuel type and the connection to the national electric lines.

5.1 Downward Trend in National Non-Monetary Poverty

Table 5.1 shows the national average levels of deprivation in ten indicators. Between the two waves, six out of the ten indicators recorded a reduction in the level of deprivation which comprises of years of education for children, overcrowding variable, floor material, water source, cooking fuel and connection to the national grid for light. The four variables which showed an upward trend in deprivation are children's nutritional status, adults' nutritional status, adults' schooling and toilet type. In 2009/2010 the percentage of households with a school-aged child not attending school up to year 8 (i.e. from kindergarten to Primary 6) was 19.2 per cent but reduced to 6.9 per cent in the 2013/2014 wave showing about a 64 per cent fall. The percentage of households not deprived of a school-aged child not attending school up to year 8 (80.8%) in 2009/2010 is however lower than the figure recorded in the 2010 population census which was 94.9% (GSS, 2007). Housing poverty using overcrowding was

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reduced between the two waves. Households deprived of rooms per person saw a decrease in percentage from wave one to wave two, moving from about 29 per cent in 2009/2010 to about 20 per cent in 2013/2014. This means if poverty is looked at in terms of the percentage of overcrowded households, there was a fall in national poverty between the two waves(GSS, 2014a). In terms of materials used for the floor, deprived households are those households dwelling with earth, mud or dung floor. National deprivation in this non-monetary variable reduced by 6 percentage points from 15 per cent in 2009/2010 to about 9 per cent in 2013/2014. Similarly, the two waves revealed a fall in households' deprivation of good drinking water. From 13 per cent in 2009/2010 the household that obtained drinking water from excluded and other unprotected sources such as unprotected dug-out well, unprotected springs, carts with small tanks/drums, tanker trucks, surface water such as a river, streams, ponds and others reduced to about 12 per cent although marginally. Compared with the results from the national census data the socioeconomic data reveal about a 10 per cent difference for the households that have access to a safe drinking water source. The 2010 census data showed about 77 per cent of the households had access to safe drinking water compared with the 87 per cent recorded in the socioeconomic data for the same period of 2009/2010. However, in 2013/2014 the households with access to safe drinking water improved to about 89 per cent in the socioeconomic data.

Table 5. 1: National Levels of Deprivations

Dimension of non-monetary poverty	**Indicators**	**Unit for analysis**	**Mean national value of deprivation**	
			2009/2010	**2013/2014**
Health	Nutritional Status	Children under 5years	12.1	16.3
	Nutritional Status	Adults	6.7	8.9
Education	Years of schooling	children	19.2	6.9

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	School Attendance	Adults	3.0	4.4
Standard of living	Housing	Overcrowding	28.8	20.3
		Flooring	15.4	8.7
	Water	Excluded and other unprotected sources.	13.3	11.5
	Sanitation	Toilet	47.8	49.6
	Energy	Cooking fuel	84.4	79.2
		Electricity	41.7	28.0

Source: Author's calculation using data from Secondary Data (2009 & 2013)

Household deprivation in energy is grouped into two. Energy is used for cooking and lighting the home. In terms of household energy for cooking the results show that about 84 per cent of the household were deprived in 2009/2010 but reduced marginally to 79 per cent in 2013/2014. Thus, non-monetary poverty, measured in terms of cooking energy for the household reduced between the two waves. The two poor cooking fuel sources - wood and charcoal were used in about 83 per cent of households in 2009/2010 but reduced to 79 per cent in 2013/2014 as shown in Appendix 5.2. Although the percentages show a general reduction, the percentages are still high compared with the 2010 population and housing survey data. In the 2010 national population census data, about 74 per cent of the household used wood and charcoal (GSS, 2013).

The final variable used to measure non-monetary poverty in the study that saw a fall in deprivation is the connection to the national electric grid. The results show that about 42 per cent of the households were deprived in 2009/2010 but reduced by about 33 per cent in the 2013/2014 wave.

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5.2 Upward Trend in National Non-Monetary Poverty

Children's nutritional status, adults' nutritional status, adults' schooling and sanitation represented by toilet type showed a worsening of household non-monetary deprivation. In terms of children's nutrition, the results show that about 12 per cent of households were deprived in 2009/2010, having at least a child of five years and below who is malnourished. In 2013/2014 households with malnourished children increased to about 16 per cent. Household adults' nutritional status measured by BMI of less than 18.5 also recorded an increase in deprivation from 7 per cent in 2009/2010 to 9 per cent in 2013/2014. The percentage of households with no adult household member having completed 5 years of education also worsened between the two waves. In 2009/2010 about 3 per cent of the households were deprived of this variable and this increased to about 4 per cent in the 2013/2014 wave. The final non-monetary variable that showed an increase in deprivation between the two waves is household sanitation. If the proportion of households with no toilet facilities is combined with household deprivation in a toilet, defined as a type of shared toilet facility and non-improved facility, the proportion of households across the nation deprived in 2009/2010 was about 48 per cent, increasing marginally to about 50 per cent in 2013/2014. The increase in deprivation can be attributed to the increase in the percentage of shared toilet facilities in the second wave. From about 20 per cent in 2009/2010 the percentage of households that used shared public toilets increased by about 4 per cent as shown in Table 5.1a. Agyire-Tettey et al. (2019) in their study found that children who are deprived of sanitation between the period 2008 and 2014 were as high as 90.9 in 2008 and 79.1 in 2014.

5.3 Profile of Non-Monetary Poverty Ghana

In Appendix 2, a full result of the profile of the ten variables across the various household characteristics is provided. Figure 5.1 represents the profile of the non-monetary poverty

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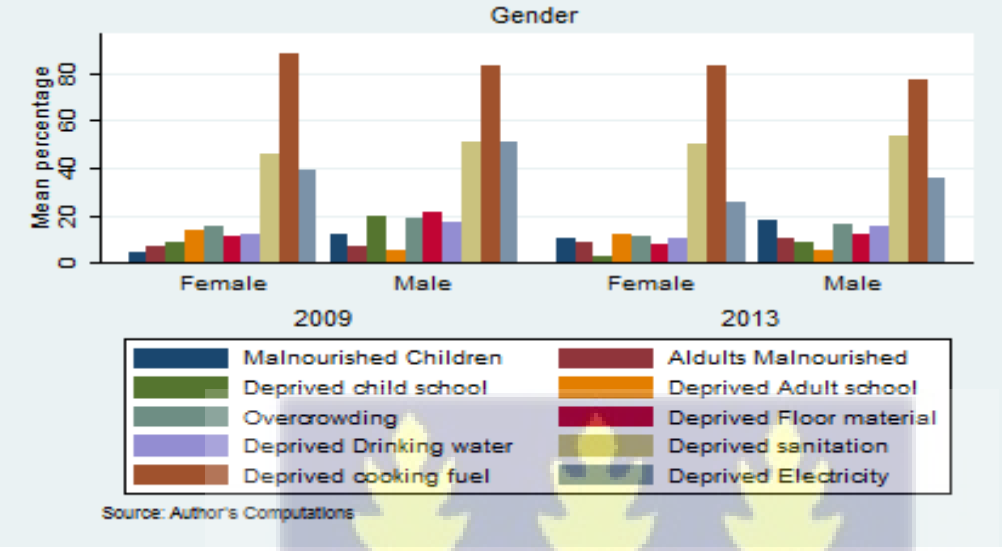
measures between male household heads and that of females. The graph shows that for the two waves, non-monetary poverty for all variables was generally high in male-headed households except for adult education and adult nutrition.

Figure 5. 1: Non-Monetary Poverty by Gender



In 2009/2010 the ratio of adult education deprivation for female-headed households to a male-headed households was about 3. In 2013/2014 however, the ratio reduced by 1. Again female-headed households recorded a 0.4 percentage increase in deprived adults' nutrition in 2009/2010 than male-headed households. In 2013/2014 female headed households were more deprived of cooking fuel than male-headed households by about 6 percentage points. The non-monetary poverty seems to confirm the "feminization of poverty". Figure 5.2 shows that non-monetary poverty is a rural phenomenon in Ghana. All variables, except overcrowding, showed greater deprivation in rural areas in 2009/2010 than in urban areas. In 2009/2010 the difference in deprivation between rural and urban dwellers ranged from as high as about 50 percentage points (in the case of deprivation in electricity in 2009/2010) to about 0.3 percentage points (in the case of deprivation in adult education in 2009/2010) while in 2013 the range was from about 32 percentage points (for electricity deprivation) to about 2 percentage points (for deprivation in adult education in 2013).

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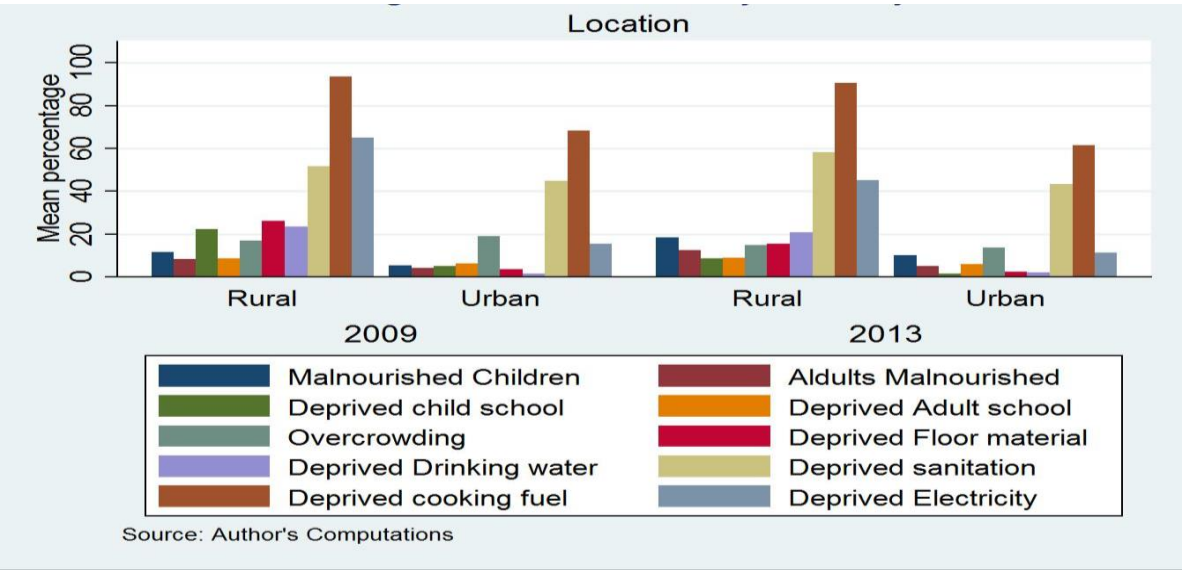
Figure 5. 2: Non-Monetary Poverty by Location



Figures 5.3 and 5.4 show the profile of non-monetary poverty across the regions of Ghana. For all the non-monetary variables, the three Northern regions showed greater deprivations in the factors than all the other regions in 2013/2014 and ranged from as high as 99 per cent in cooking fuel in the Upper West region to about 12 per cent in Adult education for the same region. In 2009/2010 the three northern regions topped in 6 out of the 10 variables in terms of deprivation with Western, Central, Volta and Ashanti regions leading in Adult malnutrition, Adult education deprivation, water deprivation and overcrowding respectively.

Figure 5. 3: Non-Monetary Poverty by Region (1)

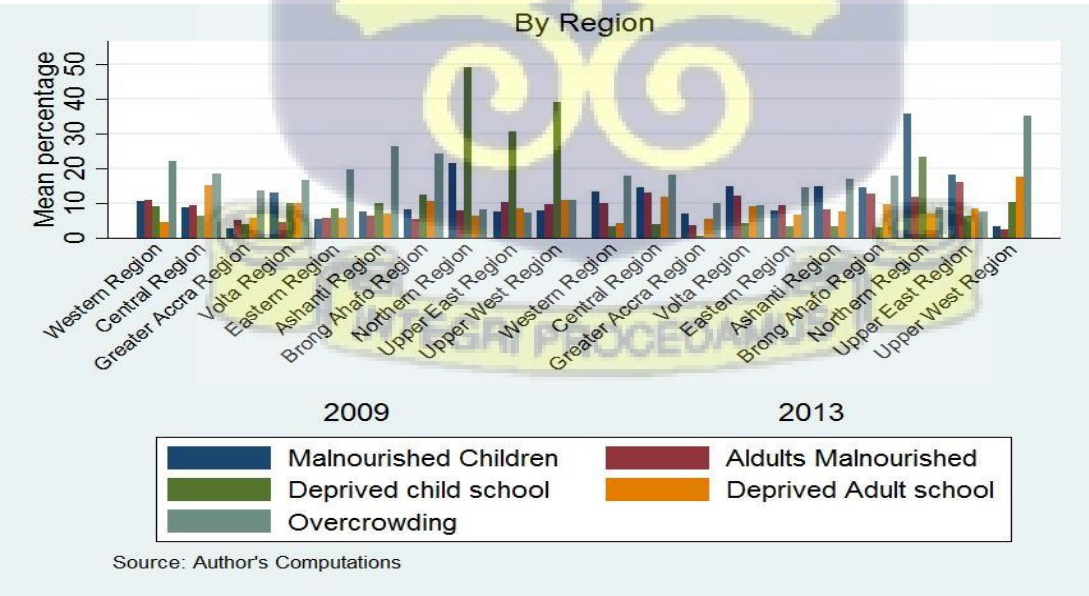


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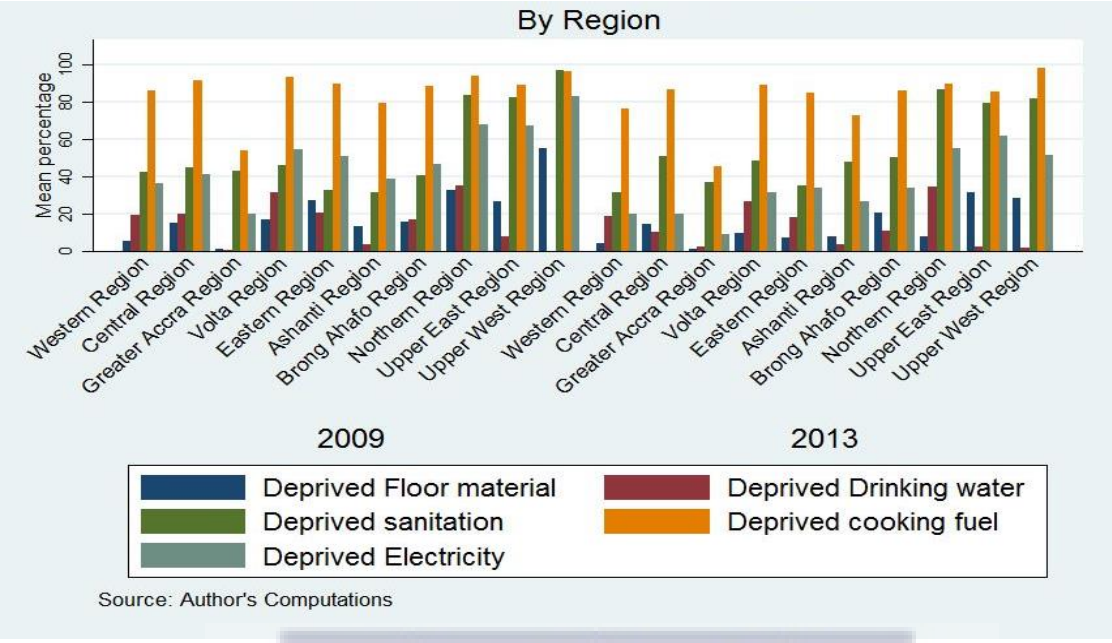
Figure 5. 4: Non-Monetary Poverty by Region (2)



Deprivation is generally highest for households with a size above 4 for both waves. A closer look at the figures also reveals that between 2009/2010 and 2013/2014 the mean of households with stunted children increased across all household sizes. Similarly, adults' nutrition and sanitation also generally worsened for all household sizes between the two periods. However, overcrowding, deprivation in floor materials, deprivation in cooking fuel as well as deprivation in electricity within households were reduced between the two periods.

Non-monetary poverty among household heads with no educational qualification was high in 6 variables-children education, adult education, floor material, water, sanitation and electricity for both waves of the data. Of these six variables, four showed a downward trend from 2009/2010 to 2013/2014 while two recorded an upward trend between the two periods. In six variables –adult malnourishment, children's education, water, sanitation, cooking fuel and electricity, deprivation was low in both waves for household heads with either SHS education

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or tertiary education. Three out of the six variables showed that deprivation worsened from 2009/2010 to 2013/2014 while for the other three deprivation improved.

Observing the trend of deprivation in non-monetary variables along with the saving status of household heads, the data reveals that household heads with no savings recorded high deprivation in five of the variables (children's school, adults' school, nature of floor material, sanitation and electricity) in both waves. Four (children's school, nature of floor material, sanitation and electricity) out of five recorded a downward trend in deprivation between 2009/2010 and 2013/2014. Household heads that received no transfer suffered increased deprivation in both waves than those that received transfers. Seven out of ten variables showed high deprivation for heads with no transfers compared with heads with transfers.

5.4 Non-Monetary Poverty Transitions and Dynamics

Table 5.2 shows that, of the 413 households that were deprived of child nutrition in 2009/2010, about 59 per cent escaped leaving about 41 per cent while about 13 per cent of non-deprived households in 2009/2010 fell into child malnourished households. The figures show that the overall effect of those that escaped and those that fell into the category of deprivation led to an increase in the percentage of households that were child malnourished in 2013/2014 (about 62 %) compared with 2009/2010. The household that was chronically child malnourished formed about 5 per cent of the entire households. About 19 per cent of the household were once child nutrition poor from the two samples. About 76 per cent of the households have never experienced child nutrition poverty within the two samples as shown in Table 5.3.

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Table 5. 2: Transition Matrix for Household child malnutrition

		2013/2014		
		Nutrition Poor	**Nutrition Non-Poor**	**Total Row**
2009/2010	**Nutrition Poor**	198 (37.5)	329 (62.5)	527 (12.1)
	Nutrition Non-Poor	514 (13.4)	3,325 (86.6)	3,839 (87.9)
	Total Column	711 (16.3)	3,655 (83.7)	4,366 (100)

NB: Figures in brackets are percentages of the totals
Source: Author's computations from Secondary Data (2009 & 2013).

Table 5. 3: Dynamics of Non-Monetary Poverty

AREA OF DEPRIVATION	**YEAR**		**POVERTY DYNAMICS**		
	2009/2010	**2013/2014**	**Chronic Poor**	**Transient Poor**	**Non-Poor**
Child Malnutrition (Stunted)	12.1	16.3	4.5	19.3	76.2
Adult Malnourished	6.7	8.9	2.0	11.5	86.4
Child School	19.2	6.9	4.8	17.05	78.2
Adult School	3.0	4.4	1.6	4.2	94.2

Source: Author's computations from Secondary Data (2009 & 2013)

In Table 5.4 the transition matrix reveals that households with malnourished adults who escaped from this deprivation in 2013/2014 were less than those that joined in the same period leading to an overall increase in the number of households with malnourished adults in the period. About 33 per cent of the households that recorded malnourished adults in 2009/2010 could not escape from this poverty in 2013/2014, while about 67 per cent of the households managed to leave this poverty zone in 2013. About 8 per cent of the non-deprived in 2009/2010 became deprived in 2013/2014. Table 5.3 shows that chronic adult malnutrition is 2.0 per cent while transient adult malnutrition is about 12 per cent. About 86 per cent of the households have not had adult malnutrition in both waves.

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Table 5. 4: Transition Matrix for Household Adult malnutrition

		2013/2014		
		Nutrition(BMI) Poor	**Nutrition(BMI) Non-Poor**	**Total Row**
2009/2010	**Nutrition Poor**	89 (30.4)	204 (69.6)	293 (6.7)
	Nutrition Non-Poor	299 (7.3)	3,774 (92.7)	4,073 (93.3)
	Total Column	388 (8.9)	3,978 (91.1)	4,366 (100)

NB: Percentages are in the brackets
Source: Author's calculations from Secondary Data (2009 & 2013)

For the two waves households that were child education deprived saw significant changes as more than 70 per cent moved out of child education deprivation with about 22 per cent remaining in the category (see Table 5.5). About 3 per cent of the non-deprived households in 2009/2010 however, fell into child education deprivation in 2013/2014. Overall, child education poverty was reduced between the two waves. In 2009/2010 about 16 per cent of the household population was child education poor. In 2013/2014 however, the numbers dropped to about 6 per cent. Over 93 per cent of the households were non-poor in terms of child education in the second wave compared with about 81 per cent in the wave.

Table 5. 5: Transition Matrix for Household Child Education Poor

		2013/2014		
		Education Poor	**Education Non-Poor**	**Total Row**
2009/2010	**Education Poor**	207 (24.2)	651 (75.8)	858 (19.7)
	Education Non-Poor	94 (3.1)	3,414 (96.9)	3,508 (80.3)
	Total Column	301 (6.9)	4,065 (93.1)	4,366 (100)

NB: Percentages are in the brackets
Source: Author's calculations from Secondary Data (2009 & 2013)

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The percentage of the chronic child education poor for the two waves stood at about 5 per cent while transient child education poor was about 17 per cent. The non-poor constituted about 78 per cent as shown in Table 5.3.

The dynamics of non-monetary poverty in terms of the education of the adult household members are presented in Table 5.6. The figures show that in terms of households with no household member that has completed 5 years of education, the data recorded about 8 per cent in 2009/2010 and remained almost unchanged in the 2013/2014 wave. The dynamics, however, show that about 42 per cent of the households moved from the category of being deprived in this variable in 2009/2010 to a non-deprived category in 2013/2014 escaping this poverty while about 4 per cent of new households joined this poverty. About 54 per cent of households that were poor in 2009/2010 remained poor in 2013/2014 while about 97 per cent of the non-poor households in 2009/2010 remained non-poor in 2013/2014. Of the entire households sampled in the two surveys about 2 per cent of the households suffered chronically from adult education poverty. About 4 per cent in total were at one time poor while about 94 per cent of the entire households never experienced this poverty as shown in Table 5.3.

Table 5. 6: Transition Matrix for Household Adult Education Poor

2009/2010	**2013/2014**		
	Education Poor	**Education Non-Poor**	**Total Row**
Education Poor	71 (54.3)	59 (45.7)	130 (3.0)
Education Non-Poor	122 (2.9)	4,114 (97.1)	4,236 (97.0)
Total Column	193 (4.4)	4,173 95.6)	4,366 100)

NB: Percentages are in the brackets
Source: Author's calculations from Secondary Data (2009 & 2013)

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Table 5. 7: Dynamics of Non-Monetary Poverty for Standard of living Variables

AREA OF DEPRIVATION	YEAR		POVERTY DYNAMICS		
	2009/2010	2013/2014	Chronic Poor	Transient Poor	Non-Poor
Overcrowding	28.8	20.3	11.1	27.0	62.0
Deprived of floor material	15.4	8.7	3.7	16.7	79.6
Water Deprived	13.3	11.5	7.5	9.7	82.8
Toilet Deprived	47.8	49.6	32.0	33.3	34.7
Deprived of Cooking fuel	84.4	79.2	74.0	15.0	11.1
Deprived in Electricity	41.7	28.0	24.3	20.9	54.8

Source: Author's computation from Secondary Data (2009 & 2013)

Table 5.7 presents the output for the non-monetary deprivations for the standard of living variables- housing deprivation measured by overcrowding and floor material, water deprivation, sanitation and energy deprivation measured by cooking fuel and electricity. At the national level, the percentage of overcrowded households was reduced between the two surveys. In 2009/2010 about 29 per cent of the entire households were overcrowded compared with about 20 per cent in 2013/2014. These statistics are very high compared with what happens in other parts of the world. For example, Bouillon (2012) reported that for the period 2011, the overcrowding situation in households in Latin America and the Caribbean was 6 per cent while that of the European Union was 0.4 per cent.

Segregating the 2013/2014 overcrowded households reveals that about 39 per cent of households that were overcrowded in 2009/2010 remained overcrowded in 2013/2014 while about 13 per cent of the households in 2009/2010 that was not overcrowded became overcrowded in 2013/2014. The output shows that about 87 per cent of the household in wave one that had not experienced overcrowding remained in the same state in the two periods while about 62 per cent of the overcrowded household in 2009/2010 exited this category in 2013/2014(see Table 5.8 under overcrowding).

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Table 5. 8: Transition Matrix for Household Standard of Living variables (Overcrowding, Floor material and Water)

	Variable	Deprivations			
Year		**2013/2014**			
2009/2010			**Deprived (Poor)**	**Not Deprived (Non-Poor)**	**Total Row**
	Overcrowding	**Deprived (Poor)**	484 (38.5)	774 (61.5)	1,258 (28.8)
		Not Deprived (Non-Poor)	403 (13.0)	2,705 (87.0)	3,108 (71.2)
		Total Column	887 (20.3)	3,479 (79.7)	4,366 (100)
	Floors		**Deprived (Poor)**	**Not Deprived (Non-Poor)**	**Total Row**
		Deprived (Poor)	160 (24.0)	508 (76.0)	668 (15.4)
		Not Deprived (Non-Poor)	219 (6.0)	3,444 (94.0)	3,663 (84.6)
		Total Column	380 (8.8)	3,951 (91.2)	4,331 (100)
			Deprived (Poor)	**Not Deprived (Non-Poor)**	**Total Row**
	Water	**Deprived (Poor)**	327 (56.8)	249 (43.2)	576 (13.3)
		Not Deprived (Non-Poor)	172 (4.6)	3,583 (95.4)	3,754 (86.7)
		Total Column	499 (11.5)	3,832 (88.5)	4,331 (100)

NB: Percentages are in the brackets
Source: Author's calculations from Secondary Data (2009 & 2013)

Yankson and Bertrand (2012) found in their work that increasing overcrowding inter alia, characterizes much of the housing stock in Ghana. The dynamics of overcrowding in Ghana are shown in Table 5.7. The table shows that about 11 per cent of the entire households were overcrowded in both waves while about 27 per cent of the households were at one point of the two waves overcrowded. About 62 per cent of the entire households had no overcrowding situation before.

From the same Table 5.7, the results show that about 15 per cent of the entire households in 2009/2010 were deprived of materials for floors having their floor material being made with

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either earth, mud or dung. About 80 per cent of the households were non-deprived in the material used for the floor for the two waves. In 2013/2014 however, the deprivation status improved with the percentage of deprived households falling to about 9 per cent. Results from the transition matrix in Table 5.8 shows that about 76 per cent of households deprived of floor material in 2009/2010 exited from floor deprivation in 2013/2014 while during the same period, only about 6 per cent of non-deprived households in 2009/2010 joined floor deprivation in 2013/2014. Overall, between the two waves chronic floor deprivation stood at about 4 per cent while transient floor-deprived households were about 17 per cent. The non-deprived household in the periods was about 80 per cent (See Table 5.7).

In terms of deprivation in drinking water, Table 5.7 shows that about 13 per cent of households in 2009/2010 were deprived of drinking water but reduced to about 12 per cent in 2013/2014. Table 5.8 shows that about 43 per cent exited this category from 2009/2010 to 2013/2014 while about 57 per cent remained with the unsafe sources of drinking water for the two periods. The chronically deprived households reported in Table 5.7 were about 8 per cent while about 10 per cent of the households were transiently deprived in water for the two waves. The non-monetary poor households for the two periods were about 83 per cent. The World Health Organisation reports that nearly half of all people using poor-quality or contaminated drinking water sources live in sub-Saharan Africa(World Health Organization, 2018).

In the case of deprivation in sanitation, the data shows in Table 5.7 that about 32 per cent of the households are deprived chronically of sanitation while about 33 per cent of households are transiently deprived making chronic deprivation in sanitation greater than transient deprivation in sanitation. From the two waves about 35 per cent of the households were non-deprived in sanitation. In the transition matrix as shown in Table 5.9 the immobility rate for sanitation was

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about 67 per cent. Of the 48 per cent of households deprived in 2009/2010 sanitation, about two-thirds remained deprived in 2013/2014 similar to the percentage of non-deprived households in 2009/2010 that remained non-deprived in 2013/2014. Between 2009/2010 and 2013/2014 about 33 per cent escaped sanitation deprivation while about 33 per cent of households became new entrants of sanitation deprivation.

Table 5. 9: *Transition Matrix for Household Standard of Living variables (Toilet, cooking fuel and electricity*

	Variable	**Deprivations**			
Year			**2013/2014**		
			Deprived (Poor)	**Not Deprived (Non-Poor)**	**Total Row**
2009/2010	**Toilet**	**Deprived (Poor)**	1,398 (67.1)	686 (32.9)	2,084 (48.1)
		Not Deprived (Non-Poor)	745 (33.2)	1,501 (66.8)	2,247 (51.9)
		Total Column	2,144 (49.5)	2,187 (50.5)	4,331 (100)
			Deprived (Poor)	**Not Deprived (Non-Poor)**	**Total Row**
	Cooking Fuel	**Deprived (Poor)**	3,230 (88.4)	426 (11.6)	3,656 (84.4)
		Not Deprived (Non-Poor)	196 (29.0)	479 (71.0)	675 (15.6)
		Total Column	3,426 (79.1)	905 (20.9)	4,331 (100)
			Deprived (Poor)	**Not Deprived (Non-Poor)**	**Total Row**
	Electricity	**Deprived (Poor)**	1,062 (58.8)	745 (41.2)	1,807 (41.7)
		Not Deprived (Non-Poor)	160 (6.3)	2,364 (93.7)	2,524 (58.3)
		Total Column	1,222 (28.2)	3,109 (71.8)	4,331 (100)

NB: Percentages are in the brackets
Source: Author's calculations from Secondary Data (2009 & 2013)

Deprivations in cooking fuel and electricity show that households that were chronically deprived of cooking fuel were about three times those deprived of electricity. However, concerning transient deprivation more households were deprived of electricity than of cooking

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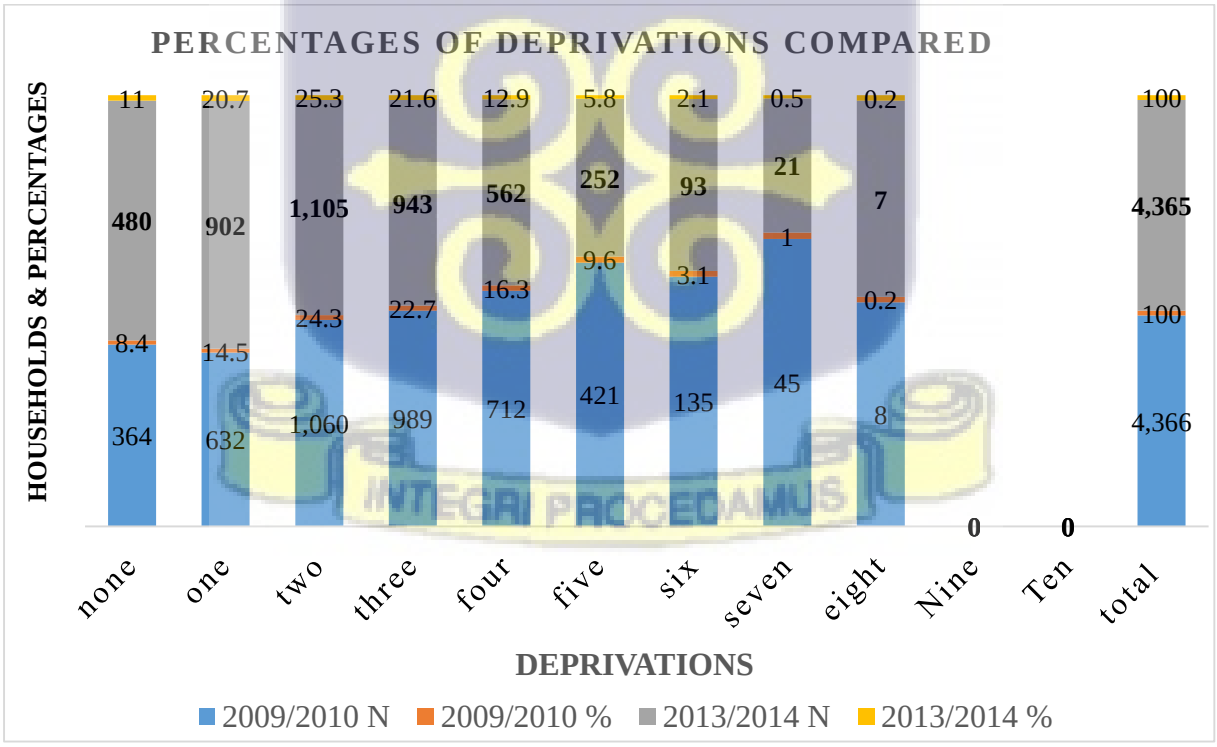
fuel. About 55 per cent of the households were non-deprived of electricity while about 11 per cent were non-deprived of cooking fuel (see Table 5.7). Whereas the immobility rate in cooking fuel was about 86 per cent that of electricity was 79 per cent (see Table 5.9).

5.3. Percentages of Number of Deprivations Compared

Figure 5.5 shows the number of deprivations compared to the two periods. For households that were non-deprived in any of the non-monetary variables, the figure shows that in 2009/2010 the percentage was about 8 translating to 364 households while in 2013/2014 this was about 11 per cent being 480 households. The data shows that the majority of the households in both periods suffered deprivation in two variables. In 2009/2010 about 24 per cent of the households suffered deprivation in two variables while in the period 2013/2014, this was about 25 per cent. No household in both periods recorded deprivation in 9 or all of the variables considered. Again the percentage of households that were deprived decreased greatly after the consideration of households deprived in four variables.

Figure 5. 5: Percentage of deprivations of non-monetary variables of a household



Source: Author's computations. N = the frequency, % = percentage of frequency

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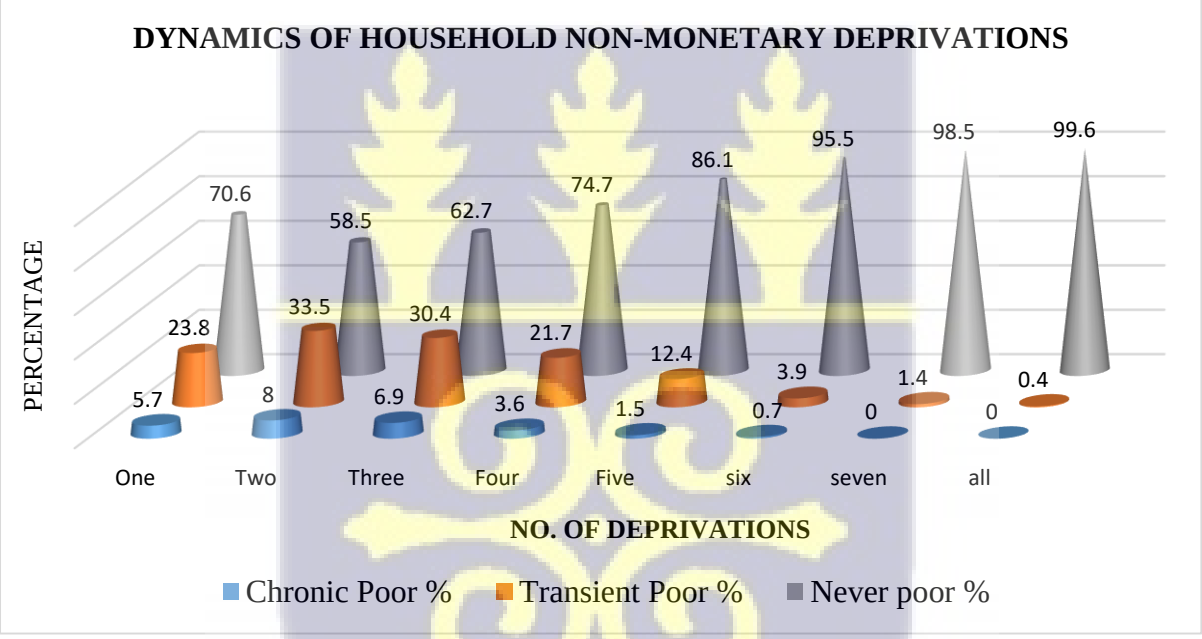
In Figure 5.6 the dynamics of the number of deprivations suffered by the households starting with one variable are plotted. From the diagram, we note that the majority of the deprivations cases happened for a period and not both waves. For example for one variable deprivation, the diagram shows that only about 6 per cent were deprived in both periods while about 24 per cent were deprived in one only one of the periods. Similarly, for two variable deprivations, the diagram shows that the majority of the household deprivations happened within a period when a household suffered deprivation in two variables. For households that suffered deprivations in two variables in the two waves, the data shows that they constituted about 8 per cent.

Figure 5. 6: Dynamics of the number of non-monetary deprivations of a household



Source: Author's computations.

Table 5.10 and Table 5.11 show that for all the deprivations ranging from one to seven, between 2009/2010 and 2013/2014, over 60 per cent of the households deprived in wave one escaped the deprivation in 2013/2014. The table shows that when considering deprivation in one variable, about 14 per cent of the households were deprived in one variable in 2009/2010. However, whereas about 62 per cent of the households escaped deprivation in 2013/2014 about 39 per cent remained deprived in 2013/2014. Again while about 86 per cent of households were

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non-deprived in one variable in 2009/2010 by 2013/2014 about 18 per cent of the non-deprived in one variable household had fallen into deprivation in one variable by 2013/2014 while about 82 per cent of the households maintained their status as non- deprived in one variable as seen in Table 5.10. Similarly, the table reports that households that were deprived in two, three or four variables in 2009/2010 were 24%, 23 % and 16 % respectively. But by 2013/2014 about 67%, 69% and 77% respectively had escaped the category of deprivation in two, three and four variables while about 33%, 31 % and 23 % remained trapped in their deprivation in two, three and four variables respectively in 2013/2014.

Table 5. 10: The transition Matrix of deprivation (1 to 4)

	NUMBER OF VARIABLES DEPRIVED IN	DEPRIVATIONS 2013/2014			
			Deprived (Poor)	**Not Deprived (Non-Poor)**	**Total Row**
Year 2009/2010	**One**	**Deprived (Poor)**	247 (39.1)	385 (60.9)	632 (14.5)
		Not Deprived (Non-Poor)	656 (17.6)	3,078 (82.4)	3,734 (85.5)
		Total Column	902 (20.7)	3,464 (79.3)	4,366 (100)
	Two	**Deprived (Poor)**	348 (33.0)	707 (67.0)	1,055 (24.2)
		Not Deprived (Non-Poor)	757 (22.9)	2,554 (77.1)	3,311 (75.8)
		Total Column	1,105 (25.3)	3,261 (74.7)	4,366 (100)
	Three	**Deprived (Poor)**	302 (30.6)	685 (69.4)	987 (22.6)
		Not Deprived (Non-Poor)	641 (19.0)	2,738 (81.0)	3,379 (77.4)
		Total Column	943 (21.6)	3,423 (78.4)	4,366 (100)
	Four	**Deprived (Poor)**	159 (22.6)	543 (77.4)	702 (16.1)
		Not Deprived (Non-Poor)	403 (11.0)	3,261 (89.0)	3,664 (83.9)
		Total Column	562 (12.9)	3,804 (87.1)	4,366 (100)

NB: Percentages are in the brackets
Source: Author's calculations from Secondary Data (2009 & 2013)

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Table 5. 11: The transition Matrix of deprivation (4 to 7)

	NUMBER OF VARIABLES DEPRIVED IN	DEPRIVATIONS 2013/2014			
			Deprived (Poor)	**Not Deprived (Non-Poor)**	**Total Row**
Year 2009/2010	**Five**	**Deprived (Poor)**	65 (15.5)	355 (84.5)	421 (9.6)
		Not Deprived (Non-Poor)	186 (4.7)	3,759 (95.3)	3,945 (90.4)
		Total Column	252 (5.8)	4,114 (94.2)	4,366 (100)
	Six	**Deprived (Poor)**	30 (21.9)	106 (78.1)	135 (3.1)
		Not Deprived (Non-Poor)	63 (1.5)	4,168 (98.5)	4,231 (96.9)
		Total Column	93 (2.1)	4,273 (97.9)	4,366 (100)
	Seven	**Deprived (Poor)**	2 (3.4)	43 (96.6)	45 (1.0)
		Not Deprived (Non-Poor)	20 (0.5)	4,302 (99.5)	4,321 (99.0)
		Total Column	21 (0.5)	4,345 (99.5)	4,366 (100)

NB: Percentages are in the brackets
Source: Author's calculations from Secondary Data (2009 & 2013)

Furthermore, percentages of households that were non-deprived in two, three or four variables in 2009/2010 constituted about 76 %, 77% and 84 % respectively. However, by 2013/2014 about 25%, 30% and 23% of them had fallen into deprivation in two, three and four variables respectively while 77%, 81% and 89% remained non-deprived in the two, three and four variables respectively. Finally, for deprivations in five, six or seven variables the data shows that in 2009/2010 about 10%, 3% and 1% respectively of the households suffered those deprivations. Of the figures, by 2013/2014 majority of the households- 85%, 98% and 97% had escaped from deprivation in five, six and seven variables respectively. Immobility rates for these deprivations are 76%, 66%, 70%, and 78% respectively for deprivations in one, two, three, and four variables. The rest are 87%, 96%, and 99% for deprivations in five, six and

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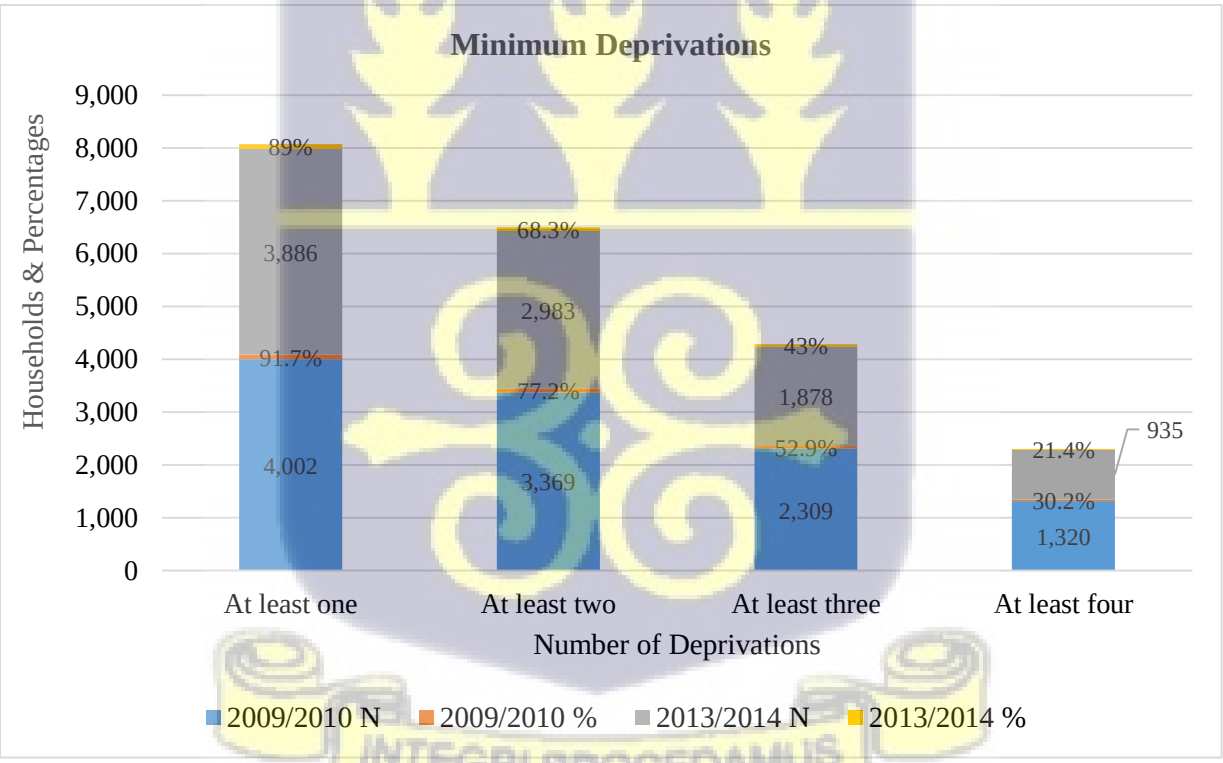
seven variables respectively. What can be seen is that households deprived of greater variables struggled to change their status within the two waves.

In Figure 5.7 the minimum number of deprivations suffered by the households in the periods under consideration is presented. In 2009/2010 the diagram shows that about 92 per cent of the households suffered in at least one of the ten non-monetary variable measures of poverty. However, in 2013/2013 the percentage improved marginally to 89 per cent. For households that were deprived in at least two variables, the figure shows that they constituted about 77 per cent in 2009/2010 and 68 per cent in 2013/2014. The percentage of deprivation fell below 40 per cent when the number of deprivations considered was at least 4 variables.

Figure 5. 7: Percentages of the minimum number of deprivations



The dynamics of the minimum number of deprivations the households suffered represented in Figure 5.8 shows that, for the two periods, chronic deprivation in at least one variable was about 86 per cent while transient and only about 5 per cent of the households truly never

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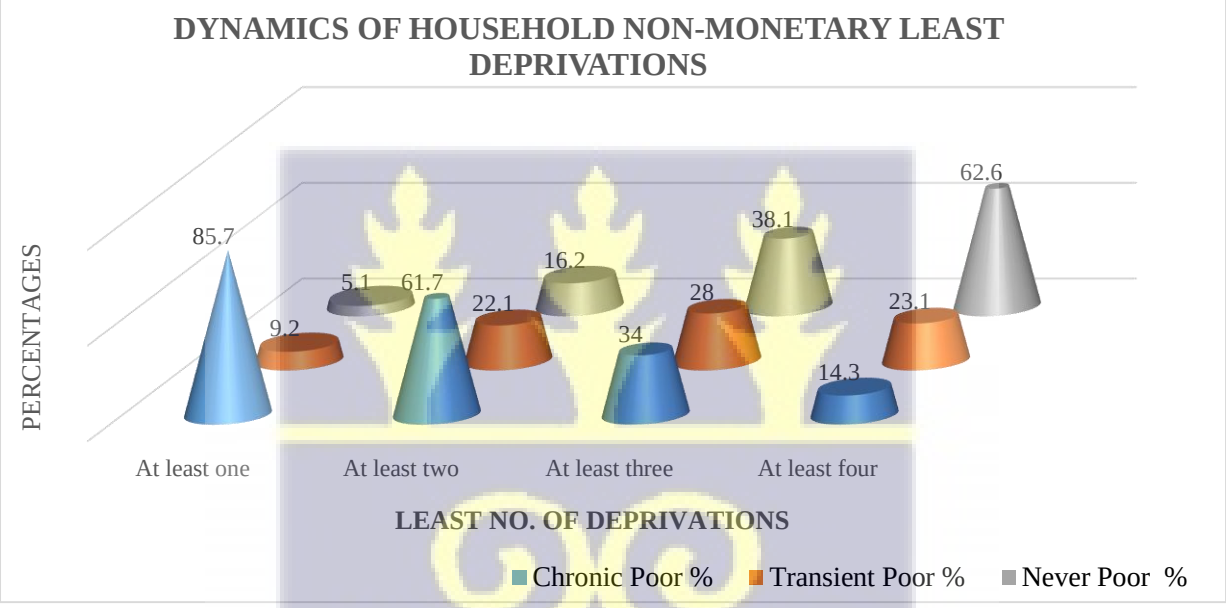
experienced any form of deprivation in the two periods. Similarly, for households that experienced deprivations in at least two variables, the chronic component was higher than the transient component by more than 40 percentage points. This trend was also the case for at least three variables. However, for four variables the percentage of the chronically deprived was less than the transient by about 9 percentage points (see Figure 5.8). Thus, it can be concluded that for a household that suffered deprivations in a few variables, the nature of the deprivation was more likely to be chronic than transient deprivation.

Figure 5. 8: The dynamics of the minimum number of deprivations



The transition matrix shows that generally households' deprivation status in the first wave did not change very much moving from wave one to two. The mobility index for households that were deprived in at least one variable to at least four variables ranges from 9 per cent for households deprived in at least one variable to 28 per cent for households deprived in at least 2 variables. From Table 5.12, households that were deprived in at least one variable in 2009/2010 which constituted about 92 per cent saw only about 7 per cent of them escaping from this category in 2013/2014. Again, for deprivations in two variables, of the 77 per cent of households that were in this category in 2009/2010 only 20 per cent escaped in 2013/2014.

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About 36 per cent of the households left the category of deprivations in at least three variables while 53 per cent of the households left the category of deprivations in at least four variables in 2013/2014.

Table 5. 12: Transition Matrix for Minimum Number of Deprivations

	THE LEAST VARIABLES DEPRIVED IN	DEPRIVATIONS			
		2013/2014			
2009/2010	**One**		**Deprived (Poor)**	**Not Deprived (Non-Poor)**	**Total Row**
		Deprived (Poor)	3,743 (93.5)	259 (6.5)	4,002 (91.7)
		Not Deprived (Non-Poor)	143 (39.2)	221 (60.8)	364 (8.3)
		Total Column	3,886 (89.0)	480 (11.0)	4,366 (100)
	Two	**Deprived (Poor)**	2,695 (80.0)	675 (20.0)	3,369 (77.2)
		Not Deprived (Non-Poor)	289 (29.0)	708 (71.0)	997 (22.8)
		Total Column	2,983 (68.3)	1,383 (31.7)	4,366 (100)
	Three	**Deprived (Poor)**	1,483 (64.2)	826 (35.8)	2,309 (52.9)
		Not Deprived (Non-Poor)	395 (19.2)	1,662 (80.8)	2,057 (47.1)
		Total Column	1,878 (43.0)	2,488 (57.0)	4,366 (100)
	Four	**Deprived (Poor)**	623 (47.2)	697 (52.8)	1,320 (30.2)
		Not Deprived (Non-Poor)	311 (10.2)	2,734 (89.8)	3,046 (69.8)
		Total Column	935 (21.4)	3,431 (78.6)	4,366 (100)

NB: Percentages are in the brackets
Source: Author's calculations from Secondary Data (2009 & 2013)

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The table further shows that of the 61 per cent of households that were not deprived in at least one variable in 2009/2010 about 39 per cent became deprived in 2013/2014. Similarly, 29 per cent of the households became deprived in at least two variables in 2013/2014 even though in 2009/2010 they were not deprived in at least two variables. However, only about 10 per cent and 19 per cent became deprived in at least four and three variables respectively in 2013/2014 starting with not being deprived in the same category in 2009/2010.

5.4. Determinants of Non-Monetary Measure of Poverty: Odd Ratios

Investigations into the determinants of non-monetary poverty begin with the nature of the odd ratios. Table 5.13 presents the odd ratios for the determinants of chronic, transient and no deprivation status of the household. From the table, for all numbers of deprivations except for deprivation in two and four, the odds for gender were not significant. For households that are deprived in two variables, female-headed households had higher odds of being deprived compared with their male counterparts by about 1.297 times while for households that are deprived in four variables female heads had about 77 per cent lower odds of being transient deprived compared with their male counterparts. From Table 5.14 the results show that head gender was significant only for deprivations in "at least four" variables.

Again in Table 5.13 age of heads was significant for deprivation in two, three and four variables. This shows that as the age of heads changed by one year, the odds of being chronically poor in two variables changed directly by about 1.007 times the odds of being non-deprived. Similarly, for three and four variables, household heads who were deprived of them experienced about 1 per cent changes in their odds of suffering from that deprivation as the ages of the heads changed by one year. Table 5.14 corroborates the result in Table 5.13 by showing that increases in head age were significant for households that were deprived of at

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least two variables. It also showed increased odds. Table 5.13 also shows that gaining one more year makes the heads odds of getting deprived in at least two variables become 1.005 times of odds of non-deprived.

Concerning household size Table 5.13 shows that households with sizes between 2 and 3 members have 1.253 times and 1.289 times higher odds of being transiently poor in three variables and four variables respectively compared with households with sizes below 2 members. Similarly, Table 5.14 shows that such households have higher odds (1.394 times) of being chronically deprived in at least two variables as shown by the significance of the coefficient. Again Table 5.13 shows that households with members between 4 and 6, had 1.519 times and 1.977 times respective odds of becoming transient deprived in three and four variables compared with households with members below two. Table 5.13, however, shows that for deprivation in one variable the odds reduce by about 59 per cent and about 66 per cent for chronic deprivation and transient deprivation respectively for a household with members between 4 and 6 compared with households with members below two. Households with sizes above 3 have very high odds of being deprived either chronically or transiently in at least one variable as shown in Table 5.14. These odds range from about 2.279 times to as high as 9.366 times compared with the odds of households with sizes less than 2.

For the marital status of the heads, for deprivation in one variable, only consensual union showed significance. The results showed that becoming chronically deprived in one variable has about 24 per cent less odd compared with heads that have never married. For deprivation in two variables, heads that are married, in a consensual union, divorced, or a widow have greater odds of being deprived transiently in two variables compared with the never-married heads. This is also confirmed in Table 5.14. Again, married heads, separated heads, divorced or widowed heads have greater odds (between 1.691 times to 2.425 times) of being chronically

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deprived compared with heads that were never married. For deprivations in three and four variables married, consensual union and widow showed significant odds for either transient or chronic deprivation. Married heads had lower odds of being transiently deprived in four variables compared with never married.

The odds of being deprived as shown in the Table 5.13 reveal that for Heads with some form of education, being deprived in either exactly one or exactly two variables showed inverted U-shaped odds. The odds rise to a peak with heads with either JHS or SHS qualification or thereafter the magnitude of the odds falls. This may be viewed as having a lower form of education comes with greater odds of being deprived compared to having no education. But beyond a certain level, having a higher level of education comes with reduced odds of being deprived. However, Table 5.14 shows that all forms of education lead to lesser odds of being deprived in any number of variables, chronically or transiently.

The odds of working as a contributor to the family is as high as 2.043 times of being chronically deprived in three variables compared with the odds of a head who is unemployed. The results from Table 5.14 shows that employee status has a lesser odds of being deprived chronically and transiently in at least one variable.

Concerning regional variables apart from deprivation in exactly one variable, Table 5.13 shows that heads staying in the Greater Accra compared with those in the Western region have reduced odds of being chronically or transiently deprived in two, three or four variables. The table showing the least number of deprivation in Table 5.14 also confirms that for all levels of deprivation staying in the Greater Accra region has a decreasing odd compared with the heads in the Western region. Appiah-Kubi et al.(2007) using the fuzzy set method classified Greater

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Accra as the administrative region with the smallest class of deprived households using the 1998/1999 GLSS data. Similarly, Tettey et al. (2019) found the lowest level of child poverty deprivations in Greater Accra. This is also seen in the Northern region where, at all levels of deprivations, the odds are smaller compared with the odds of staying in the Western region under Table 5.13 although not confirmed in Table 5.14. Table 5.14 however, shows that there is a 7.395 times higher odds of becoming deprived in at least one variable chronically and for chronic deprivation in at least four variables 5.036 times for heads staying in the Northern region compared with those in the Western Region. Again, Table 5.14 also shows that living in the Central region has a higher odds of being chronically deprived in at least one variable by 7.017 times and 7.309 times for transient deprivation. Similarly, heads staying in the Central region have greater odds of being deprived in at least three or four variables compared with heads living in the Western region. As seen from Table 5.13 not much difference is observed in the rest of the regions where, for deprivations in two variables, staying in any of the regions shows a fall in the odds compared with staying in the Western region. With the exception of the heads living in the Northern region who have a significant reduction in their odds for deprivation in exactly three variables and the Central region having a significant increase in the odds of deprivation in exactly three variables the rest of the regions do not show the significance of odds for exactly three-variable deprivations. Finally, there is some similarity in the direction of the odd ratios for all regions apart from the Ashanti region where there is an increase in the odds of being chronically deprived in exactly four non-monetary variables compared with the odds of heads staying in the Western region.

Generally, Table 5.13 showed that, when compared with the Western Region, household heads in the Greater Accra, Volta, Eastern and Ashanti regions have greater odds of being deprived chronically in exactly one variable. Among these four regions, the odds are greatest for the

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Eastern region. However, staying in the Brong Ahafo, the Northern, the Upper East or the Upper West region reduces one odd of being deprived transiently in exactly one variable with Brong Ahafo showing the greatest percentage of reduction (72 %). Heads that were deprived in exactly two variables were found to have significant odds in all the regions except the Brong Ahafo, pointing to the fact that staying in any of these regions apart from the Western region reduces the heads' odds of being chronically deprived in exactly two non-monetary variables with the greatest reduction happening in the Ashanti region where odds reduces by about 65 per cent. The general trend in Table 5.14 is that the odds of being deprived in at least three or four non-monetary variables are higher in the three northern regions, the Brong Ahafo region and the central region.

When viewed from the angle of rural-urban locations, the results from Table 5.13 show a high level of significance for all levels of deprivations. For lower levels of deprivation (i.e. in 1 & 2 variables) the results show that staying in the urban area increases the odds of being deprived by as high as 2.376 times for chronic deprivation as compared with the odds of rural dwellers. However, when the number of deprivations is increased to three and four urban households have lower odds of being deprived chronically or transiently by as much as 74 per cent. Table 5.14 however, shows that at all levels, the odds of being deprived are lower for urban dwellers than rural dwellers. Thus, with non-monetary deprivation the greater the number of variables considered before a household is termed poor the more likely that many urban households will be considered non-poor.

From Table 5.13, at lower levels of deprivations, household savings rather increase the odds of deprivations for all types of savings compared with no savings with institutional savings having the greatest odds, followed by multiple savings and finally home savings. Increasing the

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number of deprivations to three or four shows that household savings lead to a reduction in the odds of being deprived chronically or transiently of all types of savings compared with the odds of heads having no savings. The reduction ranges from as high as 81 per cent for heads with multiple savings to about 35 per cent for heads with institutional savings. Table 5.14 however, shows that, for significant odds, all forms of savings have lower odds of being deprived either chronically or transiently compared with the odds of heads with no savings.

From Table 5.13 the dwelling types of households reveals that except for heads living in semi-detached buildings as compared with dwelling in a bungalow, the odds of deprivations for exactly one or two variables reduce for all significant categories compared with the odds of heads living in bungalows. Dwelling in a room in a compound house and other types of dwellings, however, showed increased odds of being deprived in two and three variables. The result in Table 5.14 shows that for dwellers of rooms in a compound house, the odds of being deprived in at least one, two and three variables are higher than the odds of dwelling in bungalows. The odds of being chronically or transiently deprived in at least one variable are 6.956 times and 2.946 times higher respectively than the odds of heads dwelling in bungalows. Again, the odds of being deprived when staying in several buildings in the same compound house is greater for being deprived in at least two variables. The odds of staying in several buildings in the same compound are greater than the odds of staying in the bungalow for deprivations in at least two variables. Table 5.14 further shows that the odds of staying in several buildings in different compounds are greater for being deprived in at least two variables.

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Table 5. 13: Odd Ratios of number of Non-monetary variables Households are deprived in.

VARIABLES	Deprived in One		Deprived in Two		Deprived in Three		Deprived in Four	
	Chronic	Transient	Chronic	Transient	Chronic	Transient	Chronic	Transient
Head Gender(Male=0)								
Female	0.802	1.017	1.277	1.297***	1.217	1.017	0.900	0.774**
	(0.155)	(0.109)	(0.207)	(0.127)	(0.219)	(0.104)	(0.224)	(0.0966)
Age of Head	1.002	0.998	1.007*	1.000	1.007	1.005*	1.001	1.009***
	(0.00568)	(0.00299)	(0.00429)	(0.00257)	(0.00451)	(0.00254)	(0.00579)	(0.00284)
Household Size(<2=0)								
Between_2_and_3	0.855	0.880	1.247	1.041	0.962	1.253**	0.870	1.289*
	(0.172)	(0.100)	(0.215)	(0.111)	(0.186)	(0.142)	(0.269)	(0.180)
Between_4_and_6	0.585**	0.658***	0.816	0.862	1.051	1.519***	1.473	1.977***
	(0.135)	(0.0822)	(0.156)	(0.0986)	(0.216)	(0.182)	(0.456)	(0.284)
Above_6	0.313***	0.435***	0.615*	0.754*	1.038	1.423**	1.191	1.744***
	(0.121)	(0.0804)	(0.164)	(0.112)	(0.271)	(0.210)	(0.424)	(0.295)
Marital Status of Head (Never Married=0)								
Married	0.665	1.041	1.816**	1.400**	1.245	0.984	0.918	0.699*
	(0.178)	(0.167)	(0.486)	(0.209)	(0.370)	(0.159)	(0.404)	(0.141)
Consensual	0.236***	1.240	1.154	1.364*	1.669	1.356*	1.499	1.079
	(0.105)	(0.224)	(0.373)	(0.235)	(0.551)	(0.249)	(0.724)	(0.243)
Separated	0.929	1.057	2.425**	0.904	1.064	1.123	0.565	0.892
	(0.418)	(0.297)	(0.934)	(0.253)	(0.545)	(0.311)	(0.475)	(0.299)
Divorced	0.796	0.931	1.964**	1.399*	1.047	1.109	1.090	0.935
	(0.242)	(0.175)	(0.580)	(0.244)	(0.359)	(0.206)	(0.538)	(0.216)
Widowed	1.042	1.097	1.691*	1.398*	1.195	1.054	0.260**	0.823
	(0.347)	(0.220)	(0.532)	(0.256)	(0.415)	(0.204)	(0.160)	(0.194)
Ethnic (Non-Akan=0)								

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VARIABLES	Deprived in One		Deprived in Two		Deprived in Three		Deprived in Four	
	Chronic	Transient	Chronic	Transient	Chronic	Transient	Chronic	Transient
Akan	1.744***	1.387***	0.942	0.943	0.876	0.787**	0.782	0.659***
	(0.339)	(0.146)	(0.147)	(0.0898)	(0.153)	(0.0773)	(0.195)	(0.0762)
Head Education(None=0)								
Preschool	1.117	1.025	1.542*	1.249	1.040	0.993	1.301	0.919
	(0.519)	(0.193)	(0.390)	(0.188)	(0.270)	(0.144)	(0.358)	(0.145)
Primary	2.647***	1.465***	1.792***	1.550***	1.088	0.944	0.603**	0.721***
	(0.652)	(0.172)	(0.302)	(0.155)	(0.188)	(0.0936)	(0.143)	(0.0801)
JHS	3.361***	1.801***	1.587***	1.597***	0.822	0.815**	0.613**	0.655***
	(0.755)	(0.191)	(0.255)	(0.151)	(0.144)	(0.0789)	(0.148)	(0.0740)
SHS	3.112***	1.792***	1.726**	1.029	0.736	0.672**	0.108**	0.384***
	(0.942)	(0.297)	(0.417)	(0.166)	(0.242)	(0.116)	(0.110)	(0.0941)
Tertiary	1.962**	1.270	0.387**	0.762	0.563	0.494***	1.74e-07	0.195***
	(0.647)	(0.233)	(0.154)	(0.137)	(0.236)	(0.104)	(0.000154)	(0.0745)
Employment(Unemployed=0)								
Employee	1.060	0.943	1.026	1.106	1.228	1.159	1.295	1.060
	(0.339)	(0.162)	(0.257)	(0.162)	(0.338)	(0.164)	(0.426)	(0.165)
Self-employed/family	0.833	0.894	1.077	1.140	1.239	1.048	1.421	1.060
	(0.264)	(0.151)	(0.265)	(0.163)	(0.333)	(0.145)	(0.451)	(0.161)
Other contributing family	0.706	0.816	0.724	0.965	2.043**	1.224	0.866	0.961
	(0.297)	(0.185)	(0.264)	(0.197)	(0.741)	(0.256)	(0.524)	(0.245)
Region(Admin)(Western=0)								
Central	1.201	0.751	0.565**	0.738*	1.694*	1.239	3.535***	1.276
	(0.441)	(0.136)	(0.149)	(0.124)	(0.495)	(0.213)	(1.534)	(0.253)
Greater Accra	2.015**	1.282	0.334***	0.515***	0.621	0.565***	0.831	0.408***
	(0.682)	(0.231)	(0.0935)	(0.0899)	(0.224)	(0.109)	(0.548)	(0.109)
Volta	2.521**	1.083	0.486**	0.755	0.672	0.910	2.024	0.909
	(0.987)	(0.219)	(0.149)	(0.138)	(0.242)	(0.169)	(0.981)	(0.192)
Eastern	2.287**	0.962	0.588**	0.743*	1.531	1.177	2.232*	0.869
	(0.753)	(0.164)	(0.146)	(0.118)	(0.438)	(0.192)	(0.979)	(0.167)

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VARIABLES	Deprived in One		Deprived in Two		Deprived in Three		Deprived in Four	
	Chronic	Transient	Chronic	Transient	Chronic	Transient	Chronic	Transient
Ashanti	1.711*	1.098	0.648*	0.801	1.128	0.952	0.288**	0.828
	(0.536)	(0.165)	(0.146)	(0.113)	(0.297)	(0.140)	(0.166)	(0.143)
Brong Ahafo	1.175	0.720*	0.754	0.801	0.923	1.115	2.439**	1.060
	(0.425)	(0.126)	(0.185)	(0.128)	(0.282)	(0.181)	(1.057)	(0.200)
Northern	0.878	0.364***	0.374***	0.450***	0.640	0.649**	1.580	0.836
	(0.428)	(0.0874)	(0.116)	(0.0823)	(0.214)	(0.117)	(0.728)	(0.167)
Upper East	1.064	0.623*	0.229***	0.511***	0.832	0.964	3.795***	1.382
	(0.650)	(0.174)	(0.110)	(0.113)	(0.335)	(0.204)	(1.896)	(0.322)
Upper West	1.22e-06	0.326***	0.171***	0.546**	0.857	0.779	2.473*	0.851
	(0.000855)	(0.130)	(0.108)	(0.131)	(0.355)	(0.178)	(1.261)	(0.209)
Location (Rural=0)								
Urban	2.376***	1.760***	1.830***	1.503***	0.736*	0.714***	0.308***	0.401***
	(0.396)	(0.160)	(0.247)	(0.127)	(0.116)	(0.0624)	(0.0859)	(0.0452)
Saving Status(No Saving)								
Home Saving	1.672***	1.173	1.429**	1.172*	1.214	1.009	0.827	0.714***
	(0.326)	(0.115)	(0.203)	(0.0995)	(0.177)	(0.0850)	(0.158)	(0.0673)
Institution	2.606***	1.888***	1.284	1.111	0.551**	0.660***	0.349**	0.580***
	(0.635)	(0.257)	(0.271)	(0.143)	(0.156)	(0.0915)	(0.154)	(0.0961)
Multiple	1.908***	1.350**	1.152	1.110	0.679	0.808*	0.449**	0.386***
	(0.436)	(0.170)	(0.227)	(0.129)	(0.164)	(0.0992)	(0.175)	(0.0670)
In-Transfer(Dummy)								
Received Transfer	0.885	0.997	1.047	1.018	1.086	1.110	0.877	0.922
	(0.146)	(0.0902)	(0.140)	(0.0829)	(0.159)	(0.0919)	(0.181)	(0.0902)
Asset (Dummy)								
Own Durables	4.888e+06	1.137	1.020	0.590	1.601	1.582	0.414	0.571
	(9.058e+09)	(0.640)	(1.097)	(0.299)	(1.698)	(0.934)	(0.474)	(0.346)
Dwelling(Bungalow=0)								
Semi-detached	2.787**	1.268	0.730	0.999	0.895	1.287	2.459	1.160
	(1.166)	(0.335)	(0.290)	(0.255)	(0.533)	(0.340)	(1.532)	(0.361)

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VARIABLES	Deprived in One		Deprived in Two		Deprived in Three		Deprived in Four	
	Chronic	Transient	Chronic	Transient	Chronic	Transient	Chronic	Transient
Flat/Apartment	1.034	0.842	0.151***	0.572**	0.236	0.780	4.37e-07	0.287**
	(0.483)	(0.228)	(0.0954)	(0.160)	(0.249)	(0.246)	(0.000470)	(0.161)
Room in compound house	1.255	1.031	0.837	1.382**	1.851**	1.684***	1.522	1.107
	(0.367)	(0.161)	(0.181)	(0.211)	(0.562)	(0.273)	(0.649)	(0.209)
Room(s) (Other type)	0.719	0.803	0.585**	1.248	2.217**	1.807***	2.168*	1.557**
	(0.241)	(0.137)	(0.141)	(0.203)	(0.699)	(0.308)	(0.955)	(0.305)
Several buildings same comp	0.113**	0.498***	0.437**	0.951	1.666	1.336	3.042**	1.699**
	(0.118)	(0.130)	(0.155)	(0.195)	(0.631)	(0.272)	(1.448)	(0.380)
Several buildings in diff. com	0.968	0.164**	0.147*	0.853	2.867**	1.198	1.846	2.113**
	(0.801)	(0.123)	(0.154)	(0.284)	(1.431)	(0.374)	(1.236)	(0.669)
Constant	2.62e-09	0.234**	0.0951**	0.636	0.0252***	0.165***	0.0728*	0.538
	(4.85e-06)	(0.150)	(0.112)	(0.370)	(0.0303)	(0.109)	(0.102)	(0.376)
LR chi2(80)	805.58		386.56		293.40		839.12	
Prob > chi2	0.0000		0.0000		0.0000		0.0000	
Pseudo R2	0.1293		0.0522		0.0418		0.1447	
Observations	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200

*NB: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Base category=Non-poor; OR<1 reduces odds, OR> 1 increases odds*
Source: Author's own computations from Secondary Data (2009 & 2013).

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Table 5. 14: Odd Ratios of least number of Non-monetary variables Households are deprived in.

Variables	At least one		At least two		At least Three		At least Four	
	Chronic	Transient	Chronic	Transient	Chronic	Transient	Chronic	Transient
Head Gender (Male=0)								
Female	1.023	0.824	1.213	1.105	0.820	1.120	0.633**	0.836
	(0.249)	(0.208)	(0.185)	(0.168)	(0.113)	(0.133)	(0.115)	(0.105)
Age of Head	1.011	0.992	1.010**	1.007	1.004	0.997	0.998	1.004
	(0.00826)	(0.00853)	(0.00463)	(0.00470)	(0.00348)	(0.00326)	(0.00385)	(0.00307)
Household Size (<2=0)								
Between 2 and 3	1.584*	1.394	1.394**	1.257	1.082	1.087	0.926	1.130
	(0.417)	(0.384)	(0.220)	(0.198)	(0.161)	(0.137)	(0.196)	(0.159)
Between 4 and 6	9.308***	3.995***	4.206***	2.450***	3.320***	2.511***	2.817***	2.279***
	(3.153)	(1.402)	(0.783)	(0.456)	(0.530)	(0.350)	(0.595)	(0.335)
Above 6	9.366***	2.576	7.009***	2.604***	5.484***	3.503***	3.984***	2.767***
	(5.734)	(1.686)	(2.126)	(0.822)	(1.168)	(0.699)	(0.957)	(0.502)
Marital Status of Head (Never Married=0)								
Married	1.010	0.888	1.361	1.277	0.973	1.090	0.918	1.051
	(0.333)	(0.300)	(0.294)	(0.271)	(0.213)	(0.197)	(0.282)	(0.224)
Consensual	1.130	0.661	2.426***	2.558***	1.729**	1.796***	1.304	1.485*
	(0.452)	(0.282)	(0.649)	(0.668)	(0.430)	(0.372)	(0.452)	(0.352)
Separated	1.552	1.257	1.422	1.363	1.065	0.893	0.755	1.277
	(1.093)	(0.929)	(0.540)	(0.516)	(0.386)	(0.288)	(0.415)	(0.440)
Divorced	1.873	1.442	1.695**	1.469	1.081	1.253	0.950	1.335
	(0.816)	(0.655)	(0.436)	(0.375)	(0.274)	(0.261)	(0.347)	(0.322)
Widowed	3.471**	3.256**	1.310	1.298	1.034	1.276	0.895	1.267
	(1.813)	(1.741)	(0.366)	(0.361)	(0.273)	(0.283)	(0.329)	(0.316)
Ethnic (Non-Akan=0)								
Akan	0.449***	0.603**	0.408***	0.592***	0.514***	0.712***	0.509***	0.575***
	(0.110)	(0.149)	(0.0647)	(0.0930)	(0.0681)	(0.0849)	(0.0847)	(0.0695)

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Variables	At least one		At least two		At least Three		At least Four	
	Chronic	Transient	Chronic	Transient	Chronic	Transient	Chronic	Transient
Head Education (None=0)								
Preschool	0.214***	0.278**	0.577*	0.639	0.558***	0.639**	0.616**	0.811
	(0.120)	(0.167)	(0.179)	(0.208)	(0.112)	(0.126)	(0.128)	(0.139)
Primary	0.595	0.583	0.479***	0.696*	0.390***	0.626***	0.369***	0.641***
	(0.248)	(0.258)	(0.0928)	(0.139)	(0.0527)	(0.0797)	(0.0564)	(0.0753)
JHS	0.344***	0.638	0.289***	0.552***	0.255***	0.550***	0.230***	0.527***
	(0.122)	(0.237)	(0.0489)	(0.0956)	(0.0332)	(0.0636)	(0.0405)	(0.0607)
SHS	0.123***	0.418**	0.150***	0.319***	0.149***	0.340***	0.0711***	0.317***
	(0.0480)	(0.167)	(0.0346)	(0.0725)	(0.0369)	(0.0652)	(0.0381)	(0.0757)
Tertiary	0.0635***	0.315***	0.0895***	0.248***	0.106***	0.322***	0.0324***	0.171***
	(0.0245)	(0.124)	(0.0232)	(0.0594)	(0.0368)	(0.0723)	(0.0333)	(0.0635)
Employment(Unemployed=0)								
Employee	0.252**	0.281**	0.694	0.803	0.746	0.998	0.624**	0.756
	(0.146)	(0.166)	(0.175)	(0.207)	(0.151)	(0.191)	(0.133)	(0.135)
Self-employed/family	0.640	0.479	1.223	1.234	1.027	1.226	0.998	0.913
	(0.373)	(0.284)	(0.306)	(0.316)	(0.205)	(0.231)	(0.205)	(0.161)
Other contributing family	0.290*	0.372	0.846	0.971	1.133	0.916	0.416**	0.969
	(0.185)	(0.240)	(0.273)	(0.312)	(0.323)	(0.241)	(0.179)	(0.251)
Region(Admin)(Western=0)								
Central	7.017***	7.309***	1.420	0.868	2.849***	1.630**	3.212***	1.413*
	(4.505)	(4.814)	(0.405)	(0.252)	(0.643)	(0.324)	(1.007)	(0.280)
Greater Accra	0.425**	1.265	0.242***	0.351***	0.548**	0.622**	0.670	0.360***
	(0.153)	(0.475)	(0.0640)	(0.0884)	(0.152)	(0.131)	(0.317)	(0.0978)
Volta	0.623	0.799	0.399***	0.371***	1.210	1.113	2.154**	0.970
	(0.345)	(0.476)	(0.124)	(0.117)	(0.302)	(0.247)	(0.706)	(0.210)
Eastern	3.091**	3.605**	0.835	0.747	1.659**	1.187	1.617	0.874
	(1.567)	(1.917)	(0.219)	(0.195)	(0.360)	(0.223)	(0.503)	(0.168)
Ashanti	0.689	1.441	0.475***	0.467***	0.964	0.851	0.954	0.786
	(0.243)	(0.538)	(0.110)	(0.107)	(0.190)	(0.142)	(0.284)	(0.136)

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Variables	At least one		At least two		At least Three		At least Four	
	Chronic	Transient	Chronic	Transient	Chronic	Transient	Chronic	Transient
Brong Ahafo	2.325*	1.740	1.457	0.907	1.969***	1.102	2.883***	1.133
	(1.085)	(0.885)	(0.407)	(0.254)	(0.427)	(0.212)	(0.860)	(0.218)
Northern	7.395**	4.941*	1.920*	0.604	3.165***	1.132	5.036***	1.306
	(6.630)	(4.525)	(0.757)	(0.249)	(0.831)	(0.283)	(1.558)	(0.287)
Upper East	0.234**	0.502	0.493*	0.254***	2.411***	1.001	3.598***	1.038
	(0.142)	(0.325)	(0.195)	(0.107)	(0.745)	(0.300)	(1.248)	(0.267)
Upper West	691,198	235,862	2.384e+06	779,346	4.392***	2.441**	3.117***	1.229
	(7.531e+08)	(2.570e+08)	(1.979e+09)	(6.468e+08)	(1.944)	(1.079)	(1.142)	(0.351)
Location (Rural=0)								
Urban	0.176***	0.507**	0.229***	0.449***	0.173***	0.416***	0.0986***	0.296***
	(0.0459)	(0.139)	(0.0303)	(0.0606)	(0.0205)	(0.0404)	(0.0211)	(0.0330)
Saving Status (No Saving)								
Home Saving	0.603	0.785	0.625***	0.740*	0.601***	0.794**	0.507***	0.675***
	(0.212)	(0.290)	(0.0983)	(0.120)	(0.0688)	(0.0845)	(0.0663)	(0.0679)
Institution	0.209***	0.546	0.208***	0.464***	0.238***	0.398***	0.289***	0.525***
	(0.0767)	(0.209)	(0.0410)	(0.0896)	(0.0434)	(0.0619)	(0.0769)	(0.0869)
Multiple	0.135***	0.363***	0.237***	0.419***	0.237***	0.466***	0.189***	0.332***
	(0.0448)	(0.127)	(0.0418)	(0.0735)	(0.0416)	(0.0648)	(0.0523)	(0.0571)
In-Transfer (Dummy)								
Received Transfer	1.023	0.983	1.029	0.999	1.000	1.108	0.856	1.022
	(0.224)	(0.221)	(0.136)	(0.132)	(0.113)	(0.111)	(0.121)	(0.103)
Asset (Dummy)								
Own Durables	4.702	2.436	0.906	0.630	1.683	1.633	0.831	0.896
	(4.453)	(2.394)	(0.731)	(0.474)	(1.267)	(1.101)	(0.785)	(0.605)
Dwelling(Bungalow=0)								
Semi-detached	2.820**	2.111	0.901	1.199	0.874	1.664*	0.658	1.067
	(1.349)	(1.036)	(0.306)	(0.410)	(0.311)	(0.498)	(0.293)	(0.353)
Flat/Apartment	0.253***	0.746	0.168***	0.750	0.204***	0.742	0.101**	0.386*
	(0.104)	(0.291)	(0.0671)	(0.247)	(0.111)	(0.258)	(0.109)	(0.202)

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Variables	At least one		At least two		At least Three		At least Four	
	Chronic	Transient	Chronic	Transient	Chronic	Transient	Chronic	Transient
Room in compound house	6.956***	2.946***	2.730***	2.964***	1.880***	2.310***	0.922	1.351
	(2.119)	(0.913)	(0.574)	(0.645)	(0.373)	(0.430)	(0.236)	(0.266)
Room(s) (Other type)	10.47***	4.453***	4.319***	3.402***	3.414***	2.951***	1.594*	2.150***
	(4.193)	(1.831)	(1.035)	(0.846)	(0.720)	(0.588)	(0.424)	(0.441)
Several buildings same comp	9.626e+06	2.376e+06	14.95***	7.691***	5.076***	4.125***	2.220***	2.544***
	(7.585e+09)	(1.873e+09)	(8.708)	(4.604)	(1.511)	(1.214)	(0.673)	(0.638)
Several buildings in diff. com	2.136e+07	1.199	9.650***	1.556	10.65***	5.728***	2.744**	2.405**
	(3.605e+10)	(2,728)	(8.400)	(1.678)	(6.314)	(3.463)	(1.186)	(0.950)
Constant	19.00**	4.345	10.98***	4.111	0.609	0.486	0.429	0.524
	(23.39)	(5.549)	(10.09)	(3.598)	(0.519)	(0.368)	(0.466)	(0.404)
Observations	4,200	4,200	4,200	4,200	4,200	4,200	4,200	4,200

*NB: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Base category=Non-poor; OR<1 reduces odds, OR> 1 increases odds*
Source: Author's own computations from Secondary Data (2009 & 2013).

INTEGRI PROCEDAMUS

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5.5 Determinants of Non-Monetary Measure of Poverty: Marginal Effect

Table 5.15 and Table 5.16 presents the marginal effect of the multinomial logit regression for the variables on the various forms of deprivations. The results show the non-significance of the female-headed variable for deprivations in at least one or two variables. For at least three and at least four variables, the results show that female-headed households have negative significant coefficients for chronic deprivation. Thus, female heads are less likely to be chronically deprived in at least three and four variables than their male counterparts by about 4 and 3 per cent respectively. Female heads were, however, more likely to be transiently deprived in at least three variables than their male by about 4 per cent. The probability of being non-deprived in at least four variables was about 4 per cent higher for female heads. The results in Appendix 5A and 5B show that for households headed by females, the coefficient of transient deprivations in exactly two variables was also significant. Being a female head of a household increases the probability of being transient deprived in two variables by about 5 per cent. However, in the case of deprivation in four variables, being a female head increases the probability of increasing the remaining non-deprived by about 4 per cent. The evidence for the "feminization of poverty" is not strong in the regression. Other studies also found the significance of female-headed households in affecting non-monetary poverty. Gbinlo (2011) found that female-headed households significantly determined monetary and non-monetary poor jointly but when regressed on non-monetary poverty alone, it was not significant in Benin. Similarly Jansen Moses, Mujuta and Yu. (2015) found gender to be significant in two of their non-monetary poverty models and not significant in three of the models. Coromaldi and Zoli (2007) found that of the 6 dimensions of non-monetary deprivations male-headed households significantly determined 3 of the dimensions while the other three were not significant

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An increase in the age of heads increases the probability of being chronically deprived in at least one or three variables by less than one per cent but reduces the probability of being transiently deprived in the same also by less than one per cent. The probability of being non-deprived in at least two variables is reduced by less than one per cent as the age of the head increases by one more year. The results presented in appendix 5.1 and 5.2 shows that the age of the head was found to be positive and significant for chronic deprivation in two variables and transient deprivation in three and four variables. Age and non-monetary poverty have been examined by other studies. Some studies found positive effects while others had negative effects. Coromaldi and Zoli (2007) found age to positively determine four of the dimensions while negatively affecting one of the dimensions of non-monetary poverty. Ataguba, Fonta and Ichoku (2012) found a positive effect of various age categories on multinational poverty using Nigeria data. Workneh and Zerayehu (2020) found that an increase in age decreases the probability of experiencing non-monetary multidimensional poverty.

The results show that for deprivations in all variables, an increase in the household size increases the household's probability of becoming chronically deprived if the household size is four or more. For instance for deprivations in at least one variable, the results show that households between 4 and 6 have a 9 per cent probability of becoming chronically deprived while those above 6 have a 10 per cent chance of becoming deprived compared with households with members below 2. Similarly for deprivations in at least two variables households between 4 and 6 have about a 13 per cent probability of becoming chronically deprived while households with members above 6 have about a 20 per cent chance of being deprived in at least two variables compared with households with members below two. Again households with a size between 4 and 6 increase their chances of being chronically deprived in at least three variables by about 10 per cent compared with a household with under 2 members while

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households with size 6 or more have a 15 per cent chance of being chronically deprived. At all levels of deprivation except for households with members between 2 and 3, larger household sizes reduced the household's probability of staying non-deprived in non-monetary variables. Coefficients of household size for sizes from 4 and above related inversely with transient deprivations in at least one and two variables while for at least three and four variables the coefficients were positive. This means when the range of deprivations is increased it becomes very likely that almost all households with members greater than four will experience some form of transient deprivations in non-monetary poverty variables. The probabilities are, however, always the least for households with sizes between 2 and 3. For deprivations in two variables the probability of being transient poor reduced for households having sizes above 6. Other studies show that larger household size increases the chances of being multidimensional poor but lower sizes of household members, it decreases the chances (Betti, D'Agostino and Neri,., 2002; Deutsch & Silber, 2005). In a study on multidimensional poverty in Benin Gbinlo (2011) found a significant negative effect of household size on non-monetary poverty.

The marital status of the household heads shows that heads that were in a consensual relationship had a positive significant coefficient for chronic deprivation in at least one variable, and a negative significant coefficient for non-deprivation in at least two and three variables. Being divorced as compared with never-married reduces a household's probability of being non-deprived in at least two variables by about 4 per cent. Also being widowed reduces the probability of non-deprivation in at least one variable by about 3 per cent. On the contrary Ataguba et al.(2012) found a positive effect of being married, divorced or widowed on non-monetary deprivation. Similarly, Whelan, Layte and Maôtre(2004) found that being separated or divorced increases the chances of being non-monetary deprived. Again Jansen et al. (2015)

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in carrying out a study in South Africa found that being married or staying with a partner decreases the probability of being non-monetary deprived.

The ethnic status of the household head showed significant coefficients for all levels of deprivations. For all levels of deprivation being an Akan showed a negative significant relationship with chronic deprivation. Thus, the probability of being chronically deprived for Akans falls as compared with non-Akans. For example, being Akan reduces the probability of becoming chronically deprived in at least one, two, three and four variables by about 3, 8, 7 and 3 per cent respectively compared to being a non-Akan. Other studies that included ethnic variables in the model also found them significant (Artha & Dartanto, 2015; Deutsch & Silber, 2005; Jansen et al., 2015; Sackey, 2005).

The results show that all forms of educational levels attained reduce the probability of being chronically deprived in any number of non-monetary variables. For chronic deprivation in at least one variable, the coefficients of all levels of educational qualifications except the primary level of attainment were significant. Similarly, for chronic deprivation in at least two variables, only the coefficient of preschool was not significant even though it retained a negative sign. For chronic deprivation in at least three or four variables, however, all levels of educational attainments were significant and all had negative signs. Further observation reveals that the magnitude of the fall increases with the increase in the level of educational qualification. Thus, whereas the probability of chronic deprivation for at least one variable falls by about 4 per cent for preschool heads tertiary heads experience a fall in probability by about 17 per cent compared with heads that have no education. Similarly, whereas the probability of being chronically deprived in at least four variables falls by 4 per cent that of tertiary holders falls by about 18 per cent compared with heads with no education. The effect of coefficients for

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education on transient deprivations was positive and significant for JHS, SHS and Tertiary qualified heads under deprivations in at least one variable, but only primary and JHS qualified heads recorded a significant positive significant coefficients in transient deprivations in at least two variables. Finally, in at least four variables, JHS, SHS and Tertiary certificate-holding heads recorded a significant negative probability of transient deprivation. All significant education variables showed a positive probability effect on the non-deprivation. The effect of education on non-monetary deprivation is clear in the literature belonging to the school of human capital theory. It is well known that higher attainment in education reduces the chances of being deprived (Acar, 2014; Betti et al., 2002; Coromaldi & Zoli, 2007; Deutsch & Silber, 2005).

In terms of employment, heads with employee status showed a positive significant coefficient on non-deprivation in at least one variable, a negative sign on chronic deprivation in at least three and four variables and a positive significance on non-deprivation in at least four variables.

For administrative regions, the results show that heads staying in the central region increase their probability of being chronically deprived in at least two variables by about 7 per cent compared with heads in the Western region. This trend is the same for deprivations in at least three and four variables where the probability of being chronically deprived increases by 12 per cent and 9 per cent respectively. On the other hand, heads that stay in the Greater Accra region reduce their probability of being chronically deprived in at least one and two variables by 9 per cent and 11 per cent respectively. Similarly heads in the Ashanti region, reduce their chances of being chronically deprived in at least one variable by about 5 per cent compared with those in the Western region. Staying in the Eastern region reduces the probability of being non-deprived in at least one variable by about 3 per cent and 5 per cent in at least three variables

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but increases the probability of being chronically deprived in at least three variables by 6 per cent. Other regions that have the potential of increasing the probability of being chronically deprived in at least one variable are the Northern region (4%) and the Upper West region (8%). Similarly staying in the Brong Ahafo region, Northern region and the upper West regions increases the head's probability of being chronically deprived in at least two variables. Further, staying in the Central, Eastern, Brong Ahafo, Northern, Upper East and Upper West have the effect of increasing the probability of being chronically deprived in at least three variables. Again, staying in the Central region, Volta region, Brong Ahafo region, Northern region, Upper East and Upper West also increases the probability of being chronically deprived in at least four variables similar to the finding in the GLS7 (GSS, 2020a). Whereas the probability of transient deprivation of the head increase for dwellers in the Greater Accra and Ashanti regions in at least one variable the probability of being transiently deprived in at least one variable reduces by 9 per cent for heads dwelling in the Upper East region. All significant coefficients under transient deprivations in at least two, three or four variables showed negative signs.

Location variable shows that for all numbers of deprivations, the probability of being chronically deprived reduces for urban head dwellers. However, the effect of staying in the urban region increases the probability of a household being transient deprived in all numbers of deprivations except deprivation in at least four variables. This must make policymakers regard urban poverty with much urgency as Owusu and Yankson (2007) noted in their work.

All forms of savings reduce the head's probability of being chronically deprived in any number of variables. Except for the coefficient of institutional saving under deprivation in at least two variables, the magnitude of the effect of multiple savings on chronic deprivations is greatest in all the number of variable deprivations. For instance, whereas the absolute magnitude of the

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coefficient of home saving is 0.02 that of the multiple saving is 0.09 for deprivations in at least one variable and 0.05 for heads with home saving under at least four variables that of multiple saving is 0.1. This shows that the effect of diversifying one's savings does serve as a good hedge against chronic deprivation in non-monetary variables. The result found in the study is consistent with Ibrahim, Sare and Adam (2019) found that savings in every form reduce ones chances of falling into poverty in Ghana.

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Table 5. 15: Marginal Effect of number of Non-monetary variables Households are deprived in

Variables	At least one			At least two		
	Chronic	Transient	None	Chronic	Transient	None
Head Gender (Male=0)						
Female	0.0122	-0.0142	0.00199	0.0187	-0.00641	-0.0123
	(0.0108)	(0.0103)	(0.00689)	(0.0167)	(0.0165)	(0.0117)
Age of Head	0.00123***	-0.00115***	-7.51e-05	0.000684	3.84e-05	-0.000723**
	(0.000347)	(0.000344)	(0.000233)	(0.000455)	(0.000460)	(0.000364)
Household Size (<2=0)						
Between 2 and 3	0.0189	-0.00276	-0.0162	0.0289	-0.000495	-0.0285*
	(0.0140)	(0.0134)	(0.0103)	(0.0192)	(0.0190)	(0.0149)
Between 4 and 6	0.0853***	-0.0327**	-0.0526***	0.128***	-0.0268	-0.101***
	(0.0143)	(0.0136)	(0.00957)	(0.0206)	(0.0202)	(0.0152)
Above 6	0.104***	-0.0543***	-0.0501***	0.195***	-0.0750***	-0.120***
	(0.0185)	(0.0174)	(0.0130)	(0.0268)	(0.0258)	(0.0198)
Head's Marital Status (Never Married=0)						
Married	0.00762	-0.00903	0.00141	0.0213	0.00379	-0.0251
	(0.0161)	(0.0155)	(0.0101)	(0.0259)	(0.0250)	(0.0181)
Consensual	0.0298*	-0.0325*	0.00265	0.0285	0.0458	-0.0743***
	(0.0177)	(0.0166)	(0.0124)	(0.0297)	(0.0293)	(0.0195)
Separated	0.0195	-0.00935	-0.0102	0.0208	0.00899	-0.0297
	(0.0278)	(0.0277)	(0.0188)	(0.0439)	(0.0434)	(0.0302)
Divorced	0.0251	-0.0107	-0.0144	0.0395	0.000691	-0.0402*
	(0.0189)	(0.0186)	(0.0115)	(0.0297)	(0.0288)	(0.0206)
Widowed	0.0196	0.00913	-0.0287***	0.0135	0.0106	-0.0241
	(0.0217)	(0.0217)	(0.0110)	(0.0318)	(0.0312)	(0.0233)
Ethnic (Non-Akan=0)						
Akan	-0.0297***	0.0100	0.0197***	-0.0805***	0.0214	0.0591***
	(0.0108)	(0.0103)	(0.00670)	(0.0168)	(0.0164)	(0.0119)
Head Education (None=0)						

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Variables	At least one			At least two		
	Chronic	Transient	None	Chronic	Transient	None
Preschool	-0.0404*	0.00263	0.0378**	-0.0345	-0.00143	0.0360
	(0.0224)	(0.0192)	(0.0180)	(0.0281)	(0.0273)	(0.0232)
Primary	-0.00586	-0.00421	0.0101	-0.0749***	0.0335*	0.0414***
	(0.0125)	(0.0117)	(0.00794)	(0.0185)	(0.0182)	(0.0137)
JHS	-0.0501***	0.0318***	0.0183***	-0.132***	0.0573***	0.0751***
	(0.0116)	(0.0111)	(0.00685)	(0.0173)	(0.0170)	(0.0123)
SHS	-0.117***	0.0709***	0.0462***	-0.182***	0.0404	0.141***
	(0.0200)	(0.0190)	(0.0110)	(0.0299)	(0.0284)	(0.0212)
Tertiary	-0.169***	0.0976***	0.0709***	-0.243***	0.0520	0.191***
	(0.0243)	(0.0232)	(0.0129)	(0.0372)	(0.0348)	(0.0255)
Employment(Unemployed=0)						
Employee	-0.0269	-0.00853	0.0354***	-0.0326	0.00667	0.0259
	(0.0187)	(0.0190)	(0.0112)	(0.0264)	(0.0265)	(0.0201)
Self-employed/family	0.0118	-0.0240	0.0122	0.00724	0.00928	-0.0165
	(0.0181)	(0.0184)	(0.0106)	(0.0260)	(0.0261)	(0.0195)
Other contributing family	-0.0326	0.00430	0.0283**	-0.0228	0.0143	0.00848
	(0.0241)	(0.0239)	(0.0138)	(0.0360)	(0.0356)	(0.0252)
Region(Admin)(Western=0)						
Central	0.0214	0.0160	-0.0374***	0.0773***	-0.0695**	-0.00772
	(0.0186)	(0.0176)	(0.0102)	(0.0297)	(0.0297)	(0.0187)
Greater Accra	-0.0860***	0.0700***	0.0160	-0.112***	-0.00283	0.115***
	(0.0200)	(0.0183)	(0.0117)	(0.0346)	(0.0341)	(0.0211)
Volta	-0.0228	0.00914	0.0136	-0.0316	-0.0522	0.0838***
	(0.0238)	(0.0206)	(0.0195)	(0.0345)	(0.0345)	(0.0264)
Eastern	0.00909	0.0184	-0.0275**	0.00855	-0.0265	0.0180
	(0.0177)	(0.0165)	(0.0111)	(0.0294)	(0.0296)	(0.0184)
Ashanti	-0.0492***	0.0458***	0.00343	-0.0288	-0.0349	0.0637***
	(0.0169)	(0.0155)	(0.0109)	(0.0266)	(0.0266)	(0.0172)
Brong Ahafo	0.0271	-0.00786	-0.0192*	0.0760***	-0.0661**	-0.00993

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Variables	At least one			At least two		
	Chronic	Transient	None	Chronic	Transient	None
	(0.0174)	(0.0158)	(0.0114)	(0.0290)	(0.0290)	(0.0181)
Northern	0.0433**	-0.00716	-0.0361***	0.157***	-0.146***	-0.0114
	(0.0211)	(0.0194)	(0.0124)	(0.0344)	(0.0320)	(0.0247)
Upper East	-0.0810**	0.0296	0.0514*	0.0403	-0.126***	0.0860**
	(0.0346)	(0.0298)	(0.0297)	(0.0427)	(0.0383)	(0.0356)
Upper West	0.0759**	-0.0266	-0.0494***	0.217***	-0.103**	-0.114***
	(0.0331)	(0.0324)	(0.00866)	(0.0497)	(0.0497)	(0.0134)
Location (Rural=0)						
Urban	-0.0880***	0.0502***	0.0378***	-0.138***	0.0425***	0.0959***
	(0.00970)	(0.00986)	(0.00747)	(0.0130)	(0.0135)	(0.0101)
Saving Status (No Saving)						
Home Saving	-0.0205*	0.0120	0.00842	-0.0393***	0.00945	0.0298***
	(0.0107)	(0.0103)	(0.00691)	(0.0152)	(0.0150)	(0.0114)
Institution	-0.0844***	0.0526***	0.0318***	-0.168***	0.0615***	0.106***
	(0.0163)	(0.0158)	(0.00976)	(0.0235)	(0.0237)	(0.0177)
Multiple	-0.0975***	0.0477***	0.0497***	-0.134***	0.0288	0.105***
	(0.0143)	(0.0135)	(0.00894)	(0.0215)	(0.0208)	(0.0152)
In-Transfer (Dummy)						
Received Transfer	0.00260	-0.00243	-0.000169	0.00453	-0.00334	-0.00119
	(0.00972)	(0.00941)	(0.00617)	(0.0141)	(0.0140)	(0.0103)
Asset (Dummy)						
Own Durables	0.0756	-0.0244	-0.0511	0.0412	-0.0650	0.0238
	(0.0637)	(0.0608)	(0.0467)	(0.0942)	(0.0956)	(0.0555)
Dwelling(Bungalow=0)						
Semi-detached	0.0505	-0.00496	-0.0455**	-0.0345	0.0371	-0.00264
	(0.0321)	(0.0301)	(0.0208)	(0.0451)	(0.0424)	(0.0362)
Flat/Apartment	-0.145***	0.0788**	0.0663**	-0.259***	0.123**	0.137***
	(0.0420)	(0.0388)	(0.0286)	(0.0546)	(0.0542)	(0.0437)
Room in compound house	0.104***	-0.0364*	-0.0674***	0.0473*	0.0592**	-0.106***

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Variables	At least one			At least two		
	Chronic	Transient	None	Chronic	Transient	None
	(0.0209)	(0.0189)	(0.0156)	(0.0260)	(0.0238)	(0.0219)
Room(s) (Other type)	0.109***	-0.0325	-0.0768***	0.105***	0.0258	-0.131***
	(0.0225)	(0.0206)	(0.0164)	(0.0277)	(0.0256)	(0.0234)
Several buildings same comp	0.155***	-0.0532*	-0.102***	0.194***	-0.00281	-0.191***
	(0.0299)	(0.0285)	(0.0151)	(0.0387)	(0.0367)	(0.0313)
Several buildings in diff. com	0.222***	-0.120***	-0.102***	0.267***	-0.115**	-0.152***
	(0.0201)	(0.0180)	(0.0151)	(0.0618)	(0.0473)	(0.0546)
Observations	4,200	4,200	4,200	4,200	4,200	4,200

*NB: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*
Source: Author's own computations from Secondary Data (2009 & 2013).

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Table 5. 16: Marginal Effect of number of Non-monetary variables Households are deprived in.

Variables	At least Three			At least Four		
	Chronic	Transient	None	Chronic	Transient	None
Head Gender (Male=0)						
Female	-0.0412**	0.0406**	0.000603	-0.0333**	-0.00504	0.0383**
	(0.0181)	(0.0196)	(0.0164)	(0.0155)	(0.0188)	(0.0175)
Age of Head	0.000847**	-0.000943*	9.60e-05	-0.000327	0.000625	-0.000299
	(0.000424)	(0.000491)	(0.000444)	(0.000324)	(0.000427)	(0.000418)
Household Size (<2=0)						
Between 2 and 3	0.00484	0.00868	-0.0135	-0.0105	0.0199	-0.00943
	(0.0192)	(0.0201)	(0.0192)	(0.0164)	(0.0189)	(0.0194)
Between 4 and 6	0.100***	0.0603***	-0.161***	0.0586***	0.0782***	-0.137***
	(0.0210)	(0.0221)	(0.0204)	(0.0177)	(0.0206)	(0.0209)
Above 6	0.146***	0.0678**	-0.214***	0.0849***	0.0896***	-0.174***
	(0.0268)	(0.0296)	(0.0263)	(0.0212)	(0.0262)	(0.0263)
Head's Marital Status (Never Married=0)						
Married	-0.0119	0.0179	-0.00605	-0.0107	0.0118	-0.00106
	(0.0296)	(0.0294)	(0.0249)	(0.0285)	(0.0307)	(0.0282)
Consensual	0.0269	0.0555	-0.0824***	0.00454	0.0474	-0.0520
	(0.0338)	(0.0343)	(0.0280)	(0.0327)	(0.0358)	(0.0320)
Separated	0.0191	-0.0246	0.00549	-0.0380	0.0525	-0.0145
	(0.0493)	(0.0492)	(0.0426)	(0.0470)	(0.0548)	(0.0478)
Divorced	-0.00918	0.0341	-0.0249	-0.0200	0.0478	-0.0278
	(0.0343)	(0.0345)	(0.0287)	(0.0335)	(0.0367)	(0.0327)
Widowed	-0.0176	0.0419	-0.0243	-0.0226	0.0424	-0.0197
	(0.0351)	(0.0363)	(0.0306)	(0.0334)	(0.0371)	(0.0337)
Ethnic (Non-Akan=0)						
Akan	-0.0706***	0.000698	0.0699***	-0.0362**	-0.0536***	0.0898***
	(0.0176)	(0.0189)	(0.0165)	(0.0144)	(0.0177)	(0.0176)
Head Education (None=0)						

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Variables	At least Three			At least Four		
	Chronic	Transient	None	Chronic	Transient	None
Preschool	-0.0531**	-0.0225	0.0756***	-0.0416**	-0.00651	0.0481*
	(0.0261)	(0.0282)	(0.0276)	(0.0195)	(0.0257)	(0.0257)
Primary	-0.110***	0.00834	0.101***	-0.0789***	-0.0198	0.0987***
	(0.0179)	(0.0197)	(0.0181)	(0.0135)	(0.0177)	(0.0176)
JHS	-0.163***	0.0219	0.141***	-0.109***	-0.0319*	0.141***
	(0.0177)	(0.0193)	(0.0169)	(0.0142)	(0.0178)	(0.0175)
SHS	-0.201***	-0.0272	0.228***	-0.160***	-0.0746**	0.235***
	(0.0319)	(0.0329)	(0.0301)	(0.0221)	(0.0316)	(0.0319)
Tertiary	-0.240***	-0.0147	0.254***	-0.178***	-0.134***	0.312***
	(0.0414)	(0.0416)	(0.0371)	(0.0269)	(0.0367)	(0.0393)
Employment(Unemployed=0)						
Employee	-0.0440*	0.0264	0.0176	-0.0296*	-0.0198	0.0494**
	(0.0246)	(0.0270)	(0.0259)	(0.0176)	(0.0248)	(0.0250)
Self-employed/family	-0.0152	0.0346	-0.0194	0.00492	-0.0145	0.00960
	(0.0242)	(0.0266)	(0.0254)	(0.0172)	(0.0243)	(0.0246)
Other contributing family	0.0269	-0.0259	-0.00101	-0.0726**	0.0386	0.0340
	(0.0371)	(0.0376)	(0.0346)	(0.0306)	(0.0407)	(0.0378)
Region(Admin)(Western=0)						
Central	0.120***	-0.0135	-0.106***	0.0857***	0.00131	-0.0870***
	(0.0309)	(0.0340)	(0.0279)	(0.0263)	(0.0336)	(0.0298)
Greater Accra	-0.0460	-0.0408	0.0868***	0.00452	-0.132***	0.128***
	(0.0366)	(0.0385)	(0.0330)	(0.0313)	(0.0357)	(0.0366)
Volta	0.0189	0.00306	-0.0220	0.0656***	-0.0398	-0.0258
	(0.0322)	(0.0379)	(0.0334)	(0.0247)	(0.0339)	(0.0326)
Eastern	0.0633**	-0.0168	-0.0465*	0.0435*	-0.0425	-0.000981
	(0.0293)	(0.0327)	(0.0277)	(0.0227)	(0.0308)	(0.0289)
Ashanti	0.00970	-0.0288	0.0191	0.00566	-0.0377	0.0320
	(0.0261)	(0.0292)	(0.0254)	(0.0196)	(0.0278)	(0.0262)
Brong Ahafo	0.0997***	-0.0491	-0.0506*	0.0874***	-0.0303	-0.0571**

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Variables	At least Three			At least Four		
	Chronic	Transient	None	Chronic	Transient	None
	(0.0293)	(0.0322)	(0.0278)	(0.0233)	(0.0309)	(0.0289)
Northern	0.178***	-0.0924**	-0.0853**	0.145***	-0.0424	-0.102***
	(0.0337)	(0.0360)	(0.0346)	(0.0248)	(0.0334)	(0.0332)
Upper East	0.143***	-0.0867**	-0.0568	0.118***	-0.0578	-0.0601
	(0.0394)	(0.0421)	(0.0416)	(0.0287)	(0.0376)	(0.0380)
Upper West	0.146***	0.0157	-0.162***	0.0911***	-0.0213	-0.0699
	(0.0451)	(0.0563)	(0.0555)	(0.0284)	(0.0421)	(0.0434)
Location (Rural=0)						
Urban	-0.183***	0.00315	0.180***	-0.155***	-0.0705***	0.225***
	(0.0151)	(0.0157)	(0.0121)	(0.0194)	(0.0181)	(0.0146)
Saving Status (No Saving)						
Home Saving	-0.0589***	0.00736	0.0516***	-0.0462***	-0.0283*	0.0745***
	(0.0149)	(0.0166)	(0.0149)	(0.0115)	(0.0150)	(0.0147)
Institution	-0.137***	-0.0423*	0.179***	-0.0815***	-0.0438*	0.125***
	(0.0232)	(0.0249)	(0.0232)	(0.0199)	(0.0246)	(0.0236)
Multiple	-0.149***	-0.0138	0.163***	-0.0967***	-0.0924***	0.189***
	(0.0226)	(0.0240)	(0.0216)	(0.0186)	(0.0221)	(0.0227)
In-Transfer (Dummy)						
Received Transfer	-0.00970	0.0191	-0.00937	-0.0157	0.0114	0.00431
	(0.0143)	(0.0155)	(0.0137)	(0.0123)	(0.0147)	(0.0139)
Asset (Dummy)						
Own Durables	0.0342	0.0419	-0.0761	-0.0120	-0.00743	0.0194
	(0.0933)	(0.0986)	(0.0940)	(0.0855)	(0.0996)	(0.0943)
Dwelling(Bungalow=0)						
Semi-detached	-0.0562	0.0982**	-0.0420	-0.0391	0.0251	0.0140
	(0.0433)	(0.0480)	(0.0457)	(0.0357)	(0.0431)	(0.0442)
Flat/Apartment	-0.171***	0.0411	0.130**	-0.121***	-0.0525	0.174***
	(0.0512)	(0.0553)	(0.0539)	(0.0420)	(0.0517)	(0.0548)
Room in compound house	0.0264	0.0945***	-0.121***	-0.0203	0.0460*	-0.0257

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Variables	At least Three			At least Four		
	Chronic	Transient	None	Chronic	Transient	None
	(0.0255)	(0.0259)	(0.0262)	(0.0230)	(0.0251)	(0.0255)
Room(s) (Other type)	0.0975***	0.0814***	-0.179***	0.00793	0.0936***	-0.101***
	(0.0272)	(0.0278)	(0.0278)	(0.0243)	(0.0270)	(0.0271)
Several buildings same comp	0.127***	0.102***	-0.229***	0.0326	0.102***	-0.135***
	(0.0347)	(0.0388)	(0.0392)	(0.0273)	(0.0340)	(0.0348)
Several buildings in diff. com	0.216***	0.0757	-0.291***	0.0606	0.0785	-0.139**
	(0.0606)	(0.0676)	(0.0671)	(0.0398)	(0.0534)	(0.0551)
Observations	4,200	4,200	4,200	4,200	4,200	4,200

*NB: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*
Source: Author's own computations from Secondary Data (2009 & 2013).

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In-transfer and asset variables were not significant. The type of dwelling of a head was found significant for various categories. For deprivations in at least one variable, the results showed that heads in flats or apartments had a significant negative coefficient on chronic deprivation. Heads dwelling in rooms in a compound house, or other, of several buildings in the same compound as well as several buildings in different compounds increase the probability of becoming chronically deprived. This outcome is similar for deprivations in at least two or three variable categories. Staying in any other dwelling place apart from a flat or apartment reduces the head's probability of staying non-deprived in at least one variable compared with heads staying in bungalows.

5.6 Determinants of Non-Monetary Poverty Using Child Health and Child Education

5.6.1 Static Analysis:

Table 5.17 presents the odd ratios of a household having a malnourished child and/or households having a child that is deprived of education. Female-headed households have a significant and increasing odds of having children deprived of education by about 2.051 times higher than male-headed households. Similarly, all forms of household sizes larger than 1 have greater odds of having children deprived of education as well as children with some forms of malnutrition with the odds increasing for both cases as the household size increases. Being married or living in a consensual relationship have greater odds of having children with malnutrition compared with persons who are never married. Heads living in the Northern region of Ghana had about 2.720 times higher odds of having children deprived of education and 1.274 times higher odds of having malnourished children although not significant compared with heads in the Western region. Again, heads living in flats or apartments as well as those in several buildings in different compounds had greater odds of having a malnourished child in the households compared with heads living in bungalows. Concerning the odds of a

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household having a child deprived of education, the result shows that having other types of room different from the options in the survey leads to a 1.719 times increase in the odds compared with heads living in bungalows.

On the other hand, the odd ratio result shows that an increase in the age of the head leads to a reduction in the odds of having either a malnourished child or a child deprived of education in the household by about 94 and 99 per cent respectively. Ethnicity shows a significant odd. Being an Akan reduces the odds of having a child deprived of education by about 47 per cent. Heads with primary, JHS, SHS or tertiary level of education have lower odds of having children deprived of education in the household and, except for preschool and JHS level of education, reduce the odds of having a malnourished child in the household. When interacting with gender, however, the odds show significant for female heads with JHS. Female heads with JHS education have about 45 per cent fewer odds of having a malnourished child in the household compared with those with no education. The results show that being an employee reduces the odds of having a malnourished child or a child deprived of education in the household. Living in the Eastern or the Upper West regions leads to a lower odd ratio of having a malnourished child in the household compared with the dwellers of the Western region. Furthermore, there is a lower odd for a household to have a child deprived of education when the household is in the Eastern region compared with those in the Western region by about 52 per cent. The odd ratios of the location variable reveal that the odds of a household having a malnourished child or a child with deprived education is lower, by 76 per cent and 45 per cent respectively, for households located in the urban areas compared with those in the rural areas. Multiple savings households show lower odds of having a child deprived of education compared with non-saving household heads by about 40 per cent. Again, household heads with durable asset holdings

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have lower odds of having a child malnourished compared with household heads with no holdings.

Table 5. 17: Odd Ratios of Child Malnutrition and Child Education deprivation

	Child Malnutrition		**Child Education deprivation**	
Variables	odds	Robust Standard Errors	odds	Robust Standard Errors
Head Gender (Male=0)				
Female	1.186	(0.311)	2.051**	(0.576)
Age of Head	0.938***	(0.00604)	0.987***	(0.00467)
Household Size (<2=0)				
Between 2 and 3	3.679***	(0.952)	6.995***	(3.187)
Between 4 and 6	5.545***	(1.487)	27.23***	(12.26)
Above 6	9.684***	(3.046)	73.61***	(34.34)
Head's Marital Status (Never Married=0)				
Married	1.751*	(0.549)	1.095	(0.464)
Consensual	1.735*	(0.572)	1.429	(0.658)
Separated	1.048	(0.608)	0.393	(0.383)
Divorced	1.198	(0.488)	1.061	(0.501)
Widowed	0.879	(0.385)	0.918	(0.444)
Ethnic (Non-Akan=0)				
Akan	0.919	(0.150)	0.466***	(0.0873)
Head Education (None=0)				
Preschool	0.769	(0.235)	0.675	(0.176)
Primary	0.575***	(0.122)	0.420***	(0.0797)
JHS	0.869	(0.171)	0.252***	(0.0658)
SHS	0.550*	(0.176)	0.233***	(0.0910)
Tertiary	0.467*	(0.187)	0.122***	(0.0808)
Female Head Education (None=0)				
Female head with Preschool	0.487	(0.281)	0.550	(0.245)
Female head with Primary	0.925	(0.350)	0.400**	(0.153)
Female head with JHS	0.452**	(0.170)	0.280**	(0.144)
Female head with SHS	0.487	(0.320)	0.501	(0.551)
Female head with Tertiary	4.310**	(3.057)	8.96e-07***	(9.86e-07)
Employment(Unemployed=0)				
Employee	0.514***	(0.130)	0.484***	(0.116)
Self-employed/family	0.871	(0.212)	0.726	(0.166)
Other contributing family	1.207	(0.411)	0.884	(0.342)
Region(Admin)(Western=0)				
Central	1.307	(0.356)	1.148	(0.385)
Greater Accra	0.630	(0.180)	0.586	(0.239)
Volta	1.509	(0.440)	0.739	(0.249)

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	Child Malnutrition		Child Education deprivation	
Variables	odds	Robust Standard Errors	odds	Robust Standard Errors
Eastern	0.606*	(0.164)	0.517**	(0.152)
Ashanti	1.044	(0.235)	0.859	(0.227)
Brong Ahafo	1.047	(0.260)	0.945	(0.279)
Northern	1.274	(0.395)	2.720***	(0.784)
Upper East	0.588	(0.225)	1.058	(0.334)
Upper West	0.258**	(0.136)	1.207	(0.407)
Location (Rural=0)				
Urban	0.760*	(0.109)	0.454***	(0.0789)
Saving Status (No Saving)				
Home Saving	1.026	(0.152)	0.979	(0.146)
Institution	1.025	(0.229)	0.826	(0.200)
Multiple	0.749	(0.147)	0.400***	(0.110)
In-Transfer (Dummy)				
Received Transfer	1.106	(0.174)	0.944	(0.147)
Asset (Dummy)				
Own Durables	0.125***	(0.0886)	0.351	(0.396)
Dwelling(Bungalow=0)				
Semi-detached	1.022	(0.415)	1.564	(0.750)
Flat/Apartment	2.338**	(0.999)	1.545	(0.828)
Room in compound house	0.879	(0.231)	1.277	(0.360)
Room(s) (Other type)	0.974	(0.269)	1.719*	(0.503)
Several buildings same comp	0.760	(0.262)	1.267	(0.436)
Several buildings in diff. com	2.362*	(1.171)	2.997**	(1.347)
Constant	9.670***	(8.403)	0.263	(0.346)
Observations	4,200		4,200	

*NB:*** p<0.01, ** p<0.05, * p<0.1. Base category=Non-poor; OR<1 reduces odds, OR> 1 increases odds; figures in parenthesis are standard errors*
Source: Author's computations from Secondary Data (2009 & 2013).

Table 5.18 presents the marginal effects of the results. The results show that having a female-headed household has a positive low effect on child education deprivation while its effect on non-deprivation in either child malnutrition or child education deprivation is negative. Being a female head as opposed to male heads leads to about an 8 per cent increase in the chances of having a child not educated and reduces the chances of not being deprived in the household. Even though the effect on child malnutrition is negative it is not significant. Given that the

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monetary poverty of female-headed households is lower than that of the males it is important to understand the reason behind this positive effect on child education. Kate Bird (2007, p.12) explained that "…Where the socially determined division of labour is strong, where women do not have access to financial services in their own right and where women are not accepted as equals in decision-making fora, a range of factors may increase the risk of women heads of household being confined to low return and drudgery intensive livelihood options. This situation has long-term implications for their children's education, nutrition, health…" The study shows that although the average annual expenditure for female-headed households was greater in both 2009 and 2013 compared with male-headed households, these do not seem to account for the positive effect. However, a closer look at the asset holding and savings status of the heads shows that female-headed households tend to have a higher proportion of non-saving heads (46% compared with 40 % for males). Again, asset holdings for female-headed households are lower (34 % of female heads do not own durables compared with 25 % of males). Chirwa and Pe Ngalawa (2008) and Tharakan and Suchindran (1999) found a low but positive relationship between stunting and female heads in Malawi and Botswana respectively. Further, the results show that an increase in head's age by a unit leads to a 0.06 per cent improvement in the probability of a household being non-deprived while it decreases the probability of having a malnourished child by about 0.7 per cent which is in line with the findings of Amare

Ahmed and Mehari(2019) in Ethiopia. This result, however, deviates from the findings of Frempong and Annim (2017) in Ghana and Ashagidigbi and Dahunsi (2018) in Nigeria. All sizes of the family greater than 2 lead to an increase in the probability of a household having a malnourished child and a child deprived of education. Household sizes between two and three reduce the probability of having a malnourished child in the house by about 9 per cent while at the same time reducing the household's chances of having a child deprived of education by

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about 7 per cent. Similarly having a household size between 4 and 6 reduces the probability of child malnutrition and child education deprivation by 10 per cent and about 20 per cent respectively. Households with sizes greater than 6 have a greater probability of increasing their chances of having a malnourished child and a child with deprivation in education by 13 and as high as 32 per cent respectively. This result agrees with the findings of Alderman (1990) and Radhakrishna and Ravi (2004). Other findings in the study show that being an Akan reduces the household's chances of having a child deprived of education by about 9 per cent. Similarly, heads with primary, JHS, SHS or Tertiary levels of education significantly reduce the probability of having a child deprived of education in the household by 9, 15, 15 and 20 per cent respectively. When gender interacted with an education similar findings were found. Being a female with some education reduced the probability of having a child deprived of education in the household. Being an employee reduced the probability of having a malnourished child as well as having a child deprived of education in the household by 5 per cent and 6 per cent respectively. Heads living in the Greater Accra and the Eastern region increase their chances of not suffering from any form of deprivation by about 8 and 10 per cent respectively with heads living in the Eastern region having a reduced probability of having a child deprived of education by about 6 per cent compared with heads in the Western region. However, heads living in the Northern region reduce their chances of not having any form of deprivation by about 12 per cent while increasing their chances of having deprived children in education by 13 per cent. While heads that stay in the Volta region increase their chances of having a malnourished child in the household by about 7 per cent heads in the Upper East region reduce their chances of having a malnourished child by about 11 per cent. The result for the Volta and the Upper East regions in Ghana confirms a similar result by Frempong and Annim (2017). Heads staying in the urban region increase their chances of not having any form of deprivation by about 9 per cent compared with rural heads and reduce their probability of

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having a malnourished child (though not significant) as well as a child deprived in education by 8 per cent. Heads that have shock absorbers like multiple savings increase their chances of not having any form of deprivation by about 9 per cent and reduce their chances of having a child deprived of education by about 9 per cent. Again heads that owned durables increased their chances of not being deprived by about 29 per cent while at the same time reducing their chances of having a malnourished child by about 27 per cent.

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Table 5. 18: Marginal Effect of Child Malnutrition and Child Education deprivation.

	Non-Deprived		Child Malnourished Household		Child Education deprived Household	
Variables	**effects**	**S.E**	**effects**	**S.E**	**effects**	**S.E**
Head Gender (Male=0)						
Female	-0.0723**	(0.0342)	-0.00457	(0.0268)	0.0769**	(0.0316)
Age of Head	0.00629***	(0.000674)	-0.00675***	(0.000659)	0.000465	(0.000490)
Household Size (<2=0)						
Between 2 and 3	-0.160***	(0.0195)	0.0883***	(0.0163)	0.0718***	(0.0130)
Between 4 and 6	-0.300***	(0.0206)	0.104***	(0.0169)	0.197***	(0.0141)
Above 6	-0.450***	(0.0303)	0.132***	(0.0260)	0.318***	(0.0234)
Head's Marital Status (Never Married=0)						
Married	-0.0496	(0.0469)	0.0544**	(0.0269)	-0.00476	(0.0461)
Consensual	-0.0711	(0.0509)	0.0448	(0.0299)	0.0263	(0.0509)
Separated	0.0673	(0.0857)	0.0231	(0.0557)	-0.0905	(0.0833)
Divorced	-0.0173	(0.0548)	0.0149	(0.0357)	0.00238	(0.0515)
Widowed	0.0156	(0.0550)	-0.00883	(0.0358)	-0.00674	(0.0527)
Ethnic (Non-Akan=0)						
Akan	0.0706***	(0.0234)	0.0146	(0.0181)	-0.0853***	(0.0211)
Head Education (None=0)						
Preschool	0.0593	(0.0389)	-0.0156	(0.0327)	-0.0437	(0.0331)
Primary	0.125***	(0.0273)	-0.0325	(0.0222)	-0.0926***	(0.0230)
JHS	0.126***	(0.0306)	0.0279	(0.0246)	-0.154***	(0.0263)
SHS	0.175***	(0.0424)	-0.0243	(0.0345)	-0.150***	(0.0373)
Tertiary	0.227***	(0.0525)	-0.0304	(0.0418)	-0.197***	(0.0453)
Female Head Education (None=0)						
Female head with Preschool	0.103*	(0.0592)	-0.0549	(0.0461)	-0.0482	(0.0448)
Female head with Primary	0.0754	(0.0489)	0.0168	(0.0448)	-0.0922***	(0.0340)
Female head with JHS	0.158***	(0.0486)	-0.0499	(0.0321)	-0.108***	(0.0415)
Female head with SHS	0.111	(0.102)	-0.0533	(0.0566)	-0.0575	(0.109)
Female head with Tertiary	-0.0841	(0.129)	0.315**	(0.128)	-0.231***	(0.00901)
Employment(Unemployed=0)						

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	Non-Deprived		Child Malnourished Household		Child Education deprived Household	
Variables	**effects**	**S.E**	**effects**	**S.E**	**effects**	**S.E**
Employee	0.114***	(0.0348)	-0.0506*	(0.0278)	-0.0636**	(0.0271)
Self-employed/family	0.0388	(0.0342)	-0.00508	(0.0274)	-0.0337	(0.0260)
Other contributing family	-0.00680	(0.0506)	0.0295	(0.0427)	-0.0227	(0.0449)
Region(Admin)(Western=0)						
Central	-0.0356	(0.0419)	0.0285	(0.0339)	0.00709	(0.0406)
Greater Accra	0.0825*	(0.0438)	-0.0350	(0.0311)	-0.0475	(0.0445)
Volta	-0.0166	(0.0427)	0.0662*	(0.0387)	-0.0496	(0.0371)
Eastern	0.0955***	(0.0357)	-0.0359	(0.0288)	-0.0596*	(0.0323)
Ashanti	0.00918	(0.0328)	0.0105	(0.0267)	-0.0196	(0.0310)
Brong Ahafo	0.000933	(0.0367)	0.00750	(0.0294)	-0.00844	(0.0349)
Northern	-0.117***	(0.0421)	-0.0121	(0.0340)	0.129***	(0.0379)
Upper East	0.0327	(0.0445)	-0.0557	(0.0353)	0.0230	(0.0384)
Upper West	0.0543	(0.0465)	-0.111***	(0.0312)	0.0562	(0.0430)
Location (Rural=0)						
Urban	0.0877***	(0.0207)	-0.00746	(0.0158)	-0.0802***	(0.0180)
Saving Status (No Saving)						
Home Saving	-0.000253	(0.0199)	0.00355	(0.0160)	-0.00329	(0.0168)
Institution	0.0138	(0.0303)	0.00895	(0.0250)	-0.0228	(0.0266)
Multiple	0.0940***	(0.0276)	-0.00721	(0.0214)	-0.0868***	(0.0254)
In-Transfer (Dummy)						
Received Transfer	-0.00370	(0.0198)	0.0132	(0.0178)	-0.00948	(0.0170)
Asset (Dummy)						
Own Durables	0.286***	(0.107)	-0.272**	(0.137)	-0.0140	(0.132)
Dwelling(Bungalow=0)						
Semi-detached	-0.0365	(0.0562)	-0.0113	(0.0464)	0.0478	(0.0528)
Flat/Apartment	-0.117*	(0.0614)	0.103	(0.0637)	0.0136	(0.0568)
Room in compound house	-0.00775	(0.0343)	-0.0218	(0.0302)	0.0295	(0.0282)
Room(s) (Other type)	-0.0407	(0.0361)	-0.0198	(0.0316)	0.0605**	(0.0301)
Several buildings same comp	0.00381	(0.0435)	-0.0366	(0.0365)	0.0328	(0.0349)

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	Non-Deprived		Child Malnourished Household		Child Education deprived Household	
Variables	**effects**	**S.E**	**effects**	**S.E**	**effects**	**S.E**
Several buildings in diff. com	-0.164**	(0.0682)	0.0717	(0.0650)	0.0921*	(0.0495)
Observations	**4,200**		**4,200**		**4,200**	

*NB: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*
Source: Author's own computations from Secondary Data (2009 & 2013).

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Table 5.19 presents the odd ratios for the dynamics inherent in the deprivations of child nutrition and child education. The marginal effect of the results is shown in Table 5.20. The results show that the odds of a household having a chronically malnourished child decreases by about 48 per cent if the head was a female and reduces the probability of having a chronically malnourished child by about 2 per cent. As the age of the head increases the odds of having either a chronically malnourished child or chronically deprived child in education decreases by about 93 per cent and 98 per cent respectively for the household. The marginal effect shows that as the age of the head increases the chances of having a chronically malnourished child or chronically deprived child in education reduces. Kabubo-Mariara, Ndenge and Mwabu. (2009) found a negative effect of head age on chronic malnutrition in Kenya. Household size is found significant in increasing the probability of a household having a malnourished child or a child deprived of education. Very significant is the all-pervasive nature of the effect of household size on both chronic and transient effects on child malnutrition and child education deprivation. Ethnicity once again shows in the model as significant only for transient deprivation in child education. Head education is most significant in reducing chronic and transient child deprivation in education. Only tertiary education was found significant in reducing the probability of a household having chronic child malnutrition. Employee heads have a significant effluence on the probability of a household having chronic child malnutrition and child education deprivation. Being an employee as opposed to not being employed reduces the probability of a household having chronic child malnutrition by about 3 per cent while it reduces the probability of having a child chronically deprived of education by about 4 per cent. Living in the Greater Accra region, the Eastern Region and the Upper West region reduce the household's probability of having a child that is chronically malnourished by 4, 3 and 4 per cent respectively. Heads that live in urban areas reduce their probability of having a chronically deprived child in education in the household by about 4 per cent. Institutional savings reduce

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the probability of a household having a chronically malnourished child in the household by about 3 per cent whereas multiple savings also reduce the probability of having a chronically deprived child's education in the household by about 9 per cent.

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Table 5. 19: Odd Ratios of the dynamics of the deprivation in Child Nutrition and Child Education

	Child Malnutrition				Child Education Deprived			
Variables	***Chronic***	***S.E***	***Transient***	***S.E***	***Chronic***	***S.E***	***Transient***	***S.E***
Head Gender (Male=0)	***odds***		***odds***		***odds***		***odds***	
Female	0.475**	(0.176)	0.986	(0.162)	0.832	(0.691)	1.347	(0.281)
Age of Head	0.923***	(0.0105)	0.945***	(0.00498)	0.983**	(0.00800)	1.003	(0.00455)
Household Size (<2=0)								
Between 2 and 3	1.255e+06***	(519,471)	3.237***	(0.797)	224,551***	(184,704)	5.625***	(2.505)
Between 4 and 6	4.391e+06***	(1.785e+06)	4.741***	(1.218)	2.501e+06***	(1.526e+06)	17.95***	(7.899)
Above 6	1.116e+07***	(5.057e+06)	8.405***	(2.454)	1.470e+07***	(8.428e+06)	36.48***	(16.67)
Head's Marital Status (Never Married=0)								
Married	1.305	(0.783)	1.353	(0.400)	0.741	(0.678)	1.010	(0.436)
Consensual	1.679	(1.143)	1.339	(0.416)	1.007	(1.002)	1.391	(0.652)
Separated	3.601	(4.362)	0.561	(0.341)	2.077	(3.082)	0.324	(0.341)
Divorced	1.153	(1.077)	0.876	(0.335)	0.323	(0.437)	1.095	(0.515)
Widowed	0.744	(0.699)	0.925	(0.352)	0.417	(0.485)	0.876	(0.418)
Ethnic (Non-Akan=0)								
Akan	0.998	(0.286)	0.821	(0.129)	0.474*	(0.201)	0.488***	(0.0936)
Head Education (None=0)								
Preschool	0.881	(0.353)	0.603**	(0.129)	0.536	(0.223)	0.693*	(0.150)
Primary	0.484**	(0.171)	0.572***	(0.0905)	0.302***	(0.111)	0.421***	(0.0711)
JHS	0.740	(0.235)	0.704**	(0.116)	0.0884***	(0.0532)	0.240***	(0.0552)
SHS	0.498	(0.324)	0.434***	(0.116)	0.112**	(0.114)	0.261***	(0.104)
Tertiary	0.101**	(0.110)	0.797	(0.278)	4.32e-07***	(4.34e-07)	0.0984***	(0.0663)
Employment(Unemployed=0)								
Employee	0.374***	(0.136)	0.531***	(0.113)	0.282***	(0.105)	0.714	(0.170)
Self-employed/family	0.556*	(0.179)	0.887	(0.179)	0.585*	(0.190)	0.872	(0.199)
Other contributing family	0.463	(0.332)	1.117	(0.333)	0.675	(0.454)	0.935	(0.357)
Region(Admin)(Western=0)								
Central	1.065	(0.595)	1.451	(0.395)	0.229	(0.206)	1.187	(0.392)

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	Child Malnutrition				Child Education Deprived			
Variables	***Chronic***	***S.E***	***Transient***	***S.E***	***Chronic***	***S.E***	***Transient***	***S.E***
Greater Accra	0.142**	(0.124)	0.913	(0.273)	0.775	(0.936)	0.649	(0.272)
Volta	2.205	(1.159)	1.654*	(0.474)	1.231	(0.998)	0.624	(0.222)
Eastern	0.250**	(0.168)	0.738	(0.193)	0.674	(0.502)	0.575*	(0.177)
Ashanti	1.226	(0.506)	0.992	(0.227)	0.361	(0.257)	0.886	(0.240)
Brong Ahafo	1.026	(0.532)	1.217	(0.302)	0.486	(0.372)	1.005	(0.307)
Northern	2.068	(1.004)	1.373	(0.369)	3.678*	(2.728)	2.087**	(0.609)
Upper East	0.455	(0.274)	0.877	(0.283)	1.047	(0.880)	1.244	(0.398)
Upper West	0.0426***	(0.0477)	0.209***	(0.0872)	0.576	(0.473)	1.760*	(0.595)
Location (Rural=0)								
Urban	0.670	(0.188)	0.743**	(0.102)	0.156***	(0.0811)	0.559***	(0.0948)
Saving Status (No Saving)								
Home Saving	0.926	(0.226)	1.128	(0.152)	0.645	(0.190)	1.019	(0.150)
Institution	0.406	(0.226)	1.078	(0.223)	0.555	(0.343)	0.913	(0.223)
Multiple	1.340	(0.483)	0.777	(0.151)	0.290*	(0.196)	0.470***	(0.130)
In-Transfer (Dummy)								
Received Transfer	0.843	(0.253)	1.068	(0.150)	0.878	(0.285)	0.935	(0.142)
Asset (Dummy)								
Own Durables	0.165	(0.181)	0.176***	(0.0906)	0.299	(0.407)	1.331	(1.824)
Dwelling(Bungalow=0)								
Semi-detached	0.160*	(0.155)	0.833	(0.350)	1.168	(1.183)	1.587	(0.796)
Flat/Apartment	1.192	(1.399)	1.902	(0.744)	1.42e-06***	(1.27e-06)	1.370	(0.725)
Room in compound house	0.719	(0.449)	0.857	(0.212)	0.985	(0.655)	1.336	(0.387)
Room(s) (Other type)	0.551	(0.350)	0.956	(0.250)	1.325	(0.883)	1.762*	(0.534)
Several buildings same comp	0.744	(0.499)	1.125	(0.341)	0.550	(0.391)	1.554	(0.539)
Several buildings in diff. com	1.973	(1.563)	2.390*	(1.079)	3.337	(2.899)	2.130*	(0.940)
Constant	1.14e-05***	(1.57e-05)	6.471***	(4.525)	1.50e-06***	(2.58e-06)	0.0217**	(0.0331)
Observations	4,200		4,200		4,200		4,200	

*NB: Standard errors in parentheses; NB:*** p<0.01, ** p<0.05, * p<0.1. Base category=Non-poor;*

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Source: Author's own computation from secondary data (2009 & 2013)s.

Table 5. 20: Marginal of the dynamics of the deprivation in Child Nutrition and Child Education

	Child Malnutrition			Child Education Deprivation		
Variables	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**
Head Gender (Male=0)						
Female	0.0171	-0.0246**	0.00750	-0.0276	-0.0107	0.0384
	(0.0224)	(0.0102)	(0.0220)	(0.0246)	(0.0229)	(0.0267)
Age of Head	0.00864***	-0.00232***	-0.00633***	-7.26e-05	-0.000614**	0.000687
	(0.000661)	(0.000440)	(0.000634)	(0.000492)	(0.000256)	(0.000496)
Household Size (<2=0)						
Between 2 and 3	-0.110***	0.0163***	0.0936***	-0.0712***	0.00461*	0.0666***
	(0.0171)	(0.00433)	(0.0169)	(0.0123)	(0.00274)	(0.0122)
Between 4 and 6	-0.177***	0.0457***	0.131***	-0.197***	0.0283***	0.169***
	(0.0186)	(0.00567)	(0.0183)	(0.0140)	(0.00745)	(0.0137)
Above 6	-0.282***	0.0825***	0.200***	-0.322***	0.0848***	0.237***
	(0.0290)	(0.0142)	(0.0286)	(0.0236)	(0.00791)	(0.0234)
Head's Marital Status (Never Married=0)						
Married	-0.0417	0.00571	0.0360	0.00387	-0.0107	0.00678
	(0.0372)	(0.0207)	(0.0360)	(0.0455)	(0.0337)	(0.0492)
Consensual	-0.0470	0.0167	0.0304	-0.0334	-0.00649	0.0398
	(0.0408)	(0.0255)	(0.0387)	(0.0501)	(0.0367)	(0.0557)
Separated	-0.00440	0.0802	-0.0758	0.0515	0.0527	-0.104
	(0.0828)	(0.0877)	(0.0560)	(0.0797)	(0.0713)	(0.0692)
Divorced	0.0103	0.00683	-0.0171	0.00471	-0.0332	0.0285
	(0.0493)	(0.0351)	(0.0448)	(0.0505)	(0.0372)	(0.0551)
Widowed	0.0146	-0.00842	-0.00620	0.0249	-0.0247	-0.000163
	(0.0477)	(0.0286)	(0.0455)	(0.0503)	(0.0366)	(0.0539)
Ethnic (Non-Akan=0)						
Akan	0.0235	0.00290	-0.0264	0.0830***	-0.0119	-0.0711***

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	Child Malnutrition			Child Education Deprivation		
Variables	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**
	(0.0210)	(0.0114)	(0.0208)	(0.0214)	(0.0125)	(0.0220)
Head Education (None=0)						
Preschool	0.0648**	0.00266	-0.0675**	0.0562*	-0.0163	-0.0400
	(0.0295)	(0.0180)	(0.0266)	(0.0288)	(0.0138)	(0.0282)
Primary	0.0861***	-0.0193	-0.0668***	0.118***	-0.0264**	-0.0920***
	(0.0219)	(0.0121)	(0.0210)	(0.0208)	(0.0118)	(0.0209)
JHS	0.0524**	-0.00704	-0.0454**	0.181***	-0.0459***	-0.135***
	(0.0237)	(0.0129)	(0.0229)	(0.0230)	(0.0109)	(0.0227)
SHS	0.114***	-0.0159	-0.0977***	0.172***	-0.0429**	-0.129***
	(0.0325)	(0.0219)	(0.0301)	(0.0364)	(0.0169)	(0.0359)
Tertiary	0.0604	-0.0465***	-0.0139	0.246***	-0.0610***	-0.185***
	(0.0501)	(0.0104)	(0.0500)	(0.0343)	(0.00629)	(0.0342)
Employment(Unemployed=0)						
Employee	0.103***	-0.0347*	-0.0678**	0.0533*	-0.0373***	-0.0160
	(0.0321)	(0.0183)	(0.0291)	(0.0273)	(0.0131)	(0.0264)
Self-employed/family	0.0327	-0.0267	-0.00601	0.0235	-0.0186	-0.00492
	(0.0313)	(0.0171)	(0.0288)	(0.0263)	(0.0125)	(0.0254)
Other contributing family	0.00464	-0.0372	0.0326	0.0141	-0.0147	0.000570
	(0.0485)	(0.0271)	(0.0452)	(0.0436)	(0.0253)	(0.0443)
Region(Admin)(Western=0)						
Central	-0.0497	-0.00311	0.0528	-0.00470	-0.0310	0.0357
	(0.0407)	(0.0217)	(0.0385)	(0.0412)	(0.0211)	(0.0420)
Greater Accra	0.0375	-0.0392**	0.00173	0.0459	-0.00242	-0.0435
	(0.0397)	(0.0160)	(0.0393)	(0.0467)	(0.0377)	(0.0451)
Volta	-0.0892**	0.0312	0.0580	0.0385	0.0146	-0.0531
	(0.0421)	(0.0278)	(0.0419)	(0.0386)	(0.0287)	(0.0377)
Eastern	0.0591*	-0.0326**	-0.0265	0.0586*	-0.00532	-0.0533
	(0.0338)	(0.0165)	(0.0328)	(0.0327)	(0.0237)	(0.0340)

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	Child Malnutrition			Child Education Deprivation		
Variables	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**
Ashanti	-0.00499	0.00919	-0.00420	0.0262	-0.0232	-0.00300
	(0.0311)	(0.0176)	(0.0298)	(0.0315)	(0.0211)	(0.0328)
Brong Ahafo	-0.0251	-0.00184	0.0269	0.00955	-0.0189	0.00931
	(0.0351)	(0.0208)	(0.0338)	(0.0358)	(0.0223)	(0.0376)
Northern	-0.0627	0.0319	0.0308	-0.112***	0.0409	0.0712*
	(0.0389)	(0.0239)	(0.0370)	(0.0385)	(0.0288)	(0.0394)
Upper East	0.0319	-0.0230	-0.00884	-0.0248	-0.00190	0.0267
	(0.0419)	(0.0187)	(0.0414)	(0.0392)	(0.0275)	(0.0410)
Upper West	0.170***	-0.0436***	-0.127***	-0.0620	-0.0213	0.0833*
	(0.0328)	(0.0157)	(0.0321)	(0.0449)	(0.0236)	(0.0462)
Location (Rural=0)						
Urban	0.0451**	-0.0111	-0.0340*	0.0807***	-0.0381***	-0.0426**
	(0.0187)	(0.00995)	(0.0176)	(0.0181)	(0.00756)	(0.0181)
Saving Status (No Saving)						
Home Saving	-0.0128	-0.00492	0.0178	0.00459	-0.0147	0.0102
	(0.0187)	(0.00932)	(0.0180)	(0.0170)	(0.00947)	(0.0172)
Institution	0.00655	-0.0275**	0.0209	0.0179	-0.0173	-0.000621
	(0.0288)	(0.0124)	(0.0284)	(0.0273)	(0.0180)	(0.0288)
Multiple	0.0185	0.0179	-0.0364	0.0851***	-0.0253	-0.0598**
	(0.0251)	(0.0180)	(0.0234)	(0.0255)	(0.0158)	(0.0255)
In-Transfer (Dummy)						
Received Transfer	-0.00404	-0.00743	0.0115	0.00835	-0.00296	-0.00539
	(0.0194)	(0.0107)	(0.0190)	(0.0165)	(0.00982)	(0.0168)
Asset (Dummy)						
Own Durables	0.301***	-0.0489	-0.252**	0.00360	-0.0578	0.0542
	(0.0830)	(0.0867)	(0.123)	(0.121)	(0.0665)	(0.116)
Dwelling(Bungalow=0)						
Semi-detached	0.0539	-0.0493	-0.00455	-0.0444	-0.00275	0.0472

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	Child Malnutrition			Child Education Deprivation		
Variables	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**
	(0.0565)	(0.0304)	(0.0550)	(0.0534)	(0.0342)	(0.0566)
Flat/Apartment	-0.0909	-0.00534	0.0963	-0.00756	-0.0533**	0.0609
	(0.0655)	(0.0562)	(0.0648)	(0.0573)	(0.0217)	(0.0578)
Room in compound house	0.0273	-0.0125	-0.0148	-0.0250	-0.00533	0.0304
	(0.0368)	(0.0307)	(0.0339)	(0.0279)	(0.0227)	(0.0294)
Room(s) (Other type)	0.0205	-0.0240	0.00345	-0.0571*	-0.000425	0.0575*
	(0.0384)	(0.0305)	(0.0358)	(0.0299)	(0.0230)	(0.0318)
Several buildings same comp	-0.00647	-0.0154	0.0219	-0.0332	-0.0238	0.0570
	(0.0446)	(0.0321)	(0.0421)	(0.0352)	(0.0229)	(0.0365)
Several buildings in diff. com	-0.138*	0.0156	0.123*	-0.0943*	0.0348	0.0595
	(0.0744)	(0.0423)	(0.0739)	(0.0497)	(0.0358)	(0.0503)
Observations	4,200	4,200	4,200	4,200	4,200	4,200

*NB: Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1*

Source: Author's own computations from Secondary Data (2009 & 2013).

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5.7. Summary

Chapter five examined the second objective of the study by investigating the nature, trend and determinants of poverty dynamics in Ghana using the non-monetary measures of poverty. At the end of the chapter, various key findings were found that are worth highlighting. All ten non-monetary indicators were selected for the analysis. The general trend of the indicators was that about 60 per cent of the indicators showed a decrease in the trend of deprivation while the remaining 40 per cent showed that deprivation among the populace was on the ascendency. Indicators for child education of deprivation, overcrowding variable, flooring material, water source, cooking fuel and connection to the national grid for light revealed that non-monetary poverty was on the decline in the country while children's nutritional status, adults' nutritional status, adults schooling and sanitation depicted a deterioration in the extent of deprivation among the populace. The trend analysis confirmed that indeed non-monetary poverty was severe among female-headed households, an outcome which could not be confirmed in the robust analysis under regression. Again the trend analysis showed non-monetary poverty is a rural phenomenon in Ghana even though the trend showed that overcrowding was worse in the urban areas than in the rural sector. Furthermore, the trend analysis showed the three northern regions were worse off in terms of deprivation than all the other regions in the country. The chapter further invested the dynamics of the deprivations. Among the child nutritional variables, adult nutrition, child education and adult education mobility within child nutritional deprivation was the highest being about 19 per cent depicting that within the two waves, children moved between non-deprived to deprived status or vice versa easily compared with the other variables. This was followed by child educational deprivation being about 17 per cent. Again among the four, chronic deprivation was however highest in adult school deprivation, being 4.6 per cent followed by child malnutrition at 3.9 per cent. For the standard of living variables, mobility was highest for sanitation which was about 33 per cent followed by

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overcrowding. The dynamics of non-monetary variables were further explored by aggregating the deprivations. Finally, the chapter explored the determinants of non-monetary deprivations using the same variables that determined monetary poverty. For policy purposes and to understand the nature of deprivation in specific and the drivers of the deprivations the study also singled out child nutritional status and child education deprivation. Generally, it was observed that different demographic, human capital, asset and geographic locations have different effects on child malnutrition and child education deprivation.

It was seen that being a female head, increasing in head's age, staying in the Upper East region, being an urban dweller and being an owner of durables reduce the household's chances of having a malnourished child while staying in the Volta region increased household chances of having a malnourished child. Observed in a dynamic way the study showed that being a female head, having higher educational attainment, living in the Upper West region, Greater Accra region or the Eastern Region and having institutional savings reduce the household's chances of having a chronically malnourished child

Similarly being a female head and dwelling in the Northern region increase the household's chances of having a child deprived of education while being an Akan (Ethnicity), having education, staying in the Eastern region or having multiple savings reduce head's chances of having a child deprived in education in the household

Having a larger household size increases the chances of having a malnourished child as well as having a child deprived of education in the household while being an employee decreases the probability of having a malnourished child and a child deprived of education in the household.

In the dynamic form increase in head's age and being an employee reduce chronic malnutrition and chronic child education deprivation probabilities of occurrence in the household while a

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larger household size increases the chances of a household having chronic malnutrition and chronic child education deprivation. Also increase in educational attainment, urban dwelling and having multiple savings reduce a household's chances of having a child chronically deprived of education.

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CHAPTER SIX

ANALYSIS OF THE RELATIONSHIP BETWEEN MONETARY AND NON-MONETARY POVERTY

6.0 Introduction

This last empirical chapter is set aside to analyse and discuss the relationship that exists between the estimates of monetary poverty and that of non-monetary estimates. This is done using three approaches – the non-parametric analysis using the Chi-square, the use of the immobility index and the use of Spearman rank correlation. Under section 6.1 the general levels of monetary poverty statistics and non-monetary poverty statistics are examined comparatively. In section 6.2 the ten dimensions of non-monetary poverty discussed in chapter five are contrasted with monetary poverty to understand the extent to which monetary poverty predicts these dimensions. The chapter concludes with a summary of the discussions in the chapter under section 6.3.

6.1. Levels of Monetary and Non-monetary Poverty

Table 6.1 shows that in general, the national monetary poverty level having a transient portion of 32.5 per cent fluctuates more than any of the non-monetary poverty measures. Using the non-monetary poverty measures, the table further shows that the two most stable well-being factors were adult education and drinking water with adult education being the highest at 6.7 per cent. Again, a closer look at the table shows that where adults' and children's well-being are calculated, adults' well-being is more stable than children's. This is seen in both nutrition and education measures. This result is similar to the findings of Klasen and Gunther (2009) conducted in Vietnam. It is not a foregone conclusion to say however that, having a stable or non-stable well-being status is good or bad since different states of well-being will lead to a different conclusions. For example, those who are deprived will view stable well-being as a

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perpetual trap in their predicament while those at the top of their well-being will see stable well-being as good since that means they will enjoy the security of a high standard of living.

Table 6. 1: Levels of Monetary and Non-Monetary Poverty

	Monetary	Malnutrition		Education			
	Total	**Child**	**Adult**	**Child**	**Adult**	**Overcrowding**	**Flooring**
2009/10	29.5	12.1	6.7	19.2	3	28.8	15.4
2013/14	21.5	16.3	8.9	6.9	4.4	20.3	8.7
Chronic	9.3	4.5	2	4.8	1.6	11.1	3.7
Transient	32.5	19.3	11.5	17.1	4.2	27	16.7
Non-Poor	58.2	76.2	86.4	78.2	94.2	62	79.6

NB: See the full table in appendix 6.1

Source: Author's Computations from Secondary Data (2009 & 2013).

Generally, both monetary and non-monetary poverty brings out the reality that poverty is falling with monetary poverty showing a fall of about 27 while the largest fall among the non-monetary measures was found with child education which recorded about a 64 per cent fall between the two waves. Four of the non-monetary variables, however, showed a reversal in the trend of welfare. These were child malnutrition measured by stunting which was recorded at about 16 per cent in 2013/2014 from about 12 per cent recorded in 2009/2010. Even though the trend of this variable is upward, the estimate does not fall outside the value (19 %) recorded by the Ghana Demographic Health Survey (GDHS) in the year 2014 (Ghana Statistical Service, 2014). The second variable, adult malnutrition also recorded an increase of about 2 per cent in 2013/2014 from about 7 per cent recorded in 2009/2010. Compared with the GDHS report these figures are similar. The GDHS recorded 9 per cent in 2008 and 6 per cent in 2014. Adult education and sanitation were the last two. In these four variables, the monetary poverty measure showed a negative correlation with non-monetary poverty indicators.

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Klasen and Gunther (2009) have raised some issues that may lead to the disparities seen between monetary and non-monetary measures. The first issue relates to the fact that having a two-wave panel at hand, high-income transient poverty might largely be caused by general economic development. In the case of Ghana, data shows that the country has experienced major economic growth which has led to a large decrease in income poverty in the country between 2009/2010 and 2013/2014 (see GSS, 2014) with the headcount poverty rate falling from about 30 per cent to 22 per cent.

The second issue has to do with the 'arbitrarily set' level of poverty lines for the different poverty dimensions- monetary and non-monetary. Poverty and its dynamic nature depend on the level of these lines. The differences in the extent of poverty levels using income, in this study expenditure, and non-income indicators stem from the fact that the extent of total (static) poverty rates is different. Table 6.2 shows the static correlation between monetary and non-monetary indices for 2009/2010 and 2013/2014. Each year and each dimension sums up to 100 per cent. The table shows that the monetary poor households are not necessarily the non-monetary poor ones. In 2009/2010, only 4.4 per cent of the households were both monetary and child malnourished whereas 62.8 per cent of the households were neither monetary poor nor child malnourished. However, 32.8 per cent of the households were either monetary poor/ child malnourished or not monetary poor /child malnourished but in 2013, the story was not so much different, the share of the poor in both dimensions remained the same whereas the share of the non-poor in both dimensions did increase by about 4 percentage points. However, the percentage of households that is only poor in one dimension decreased by about 4 percentage points. The top three variables that showed a high correlation between monetary poverty and non-monetary deprivations were deprivations in sanitation, cooking fuel and electricity. In

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2009/2010, between about 17 to 28 per cent of households were both monetary and non-monetary poor.

Table 6. 2: Static Dependence

		Child Malnutrition		Adult Malnutrition		Child Education poor		Adult Education poor		Overcrowding	
		2009		2009		2009		2009		2009	
Monetary Poor		poor	non-poor	poor	non-poor	poor	non-poor	poor	non-poor	poor	non-poor
2009											
	poor	4.4	25.1	2.4	27.2	10.3	19.3	0.9	28.7	8.5	21.1
	non-poor	7.7	62.8	4.3	66.1	9.4	61.1	2.1	68.4	20.4	50.1
		2013		2013		2013		2013		2013	
2013	poor	4.4	17.2	2.8	18.8	2.7	18.8	1.1	20.4	5.0	16.6
	non-poor	11.9	66.5	6.1	72.3	4.2	74.3	3.3	75.2	15.4	63.1

Source: Author's computations from Secondary Data (2009 & 2013). Figures are in percentages

		Flooring Material deprived		Water Deprived		Sanitation Deprived		Cooking Fuel Deprived		Electricity Deprived	
		2009		2009		2009		2009		2009	
Monetary Poor		poor	non-poor	poor	non-poor	poor	non-poor	poor	non-poor	poor	non-poor
2009											
	poor	8.7	20.9	6.0	23.6	17.5	12.0	27.5	2.1	18.7	10.9
	non-poor	6.6	63.8	7.2	63.8	30.2	40.2	56.3	14.2	22.7	47.8
		2013		2013		2013		2013		2013	
2013	poor	2.9	18.6	3.2	8.3	13.2	8.4	18.7	2.9	9.7	11.8
	non-poor	5.8	72.6	18.3	70.2	36.4	42.1	60.5	18.0	18.4	60.1

NB: Figures are in percentages
Source: Author's computations from Secondary Data (2009 & 2013).

Table 6.3 shows that the dynamic nature of the monetary poor households is not necessarily the non-monetary poor ones. For instance, the entire household data shows that, for a majority of the cases, only less or equal to 1 per cent were chronically poor in both monetary and non-monetary terms using child malnutrition, adult nutritional deprivation, adult education deprivation, overcrowding, flooring material and water deprivation. Similarly, the percentage of the households that are transient poor in both monetary and non-monetary variables is far less than the individual measurements predict as shown in Appendices 6.2 and 6.3.

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Table 6. 3: Dynamic Dependence

Chronic Non-Monetary Deprived											
		Child Mal-nutrition		**Adult Mal-nutrition**		**Child Education Deprived**		**Adult Education deprived**		**Over-crowding**	
Chronic Monetary Poor		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	No	86.8	3.9	89.1	1.6	87.4	3.3	89.2	1.4	80.5	10.2
	Yes	8.7	0.6	8.9	0.4	7.9	1.5	9.1	0.2	8.4	0.9
	Total	**95.5**	**4.5**	**98.0**	**2.0**	**95.3**	**4.8**	**98.4**	**1.6**	**88.9**	**11.1**
		Floor Material Deprived		**Water Deprived**		**Sanitation Deprived**		**Cooking Fuel Deprived**		**Electricity Deprived**	
Chronic Monetary Poor		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	No	88.0	2.7	84.4	6.3	63.9	26.8	25.3	65.4	71.4	19.3
	Yes	8.3	1.0	8.2	1.2	4.1	5.2	0.8	8.6	4.3	5.1
	Total	**96.3**	**3.7**	**92.5**	**7.5**	**68.0**	**32.0**	**26.0**	**74.0**	**75.7**	**24.3**

NB: Figures are in percentages
Source: Author's computations from Secondary Data (2009 & 2013).

Similar outcomes are recorded for transient poverty and the non-poor households reported in appendices 6.2 and 6.3.

6.2: The extent to which Monetary Poverty Predicts Non-Monetary Poverty

For policy purposes, it is useful to further interrogate the extent to which monetary poverty estimates and non-monetary poverty estimates correlate using all the aspects of the non-monetary poverty measures discussed in the study. The next sections are devoted to bringing out this analysis.

6.2.1: Monetary Poverty and Child Malnutrition

Inspection of Table 6.4 reveals that there is little reason to believe that monetary poor and child malnutrition is of the same predictions. The table shows that two of the cells are within 10 percentage points of one another with the other two being within 1 percentage point. But a much higher percentage of children have the normal height for age z-scores in both years than are continuously monetary non-poor. This disparity is shown in the immobility index which is

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higher for child malnutrition (0.807) than for monetary poverty (0.675). A test of equal distribution for the two groups using a chi-squared test of a null hypothesis that the entire distributions of monetary poverty and malnutrition for the cohort are equal is rejected ($\chi^2 = 289.37$). The Spearman rank correlation test to know the extent of the correlation between the two variables reveals a very weak correlation shown by the (0.0867) coefficient even though highly significant. This result is similar to the findings of Baulch and Masset (2003) in Vietnam. This low correlation between monetary poverty and stunting may be due to the low correlation that existed between monetary poverty in 2009/2010 and 2013/2014 and stunting in 2009/2010 and 2013/2014. The Spearman rank correlation coefficient between monetary poverty in the two years is 0.1423 which is very weak while that for stunting is 0.2293 also weak. Secondly, the correlation between stunting and monetary poverty in 2009/2010 and between stunting and monetary poverty in 2013/2014 were all very weak. The rank correlation coefficient between monetary poverty and stunting was 0.0696 in 2009/2010 and 2013/2014 it was 0.0597. These weak correlations at the root of the two phenomena in any given year have given rise to the low correlation between monetary poverty and child malnutrition.

Table 6. 4: Child Malnutrition

		2013/2014	
		Monetary Poor **Non-Monetary Poor**	**Monetary Non-Poor** **Non-Monetary Non-Poor**
2009/2010	**Monetary Poor** **Non-Monetary Poor**	9.3 (4.5)	20.2 (7.5)
	Monetary Non-Poor **Non-Monetary Non-Poor**	12.2 (11.8)	58.2 (76.2)
	***N* = 8,732**	$\chi^2 = 289.37$	I =0.807
	phi	0.0546	$I = 0.675$

NB. Parenthesis=non-monetary, non-parenthesis=monetary
Source: Author's computations from Secondary Data (2009 & 2013).

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The cross-tabulation analysis shows that only about 7 per cent of the chronic monetary poor households were also chronic child-malnourished households while 18 per cent of the transient monetary poor households were also transient child-malnourished households. This low relationship is recorded for all the non-monetary variables as shown in Appendix 6.6.

6.2.2: Monetary Poverty and Adult Malnutrition

Turning to Table 6.5 and observing the cells reveal that, as was seen in the monetary and child malnutrition relationship, the underlying factors that generate monetary poverty is different from that leading to adult nutritional deprivation. The cells show substantial differences between the measures of monetary poverty and adult malnutrition. The immobility index for adult malnutrition is 0.884 with about 86 per cent of the adults in the household being non-deprived in adult nutrition in both periods compared with about 58 per cent of the households that have experienced no monetary poverty in both periods. The immobility index for monetary poverty is 0.675. This shows that a higher proportion of the household adults have normal nutritional status in both years of the panel than those that remained out of monetary poverty for the two periods. The chi-square investigation of equal distribution for both monetary and adult malnutrition for the entire data was strongly rejected ($\chi^2 = 496.29$). Furthermore, the extent to which monetary poverty predicts adults' malnutrition was further investigated similarly using the two three-category indices in the case of child stunting. The Spearman rank correlation coefficient between the indices of monetary poverty and adult malnutrition is 0.0971. This low correlation appears to stem primarily from the low static rank correlations between adult malnutrition and monetary poverty, which recorded 0.0368 in 2009/2010 and 0.0783 in 2013/2014. Again, the rank correlation between malnutrition in the two waves is 0.2166 while that for monetary poverty is 0.1423.

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Table 6. 5: Adult Malnutrition

	2013/2014		
		Monetary Poor **Non-Monetary Poor**	**Monetary Non-Poor** **Non-Monetary Non-Poor**
2009/2010	**Monetary Poor** **Non-Monetary Poor**	9.3 (2.0)	20.2 (4.7)
	Monetary Non-Poor **Non-Monetary Non-Poor**	12.2 (6.8)	58.2 (86.4)
	***N* = 8,732**	$\chi^2 = 496.29$	$I = 0.884$
	phi	0.0524	$I = 0.675$

NB. Parenthesis=non-monetary, non-parenthesis=monetary
Source: Author's computations from Secondary Data (2009 & 2013)

6.2.3: Monetary Poverty and Child Education Deprivation

The other aspect of non-monetary deprivation which the study sought to compare to know how strongly monetary poverty related was households deprived in child education. A close observation of Table 6.6 reveals that there is a marked difference between the percentage of households that are considered non-deprived in both 2009/10 and 2013/14 which is 78 per cent compared with those considered monetary non-poor for the two waves which stood at 58 per cent. Again, like the previous non-monetary dimensions, more households are non-deprived in child education in the panel that are not monetary poor. Again whereas 9 per cent of the households remained monetary poor for the two periods only about 5 per cent of the household who were deprived in the first wave continued in their child education deprivation status. The chi-square strongly rejected ($\chi^2 = 337.56$) an equal distribution underlying the generation of monetary poor and child education deprivation. Finally, only 2 per cent of the households became deprived of the original status of non-deprived compared with about 12 per cent of the household becoming monetary poor from the original state of non-monetary poor. This type of

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movement is reflected in the immobility index which is 0.83 for child deprivation and 0.675 for monetary poor.

Table 6. 6: Child Education Deprivation

	2013/2014		
		Monetary Poor **Non-Monetary Poor**	**Monetary Non-Poor** **Non-Monetary Non-Poor**
2009/2010	**Monetary Poor** **Non-Monetary Poor**	9.3 (4.8)	20.2 (14.9)
	Monetary Non-Poor **Non-Monetary Non-Poor**	12.2 (2.2)	58.2 (78.2)
	$N = 8{,}732$	$\chi^2 = 337.56$	I =0.83
	phi	0.1976	$I = 0.675$

NB. Parenthesis=non-monetary, non-parenthesis=monetary
Source: Author's computations from Secondary Data (2009 & 2013).

The Spearman rank correlation coefficient between the dynamic monetary measures and the child education deprivation measures was 0.2553. This weak correlation is also seen in the Phi coefficient between the two shown in Table 6.6. It is astounding to see the percentage of households that are considered transient poor or chronic poor by monetary variables but is non-poor (i.e. deprived of child education). From the cross-tabulation table in appendix 6.6 about 76 per cent of the households that were transiently poor by monetary standards were non-deprived in child education. Similarly, about 53 per cent of the chronically poor households by monetary standards were non-deprived in their child's education. There is, however, some evidence of a positive correlation between monetary and child education deprivation. About 47 per cent of the chronically monetary poor households are also transiently or chronically deprived of child education while about 24 per cent of the transient monetary poor households are also either transiently or chronically deprived of child education. The low levels of child

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education deprivation and monetary poverty may be attributed to some of the policies introduced by the government which benefited poor households also. For example, Rolleston (2011) noted that the introduction of the Capitation Grant Scheme in 2004/2005 increased initial enrolment in basic schooling in Ghana as presented by the GLSS 5. Similar results were also found in Vietnam in a study by Baulch and Masset (2003). Further corroborating the result is the Child labour report in Ghana which showed that the majority of poor parents and children revealed their preference to be in school and complete before working (Ghana Statistical Service, 2003)

6.2.4: Monetary Poverty and Adult Education Deprivation

Table 6.7 presents the output of the relationship between monetary poverty and adult education deprivation. The results reveal that the underlying processes that generate monetary poverty are different from those that lead to adult education deprivation. Whereas about 94 per cent of the household were deemed non-deprived in both periods according to the adult education deprivation measure, the monetary poverty measure considered just about one-half of the figure of non-monetary deprivation as having escaped poverty in both periods. Similarly, there are large disparities that exist between the monetary and adult education deprivation in the reported numbers of the households that fell in a transient category with large numbers (34 %) reported for monetary poverty and 4 per cent reported for adult education deprivation. A formal investigation of the distribution shown by the chi-square analysis strongly rejects the null hypothesis of equal distributions between monetary and adult education deprivation ($\chi^2 = 527.09$). These disparities reflect in the immobility index reported for both monetary poverty and adult education deprivation. Whereas adult education deprivation has an immobility index of 0.958, the monetary poverty immobility index is 0.675. Using the three-category levels of variables for both monetary poverty and adult education deprivation, the study concluded on

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the extent of predictability of monetary poverty of adult education deprivation was very weak (0.0634). The cross-tabulation result in Appendix 6.6 indicates a weak correlation. Only about 7 per cent of the chronic monetary poor were also identified as chronic adult education deprived and about 8 per cent of the households were both transient monetary poor as well as adult education deprived. On the other hand, while about 86 per cent and 88 per cent of the households were respectively transient and chronic monetary poor they were non-deprived in adult education. An inspection of the static correlation from Table 6.2 reveals that the overall weak correlation comes from the weak static correlations that exist between monetary poverty and adult education deprivation. In wave one of the data, less than 1 per cent of the monetary poor households were also adult education deprived, while about 31 per cent of the household were either monetary poor and non-deprived in adult education or vice versa.

Table 6. 7: Adult Education Deprivation

		2013/2014	
		Monetary Poor **Non-Monetary Poor**	**Monetary Non-Poor** **Non-Monetary Non-Poor**
2009/2010	**Monetary Poor** **Non-Monetary Poor**	9.3 (1.6)	20.2 (1.4)
	Monetary Non-Poor **Non-Monetary Non-Poor**	12.2 (2.8)	58.2 (94.2)
	N = 8,732	$\chi^2 = 527.09$	$I = 0.958$
	phi	0.0377	$I = 0.675$

NB. Parenthesis=non-monetary, non-parenthesis=monetary
Source: Author's computations from Secondary Data (2009 & 2013).

In 2013/2014 the households that were both predicted as monetary poor and adult education deprived remained almost the same (1.1%) but those that were either monetary poor or not adult deprived or vice versa reduced to about 24 per cent. This weak correlation is also confirmed by the very weak Spearman's rank correlation coefficient between static monetary

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poverty and static adult education deprivation in both 2009/2010 and 2013/2014 being 0.0146 (not significant) and 0.0641 respectively (see Appendix 6.4).

6.2.5: Monetary Poverty and Housing Deprivation (Overcrowding)

Whether or not there is a strong relationship between monetary poverty and housing deprivation in Ghana is a matter of discussion in this section. Beginning with the first measure of housing deprivation – overcrowding, observation from Table 6.8 shows a rather close association between the numbers in the cells. The cells show that all the figures are within 4 percentage points of the other and the largest deviation does not exceed 3.8 per cent while the least is 1.8 per cent. For instance, whereas, by monetary poverty standards, about 9 per cent of the households are chronically poor, housing deprivation measured by the extent of overcrowding in the household shows that about 11 per cent of the households are chronically deprived. Similarly, the monetary poverty measure identifies 58 per cent of the households as non-poor in both waves while the housing deprivation considered 62 per cent non-deprived in both waves.

Table 6. 8: Housing Deprivation (Overcrowding)

		2013/2014	
		Monetary Poor	**Monetary Non-Poor**
		Non-Monetary Poor	**Non-Monetary Non-Poor**
2009/2010	**Monetary Poor**	9.3	20.2
	Non-Monetary Poor	(11.1)	(17.7)
	Monetary non-poor	12.2	58.2
	Non-Monetary Non-Poor	(9.2)	(62.0)
	***N* = 8,732**	$\chi^2 = 141.86$	$I = 0.731$
	phi	0.0529	$I = 0.675$

NB. Parenthesis=non-monetary, non-parenthesis=monetary
Source: Author's computations from Secondary Data (2009 & 2013).

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The immobility indices are similar, with the monetary poverty immobility index being 0.675 while that of non-monetary is 0.731. To investigate the extent to which the entire distributions of monetary poverty and overcrowding are equal, the chi-square analysis was reported. The reported chi-square statistic strongly rejects the hypothesis that the entire distributions are equal ($\chi^2 = 141.86$). This further affirms the difference in the extent to which monetary poverty and housing deprivations are not similar in their identification of the poor.

Although there existed a close relationship between the predictions of the overcrowding measure and the monetary measures a joint prediction is low. The static dependence table (Table 6.2) in 2009/2010 shows that 9 per cent of the households were considered both monetary poor and overcrowded while about 42 per cent of the households were either poor monetarily and not overcrowded or overcrowded and not monetary poor. In 2009/2010 about 50 per cent of the households were both monetary non-poor and non-overcrowding. In 2013/2014 the percentage of the household that were predicted correctly by both monetary and overcrowding measures to be poor formed just about 5 per cent (see Table 6.2). Again, the households that were either monetary poor and not overcrowded or monetary non-poor and overcrowded was about 32 per cent from 42 per cent in 2009/2010. Thus, even though both the monetary poverty measure and overcrowding measure show close percentages of the poor the analysis show that they do not predict the same households. Spearman's rank correlation for static overcrowding was weak (0.2735). Again rank correlation between overcrowding and monetary poverty in 2009/2010 and 2013/2014 were all very weak (0.042 in 2009 and 0.0574 in 2013/2014). The cross-tabulation of the dynamic measures shows that whereas 72 per cent of the households were considered transient monetary poor the same number were considered not overcrowded, and while 69 per cent were considered chronic monetary poor, by overcrowding standards, they were non-deprived making the estimates of monetary poverty to

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overestimate poverty compared with overcrowding. About 25 per cent of the non-monetary poor households were either transiently or chronically deprived of housing as shown by overcrowding. The weak correlation is reflected in the dynamic rank correlation coefficient of 0.0449 although not significant.

6.2.6: Monetary Poverty and Housing Deprivation (Flooring Material)

Unlike the overcrowding measure of deprivation, flooring material deprivation presented in Table 6.9 shows more disparity compared with the monetary poverty measurement. Starting with the cells it can be inferred that there are wide disparities in the percentages reported by monetary poverty measures and floor material deprivation. Whereas by monetary standards about 9 per cent of households are chronically poor, by floor deprivation standards only about 4 per cent of the households are chronically deprived. About 80 per cent of the households are non-deprived according to the floor deprivation measure but by monetary poverty measurement, this figure is about 58 per cent. By monetary poverty about 32 per cent of the households are at one time or the other out of poverty while this is about 17 per cent when one is using floor material deprivation.

Table 6. 9: Floor Material Deprivation

		2013/2014	
		Monetary Poor	**Monetary Non-Poor**
		Non-Monetary Poor	**Non-Monetary Non-Poor**
2009/2010	**Monetary Poor**	9.3	20.2
	Non-Monetary Poor	(3.7)	(11.6)
	Monetary Non-Poor	12.2	58.2
	Non-Monetary Non-Poor	(5.1)	(79.6)
	***N* =8,732**	χ^2 =206.71	I = 0.833
	phi	0.1984	I = 0.675

NB. Parenthesis=non-monetary, non-parenthesis=monetary
Source: Author's computations from Secondary Data (2009 & 2013).

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The immobility index, therefore, is high for floor material deprivation at 0.833 compared with the monetary poverty immobility measure of 0.675 which reflects the more stable measure compared with the flooring material. Like the overcrowding measure, the null hypothesis of equal distribution for monetary poverty measure and floor material deprivation is highly rejected (χ^2 =206.71). The three-level division Spearman's rank correlation between floor material deprivation and monetary poverty was found to be weak (0.2707) even though it was significant. A closer look at the Spearman rank correlation of the static monetary and non-monetary measures reveals a similar story in the case of overcrowding. There is a generally low correlation between floor material deprivation and monetary poverty for both 2009/2010 and 2013/2014. In 2009/2010 Spearman's rank correlation coefficient between floor material deprivation and monetary poverty was weak (0.2563) even though it was significant. Again, in 2013/2014 Spearman's rank correlation coefficient recorded between floor material deprivation and monetary poverty was very weak at 0.099, further contributing to the overall weak correlation between floor material deprivation and monetary poverty. The cross-tabulation results show that about 67 per cent of the households that were considered transient monetary poor were non-deprived in floor material while about 52 per cent of the chronic monetary poor households were also non-deprived in floor material. About 13 per cent of the chronically monetary poor household were, however, also chronically deprived of floor material. About 14 per cent of the monetary non-poor households were, however, either transiently or chronically deprived of floor material.

6.2.7: Monetary Poverty and Drinking Water Deprivation

Table 6.10 shows the relationship between the monetary poverty measures and deprivation in drinking water which is also used to measure the standard of living. Beginning with the cell estimates, the table shows that the percentage of households that are continuously deprived of

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drinking water is less than those that are continuously poor in monetary terms in the two waves. Again the households that were non-deprived in drinking water in both waves were much higher than households that were monetary non-poor in both waves. As a result, the immobility measure (0.903) for water deprivation was higher than that for monetary poverty (0.675).

Table 6. 10: Drinking Water Deprivation

		2013/2014	
		Monetary Poor **Non-Monetary Poor**	**Monetary Non-Poor** **Non-Monetary Non-Poor**
2009/2010	**Monetary Poor** **Non-Monetary Poor**	9.3 (7.5)	20.2 (5.7)
	Monetary Non-Poor **Non-Monetary Non-Poor**	12.2 (4.0)	58.2 (82.8)
	$N = 8,732$	χ^2 =199.38	$I = 0.903$
	phi	0.1082	$I = 0.675$

NB. Parenthesis=non-monetary, non-parenthesis=monetary
Source: Author's computations from Secondary Data (2009 & 2013).

The formal chi-square analysis of equal distribution for monetary and water deprivation was also rejected strongly (χ^2 =199.38). Next, we looked into the extent to which water deprivation and monetary poverty overlap by calculating the three-category indices as done for the rest and found that Spearman's rank correlation coefficient between the two measures was very weak at 0.1694. This low correlation could also be attributed to the low static rank correlation between drinking water deprivation and monetary poverty in both waves where in wave one the correlation was 0.1404 and 0.0653 in wave two.

6.2.8: Monetary Poverty and Sanitation Deprivation

The other dimension of non-monetary poverty measure is captured in the extent of deprivation in sanitation which was measured by access to the toilet type. Table 6.11 shows that unlike all

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the non-monetary measures discussed so far, this measure had a relatively larger percentage of households that were deprived in both waves than all, recording more than three times (32 %) the recorded figure for monetary poverty (9.3%). Again fewer households were non-deprived in the toilet (34.7%) in both waves than they were non-poor (58.2%) in both waves. The chi-square analysis strongly rejected (χ^2 =1126.78) the null hypothesis of equal distribution between monetary and sanitation deprivation. There was, however, a close relationship between households that dropped or fell into deprivation in sanitation (33.2%) and those that dropped or joined the monetary poor (32.4%). This closeness is revealed in the close values of the immobility measures for the two measures which were 0.667 for the sanitation measure and 0.675 for the monetary measure.

Table 6. 11: Sanitation Deprivation

		2013/2014	
		Monetary Poor	**Monetary Non-Poor**
		Non-Monetary Poor	**Non-Monetary Non-Poor**
2009/2010	**Monetary Poor**	9.3	20.2
	Non-Monetary Poor	(32.0)	(15.7)
	Monetary Non-Poor	12.2	58.2
	Non-Monetary Non-Poor	(17.5)	(34.7)
	$N = 8,732$	χ^2 =1126.78	I =0.667
	phi	0.1273	I = 0.675

NB. Parenthesis=non-monetary, non-parenthesis=monetary
Source: Author's computations from Secondary Data (2009 & 2013).

The correlation measure for an association is, however, weak, being 0.2058. Again the Spearman rank correlation coefficient test between static sanitation and monetary poverty was weak being 0.1494 in 2009/2010 and 0.1115 in 2013/2014. Observation of the dynamic correlation shows great disparities. Of the hundred per cent monetary non-poor households, over 60 per cent were deprived of sanitation with about 27 per cent being chronic deprivation

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and 33 per cent being transient deprivation. Again more than half, i.e. 58.9 per cent, of the chronically monetary poor households were also chronically deprived of sanitation. About 40 per cent of the transient monetary poor households were chronically deprived of sanitation. In terms of profile, the majority of the household chronically deprived of sanitation were male-headed households (70.3 %). Households headed by heads with no education formed about 52 per cent, and the highest form of deprivation occurred in the Northern region (28.4 %) while between the rural areas and the urban areas the highest deprivation in sanitation occurred in the rural areas (70.5 %) (See Appendix 6.7 for the rest of the figures).

6.2.9: Monetary Poverty and Deprivation in Cooking Fuel

Turning to the last but one non-monetary variable which also falls in the area of standard of living Table 6.12 shows a similar narration as the case of sanitation. However, this time with a much greater disparity in the households that were deprived in both years of cooking fuel compared with those deprived in monetary terms. By the non-monetary measure, about 74 per cent of the households were chronically deprived of cooking fuel compared with the monetary measure of about 9 per cent. To confirm the unequal underlying distribution that generated these figures the chi-square test strongly rejected the null hypothesis of equal distribution (χ^2 =5524.03). The immobility index of 0.852 for cooking fuel also showed great differences compared with the 0.675 indexes for monetary poverty.

Table 6. 12: Cooking fuel Deprivation

		2013/2014	
		Monetary Poor	**Monetary Non-Poor**
		Non-Monetary Poor	**Non-Monetary Non-Poor**
2009/2010	**Monetary Poor**	9.3	20.2
	Non-Monetary Poor	(74.0)	(9.8)
	Monetary Non-Poor	12.2	58.2
		(5.2)	(11.2)

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	Non-Monetary Non-Poor		
	$\boldsymbol{N = 8,732}$	χ^2 =5524.03	$I = 0.852$
	phi	0.1086	$I = 0.675$

NB. Parenthesis=non-monetary, non-parenthesis=monetary
Source: Author's computations from Secondary Data (2009 & 2013).

The correlation analysis reveals that there was a very weak relationship (0.1845) between monetary poverty and deprivation in cooking fuel. A further investigation shows that whereas Spearman's rank correlation coefficient between static 2009/2010 and 2013/2014 cooking fuel variables was 0.4736 that between monetary poverty and cooking, fuel was 0.1494 in 2009/2010 and 0.1115 in 2013/2014 showing very weak underlying static correlation coefficients. A closer look at the cross-tabulation of the dynamic measures shows that 85.94 per cent of the non-monetary poor in both waves were either transient deprived (18.97 %) of cooking fuel or chronically deprived (66.97%) of cooking fuel. In all monetary poverty categories, the percentage of chronically cooking fuel-deprived households was more than half of the category.

6.2.10: Monetary Poverty and Deprivation of Electricity

The last non-monetary variable to be compared with a monetary variable is households' access to electricity shown in Table 6.13. The cells show that there are wide disparities among the outcomes. Whereas by monetary standards about 9 per cent of household is poor chronically, by access to the national grid about 24 per cent of household was poor in both waves. This disparity is further illustrated by the values of the immobility measure which is 0.791 for access to electricity and 0.675 for monetary poverty. A formal investigation of the relationship between the two measures using the chi-squared analysis showed that the two distributions are not the same as the chi-squared of equal distribution is rejected ($\chi^2 = 352.18$).

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Table 6. 13: Electricity Deprivation

	2013/2014		
		Monetary Poor **Non-Monetary Poor**	**Monetary Non-Poor** **Non-Monetary non-Poor**
2009/2010	**Monetary Poor** **Non-Monetary Poor**	9.3 (24.3)	20.2 (17.1)
	Monetary Non-Poor **Non-Monetary Non-Poor**	12.2 (3.8)	58.2 (54.8)
	$N = 8,732$	$\chi^2 = 352.18$	$I = 0.791$
	phi	0.2554	$I = 0.675$

NB. Parenthesis=non-monetary, non-parenthesis=monetary
Source: Author's computations from Secondary Data (2009 & 2013).

The correlation analysis between the two variables also shows there is low predictability of monetary poverty of access to electricity. The static correlation shows that about 19 per cent of the household were both monetary poor and electricity deprived in 2009/2010 while in 2013/2014 this dropped to about 10 per cent. The dynamic correlation shows that over 50 per cent of each of the transiently and chronically monetary poor were also transiently and chronically deprived of access to electricity.

6.3 Summary

The chapter was dedicated to investigating the relationship between the monetary poverty measure of poverty and the non-monetary poverty measures. Taking each of the aspects of non-monetary poverty and with the help of the use of chi-square, immobility index and Spearman rank correlation, the section identified that even though there exists a similar trend between the monetary poverty and the various dimensions of non-monetary poverty, it is not statistically significant to conclude that the underlying distributions of the monetary poverty and non-monetary dimensions of poverty are the same. Statistical tests on common samples revealed

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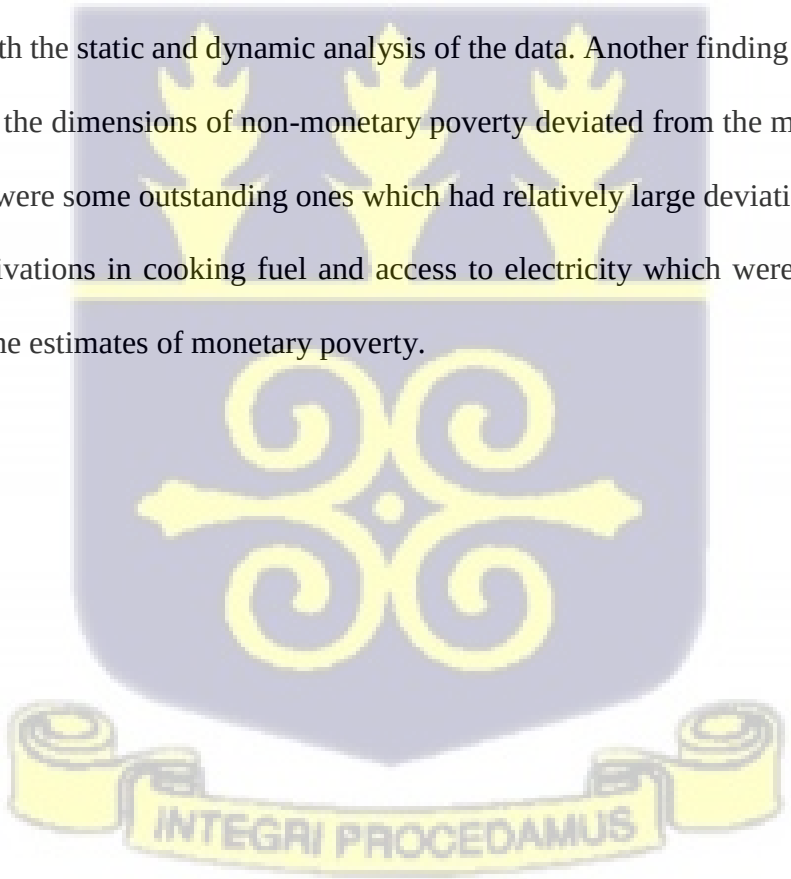
that the distributions of monetary poverty and the distribution of the ten dimensions of non-monetary poverty were all different. Secondly, the extent of disparities in the measurements of households that are considered poor or deprived was too wide to ignore. The study found that although there existed a positive correlation between monetary poverty and the various dimensions of non-monetary poverty the two approaches result in identifying different households as being poor. Thus, different definitions of poverty produced different populations identified as poor similar to the observation made by Hicham (2021), Whelan et al. (2004), Bradshaw and Finch (2003) and Blitzstein and Hwang (2020). Cross-tabulating poverty headcounts with various aspects of the non-monetary poverty dimension revealed that a sizable portion of the non-monetary poor was excluded by the monetary approach. This observation was found in both the static and dynamic analysis of the data. Another finding in the chapter is that whereas all the dimensions of non-monetary poverty deviated from the monetary poverty estimates there were some outstanding ones which had relatively large deviations. These were sanitation, deprivations in cooking fuel and access to electricity which were found to be so different from the estimates of monetary poverty.



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CHAPTER SEVEN

SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

7.0 Introduction

This last chapter of the thesis is dedicated to the summary of the major findings in the three empirical and analytical chapters in chapters four, five and six. Conclusions and policy recommendations are drawn from the outcomes. By way of order, the chapter is grouped around section 7.1 which is the summaries of the major findings under the determinants of monetary poverty, the determinants of non-monetary poverty and the summaries of the predictability of the monetary poverty of the various aspects of non-monetary poverty. Under section 7.2 the important policies that follow from the findings are discussed while under section 7.3 the general conclusion of the study is given. Section 7.4 is dedicated to the contributions the study makes to knowledge. Section 7.5 provides suggestions for further research.

7.1 Summary

This work is carried out on the bases of the main objective of analysing the poverty dynamics in Ghana using evidence from both monetary and non-monetary poverty with the help of two waves of panel data between 2009/2010 and 2013/2014. The following sub-objectives were followed to arrive at the main objective.

1. To investigate the determinants of monetary poverty dynamics in Ghana
2. To investigate the determinants of poverty dynamics in Ghana using the non-monetary measures of poverty.
3. To analyse the relationship between monetary poverty outcomes and monetary poverty outcomes.

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The study was grounded in two main theories- the utilitarian or behaviourist concept of poverty and the capability approach. These theories were used to examine the various factors that make households in Ghana be considered poor for the two-point panel data. The theories were further used to help identify the effects of the estimates of monetary poverty as compared with that of the various dimensions of non-monetary poverty. Generally, it was observed that although similar demographic, human capital, geographic and asset variables showed their a priori signs, they had different magnitudes of effect on both transient and chronic monetary and non-monetary poverty.

7.1.1 Determinants of Poverty Dynamics in Ghana using the Monetary Measure of Poverty.

The multinomial logit analysis carried out in chapter four of the study found some key determinants of monetary poverty dynamics in Ghana. Beginning with the findings of the effect of demographic factors on the dynamics of poverty, the study found that in spite of the claims of human capital theorists and the proponents of the feminization of poverty, the study found the coefficient of female heads to be significant for both chronic and non-poor category with a negative sign for chronic poverty. The results mean that being a female head of a household reduces the probability of being chronically poor and increases the probability of being non-poor. Human capital proponents such as Muller (1997) and McKernan and Ratcliffe (2013) stand in contrast to these findings. However, the results confirm other results that also speak against the feminization of poverty concept (Klasen et al., 2010; Rajaram, 2009). With these results being the case for Ghana there is a need to further probe the reasons behind the significance of the negative gender coefficient in the dynamic setting of poverty.

Another interesting finding about the determinants of poverty dynamics using monetary poverty was the significance of the age of household heads. The results showed that as age

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increased heads became more and more vulnerable to both transient and chronic poverty just like other studies found (Fiess & Verner, 2004; Neilson et al., 2008). An interesting observation made was that for male heads in the panel, as they grew, the rate at which they become more susceptible to transient poverty reduced while the rate at which they become more prone to chronic poverty increased. Thus, as males and females age increase male heads are more likely to fall into chronic poverty than their female counterparts.

Again, the determinants revealed the possibility of the existence of the household demographic poverty trap in the panel. Human capital theory suggests that initially, large household members reduce adult equivalent income in a household making the household struggle to improve its economic position (Woolard & Klasen, 2004). Thus, there is a demographic poverty trap when large households as a result of the dependency ratio are having greater difficulty in improving their economic circumstance. The study showed that, compared with a household size of less than 2, a household made up of above six members increases their probability of becoming transient poor by as much as 14 per cent and, by 13 per cent of becoming chronic poor and lowers their chances of becoming non-poor by about 27 per cent.

With regards to the marital status of heads, the dynamic analysis revealed that heads that are married compared with never-married heads reduce their probability of being chronically poor while at the same time increasing their probability of becoming non-poor. Interestingly, heads who are separated, divorcees, widowed or who are in a consensual union do reduce their probability of being chronically poor. However, whereas divorcees have a significantly higher probability of being non-poor the separated, widowed or heads in the consensual union had no significant coefficient about the effect they have on not becoming poor or being transient poor. The results showed among other things that being in a marital union had a significant effect on

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reducing chronic poverty. Agyire-Tettey et al. (2018, p.551) well noted that "…being in a union is most beneficial for poorer households". This result does not deviate from the results found in the study done in the US (McKernan & Ratcliffe, 2013; Rodgers, 1991), Indonesia (Alisjahbana & Yusuf, 2003) and Nigeria (Anyanwu, 2014). Lastly, the ethnicity factor was found significant only for the chronic poverty model in the study. Being an Akan as against a non-Akan significantly reduced the probability of being chronic monetary poor by about 3 per cent.

A general observation of the demographic variables and their effect on the dynamics of poverty in Ghana can be summarised as being more influential on the chronic aspect of poverty than on the transient poverty. This observation was also made by Jalan and Ravallion in the year 2000.

Still, under the general investigation into the determinants of monetary poverty dynamics, the study also focused on the effect of the human capital variable, education. Under the dynamic framework of poverty, the study was consistent with the general theory of human capital. All forms of educational attainment were found to increase the probability of staying non-poor and also reduce the probability of being either chronic or transient poor. This result is not different from the static poverty analysis that has been conducted in Ghana (Agyire-Tettey et al., 2018; Kyereme & Thorbecke, 1991).

The effect of regional distribution of the household on the poverty dynamics reveals that staying in any part of the regions in Ghana apart from the Ashanti region compared with the Western region increases the probability of being transient poor. Furthermore staying in any of the regions apart from the Greater Accra region reduced the probability of not becoming poor

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compared with those who stayed in the Western Region. This finding was similar to Adjasi and Osei (2007) who found that apart from the Greater Accra and the Ashanti Regions, staying in any part of the regions in Ghana compared with the Western region reduced the welfare of the household. Again, in terms of location, dwellers of urban centres reduced the probability of becoming either chronic or transient poor while they significantly increased their probability of being non-poor compared with rural dwellers. This situation is supported by the non-existent or ineffective market theory.

The last but significant determinant examined by the study was the physical capital variable of which ownership of savings account was found significant. The study found that all forms of savings increased a household's head probability of staying non-poor and without exception reduced the probability of becoming either transient or chronically poor. These findings were similar to Teguh and Nurkholis (2013) in Indonesia who explained that the non-poor households experiencing either economic or health shocks but with sufficient savings maintained their poverty status. Renting was found to increase the probability of being non-poor and reduce the probability of being transient poor.

Finally, the study found that the type of dwelling that the household occupied affected the dynamic nature of household poverty. The study showed that compared with heads living in a bungalow, heads in a compound house with several huts had a higher probability of being the transient poor and a lower probability of being non-poor. Again heads in flats or apartments reduced their probability of being transient poor and increased their probability of being non-poor.

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7.1.2 Determinants of Poverty Dynamics in Ghana using the Non-Monetary Measures of Poverty.

Chapter five of the study was devoted to investigating the determinants of non-monetary poverty using non-aggregated single indicators for ten variables that captured various aspects of the non-monetary deprivations. These variables covered health, education and standard of living variables. The findings included the fact that contrary to the observation made in (GSS, 2020a) of a general fall in multidimensional poverty in the country, the study found that some key non-monetary indicators deteriorated in the years considered in the study. Whereas child education deprivation, overcrowding, flooring material, water source, cooking fuel and connection to the national grid for light improved in the study period, children's nutritional status, adults' nutritional status, adults' schooling and sanitation depicted a deterioration in the extent of deprivation among the populace. The determinants of the selected non-monetary variables were also explored. It was shown that little evidence existed to support the "feminization of poverty". What was evident was the fact that being a female head reduces the chance of being chronically deprived rather than transient deprived. Secondly, the age of the head did not have a uniform direction of effect on non-monetary deprivations in the dynamic context. Whereas an increase in head age increased the probability of the head being chronically deprived it at the same time reduced the chances of being transient deprived requiring different policy approaches. Again, household size was found to be more of a chronic determinant than a transient determent of non-monetary deprivation just like marital status. The study found the ethnicity variable significant. Furthermore, the chapter found that educational attainments were a key determinant in reducing chronic, and transient as well as making households stay in the non-deprived state. Similar to the monetary poverty determinants, the demographic factors of the household seem to impact more chronic deprivation than transient deprivation.

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In terms of geographical factors, the study showed that staying in the different administrative regions apart from the Western region had different effects on the household's chances of being chronically or transient deprived. The three Northern regions showed up strongly in their effect on chronic and transient poverty. The notion of poverty being a rural phenomenon is well-established in Ghanaian literature (Adjasi & Osei, 2007). This notion was firmly supported in the non-monetary analysis concerning chronic deprivations. With transient deprivations, urban areas were found to be a key determinant. Finally, savings were found to be a strong determinant of chronic as well as transient deprivation.

For policy purposes and to understand the nature of deprivation in specific and the drivers of the deprivations the study also singled out child nutritional status and child education deprivation. Generally, it was observed that different demographic, human capital, asset and geographic locations have different effects on child malnutrition and child education deprivation.

It was seen that being a female head, increase in head's age, staying in the Upper East region, being an urban dweller and ownership of durables reduced the households' chances of having a malnourished child while staying in the Volta region increased household chances of having a malnourished child. Observed in a dynamic way the study showed that being a female head, having higher educational attainment, living in the Upper West region, Greater Accra region or the Eastern Region and having institutional saving reduced the household's chances of having a chronically malnourished child

Similarly being a female head and dwelling in the Northern region increase the household's chances of having a child deprived in education while Ethnicity, having education, staying in

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the Eastern region or having multiple savings reduced household's chances of having a child deprived of education in the household

Having a larger household size increased the chances of having a malnourished child as well as having a child deprived of education in the household while being an employee decreases the probability of having a malnourished child and a child deprived of education in the household.

In the dynamic form increase in head's age and being an employee reduce chronic malnutrition and chronic child education deprivation probabilities of occurrence in the household while a larger household size increases the chances of a household having chronic malnutrition and chronic child education deprivation. Also increase in educational attainment, urban dwelling and having multiple savings reduced the household's chances of having a child chronically deprived of education.

7.1.3 Analyses of the Relationship between Monetary and Non-Monetary Poverty.

Chapter six of the study focused on addressing the issue of the relationship between the monetary poverty estimates and the non-monetary poverty estimates. Following Baulch and Masset (2003) and Stephen Klasen and Gunther (2009) the study used a non-aggregated single indicator to analyse the relationship between the two estimates with the help of immobility index, the chi-square and the Spearman rank correlation statistics. The study of the trends of both monetary and non-monetary variables showed that the two estimates exhibited similar trends. Employing a more formal analysis of the data showed that there was a great deal of mismatch between the two estimates. The study found that monetary poverty does not significantly predict the ten selected non-monetary poverty measures. In all three methods used the study found that the predictions of monetary poverty of other dimensions of poverty were not congruent.

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Firstly, using the non-parametric analytical tool of chi-squared, the study found that the underlying distributions of monetary poverty and the various dimensions of non-monetary poverty are statistically different. This was similar to the findings of Baulch and Masset (2003). The null hypotheses of equal distribution for monetary poverty and every single indicator of non-monetary poverty were highly rejected in the study.

Secondly, the study revealed that using the immobility index all the non-monetary poverty measures were more persistent than the monetary poverty measure except for sanitation. The issue of poor sanitation (toilet) has also been found in the literature to be a serious problem in the urban centres in Ghana by previous studies(Appiah-Kubi et al., 2007; World Bank, 1995).

Finally, the study revealed that although the general hypothesis of equal distribution underlying the monetary poverty measures and the non-monetary deprivations was strongly rejected in all the instances, Spearman's rank correlation showed there was some modest relationship between the monetary poor and the non-monetary poor.

7.2 Policy Recommendations

The findings made by this study provide some useful guidelines for policy recommendations. Below are some of the suggested policy recommendations. In the first place the study revealed that although monetary and non-monetary measures may present similar overall trends, a more careful analysis reveals an important mismatch between populations identified as suffering from poverty. Governments, therefore, need to carefully design poverty alleviation policies with a two-prong approach – policies that directly target the monetary poor such as direct cash transfers such as LEAP and policies that directly tackle the various dimensions of the non-

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monetary poor such as FCUBE to deal with child education deprivation which has a potential of triggering poverty across generations. Government should design appropriate sanitation policies to deal with the sanitation deprived considering the severity of the problem. The study also recommends that non-governmental institutions should be encouraged to work in collaboration with the government to design a comprehensive poverty alleviation programme that will bear all the multifaceted dimensions of poverty. The study further showed that, while generally, both monetary poverty and non-monetary poverty variables were all showing a downward trend in profile for the two waves of data, some key non-monetary deprivations were rather on the rise. These were children's nutritional status, adults' nutritional status, and adults' schooling and sanitation. These should be prioritised by the government to ensure that these aspects of human deprivations are also brought under control to help achieve the targets of the Sustainable Development Goals.

Secondly, both the monetary poverty dynamics and non-monetary poverty dynamics suggest that poverty is generally a rural phenomenon. However, using the non-monetary approach the study showed that sanitation and overcrowding are also serious non-monetary deprivation which is prevalent in urban locations. The study, therefore, recommends the need for the government to design appropriate rent as well as sanitation policies specifically in the urban areas to arrest the problem.

Thirdly, given that both monetary and non-monetary poverty indicators showed that the three Northern Regions of Ghana are the most deprived, government policies must target both monetary and non-monetary factors in these regions. The non-monetary policies should target the four key variables (children's nutritional status, adults' nutritional status, adults' schooling

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and sanitation) that showed no reduction in their trend. Renew efforts in enforcement of FCUBE in the three Northern regions to tackle child education poverty

Finally, the study recommends the creation of awareness about the seeming evidence of poverty being associated with male-headed households by the government and NGOs. The study found that male-headed households were more prone to poverty than female-headed households contrary to the feminization of poverty theory. There can be programmes like Male empowerment.

7.3 Conclusion

This study set out to investigate the determinants of poverty dynamics in Ghana using evidence from both monetary and non-monetary estimates. Three specific objectives were investigated. First, the study investigated the determinants of monetary poverty dynamics in Ghana. Second, the study carried out further investigation into the determinants of poverty dynamics in Ghana using the non-monetary measures of poverty. The final specific objective of the study was to analyse the relationship between monetary poverty outcomes and non-monetary poverty outcomes. Concerning the first and second specific objectives, the study concludes that whereas the monetary poverty indicator points to a general fall in poverty non-monetary poverty indicators show conflicting results. About 60 per cent of the indicators point to a decrease in the trend of deprivations while the remaining 40 per cent including child nutrition poverty indicate an upward trend. Investigations into the determinants of monetary and non-monetary poverty revealed that household demographic factors, human capital, asset and geographic locations have different effects on both dynamic monetary and non-monetary poverty.

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The study explored the extent to which the various aspects of non-monetary poverty deprivations and the monetary poverty measure are related in specific objective three. Employing multinomial regression analysis and the use of non-aggregated single indicators the study established that the various determinants of monetary and non-monetary poverty differ concerning whether poverty is chronic or transient. Thus, generally, the study concludes on the final specific objective that monetary poverty does not significantly predict non-monetary poverty

7.4 Contribution to Knowledge

This study made some contributions to knowledge. Among the key contributions that can readily be mentioned are as follows: First, most studies on poverty in Ghana have been static studies using cross-sectional data. By employing the panel data to study the phenomenon of poverty in a dynamic analysis the study bridges the gap of the lack of dynamic analysis of poverty in Ghana. Secondly, by studying the monetary and non-monetary aspects of poverty together the study attempted to solve the limitations that are brought against the use of a single indicator to measure a problem that has many sides. Thus, using the monetary and non-monetary poverty measures together the study brought to the fore a better understanding of the problem of poverty. Thirdly, by avoiding the aggregation of non-monetary measures into a single indicator the study avoided the problems associated with the use of cut-offs, weights and aggregation errors associated with the construction of the various multidimensional Poverty Indices thereby providing another way of studying the problem of multidimensional poverty.

7.5: Limitations to the Study

One major limitation of the study is the shortness of the panel data used. In the absence of more than two waves of data, the study relied on two waves of data to discuss the dynamics of poverty in Ghana. Two waves are too short to capture the chronic and transient nature of

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poverty. Again, the study will be much enriched if qualitative interviews were added to give a better understanding of the issues that the quantitative data revealed.

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APPENDIX

Appendix 4.1

	Gender and Location 2009/2010								
	Rural			Urban			National		
Region	Female	Male	Total	Female	Male	Total	Female	Male	Total
Western	49.6	44	45.4	43.2	47.5	45.9	46.5	45.2	45.6
Central	48.6	45.4	46.7	47.9	43.5	45.8	48.3	44.7	46.3
Greater Accra	52.5	47.4	48.6	47.1	44.5	45.5	47.6	45	45.9
Volta	53	49.5	50.6	49.4	44.4	46.3	51.7	48	49.2
Eastern	54.9	46.5	48.8	50	48.3	48.9	52.9	47.1	48.8
Ashanti	47.6	47.6	47.6	46.6	45.6	46	47	46.6	46.7
Brong Ahafo	53.4	47.7	49	50.1	48.1	48.9	51.5	47.8	49
Northern	51.8	48.3	48.5	57.3	49.6	50.3	54	48.6	48.9
Upper East	49.5	53.8	53.1	42.2	46.7	45.6	48	52.8	51.9
Upper West	60.4	51	51.9	53.4	50.8	51.6	57.9	51	51.9
Total	51	47.9	48.6	47.6	46.1	46.6	49.1	47.2	47.7

Source: Author's computations from Secondary Data (2009 & 2013)

	Gender and Location 2013/2014								
	Rural			Urban			National		
Region	Female	Male	Total	Female	Male	Total	Female	Male	Total
Western	48.3	47.9	48.1	46.1	51	48.8	47.3	49.1	48.4
Central	49.2	48.6	48.8	50.5	46.8	48.8	49.9	47.8	48.8
Greater Accra	53.1	50.2	50.9	49.4	48.6	48.9	49.7	48.8	49.1
Volta	56.7	52	53.6	49.1	47.5	48.2	53.7	50.6	51.8
Eastern	53.4	49	50.4	53.3	52	52.6	53.4	50.1	51.3
Ashanti	50.2	50.2	50.2	48.8	49	48.9	49.4	49.5	49.5
Brong Ahafo	51.9	51.7	51.8	52.4	50.5	51.2	52.2	51.1	51.5
Northern	55.5	52.1	52.4	58	53.9	54.5	56.7	52.6	53
Upper East	50.2	56.1	54.6	49.3	46.8	48	49.9	54.6	53.2
Upper West	51	54.7	53.7	59	49.4	52.3	52.5	53.8	53.5

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Total	51.4	51.2	51.3	50.1	49.6	49.8	50.7	50.5	50.5

Source: Author's computations from Secondary Data (2009 & 2013)

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Appendix 4.2: Normal Poverty trends in 2009/2010 and 2013/2014

Normal poor	2009/2010							2013/2014							% Δ In P0
	Share of pop	P0	P1	P2	PN0	PN1	PN2	Share of pop	P0	P1	P2	PN0	PN1	PN2	
National	**100**	**29.5**	**11.9**	**7.8**	**100**	**100**	**100**	**100**	**21.5**	**8.7**	**5.6**	**100**	**100**	**100**	**-27.1**
Head Gender															
Female	29.3	23.5	11.2	8.5	23.3	27.4	31.9	35.4	19.7	8.1	5.4	32.3	33	34.4	-16.2
Male	70.7	32	12.2	7.5	76.7	72.6	68.1	64.6	22.6	9	5.7	67.7	67	65.6	-29.4
Household size															
below 2	7.7	16.1	13.7	13.5	4.2	8.8	13.3	14	14.5	8.9	7.2	9.4	14.4	18.1	-9.9
Between 2 and 3	22.6	18.9	9.1	7	14.4	17.2	20.5	28.4	16.2	7.2	5.1	21.3	23.6	26	-14.3
Between 4 and 6	45.7	26.5	9.5	5.6	41	36.6	32.7	41.8	21	7.4	4.5	40.8	35.7	33.4	-20.8
Above 6	24	49.6	18.5	10.8	40.3	37.3	33.5	15.8	38.8	14.4	7.9	28.5	26.3	22.5	-21.8
Marital Status															
Never married	4.8	18	11.1	9.5	2.9	4.5	5.9	5.3	13.9	6.7	4.7	3.4	4.1	4.4	-22.8
Married	66.9	32	12	7.2	72.3	67.2	62	62.7	22.6	8.9	5.6	65.7	64.3	63.3	-29.4
Consensual union	8.8	28	11	7.2	8.3	8.1	8.2	5.3	16.7	4.3	1.9	4.1	2.6	1.8	-40.4
Separated	1.8	18.4	11.9	10.5	1.1	1.8	2.4	2.7	16.5	8.9	6.9	2.1	2.8	3.4	-10.3
Divorced	8.1	22.3	11.9	9.3	6.1	8.1	9.7	9.8	19.3	8	5.9	8.8	9.1	10.4	-13.5
Widowed	9.6	28.1	12.8	9.5	9.2	10.4	11.8	14.2	24.2	10.4	6.6	15.9	17.1	16.7	-13.9
Ethnicity															
Non-Akan	52.2	38.2	15.7	10.0	67.5	69.0	67.4	53.1	23.3	9.1	5.6	57.5	55.7	53.3	-39.0
Akan	47.8	20.1	7.7	5.3	32.5	31.0	32.6	46.9	19.5	8.2	5.6	42.5	44.3	46.7	-3.0
Employment Status															
Not employed	7.4	42.5	17	10	10.6	10.5	9.5	7.4	27.7	13.5	9.9	9.5	11.5	13	-34.8
Employee	43.2	26.5	10	6.3	38.7	36.1	34.9	12.2	10.9	8.4	7.7	6.2	11.9	16.9	-58.9
Self employed/family	43.2	31.6	12.9	8.5	46.2	46.8	47.2	66.2	21.5	7.1	3.9	66	54.3	46.6	-32.0
Other contributing family	6.2	21.2	12.7	10.5	4.5	6.6	8.4	14.3	27.8	13.5	9.2	18.4	22.4	23.5	31.1
Education															

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Normal poor	2009/2010							2013/2014							% Δ In P0
	Share of pop	P0	P1	P2	PN0	PN1	PN2	Share of pop	P0	P1	P2	PN0	PN1	PN2	
None	30.5	40.8	16.5	10.3	41.5	41.1	39	30.5	33.3	12.2	6.8	47.2	43.2	37.4	-18.4
Preschool	9.1	31.3	11	6.6	9.5	8.2	7.4	1.4	23.1	7	2.9	1.5	1.2	0.7	-26.2
Primary	21.7	33.4	13.3	8.8	24.2	23.7	23.8	13.8	21.5	6.8	3.4	13.8	10.8	8.3	-35.6
JHS	26.5	22	9.4	6.7	19.4	20.5	22	37.8	15.9	6.1	4	28	26.8	27.2	-27.7
SHS	7	16.2	7.2	5.4	3.8	4.2	4.8	6.1	12.6	8.6	7.9	3.6	6.1	8.6	-22.2
Tertiary	5.2	8.9	5.6	4.8	1.5	2.4	3.1	10.4	12.4	10	9.5	6	12	17.7	39.3
Region															
Western	9.2	18.5	4.6	2.3	5.7	3.5	2.8	9.2	9.3	4.3	3.4	4	4.6	5.6	-49.7
Central	9.2	13.9	4.5	3.2	4.3	3.5	3.8	9.2	33.7	10.5	4.7	14.4	11.2	7.8	142.4
Greater Accra	16	10.6	8.5	7.9	5.7	11.4	16.2	16	11.7	9.9	9.4	8.7	18.3	27.1	10.4
Volta	7.6	45	19.6	12.6	11.5	12.4	12.3	7.6	11.1	3.4	1.7	3.9	2.9	2.3	-75.3
Eastern	9.6	32.5	15.5	10.3	10.5	12.5	12.8	9.6	17.6	4.6	2.4	7.8	5.1	4.1	-45.8
Ashanti	18.9	24.8	9.9	7.1	15.9	15.7	17.2	18.7	18.5	6.7	4.2	16.1	14.5	14.2	-25.4
Brong Ahafo	10	34.3	12.3	7.3	11.6	10.3	9.4	10	23.4	8	4.6	10.8	9.2	8.3	-31.8
Northern	11.6	47.8	15.9	8.2	18.7	15.4	12.2	11.8	32.4	11.8	6.5	17.7	16.1	13.7	-32.2
Upper East	4.8	55.4	19	9.6	9.1	7.7	6	4.8	48.7	23.9	15.4	10.9	13.4	13.3	-12.1
Upper West	3.2	63.6	28.2	17.7	6.9	7.6	7.3	3.2	38	12.8	6.3	5.7	4.8	3.6	-40.3
Locality															
Rural	54.8	41.3	14.8	8.3	76.6	68.1	58.4	50.7	28.4	10.1	5.6	66.9	59.1	51.1	-31.2
Urban	45.2	15.3	8.4	7.1	23.4	31.9	41.6	49.3	14.5	7.2	5.5	33.1	40.9	48.9	-5.2
Saving status															
No Saving	38.3	40.2	15.8	9.6	52.1	51.1	47.6	38.7	26.8	10.2	5.8	48	45.2	40.3	-33.3
Home saving	34	28	9.6	5.8	32.2	27.6	25.7	20	27.7	8.5	4.3	25.6	19.7	15.5	-1.1
Institution saving	11	20.9	12.1	10.3	7.8	11.2	14.7	21.9	13	8	6.9	13.2	20.2	27.1	-37.8
Multiple	16.7	13.9	7.1	5.5	7.8	10	12	19.3	14.7	6.7	5	13.2	14.9	17.1	5.8
Renting status															
No	81.3	33	12.6	7.7	90.9	86	81.2	82.2	24.5	9.6	6	93.6	91.2	88.3	-25.8

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Normal poor	2009/2010							2013/2014							% Δ In P0
	Share of pop	P0	P1	P2	PN0	PN1	PN2	Share of pop	P0	P1	P2	PN0	PN1	PN2	
Yes	18.7	14.4	9	7.8	9.1	14	18.8	17.8	7.8	4.3	3.7	6.4	8.8	11.7	-45.8
In-Transfer															
No	74.2	30.5	12.1	7.7	76.6	75.1	73.6	57.7	21.2	8	5.1	56.7	53.4	52.3	-30.5
Yes	25.8	26.8	11.5	7.9	23.4	24.9	26.4	42.3	22.1	9.5	6.3	43.3	46.6	47.7	-17.5
Ownership of Durables															
No	0.4	40.1	18	12.4	0.5	0.6	0.6	51	27.6	9.8	5.4	65.4	58	49.7	-31.2
Yes	99.6	29.5	11.9	7.7	99.5	99.4	99.4	49	15.2	7.4	5.7	34.6	42	50.3	-48.5
Dwelling Type															
Separate house (bungalow)	7.6	18.6	5.8	3.8	4.9	3.9	4.1	9.7	18.2	11	9.8	8.2	12.5	17.2	-2.2
Semi-detached house	3.9	18.7	4.3	1.6	2.5	1.5	0.9	9.6	21.9	9.2	6.1	9.8	10.3	10.7	17.1
Flat/Apartment	3.7	4.2	1.9	1.5	0.5	0.6	0.8	4.2	15.8	12.8	12	3.1	6.3	9.2	276.2
compound house	53.2	24.1	10.2	7	44.1	48.3	52.8	50.1	20.2	7.7	4.6	47.3	45.2	42.2	-16.2
Room(s) (Other type)	23.3	38.3	14.1	8.2	30.8	29.4	27.3	20.3	24.8	8.2	4.4	23.4	19.3	16.1	-35.2
buildings in the same compo	6.7	59.7	22.7	12.7	13.8	13.5	12.1	4.6	31.3	10.4	4.8	6.7	5.6	4	-47.6
buildings in different comp	1.6	59.3	18.7	8.6	3.4	2.7	2	1.5	20.7	4.8	1.7	1.4	0.8	0.4	-65.1

INTEGRI PROCEDAMUS

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Appendix 4.3: Extreme Poverty trends in 2009/2010 and 2013/2014

Extreme poor	2009/2010							2013/2014							% Δ In P0
	Share of pop	P0	P1	P2	PN0	PN1	PN2	Share of pop	P0	P1	P2	PN0	PN1	PN2	
National	100	11.7	6.3	5.4	100	100	100	100	8.5	4.7	3.7	100	100	100	-27.4
Head Gender															
Female	29.3	10.7	7.6	7.1	26.8	35.1	38	35.4	7.9	4.6	3.9	32.7	35	36.7	-26.2
Male	70.7	12.1	5.8	4.8	73.2	64.9	62	64.6	8.9	4.7	3.7	67.3	65	63.3	-26.4
Household size															
below 2	7.7	13.4	13.4	13.4	8.8	16.2	19	14	9.3	6.8	6.1	15.3	20.2	22.7	-30.6
Between 2 and 3	22.6	8.5	6.3	6	16.4	22.5	24.9	28.4	6.9	4.5	3.9	23.1	27.3	29.6	-18.8
Between 4 and 6	45.7	9.1	4.2	3.4	35.5	30.2	28.3	41.8	6.8	3.6	2.8	33.6	32	31.8	-25.3
Above 6	24	19.2	8.2	6.3	39.3	31.1	27.9	15.8	15.1	6.1	3.8	28	20.5	16	-21.4
Marital Status															
Never married	4.8	11.4	9.1	8.6	4.7	6.9	7.7	5.3	7.1	4.1	3.6	4.3	4.6	5	-37.7
Married	66.9	11.7	5.6	4.5	66.8	58.5	55.3	62.7	8.6	4.7	3.7	62.9	62.9	62	-26.5
Consensual union	8.8	11.5	5.9	5.2	8.6	8.2	8.4	5.3	3.6	1.2	0.9	2.2	1.3	1.2	-68.7
Separated	1.8	11	10	10	1.7	2.9	3.3	2.7	9.9	6.6	5.3	3.1	3.8	3.9	-10.0
Divorced	8.1	11.3	8.6	7.7	7.8	10.9	11.5	9.8	7.1	5.2	4.8	8.1	10.8	12.6	-37.2
Widowed	9.6	12.7	8.3	7.8	10.5	12.6	13.8	14.2	11.6	5.5	4	19.2	16.5	15.2	-8.7
Ethnicity															
Non-Akan	52.2	16	8	6.6	71.5	66.1	63.7	53.1	9.4	4.7	3.4	58.8	53.1	47.9	-41.3
Akan	47.8	7	4.5	4.1	28.5	33.9	36.3	46.9	7.5	4.7	4.2	41.2	46.9	52.1	7.1
Employment Status															
Not employed	7.4	15.6	7.6	6	9.8	8.8	8.1	7.4	12.9	9	7.7	11.1	14.1	15.2	-17.3
Employee	43.2	9.4	5	4.3	34.7	33.8	34.5	12.2	9	7.5	7.3	12.8	19.4	23.7	-4.3
Self employed/family	43.2	13.2	7	5.9	48.7	47.7	46.9	66.2	6.6	2.9	2.2	51	41.6	38.6	-50.0
Other contributing family	6.2	12.7	9.8	9.1	6.8	9.6	10.5	14.3	15	8.2	5.9	25.1	24.9	22.5	18.1
Education															

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Extreme poor	2009/2010							2013/2014							% Δ In P0
	Share of pop	P0	P1	P2	PN0	PN1	PN2	Share of pop	P0	P1	P2	PN0	PN1	PN2	
None	30.5	17.2	8.1	6.6	43.7	37.3	35.3	30.5	13	5.4	3.3	46.5	35.1	27	-24.4
Preschool	9.1	10	5.2	4.2	7.5	7.1	6.7	1.4	7.2	1.6	0.5	1.2	0.5	0.2	-28.0
Primary	21.7	13.1	7.3	6.3	23.8	23.8	24	13.8	6.3	2.5	1.4	10.1	7.3	5.3	-51.9
JHS	26.5	8.3	5.7	5.3	18.3	22.9	24.4	37.8	5.5	3.3	2.9	24.4	26.5	29.3	-33.7
SHS	7	6.7	5	4.6	3.9	5.2	5.7	6.1	8.2	7.6	7.5	5.8	9.9	12.2	22.4
Tertiary	5.2	6.3	4.6	4.2	2.7	3.6	3.8	10.4	9.8	9.4	9.3	11.9	20.7	25.9	55.6
Region															
Western	9.2	2.2	1.6	1.6	1.7	2.4	2.6	9.2	3.6	3.1	2.9	3.9	6	7.2	63.6
Central	9.2	2.8	2.8	2.8	2.2	4.1	4.8	9.2	10.3	2.7	1.3	11.1	5.3	3.3	267.9
Greater Accra	16	8.9	7.6	7.5	12.2	19.1	22.2	16	9.6	9.3	9.2	17.9	31.6	39.6	7.9
Volta	7.6	19.3	10.2	8.4	12.5	12.1	11.6	7.6	2.8	1.2	0.9	2.5	1.9	1.7	-85.5
Eastern	9.6	18.3	8.8	6.7	14.9	13.3	11.9	9.6	4	1.8	1.4	4.5	3.7	3.6	-78.1
Ashanti	18.9	8.5	6.1	5.7	13.7	18.2	19.9	18.7	5.8	3.5	3	12.7	14	14.8	-31.8
Brong Ahafo	10	11.4	5.5	4.6	9.7	8.6	8.5	10	6.6	3.5	2.9	7.7	7.5	7.8	-42.1
Northern	11.6	16.4	5.5	4	16.2	10	8.4	11.8	12.5	5	3	17.2	12.7	9.6	-23.8
Upper East	4.8	17.7	6.4	4.4	7.3	4.9	3.9	4.8	32.8	14.1	8	18.6	14.5	10.3	85.3
Upper West	3.2	34.8	14.4	10.4	9.5	7.3	6.1	3.2	10.2	4	2.5	3.8	2.7	2.2	-70.7
Locality															
Rural	54.8	14.6	6	4.5	68.5	52.2	45.8	50.7	10.4	4.4	2.9	61.7	47.1	38.6	-28.8
Urban	45.2	8.2	6.7	6.5	31.5	47.8	54.2	49.3	6.6	5	4.7	38.3	52.9	61.4	-19.5
Saving status															
No Saving	38.3	16.6	7.4	5.9	54.8	45.3	41.9	38.7	10.6	4.7	3	47.7	38.7	31.3	-36.1
Home saving	34	8.1	4.5	4	24	24.6	25.1	20	7.5	3	2.2	17.4	12.6	11.5	-7.4
Institution saving	11	11.1	9.6	9.4	10.6	16.8	19.2	21.9	7.8	6.6	6.3	19.9	30.8	36.7	-29.7
Multiple	16.7	7.4	5	4.5	10.6	13.3	13.9	19.3	6.6	4.4	4	15	17.9	20.5	-10.8
Renting status															
No	81.3	12.5	6.1	5	86.8	78.2	75	82.2	9.5	4.9	3.8	91.9	86.6	83.8	-24.0

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Extreme poor	2009/2010							2013/2014							% Δ In P0
	Share of pop	P0	P1	P2	PN0	PN1	PN2	Share of pop	P0	P1	P2	PN0	PN1	PN2	
Yes	18.7	8.3	7.4	7.3	13.2	21.8	25	17.8	3.9	3.5	3.4	8.1	13.4	16.2	-53.0
In-Transfer															
No	74.2	11.8	6.2	5.3	74.5	72.2	72.1	57.7	7.5	4.2	3.4	50.7	51.7	52.1	-36.4
Yes	25.8	11.5	6.8	5.9	25.5	27.8	27.9	42.3	9.9	5.4	4.2	49.3	48.3	47.9	-13.9
Ownership of Durables															
No	0.4	20	11.6	8.7	0.6	0.7	0.6	51	10.1	4.2	2.7	60.2	46	37.4	-49.5
Yes	99.6	11.7	6.3	5.4	99.4	99.3	99.4	49	6.9	5.2	4.8	39.8	54	62.6	-41.0
Dwelling Type															
Separate house (bungalow)	7.6	4.9	3.2	2.9	3.4	4.4	4.8	9.7	10.3	9.4	9.2	11.9	19.7	24.2	110.2
Semi-detached house	3.9	3	0.9	0.4	1.1	0.6	0.3	9.6	8.9	5.3	4.2	10.2	11	11	196.7
Flat/Apartment	3.7	1.3	1.3	1.3	0.4	0.8	1	4.2	13.1	11.8	11.5	6.5	10.8	13.2	907.7
compound house	53.2	9.7	5.9	5.3	47.1	55.7	59.8	50.1	8.1	3.8	2.7	47.9	41	37.1	-16.5
Room(s) (Other type)	23.3	14	6.2	4.8	29.8	25.8	24.1	20.3	7	3.2	2.3	16.8	14	12.8	-50.0
buildings in the same compo	6.7	26	9.4	6.3	15.9	11.2	9	4.6	11.1	3.2	1.2	6	3.2	1.5	-57.3
buildings in different comp	1.6	15.8	4.9	2.9	2.4	1.4	1	1.5	3.8	0.7	0.3	0.7	0.2	0.1	-75.9

Source: Author's computations from Secondary Data (2009 & 2013)

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APPENDIX 5.1: Marginal Effect of deprivation in Non-monetary variables in one and two variables

	Deprived in One			Deprived in Two		
VARIABLES	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**
Head Gender(Male=0)						
Female	6.85e-05	-0.00365	0.00358	-0.0618***	0.0100	0.0518**
	(0.0816)	(0.0991)	(0.0262)	(0.0224)	(0.0106)	(0.0213)
Age of Head	0.000278	4.24e-05	-0.000320	-0.000276	0.000478*	-0.000202
	(0.00117)	(0.00115)	(0.000494)	(0.000574)	(0.000267)	(0.000547)
Household Size(<2=0)						
Between_2_and_3	0.0256	-0.00270	-0.0229	-0.0181	0.0152	0.00294
	(0.0451)	(0.0727)	(0.0392)	(0.0244)	(0.0119)	(0.0231)
Between_4_and_6	0.0780	-0.00831	-0.0697	0.0377	-0.00962	-0.0281
	(0.136)	(0.224)	(0.0927)	(0.0258)	(0.0119)	(0.0245)
Above_6	0.139	-0.0148	-0.124	0.0738**	-0.0224	-0.0514*
	(0.266)	(0.403)	(0.140)	(0.0323)	(0.0144)	(0.0309)
Marital Status of Head (Never Married=0)						
Married	0.000306	-0.00845	0.00815	-0.0873***	0.0276**	0.0597**
	(0.187)	(0.228)	(0.0496)	(0.0313)	(0.0128)	(0.0295)
Consensual	-0.0211	-0.0194	0.0405	-0.0654*	0.00204	0.0633*
	(0.430)	(0.529)	(0.105)	(0.0370)	(0.0145)	(0.0352)
Separated	-0.00721	-0.00202	0.00923	-0.0271	0.0627**	-0.0356
	(0.0678)	(0.0549)	(0.0454)	(0.0559)	(0.0308)	(0.0498)
Divorced	0.0149	-0.00476	-0.0101	-0.0908**	0.0332**	0.0576
	(0.100)	(0.128)	(0.0432)	(0.0375)	(0.0164)	(0.0352)
Widowed	-0.0154	0.000545	0.0149	-0.0841**	0.0228	0.0613*
	(0.0336)	(0.0166)	(0.0349)	(0.0394)	(0.0164)	(0.0372)
Ethnic (Non-Akan=0)						

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Akan	-0.0602	0.00844	0.0517	0.0140	-0.00254	-0.0114
	(0.154)	(0.229)	(0.0777)	(0.0213)	(0.00978)	(0.0202)
Head Education(None=0)						
Preschool	-0.00441	0.00110	0.00331	-0.0612*	0.0236	0.0377
	(0.0361)	(0.0307)	(0.0271)	(0.0335)	(0.0179)	(0.0317)
Primary	-0.0706	0.0142	0.0564	-0.111***	0.0290**	0.0820***
	(0.280)	(0.384)	(0.106)	(0.0226)	(0.0116)	(0.0216)
JHS	-0.112	0.0190	0.0926	-0.112***	0.0188*	0.0928***
	(0.349)	(0.513)	(0.165)	(0.0213)	(0.0101)	(0.0204)
SHS	-0.109	0.0169	0.0922	-0.0320	0.0381**	-0.00605
	(0.311)	(0.458)	(0.152)	(0.0344)	(0.0191)	(0.0316)
Tertiary	-0.0426	0.00858	0.0340	0.0762**	-0.0336***	-0.0425
	(0.179)	(0.234)	(0.0644)	(0.0344)	(0.0113)	(0.0332)
Employment(Unemployed=0)						
Employee	0.00875	0.00132	-0.0101	-0.0205	-0.000553	0.0210
	(0.0446)	(0.0362)	(0.0292)	(0.0321)	(0.0159)	(0.0303)
Self-employed/family	0.0206	-0.00265	-0.0179	-0.0286	0.00194	0.0266
	(0.0560)	(0.0722)	(0.0375)	(0.0315)	(0.0157)	(0.0297)
Other contributing family	0.0367	-0.00478	-0.0319	0.0193	-0.0177	-0.00161
	(0.0959)	(0.130)	(0.0554)	(0.0444)	(0.0200)	(0.0422)
Region(Admin)(Western=0)						
Central	0.0441	0.00518	-0.0493	0.0887**	-0.0377*	-0.0510
	(0.0499)	(0.0401)	(0.0303)	(0.0387)	(0.0214)	(0.0372)
Greater Accra	-0.0595	0.0162	0.0433	0.179***	-0.0616***	-0.117***
	(0.0862)	(0.122)	(0.0551)	(0.0386)	(0.0207)	(0.0370)
Volta	-0.0346	0.0267	0.00790	0.0902**	-0.0480**	-0.0423
	(0.149)	(0.199)	(0.0655)	(0.0424)	(0.0233)	(0.0409)
Eastern	-0.0111	0.0238	-0.0127	0.0855**	-0.0350*	-0.0505
	(0.140)	(0.178)	(0.0513)	(0.0368)	(0.0211)	(0.0354)
Ashanti	-0.0265	0.0124	0.0142	0.0661**	-0.0299	-0.0362
	(0.0719)	(0.0934)	(0.0388)	(0.0332)	(0.0198)	(0.0319)

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Brong Ahafo	0.0507	0.00486	-0.0556*	0.0586	-0.0177	-0.0409
	(0.0487)	(0.0377)	(0.0293)	(0.0372)	(0.0220)	(0.0356)
Northern	0.137***	0.000774	-0.137***	0.198***	-0.0538**	-0.144***
	(0.0415)	(0.0110)	(0.0369)	(0.0395)	(0.0230)	(0.0376)
Upper East	0.0729	0.00321	-0.0761*	0.191***	-0.0769***	-0.114**
	(0.0536)	(0.0276)	(0.0423)	(0.0476)	(0.0239)	(0.0460)
Upper West	0.164	-0.0190	-0.145***	0.184***	-0.0863***	-0.0980*
	(0.119)	(0.148)	(0.0547)	(0.0521)	(0.0239)	(0.0508)
Location (Rural=0)						
Urban	-0.107	0.0140	0.0928	-0.107***	0.0314***	0.0753***
	(0.239)	(0.378)	(0.141)	(0.0191)	(0.00947)	(0.0182)
Saving Status(No Saving)						
Home Saving	-0.0309	0.00756	0.0233	-0.0464**	0.0198**	0.0266
	(0.155)	(0.206)	(0.0539)	(0.0190)	(0.00914)	(0.0180)
Institution	-0.124	0.0150	0.109	-0.0310	0.0135	0.0175
	(0.245)	(0.404)	(0.163)	(0.0289)	(0.0136)	(0.0274)
Multiple	-0.0562	0.00963	0.0466	-0.0261	0.00638	0.0197
	(0.184)	(0.261)	(0.0809)	(0.0261)	(0.0117)	(0.0248)
In-Transfer(Dummy)						
Received Transfer	0.00203	-0.00200	-2.99e-05	-0.00544	0.00259	0.00285
	(0.0453)	(0.0543)	(0.0187)	(0.0183)	(0.00853)	(0.0173)
Asset (Dummy)						
Own Durables	-0.0349	0.0183	0.0166	0.111	0.0138	-0.125
	(0.393)	(0.485)	(0.133)	(0.123)	(0.0551)	(0.122)
Dwelling(Bungalow=0)						
Semi-detached	-0.0649	0.0289	0.0360	0.0185	-0.0263	0.00778
	(0.528)	(0.759)	(0.238)	(0.0543)	(0.0307)	(0.0496)
Flat/Apartment	0.0276	0.00135	-0.0290	0.162***	-0.0859***	-0.0758
	(0.0634)	(0.0375)	(0.0448)	(0.0496)	(0.0220)	(0.0467)
Room in compound house	-0.00883	0.00450	0.00433	-0.0495	-0.0243	0.0738**
	(0.0938)	(0.121)	(0.0417)	(0.0326)	(0.0193)	(0.0297)

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Room(s) (Other type)	0.0397	-0.00454	-0.0352	-0.0141	-0.0454**	0.0595*
	(0.0856)	(0.123)	(0.0517)	(0.0348)	(0.0200)	(0.0320)
Several buildings same comp	0.113	-0.0163	-0.0970	0.0490	-0.0561**	0.00704
	(0.339)	(0.447)	(0.116)	(0.0430)	(0.0234)	(0.0400)
Several buildings in diff. com	0.178	0.00366	-0.181*	0.0933	-0.0881***	-0.00518
	(0.194)	(0.100)	(0.0995)	(0.0669)	(0.0262)	(0.0645)
Observations	4,200	4,200	4,200	4,200	4,200	4,200

Source: Author's computations from Secondary Data (2009 & 2013)

APPENDIX 5.2: Marginal Effect of deprivation in Non-monetary variables in Two and Three variables

	Deprived in Three			**Deprived in Four**		
VARIABLES	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**	**Non-Deprived**	**Chronic Deprived**	**Transient Deprived**
Head Gender(Male=0)						
Female	-0.0112	0.0113	-0.000194	0.0372**	-0.000399	-0.0368
	(0.0221)	(0.0108)	(0.0209)	(0.0181)	(0.0219)	(0.0247)
Age of Head	-0.00122**	0.000335	0.000887*	-0.00127	-5.85e-06	0.00128**
	(0.000545)	(0.000252)	(0.000514)	(0.000852)	(0.000323)	(0.000591)
Household Size(<2=0)						
Between_2_and_3	-0.0387*	-0.00597	0.0446**	-0.0306	-0.00102	0.0317*
	(0.0229)	(0.0112)	(0.0213)	(0.0606)	(0.0562)	(0.0169)
Between_4_and_6	-0.0794***	-0.00453	0.0839***	-0.0993*	0.00193	0.0974
	(0.0247)	(0.0120)	(0.0230)	(0.0509)	(0.106)	(0.0619)
Above_6	-0.0659**	-0.00395	0.0699**	-0.0770***	0.000540	0.0765*
	(0.0311)	(0.0151)	(0.0291)	(0.0241)	(0.0297)	(0.0407)
Marital Status of Head (Never Married=0)						
Married	-0.00510	0.0121	-0.00699	0.0548	-0.000132	-0.0547
	(0.0340)	(0.0148)	(0.0328)	(0.0376)	(0.00794)	(0.0413)

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Consensual	-0.0797**	0.0240	0.0557	-0.0159	0.00361	0.0123
	(0.0401)	(0.0186)	(0.0387)	(0.151)	(0.197)	(0.0645)
Separated	-0.0247	0.00125	0.0235	0.0213	-0.00324	-0.0181
	(0.0600)	(0.0250)	(0.0581)	(0.145)	(0.178)	(0.0698)
Divorced	-0.0216	0.000639	0.0210	0.0106	0.000811	-0.0115
	(0.0396)	(0.0165)	(0.0383)	(0.0558)	(0.0446)	(0.0389)
Widowed	-0.0166	0.00847	0.00810	0.0358	-0.00561	-0.0302
	(0.0411)	(0.0177)	(0.0395)	(0.241)	(0.309)	(0.0812)
Ethnic (Non-Akan=0)						
Akan	0.0506**	-0.00333	-0.0472**	0.0621*	-0.00113	-0.0610
	(0.0210)	(0.00982)	(0.0198)	(0.0327)	(0.0621)	(0.0380)
Head Education(None=0)						
Preschool	-0.000117	0.00252	-0.00240	0.00949	0.00644	-0.0159
	(0.0324)	(0.0156)	(0.0306)	(0.150)	(0.178)	(0.0405)
Primary	0.00759	0.00648	-0.0141	0.0584	-0.00708	-0.0513
	(0.0219)	(0.0107)	(0.0207)	(0.133)	(0.199)	(0.0691)
JHS	0.0467**	-0.00735	-0.0394**	0.0717	-0.00665	-0.0651
	(0.0208)	(0.00960)	(0.0198)	(0.117)	(0.186)	(0.0721)
SHS	0.0855**	-0.0103	-0.0751**	0.143	-0.0176	-0.125
	(0.0343)	(0.0168)	(0.0323)	(0.373)	(0.500)	(0.130)
Tertiary	0.144***	-0.0194	-0.125***	0.194	-0.0202	-0.174
	(0.0369)	(0.0183)	(0.0344)	(0.440)	(0.575)	(0.137)
Employment(Unemployed=0)						
Employee	-0.0357	0.00833	0.0273	-0.00968	0.00147	0.00821
	(0.0298)	(0.0135)	(0.0283)	(0.0672)	(0.0805)	(0.0284)
Self-employed/family	-0.0167	0.0106	0.00604	-0.0103	0.00211	0.00814
	(0.0290)	(0.0132)	(0.0275)	(0.0949)	(0.116)	(0.0324)
Other contributing family	-0.0695	0.0425*	0.0271	0.00614	-0.000668	-0.00547
	(0.0455)	(0.0245)	(0.0427)	(0.0463)	(0.0369)	(0.0368)
Region(Admin)(Western=0)						
Central	-0.0660*	0.0322	0.0338	-0.0511	0.0115	0.0395

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	(0.0388)	(0.0204)	(0.0372)	(0.462)	(0.628)	(0.171)
Greater Accra	0.119***	-0.0163	-0.103***	0.109***	-0.000271	-0.109**
	(0.0384)	(0.0182)	(0.0364)	(0.0356)	(0.0152)	(0.0445)
Volta	0.0320	-0.0184	-0.0136	0.0108	0.00526	-0.0160
	(0.0407)	(0.0178)	(0.0390)	(0.240)	(0.288)	(0.0604)
Eastern	-0.0508	0.0254	0.0254	0.0167	0.00639	-0.0230
	(0.0366)	(0.0187)	(0.0350)	(0.293)	(0.350)	(0.0652)
Ashanti	0.00437	0.00853	-0.0129	0.0318	-0.00350	-0.0283
	(0.0324)	(0.0157)	(0.0309)	(0.154)	(0.194)	(0.0500)
Brong Ahafo	-0.0189	-0.00660	0.0255	-0.0151	0.00696	0.00812
	(0.0365)	(0.0168)	(0.0350)	(0.298)	(0.381)	(0.0899)
Northern	0.0957**	-0.0164	-0.0794**	0.0249	0.00315	-0.0280
	(0.0374)	(0.0171)	(0.0354)	(0.153)	(0.173)	(0.0385)
Upper East	0.0139	-0.00935	-0.00453	-0.0666	0.0124	0.0542
	(0.0467)	(0.0211)	(0.0445)	(0.482)	(0.673)	(0.197)
Upper West	0.0531	-0.00438	-0.0487	0.0187	0.00766	-0.0264
	(0.0484)	(0.0228)	(0.0453)	(0.352)	(0.418)	(0.0778)
Location (Rural=0)						
Urban	0.0749***	-0.0115	-0.0635***	0.130	-0.00611	-0.124
	(0.0181)	(0.00850)	(0.0171)	(0.233)	(0.335)	(0.104)
Saving Status(No Saving)						
Home Saving	-0.0101	0.0123	-0.00214	0.0549**	-0.000951	-0.0539
	(0.0185)	(0.00921)	(0.0175)	(0.0232)	(0.0521)	(0.0376)
Institution	0.0966***	-0.0229*	-0.0737***	0.0867	-0.00513	-0.0816
	(0.0269)	(0.0118)	(0.0255)	(0.203)	(0.282)	(0.0836)
Multiple	0.0543**	-0.0165	-0.0378	0.130	-0.00398	-0.126
	(0.0256)	(0.0114)	(0.0244)	(0.138)	(0.219)	(0.0841)
In-Transfer(Dummy)						
Received Transfer	-0.0231	0.00288	0.0203	0.0125	-0.000765	-0.0117
	(0.0181)	(0.00840)	(0.0171)	(0.0333)	(0.0420)	(0.0185)
Asset (Dummy)						

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Own Durables	-0.0976	0.0173	0.0803	0.103	-0.00745	-0.0956
	(0.105)	(0.0443)	(0.0987)	(0.283)	(0.406)	(0.192)
Dwelling(Bungalow=0)						
Semi-detached	-0.0407	-0.00633	0.0470	-0.0272	0.00827	0.0189
	(0.0511)	(0.0207)	(0.0487)	(0.314)	(0.384)	(0.0850)
Flat/Apartment	0.0637	-0.0306**	-0.0331	0.110	-0.00599	-0.104*
	(0.0502)	(0.0155)	(0.0486)	(0.241)	(0.283)	(0.0558)
Room in compound house	-0.115***	0.0232*	0.0917***	-0.0162	0.00296	0.0132
	(0.0297)	(0.0125)	(0.0279)	(0.114)	(0.138)	(0.0367)
Room(s) (Other type)	-0.136***	0.0333**	0.103***	-0.0713	0.00590	0.0654
	(0.0320)	(0.0140)	(0.0301)	(0.197)	(0.275)	(0.0844)
Several buildings same comp	-0.0675*	0.0211	0.0464	-0.0899	0.0103	0.0796
	(0.0388)	(0.0179)	(0.0361)	(0.342)	(0.477)	(0.141)
Several buildings in diff. com	-0.0793	0.0641*	0.0151	-0.126	0.00341	0.123
	(0.0617)	(0.0385)	(0.0538)	(0.0983)	(0.159)	(0.0978)
Observations	4,200	4,200	4,200	4,200	4,200	4,200

Source: Author's computations from Secondary Data (2009 & 2013)

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Appendix 5.3: Distribution Cooking fuel Type

	2009		2013	
Cooking fuel Type	Freq.	Per cent	Freq.	Per cent
None, no cooking	179	4.1	242	5.54
Wood	2,408	55.15	2,226	50.98
Charcoal	1,217	27.87	1,225	28.06
Gas	420	9.62	644	14.75
Electricity	4	0.09	8	0.18
Kerosene	12	0.27	9	0.21
Other	126	2.89	12	0.27

Source: Author's computations from Secondary Data (2009 & 2013)

Appendix 6.1: Poverty levels compared

	Monetary	**Malnutrition**		**Education**							
	Total	**Child**	**Adult**	**Child**	**Adult**	**Overcrowding**	**Flooring**	**Water**	**Sanitation**	**Cooking fuel**	**Electricity**
2009/10	29.5	12.1	6.7	19.2	3	28.8	15.4	13.3	47.8	84.4	41.7
2013/14	21.5	16.3	8.9	6.9	4.4	20.3	8.7	11.5	49.6	79.2	28
Chronic	9.3	4.5	2	4.8	1.6	11.1	3.7	7.5	32	74	24.3
Transient	32.5	19.3	11.5	17.1	4.2	27	16.7	9.7	33.3	15	20.9
Non-Poor	58.2	76.2	86.4	78.2	94.2	62	79.6	82.8	34.7	11.1	54.8

Source: Author's computations from Secondary Data (2009 & 2013)

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Appendix 6.2: Dynamic Correlation of transient monetary and Non-monetary poverty

Transient Non-Monetary Deprived											
		Child Mal-nutrition		Adult Mal-nutrition		Child Education Deprived		Adult Education deprived		Over-crowding	
Transient Monetary Poor		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	No	54.6	13.0	60.2	7.3	57.2	10.4	65.0	2.5	48.9	18.7
	Yes	26.1	6.4	28.2	4.2	25.8	6.7	30.8	1.6	24.2	8.3
	Total	**80.7**	**19.3**	**88.5**	**11.5**	**83.0**	**17.1**	**95.9**	**4.2**	**73.1**	**27.0**
		Floor Material Deprived		Water Deprived		Sanitation Deprived		Cooking Fuel Deprived		Electricity Deprived	
Transient Monetary Poor		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	No	58.6	9.0	61.6	6.0	45.0	22.6	56.1	11.5	54.7	12.9
	Yes	24.8	7.7	28.8	3.7	21.8	10.7	29.0	3.5	24.4	8.0
	Total	**83.3**	**16.7**	**90.3**	**9.7**	**66.8**	**33.3**	**85.1**	**15.0**	**79.1**	**20.9**

Source: Author's computations from Secondary Data (2009 & 2013)

Appendix 6.3: Dynamic Correlation of monetary and Non-monetary non-poor

Non-Monetary Non-Poor											
		Child Mal-nutrition		Adult Mal-nutrition		Child Education Deprived		Adult Education deprived		Over-crowding	
Monetary Non-Poor		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	No	11.3	30.5	6.9	34.9	13.6	28.2	2.9	38.9	15.7	26.1
	Yes	12.5	45.7	6.7	51.6	8.2	50.1	2.9	55.3	22.3	35.9
	Total	23.8	76.2	13.6	86.4	21.8	78.2	5.8	94.2	38.0	62.0
		Floor Material Deprived		Water Deprived		Sanitation Deprived		Cooking Fuel Deprived		Electricity Deprived	
Monetary Non-Poor		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	No	13.5	28.3	10.1	31.7	31.0	10.8	39.3	2.5	25.9	15.9
	Yes	6.9	51.4	7.1	51.1	34.3	23.9	49.7	8.6	19.3	39.0
	Total	20.4	79.6	17.2	82.8	65.3	34.7	88.9	11.1	45.2	54.8

Source: Author's computations from Secondary Data (2009 & 2013)

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Appendix 6.4: Spearman rank order Correlation between the Monetary and non-monetary poverty for static analysis

	Static Rank Correlation			
		Rank correlation with variable itself	Rank correlation with Monetary Poverty	
			2009	2013
1	Monetary poverty	0.1423***		
2	Child Malnutrition	0.2293***	0.0696***	0.059***7
3	Adult Malnutrition	0.2166***	0.0368***	0.0783***
4	Child Education deprivation	0.3218***	0.2361***	0.1036***
5	Adult Education deprivation	0.5405***	0.0146	0.0641***
6	Deprived in Housing	0.2735***	0.042***	0.0574***
7	Deprived in Floor material	0.2669***	0.2563***	0.099***
8	Deprived in Drinking Water	0.5483***	0.1404***	0.0653***
9	Deprived in Sanitation	0.3496***	0.1494***	0.1115***
10	Deprived in cooking fuel	0.4736***	0.1271***	0.081***
11	Deprived in Electricity	0.5673***	0.2749***	0.2095***

Source: Author's computations from Secondary Data (2009 & 2013)

Appendix 6.5: Spearman rank order Correlation between the Monetary and non-monetary poverty for dynamic analysis

	Dynamic Correlation Between		Rank	N
1	Monetary poverty	Child Malnutrition	0.0867***	4,366
2	Monetary poverty	Adult Malnutrition	0.0971***	4,366
3	Monetary poverty	Child Education deprivation	0.2553***	4,366
4	Monetary poverty	Adult Education deprivation	0.0634***	4,366
5	Monetary poverty	Deprived in Housing	0.0449***	4,366
6	Monetary poverty	Deprived in Floor material	0.2707***	4,366
7	Monetary poverty	Deprived in Drinking Water	0.1694***	4,366
8	Monetary poverty	Deprived in Sanitation	0.2058***	4,366
9	Monetary poverty	Deprived in cooking fuel	0.1845***	4,366
10	Monetary poverty	Deprived in Electricity	0.3277***	4,366

Source: Author's computations from Secondary Data (2009 & 2013). Note: *** Significance at 1 per cent level

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Appendix 6.6: Cross tabulation between Monetary Poor and Non-Monetary Poor

	Child Malnutrition			Adult Malnutrition			Child education Deprived		
	Non-poor	Transient	Chronic	Non-poor	Transient	Chronic	Non-poor	Transient	Chronic
monetary									
Non-poor	81.7	15.4	2.9	88.2	10.3	1.5	88.6	9.8	1.7
Transient	76.8	18.4	4.9	82.7	14.2	3.1	75.5	18.8	5.7
Chronic	70.3	23.0	6.7	78.3	16.5	5.2	53.2	34.9	11.9
	0.0867			0.0971			0.2553		

Source: Author's computations from Secondary Data (2009 & 2013)

	Adult Education Deprived			Overcrowding			Floor Material deprived		
	Non-poor	Transient	Chronic	Non-poor	Transient	Chronic	Non-poor	Transient	Chronic
monetary									
Non-poor	90.6	6.0	3.4	75.3	18.8	5.9	85.5	11.9	2.6
Transient	85.6	8.4	6.0	72.4	20.5	7.1	66.6	26.0	7.4
Chronic	88.4	4.9	6.7	68.7	24.8	6.5	51.9	35.1	12.9
	0.0634			0.0449			0.2707		

Source: Author's computations from Secondary Data (2009 & 2013)

	Water deprived			Sanitation deprived			Cooking fuel Deprived			Light deprived		
	Non-poor	Transient	Chronic	Non-poor	Transient	Chronic	Non-poor	Transient	Chronic	Non-poor	Transient	Chronic
monetary												
Non-poor	85.11	9.39	5.5	39.16	33.39	27.45	14.06	18.97	66.97	61.27	20.97	17.75
Transient	73.76	13.26	12.98	27.15	32.8	40.06	6.14	12.7	81.16	36.29	25.33	38.38
Chronic	66.67	16.8	16.54	14.47	26.61	58.91	2.58	9.56	87.86	18.86	21.19	59.95

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variables	All Individuals	Monetary	Non-Monetary Variables									
			C.M	A.M	C.E	A.E	O	F	W	S	C.F	E
Total Value	**8,732**	**774**	**338**	**204**	**340**	**398**	**552**	**446**	**780**	**3,002**	**6,416**	**2,468**
Heads Gender												
Male	67.7	77.3	88.2	65.2	92.9	41.7	74.8	80.9	75.4	70.3	63.3	75.7
Female	32.3	22.7	11.8	34.8	7.1	58.3	25.2	19.1	24.6	29.7	36.7	24.3
Household Size												
below 2	10.8	8.5	0.0	25.0	0.0	73.1	0.0	15.0	13.2	18.0	16.3	15.4
Between 2 and 3	25.5	20.9	11.5	31.4	2.4	25.1	0.4	29.6	24.4	25.5	30.4	25.0
Between 4 and 6	43.8	37.9	45.0	29.4	30.6	1.8	72.5	37.7	39.0	37.8	38.4	39.0
Above 6	19.9	32.7	43.5	14.2	67.1	0.0	21.2	17.7	23.5	18.8	15.0	20.6
Heads Marital Status												
Never married	5.0	3.1	1.8	7.8	0.3	4.0	0.9	3.4	3.9	6.8	5.2	4.4
Married	64.8	71.2	84.6	46.6	90.9	32.7	69.8	72.2	66.0	64.3	58.7	65.8
Consensual union	7.0	4.5	8.9	6.9	3.5	3.0	13.2	5.6	5.8	5.8	7.7	6.7
Separated	2.3	1.4	0.9	4.4	0.6	2.3	0.9	1.8	2.6	2.0	2.5	2.4
Divorced	9.0	3.9	1.5	12.8	1.2	14.6	6.2	4.9	7.2	7.9	10.1	8.1
Widowed	11.9	15.9	2.4	21.6	3.5	43.5	9.1	12.1	14.6	13.3	15.9	12.6
Ethnicity												
Non-Akan	52.7	80.2	72.5	44.6	88.2	58.5	39.3	81.6	76.0	72.8	57.9	74.1
Akan	47.3	19.8	27.5	55.4	11.8	41.5	60.7	18.4	24.0	27.2	42.2	25.9
Level of Education												
None	32.6	60.5	58.6	49.0	77.0	100.0	27.5	64.0	53.0	51.2	41.9	55.2
Preschool	5.0	5.2	4.1	3.9	5.0	0.0	9.5	3.8	5.5	4.2	4.7	4.6
Primary	17.1	17.9	11.0	15.2	10.3	0.0	22.6	17.5	17.4	16.2	18.5	17.8
JHS	31.3	13.1	20.1	24.0	6.2	0.0	33.0	13.0	19.7	20.6	28.1	18.5
SHS	6.4	1.4	4.7	2.9	0.9	0.0	3.8	1.4	3.0	4.5	3.7	2.2
Tertiary	7.6	1.9	1.5	4.9	0.6	0.0	3.6	0.2	1.4	3.2	3.1	1.8
Employment Status												

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Unemployed	7.4	10.9	11.5	9.8	12.7	12.6	4.2	9.0	8.1	10.0	7.9	8.2
Employee	27.7	19.1	17.2	19.6	11.8	14.1	31.2	13.2	13.6	21.1	20.9	17.2
Self-employed/family farm-non-farm cont	54.7	57.4	65.1	60.8	69.1	57.8	56.5	71.3	69.9	58.4	61.1	65.4
Other contributing family	10.3	12.7	6.2	9.8	6.5	15.6	8.2	6.5	8.5	10.5	10.1	9.2
Region												
Western Region	9.2	2.3	7.7	13.7	2.4	4.0	11.6	2.2	8.5	4.4	8.9	5.1
Central Region	9.2	4.4	5.9	12.8	1.2	16.1	11.2	10.8	7.7	7.3	9.6	4.9
Greater Accra Region	16.0	1.0	1.2	4.9	0.6	7.0	7.6	0.0	0.3	8.6	5.5	2.5
Volta Region	7.6	7.5	10.1	7.8	5.3	11.6	5.4	7.6	15.9	6.4	10.0	8.9
Eastern Region	9.6	7.5	3.0	7.8	4.1	7.0	14.5	7.2	16.7	5.9	12.6	12.2
Ashanti Region	18.8	12.0	16.0	17.2	6.5	15.8	27.5	17.9	2.8	9.9	15.7	13.5
Brong Ahafo Region	10.0	10.3	5.9	9.8	2.9	14.6	14.9	13.9	8.0	8.3	11.3	10.7
Northern Region	11.7	26.7	45.0	19.1	63.5	9.3	2.9	9.9	39.2	28.4	15.2	24.1
Upper East Region	4.8	16.8	4.7	6.9	7.7	6.0	0.7	11.7	1.0	11.5	6.1	10.9
Upper West	3.2	11.4	0.6	0.0	5.9	8.5	3.6	18.8	0.0	9.3	5.2	7.1
Location												
Rural	52.7	91.6	84.3	83.3	94.4	71.1	60.0	98.7	98.5	70.5	73.7	91.1
Urban	47.3	8.4	15.7	16.7	5.6	28.9	40.0	1.4	1.5	29.6	26.3	8.9
Saving status												
No Saving	38.5	63.2	48.8	49.8	64.4	66.5	36.2	62.3	56.9	55.3	47.9	56.0
Home saving	27.0	26.6	34.2	31.5	24.6	25.6	32.9	24.3	28.8	24.9	28.5	29.5
Institution saving	16.5	4.8	6.3	8.9	5.6	3.3	14.6	5.7	1.6	9.0	11.1	6.1
Multiple saving	18.0	5.5	10.7	9.9	5.3	4.6	16.3	7.7	6.7	10.8	12.5	8.3
intransfer												
No	65.9	65.4	78.4	53.4	83.2	47.6	68.8	70.9	70.6	69.0	63.6	69.7
Yes	34.1	34.6	21.6	46.6	16.8	52.5	31.2	29.2	29.4	31.0	36.4	30.4
Ownership of durable												
No	25.7	40.2	34.0	37.3	42.1	37.4	25.4	45.3	40.4	34.8	32.6	40.0
Yes	74.3	59.8	66.0	62.8	57.9	62.6	74.6	54.7	59.6	65.2	67.4	60.0

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Dwelling type												
Separate house (bungalow)	8.7	4.1	5.4	6.5	4.5	6.1	6.1	4.4	8.7	4.1	7.1	5.1
Semi-detached house	6.8	7.9	9.8	8.0	13.4	3.1	5.0	5.5	8.8	7.1	6.0	8.0
Flat/Apartment	3.9	0.7	1.2	1.0	0.3	0.5	2.0	0.2	0.5	0.6	1.1	0.3
Room(s) in a compound house	51.6	40.1	43.2	54.2	39.9	50.9	54.1	22.1	41.0	50.3	49.4	38.8
Room(s) (Other type)	21.8	26.4	18.8	19.9	22.0	28.4	29.0	40.9	25.9	23.5	26.3	29.4
Several huts/buildings in the same comp	5.6	17.4	18.2	8.5	16.1	9.0	3.2	22.1	11.9	11.9	7.9	14.8
Several huts/buildings in different com	1.6	3.6	3.6	2.0	3.9	2.1	0.6	4.8	3.2	2.6	2.1	3.7

NB:

C.M: Child Malnutrition	**A.M: Adult Malnutrition**	**C.E: Child Education Deprivation**	**A.E: Adult Education Deprivation**	**O: Overcrowding**	**F: Floor Material Deprivation**	**W: Water Deprivation**	**S: Sanitation Deprivation**	**C.F: Cooking Fuel Deprivation**	**E: Electricity Deprivation**

Source: Author's computations from Secondary Data (2009 & 2013)

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