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Socioeconomic correlates of poverty in Ghana using Ghana Living Standards Survey round 6 and 7

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ABSTRACT

Poverty is a measure of standard of living in a country. This thesis studies the social and economic factors correlated with poverty in Ghana. Data from the sixth and seventh rounds of the Ghana Living Standard Survey (2012/13 & 2016/17) were used to examine the correlates of household poverty. Binomial probit regression were used to analyse selected socioeconomic variables and their degree of correlation with poverty status. Results from the study indicated that education, literacy, locality and household size are strongly correlated with poverty. Education, savannah zone, locality, sex of household heads and literacy are significant variables. Poverty is more pronounced in rural areas than in urban areas. Households in savannah zones are the poorest compared to those in coastal and forest ecological zones. The results also showed that there is a high probability for male headed households to be poorer than female headed households. This is because most poverty interventions by international organisations and non-governmental organisations mostly focus on females in rural areas with little attention being paid to males. Also, household heads that never attended school are more likely to be non poor than household heads who attended school. This could be attributed to the freeze on public sector employment by the International Monetary Fund (IMF) as a loan conditionality from 2015 to 2019. Because the public sector employs a high percentage of the labour force of which majority are males, they are likely to be affected most.

Since education is closely correlated to poverty from the findings, it was recommended that existing educational policies should be enforced to ensure universal basic education for all. Also, structural development and infrastructure should be expanded to the rural areas. Agricultural and regional-specific policies and directives should also be undertaken to help alleviate household poverty.

KEYWORDS: poverty, probit regression, educational level, households, absolute poverty, poverty line, locality, GLSS

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LIST OF ACRONYMS

CBN	Cost of Basic Needs
ECOWAS	Economic Community of West African States
FEI	Food Energy Intake
FGT	Foster-Greer-Thorbecke Indice
GDP	Gross Domestic Product
GNI	Gross National Income
GLSS	Ghana Living Standards Survey
GSS	Ghana Statistical Service
GPRS	Ghana Poverty Reduction Strategy
HIES	Household Income and Expenditure Survey
IMF	International Monetary Fund
LEAP	Livelihood Empowerment Against Poverty
LSMS	Living Standards Measurement Survey
MPI	Multidimensional Poverty Index
OLS	Ordinary Least Square
PSU	Primary Sampling Unit
SSU	Secondary Sampling Unit
UNDP	United Nations Development Program
UNESCO	United Nations Education, Scientific and Cultural Organisation

1. INTRODUCTION

Poverty profiles show the pattern of poverty, but it is not primarily concerned with its causes. But in order to understand why some people are poor, it is necessary to tackle the root causes of poverty. The Ghana Living Standards Survey (GLSS) has been the survey utilized for analysing poverty and the construction of poverty profiles for the country. The demographic and economic nature of poverty distribution has made it necessary for the study of socioeconomic factors that influence poverty status in Ghana.

Data from the Ghana Statistical Service (GSS) indicates that in 2005/06, 31.9 percent of Ghanaians were poor with a poverty gap of 11 percent (GLSS 5). Urban poverty accounted for 22 percent of total poverty in 2012/13, an increase from 14 percent in 2005/06. Rural poverty on the other hand in 2012/13 accounted for 78 percent of total poverty.

There are ten regions in Ghana. The incidence of poverty and poverty gap are nonuniformly distributed across the regions. Poverty incidence is highest in the Northern part of the country. The three regions in the northern part namely Northern, Upper East and Upper West regions have poverty incidences of 50.4, 44.4 and 70.7 percent respectively (2012/13). The Upper West region has the highest incidence of poverty in 2012/13, a reduction of about 18 percent from 2005/06. However, it contributes less than 10 percent to total poverty, explained by its small population size. The Greater Accra region has the lowest incidence of poverty (5.6%) in 2012/13, which is 18.6 percentage points lower than the national rate. In all, half of the ten regions namely Greater Accra, Ashanti, Eastern, Western and Central have poverty incidence rates lower than the national average of 24.2 percent whilst the other half have rates above the national average.

The Ghana Poverty Reduction Strategy was launched to help reduce poverty in the country. The first phase (GPRS I) began in 2003 to provide a policy framework to combat against poverty. GPRS II immediately followed between 2006-2009 with the purpose of accelerating Ghana's economic growth. This was to catapult the country into a middle-income status within a measurable time period.

The government also launched the Livelihood Empowerment Against Poverty (LEAP). This cash transfer programme was launched in 2008 to target extremely poor households with elderly people, disabled people or orphaned/vulnerable children. The aim was to empower the poor by increasing their ability to access government interventions and enabling them to escape from poverty.

The Savannah Accelerated Development Authority was also established in 2010 to institute policies and programs to enhance sustainable development in the upper most regions of Ghana i.e. Upper East, Upper West and Northern Regions which altogether account for 40.7 percent of poor people in the country according to the GLSS 5 survey in 2013.

In light of the above, it is therefore imperative to analyse critically the correlates of poverty in order to formulate policies and programs that can help ameliorate the poor and vulnerable. The household is a key socio-economic unit and thus offers important information regarding the living conditions and well-being of Ghanaian households

1.1 The objectives of the thesis

This thesis is a study of the degree of correlation between social and economic factors and poverty status in the country. The purpose is to analyse whether and how these factors help in identifying poverty status and poverty profiles in the country. A panel data is constructed based on several survey rounds. For the purpose of this study, the two most recent rounds i.e. GLSS 6 (2013) and GLSS 7 (2017) would be used to empirically analyse these factors which are mostly household characteristics in relation to their association with poverty.

Specifically, the main purpose of the study is to evaluate the relationship between certain household and individual characteristics and poverty status of an individual. The research questions to consider in this research are:

i. How does education correlate to poverty status of male headed households in the rural areas?

ii. How different is the poverty distribution in rural areas from urban areas and has it changed from 2013 to 2017?

1.2 Research Hypotheses

i. The hypotheses shall be tested to find out if human capital (education) determines status of poverty

Ho: Education is uncorrelated with poverty status of an individual.

Hi: There is a positive probability of one being classified as poor due to lack of education

ii. The hypotheses shall be tested to examine the relationship between locality and poverty incidence

Ho: Living in urban or rural areas does not affect the incidence of poverty.

Hi: Poverty incidence is higher in rural areas than in urban areas

1.3 Background to Introduction

Understanding the complexities involved in poverty reduction is a great step towards the alleviation of poverty in a country. There has been a clarion call worldwide to ensure sustainable development with much emphasis on poverty reduction. Since poverty is multidimensional and begins from the micro level, it is necessary to tackle the root causes of poverty by identifying its causes including the basic unit, i.e. the household level. Identifying the determinants of household poverty is an effective way for policy and decision makers to establish and implement policies to tackle this global canker.

Poverty is a word that is synonymous with developing countries. Usually, the extent of a country's development can be ascertained by the poverty level. Thus, in the context of development, poverty is one of the main symptoms or manifestations of underdevelopment (Anyanwu, 1997). Its effects are wide, encompassing the social and political spheres of a country as well as the people that are affected. It is therefore not surprising that over the course of years, much studies and research have been made into this area. On the forefront is international organisations like the World Bank, International Monetary Fund (IMF) and the United Nations Development Program (UNDP) of the United Nations

In finding out the factors that causes poverty, studies have been conducted both on national and international scales. But since poverty reduction policies are country-specific and not the same everywhere, it is necessary for studies on poverty determinants to be also country-specific. The Policy Research Division of the World Bank in 1980 commenced the Living Standards Measurement Survey (LSMS) to help policy makers develop and measure socio-economic determinants through the provision of relevant data. This would help in the management of problems encountered in key sectors of the economy like health, education, housing conditions etc. It is in this light that the Ghana Living Standards Survey (GLSS) of the Ghana Statistical Service was birthed. It conducts household level surveys and provides information among other things for measuring the poverty profiles of households as well as the disintegration between different groupings like demographic characteristics and socio-economic status. Seven rounds of the survey have been undertaken with the first one occurring in 1988. It is in this regard that this study aims to analyse certain household and individual characteristics that influence household poverty in Ghana using GLSS round 6 and

GLSS 7. It provides relevant information on social, demographic and economic characteristics of households that enable policy makers to effectively formulate policies to reduce poverty.

2. BACKGROUND OF THE STUDY

Three sections are outlined in this chapter. A brief overview of the economy of Ghana is provided in the first section, followed by a look into the Ghana Living Standard Survey and then some poverty reduction policies that have been undertaken in Ghana.

2.1 A brief overview of the Ghanaian Economy

Ghana is a relatively stable country in the west coast of Africa with an estimated population of 27.4 million (GSS, 2014). According to the Global Competitiveness Report of the World Economic Forum 2018, Ghana is the 106 most competitive nation in the world out of 140 countries. The country's economy is the 85th largest in the world with a total GDP of US$47 billion in 2018 and per capita GNI of US$1663 as of 2016 (World Bank, 2018). Finding itself in the West Africa region (ECOWAS), the Ghanaian economy accounts for 10.3 percent of total GDP in the sub-region. Annual GDP growth rate estimated at 8.5 percent in 2017 makes Ghana one of the fastest growing economies in the world (GSS, 2018).
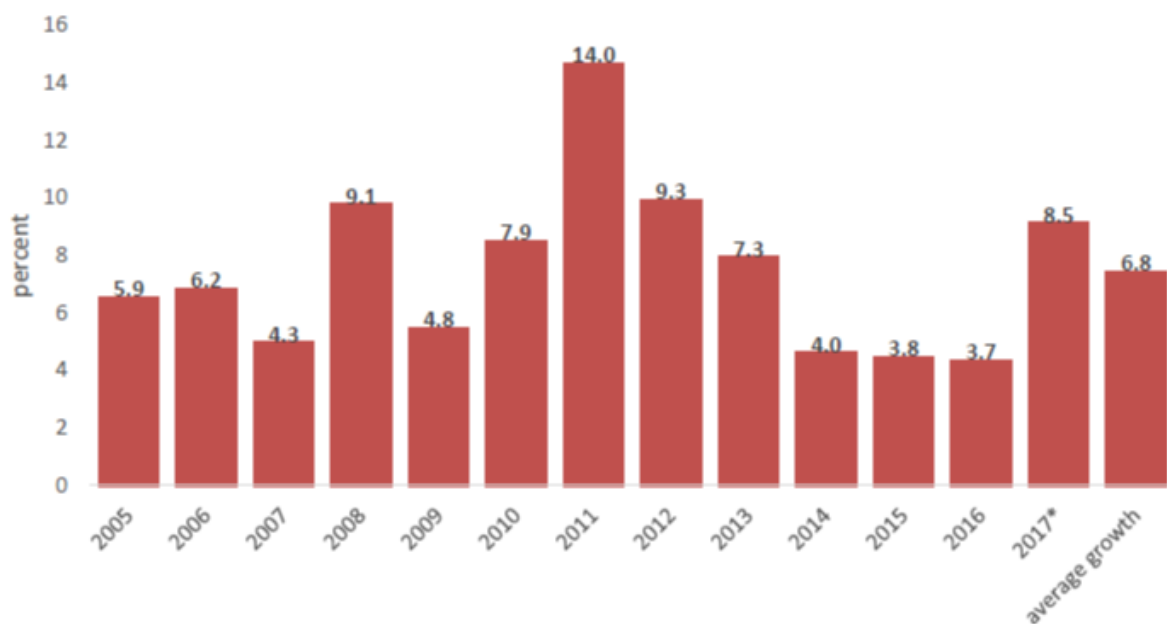
Figure 2.1: Annual GDP growth rates (%), 2005-2017

Source: GSS, 2018

Growth rates recorded in the economy has over the past years not matched with the standard of living, with livelihoods being worsened raising doubts about the impact of growth. Aryeetey et al (2001) emphasised that this perceived lack of appreciation of the country's economic growth performance might be due to the fact that growth figures did not positively affect the livelihoods of Ghanaians. Majority of jobs are found in the informal sector of the

economy with low wages. Employment creation therefore trails economic growth. Vulnerable employment dominates the labour market, rural and savannah areas of the country is besieged with high poverty incidences, poor educational system lead to high unemployed graduates and maternal and infant mortality rates keep on rising.

The recession of the 1980's plunged the economy of Ghana into disarray. This recession led to economic and structural reforms during which market-led economic policies were followed thus leading to sustained growth over the past thirty years. Leechor (1994) described the country's economy as a frontrunner in the economic reform process (as cited in Alagidede et al., 2013).

The success of these programmes is now noticeable on all fronts. However, acute poverty still prevails in the country. The Ghana Living Standards Survey is conducted by the Ghana Statistical Service and provides substantial information on the welfare of households-incomes, expenditures and achievement of basic needs together with other dimensions of the standard of living. This helps to construct poverty profiles for the country. The GLSS uses two poverty lines-the upper and lower poverty lines-to differentiate between those in acute poverty and the poor.

2.2 Profile and trends of socioeconomic indicators in Ghana

Before the commencement of the GSS surveys, the Central Bureau of Statistics had undertaken the National Household Budget Surveys in 1962 and 1974 to assess the living conditions of Ghanaians. Below are a few selected works concerning the poverty situation and profile of Ghana before the Living Standards Survey came into effect.

Table 2.1: Previous poverty research in Ghana

Author	Source of Data	Findings	Method/Recommendation
Ewusi (1984)	National Household Budget Survey (1974/75)	Incomes in urban areas are higher than rural incomes. Education, occupation and household size affect poverty.	Used a poverty line of per capita household income. Policies should look at reducing the inequality gap existing between rural and urban areas
Awusabo-Asare (1981/82)	National Household Budget	Quality of life in rural Ghana is	Used the Physical Quality of Life Index (PQLI) to

	survey (1974/75)	worse than that in urban Ghana	measure spatial differences in levels of poverty
Bequele (1980)	Agricultural census (1970 and 1974)	Asymmetric development exists between North and South Ghana. Farm holders decline by 8% in the North; farm holders in the South increase by 11%	Agricultural policies should consider regional imbalances in the distribution of resources. Capital should be invested in the Northern parts of Ghana
Rourke, 1971	Agricultural census (1970 and 1974)	Meagre difference in income levels of urban and rural households	Low levels of income received by labourers can greatly affect household economy. Incomes must be increased

Source: Author's own compilation

2.3 The Ghana Living Standards Survey

The Ghana Living Standards Survey has been the survey utilized for analysing poverty and the construction of poverty profiles for the country in recent times. It follows the general procedure as described by the World Bank. Very important information on income and expenditures is gathered principally at the household level. This is done so that one cannot investigate intrahousehold inequality along this dimension (Boateng et al, 1990) There are currently seven rounds of the Ghana Living Standards Survey (GLSS): GLSS 1(1987/88), GLSS 2 (1988/89), GLSS 3(1991/92), GLSS 4(1998/99), GLSS 5(2005/06), GLSS 6 (2012/13) and GLSS 7 (2016/17).

The expenditure of Ghanaian households is affected by the rate of inflation. It has a direct impact on the consumption pattern of people living in both rural and urban areas. Food and non-food goods are both affected by the inflation rate. The difference in the cost of living is taken into account when computing the standard of living of household consumption in each geographical area. Monthly food and non-food commodities are used to compute the regional

cost of living index. The table below shows that food items are more expensive in Greater Accra region compared to the others and non-food items are more expensive in other regions outside Accra. Non-food items are less expensive in the rural savannah areas (Northern Upper West and Upper East regions)

Table 2.2: Regional cost of living indices

Region	Price index	Food	Non-food
Western	1.02	1.00	1.04
Central	0.98	0.95	1.03
Greater Accra	1.03	1.02	1.03
Volta	0.99	0.93	1.07
Eastern	0.95	0.94	0.96
Ashanti	0.96	0.90	1.03
Brong Ahafo	0.93	0.91	0.97
Northern	0.97	0.98	0.97
Upper East	0.86	0.80	0.93
Upper West	0.92	0.90	0.96

Source: GSS, 2018

There have been high rates of inflation in Ghana for several decades. The causes may have arisen from ineffective management or failure to properly provide a solution. Between 1979-2009 (a thirty-year period), high inflation rates were experienced. Inflation rates averaged 32 percent per annum and were always in double-digits (though there were brief periods of unsustained single-digit inflation). Most research studies have attributed this high inflation to demand pressures arising from monetization of fiscal deficits (Kwakye, 2010). But since July 2009, there has been a regular fall in inflation by significant margins. Single digit levels have been reached since June 2010.

According to GSS 2014, high inflation rate in Ghana has been caused by the non-food inflation rate. Between 2005-2013, the average annual non-food inflation rate was 14.9 percent. This has over the past years been higher than the average annual food inflation rate of 9.5 percent.
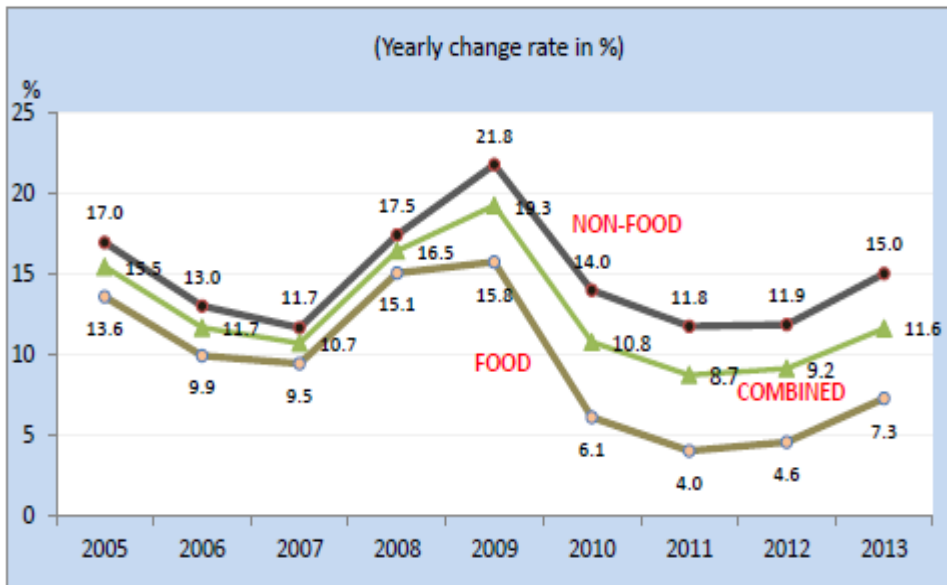
Figure 2.2: Combined, food and non-food inflation rates (%), 2005-2013

Source: GSS, 2014

From the GLSS 6 report, poverty remains a rural phenomenon accounting for 78 percent of total poverty in 2012/13. This is not surprising as earlier findings in 1991/2 to 2005/06 also proved same with the old poverty line, accounting for more than 80 percent of the total poverty. Urban poverty on the other hand accounted of 22 percent of total poverty.

Increase in growth of the economy has not reflected in equitable welfare distribution. Between 2005/06-2012/13, the Gini coefficient slightly decreased from 41.9 percent to 42.3 percent. Inequality prevailed in all the rural areas whilst urban areas experienced improved equality. By administrative regions, inequality is highest in the Northern parts of the country. Central and Greater Accra regions benefitted from fair distributions.

Primary, Junior and Senior high schools experienced increase in attendance rates. The rural savannah areas still record the lowest school attendance rate even though net attendance rate for girls have increased since 2005/06.

2.3.1 Comparison of selected socioeconomic indicators from GLSS 5 and 6

Table 2.3: Poverty and locality

	Poverty incidence	
	2005/06	**2012/13**
Accra (GAMA)	12.0	3.5
Urban Coastal	6.4	10.1
Urban Forest	8.7	9.9
Urban Savannah	30.1	26.4
Rural Coastal	27.2	30.3
Rural Forest	33.1	27.9
Rural Savannah	64.2	55.0
Ghana (national)	31.9	24.2

Source: GSS, 2014

Table 2.4: Inequality by region: Gini coefficient, 2005/06-2012/13

Region	**2005/06**	**2012/13**
Western	37.2	38.4
Central	40.1	38.1
Greater Accra	41.9	37.0
Volta	35.4	41.2
Eastern	33.4	37.6
Ashanti	39.4	38.7
Brong Ahafo	36.9	38.3
Northern	40.6	42.3
Upper East	40.2	40.4
Upper West	42.6	48.5
Ghana (national)	41.9	42.3

Source: GSS, 2014

Table 2.5: Poverty and household head

	Poverty incidence (%)	
	2005/06	**2012/13**
Male heads	34.9	25.9
Female heads	22.1	19.1
All heads	31.9	24.2

Source: GSS, 2014

Table 2.6: Net primary attendance ratio by locality and sex

	Boys		Girls	
Locality	**2005/06**	**2012/13**	**2005/06**	**2012/13**
Accra (GAMA)	85	88	83	81
Urban Coastal	84	74	82	78
Urban Forest	77	80	82	83
Urban Savannah	67	77	68	77
Rural Coastal	70	68	66	66
Rural Forest	72	71	71	72
Rural Savannah	51	63	48	63

Source: GSS, 2014

Table 2.7: Net SHS school attendance rate by sex and locality, 2005/06-2012/13

	Boys		Girls	
Locality	2005/06	2012/13	2005/06	2012/13
Accra (GAMA)	34	37	36	33
Urban Coastal	28	19	24	24
Urban Forest	23	21	18	19
Urban Savannah	10	13	18	10
Rural Coastal	4	7	5	5
Rural Forest	8	7	7	10
Rural Savannah	3	6	2	5

Source: GSS, 2014

2.4 Poverty reduction policies

Social protection is a set of mechanisms put in place to cater for the under privilege in society (Iddrisu et al, 2019)

To help reduce the rate of occurrence of poverty and social exclusion, the government of Ghana has undertaken a number of social protection programs aimed at protecting the extreme poor. Such programs cut across the health, education, welfare and other sectors of the economy.

2.4.1 School Feeding

The concept of school feeding is not new in the world. In Africa, it began as a recommendation of the New Partnership for Africa Development (NEPAD) in order to achieve the Millennium Development Goal against hunger, poverty and malnutrition in 2005. It is a welcome social protection policy in the Ghanaian society and as well as an educational

programme (Uduku, 2011 cited in Iddrisu et al, 2019). Under the programme, school children in deprived primary and kindergarten schools were to be served one meal a day from locally grown food stuffs. According to the Ghana School Feeding Agency (2016), 64,775 school children were covered in 2006 (the pilot phase) and between 2007-2010, 413,498 school children were covered under full scale implementation in all districts.

Table 2.8: Regional distribution of actual beneficiaries of the school feeding programme

Region	Basic schools under Ghana education service	Percentage (%) of basic schools under school feeding	No. of children under school feeding
Ashanti	727,659	43.6	335,293
Brong Ahafo	494,033	37.3	194,074
Central	424,567	21	88,229
Eastern	472,299	24.3	118,388
Greater Accra	316,726	59.7	193,439
Northern	578,106	31.3	203,679
Upper East	263,234	56.7	159,882
Upper West	183,141	90.4	176,587
Volta	406,637	28.6	125,345
Western	498,208	27.2	133,765
Total	4,364,697		1,728,681

Source: Iddrisu et al, 2019

2.4.2 Livelihood Empowerment Against Poverty (LEAP) Programme

The government also launched the Livelihood Empowerment Against Poverty (LEAP). This cash transfer programme was launched in 2008 to target extremely poor households with elderly people (65 years and above), disabled people or orphaned/vulnerable children, with the aim of empowering the poor by enhancing their capacity to access government interventions and enabling them to 'LEAP out of poverty'. Beginning as a 5-year pilot programme, it covered 81 of 170 districts in the country with 45,000 households. By 2013, the programme expanded to 70,000 households and provided benefits to 177,500 beneficiaries across the ten regions of Ghana (Roelen et al, 2015) Beneficiaries were automatically hooked on to the National Health Insurance Scheme which provided free health

care. Though payment delays, arrears and lack of education concerning the programme was a limitation in its impact, it fairly helped reduce poor quality of life.

2.4.3 Savannah Accelerated Development Authority (SADA)

The Savannah Accelerated Development Authority was also established in 2010 to institute policies and programs to enhance sustainable development in the upper most regions of Ghana i.e. Upper East, Upper West and Northern Regions which altogether account for 40.7 percent of poor people in the country according to the GLSS 5 survey in 2013. The strategy being developed will provide opportunities for poor peasants, especially women, to own assets in economic trees, sustain their food crop production and protect the fragile eco-system of the northern savannah by managing the flood-prone river-beds better (MOFA, 2014) This policy however failed to fulfil its assigned mandate. Only 300,000 out of five million (5,000,000) trees were planted with majority of the trees not possessing any economic value to the benefit of their communities. Funds intended for the program also found its way into private pockets.

3. THEORY AND LITERATURE REVIEW

This chapter looks at the theory and literature that upholds the concept of socioeconomic correlates of poverty. It looks at poverty theories and delves into the concept of poverty and its measurement. Lastly, empirical studies on poverty correlates are reviewed carefully.

3.1 Theories of poverty

Over the course of time, many theories have evolved in a bid to explain poverty as an intellectual problem. These theories try to explain poverty in terms of national, racial, cultural or other kinds of social distinctions. Since this study looks at the correlates that are associated with poverty status, two types of poverty theories have been identified in relation to individuals, households and their socio-cultural environment: structural and cultural poverty theories.

Lewis (1959) was the first person to bring about the concept of cultural poverty. Lewis argued in his ethnography "Five Families: Mexican Case Studies in the Culture of Poverty" that the pangs of poverty were systematic such that, children became infused with certain behaviours and attitudes that ensured their inability to escape poverty. Thus, viewing poverty as an individual phenomenon i.e. the traits of the poor are found in themselves. According to Elesh (1970), it is the valuational, attitudinal, and behavioural patterns of the poor which prevent them from being socially mobile. These traits include laziness, lack of education, and ignorance. Thus, poor people basically remain the same people every year.

Prominent researchers like Rainwater (1966), Clark (1965) and Liebow (1967) as seen in Elesh (1970) explain poverty in relation to the state in which the poor live: poor education, poor health, unemployment, lack of social amenities, underemployment and so on. This is referred to as structural poverty. The poor are defined by their socio-economic settings. Thus, their poverty status can be changed if these anomalies they find themselves in changes. For example, a high-income job can leap one from low income to higher earnings. They don't remain poor forever.

Elesh (1970) made a sample of ten (10) traits or attributes that was viewed by prominent researchers and proponents of both cultural and structural poverty as being associated with the rate of poverty. These attributes are: little social organisation, mother-centred family (matrifocal), little class consciousness, feelings of fatalism etc., present-time orientation, little historical knowledge, alienation from politics, early sex, masculinity and middle-class aspirations. Both theories agree that poverty is cyclic, and that it can be transferred to many

generations of the same family. To the cultural theory as illustrated by Lewis (1959), if a mother-centred family finds itself isolated from the larger society, infused with feelings of alienation, inferiority, dependence and the other attributes, it is highly likely that its young would be socialised with the same poverty traits. Therefore, the poverty status of the family would be transmitted to the next generation. The central problem therefore lies within the poor family and the attributes of the individual characters. However, according to the structural theory as illustrated by Elesh (1970), the unfriendly or hostile structural conditions perpetuate the poverty cycle. The wellbeing of an individual depends more on the social systems which would lead to that wellbeing. For example, the educational and labour system would depend the extent of a person being poor or not. These systems are often hostile to the interests of the poor. And notably, the individual attributes of the poor aren't dependent on them.

Both structural and cultural poverty theories have implications for policies in the alleviation of poverty of households. According to Elesh (1970), these two theories serve as rationale for policy efforts.

From the aspect of the cultural theory, the main problem is to prevent the continuity of the cycle of poverty by directly working against the values, norms and behaviours that support it. It is believed that the syndrome would perpetuate unless directly attacked. The policy requirement proposed is a wide range of social services expected to inculcate into the poor, new valuational and behavioural patterns to help them become socially mobile. The primary focus is on the individual.

On the other hand, the policies for solving structural poverty focus on the socio-economic systems and factors. Structural changes in employment, education, health, and housing markets are prerequisites. Because the poverty attributes consist of reactions to structural conditions, its elimination necessitates the elimination of the conditions causing the reactions (Elesh and Spillerman, 1970). The government focuses on how to make these systems easily accessible to the poor to help them leap out of poverty. Policies like free education, free health care, affordable housing can be implemented to improve the wellbeing of the poor.

Lewis (1959) argues that efforts at eliminating poverty would exceed a single generation. He also concedes that structural changes are "absolutely essential and of the highest priority". In contemporary times, sensitisation workshops are key to renewing the mindset of people living in abject poverty in remote communities. Traditional laws, norms, religion and cultural

customs in some cases act as barriers that policy makers and governments face in the event of implementing policies in certain poverty prone communities. In other cases, they may act as the reason for certain policies coming into place. Some radical communities may reject educational and health reforms geared towards improving the capabilities, functionings and wellbeing of the poor.

3.2 Concepts and Measurement

3.2.1 Definitions of Poverty

Poverty is multidimensional in nature and varies by age, gender, culture, social and economic settings. Poverty can be explained from different economic, social, political and historical perspectives. Social and economic factors play a vital role in the causes and continuance of poverty. Therefore, to be able to analyse the social and economic factors that relates to poverty and provide solutions to it, there is the need to define poverty.

This study defines poverty as the inability of an individual or household to meet the expected minimum standard of living in the society given the resources at their disposal. The individual or household may lack in different dimensions or categories thus being unable to meet the required level in society. The dimensions may be in terms of income, consumption or general wellbeing that brings onto them dignity in their way of life. This definition seeks the relative measurement of poverty and akin to the European Commission definition of "people are said to be living in poverty if their income and resources are so inadequate as to prelude them from having a standard of living considered acceptable in the society in which they live".

Peter Townsend puts it this way: "poverty is the lack of the resources necessary to permit participation in the activities, customs and diets commonly approved by society." Townsend by this, shows that a person should not be examined only by his earnings, but by other kinds of resources. Karl Max opined by saying "Our needs and enjoyments spring from society; we measure them, therefore by society and not by the objects of their satisfaction. Because they are a social nature, they are of a relative nature" (cited in Davis and Martinez, 2014). The World Bank also gives a broad definition of poverty which easily relates to and applies to every country. It defines poverty as "pronounced deprivation in well-being, comprising many dimensions. It includes low incomes and the inability to acquire the basic goods and services necessary for survival with dignity. Poverty also encompasses low levels of health and education, poor access to clean water and sanitation, inadequate physical security, lack of

(political) voice, and insufficient capacity and opportunity to better one's life". (World Bank, 2004). This contains both relative and absolute measures of poverty and brings out the multidimensional nature of poverty.

3.2.2 Measurement of poverty and poverty indices

Over the past forty years, there have been many major seminal works studying welfare economics. Sen (1976) amongst others initiated and gave meaningful insights into the measurement and comparison of poverty, inequality and welfare. They also brought to realization the limitations of these indices of measure. Sen's work in 1983 influenced the need to shift from a unidimensional aspect of poverty to a multidimensional one. However, the function of discontinuity in poverty measurement is a setback for both unidimensional and multidimensional poverty measurements. When the population that is nearer to the poverty line experience a small change in their standard of living, it may result in substantial change in the headcount ratio. Natural multidimensional poverty indices may lead to inappropriate poverty rankings and undesirable policy guidance (Duclos and Tiberti, 2016).

Identification of the dimension of poverty is an important step in reducing poverty. Quantification of the extent of poverty has commonly been made through a poverty line i.e. a person is deemed as poor or non-poor if his/her income is below the specified subsistence income level. This approach has been criticised since the welfare of a person is based on not only monetary variables but also non-monetary variables. Although a higher budget may mean the ability to fulfil some non-monetary and also monetary attributes of the individual, there may be non-existent markets for goods like public goods which constitute non-monetary attributes. In highly imperfect markets, for example rationing, income may not be an appropriate measure. Therefore, income as the sole indicator of well-being is inappropriate and should be supplemented by other attributes or variables, e.g., housing, literacy, life expectancy, provision of public goods and so on (Bourguignon and Chakravarty, 2003)

According to Duclos and Tiberti (2016); Bourguignon and Chakravarty (2003), any use of multidimensional poverty indices should obey the properties of continuity, monotonicity, and sensitivity to multiple deprivations. In their work, they observed that it is not so in most indices used. They argued that the Multidimensional Poverty Index (MPI) propounded by the UNDP fails all these properties. However, the Multiplicative FGT index and other set of indices propounded by Bourguignon/Chakravarty obey these properties. Nonetheless, it is

preferred to unidimensional setting due to the different dimensions of poverty across countries and over time.

There remains an intrinsic relationship between poverty and welfare. Many researchers have measured welfare in different ways. But the most common one is the **'monetized' consumption** and **income approach**. This is measured on the basis of income or consumption and expressed with poverty lines. The poverty lines serve as a threshold below and above it with a person being deemed as poor or non-poor if he or she is able or unable to purchase more or less with his income. With this approach, it is assumed that the poor spend their money efficiently by purchasing all relevant commodities without purchasing 'non-essential' goods.

Titumir and Rahman (2013) argued that this kind of approach increases the risk of vulnerability to poverty. Individuals and families can become poor or non-poor depending on how quickly they are employed or become idle since their income level changes. Seminal works by Haveman (1987); Johnson, Smeeding and Torrey (2005) as cited in Titumir and Rahman (2013) argue about the use of income or consumption as proxy measures. They contest that over the life time of a person, consumption is highest at the preliminary and later stages of life and income is higher in the middle period of life. Income is commonly used as the yardstick to determine poverty status even though consumption-based poverty lines arguably provide a better measure of poverty (Titumir and Rahman, 2013).

Another approach is **Cost of Basic Needs** (CBN). A daily nutritional requirement is used to assess poverty levels. This is very suitable for measuring poverty in developing countries. The **Food Energy Intake** (FEI) approach is also similar to this. In FEI method, poverty lines are set by computing the level of consumption or incomes at which households are expected to satisfy the predetermined normative requirement (say 2100 calorie) whilst the CBN poverty lines are set by computing the cost of consumption good basket that enable the poor households to meet the nutritional requirement and with provision to an allowance for non-food consumption that are anchored on the consumption pattern of the poor (Adane,2003). Ghana for instance has a poverty line set at a minimum food calorie intake of 2,900 calories per adult. In Ethiopia, the minimum food calorie intake is 2200 calories.

The **Capability approach** was developed by Amartya Sen and laid out a framework for analysing multidimensional indices of poverty and welfare. Sen criticised the use of income-based measurement of poverty and inequality as unidimensional. It is the capability approach

that paved way for the Human Development Index. Sen defines capabilities as 'notions of freedom, in the positive sense; the real opportunities the person has regarding his or her life' (Sen, 1987). Sen views poverty as the failure to achieve certain minimal or basic capabilities, where basic capabilities include the ability to satisfy certain crucially important functioning up to certain minimally adequate levels (Ruggeri et al, 2003). Haughton and Khandker (2009) opined that a focus on the potential of the individual's functioning in society is a key avenue to well-being (and poverty). Poor people may have insufficient income, no or little education, or be in poor health, or feel powerless all as a result of lacking key potentials or capabilities. The Capability approach therefore contests that several factors can lead to poverty including low or insufficient economic well-being. Theoretically, this poverty measure is more adequate than the monetary measures. Poverty is defined according to how people actually live and their enjoyment of freedoms.

A novel approach is the **Multidimensional Poverty Index (MPI).** This index is based on thresholds or cut-offs. In this approach, a single cut-off is set for each dimension to define whether or not the individual in question is deprived (Mauro et al, 2016). Upon setting the cut-offs, there is an aggregation of indicators pertaining to different dimensions which results in the obtaining of a binary definition of poverty (poor or non-poor) determined by another related cut-off. The binary definition allows for the overall measure of poverty which is constituted as a 'function of the number of poor individuals' (Mauro et al, 2016) This approach has been criticised by Duclos and Tiberti (2016) as lacking the monotonicity, sensitivity to deprivation and the continuity properties characteristic of multidimensional indexes.

Table 3.1: A Comparison of the Money Metric Approach

	International Poverty Line as set by World Bank	**Basic needs-based indicator**	**Capability approach**	**Minimum rights**
Focus	Standard of living	Satisfaction of basic needs	Capabilities	Enjoyment of minimum rights
Dimension of poverty line	Single	Single	Single or multiple	Single or multiple
Unit of analysis	Household	Household	Individual	Individual

Allows for diversified characteristics of household or individuals	No	Equivalence scale	Wider class of differences	Wider class: for example, rights of child
Context in which poverty status assessed	Isolated	Isolated	Societal	Societal
Empirical feasibility	Yes	Yes	Probable	Probable

Source: Atkinson (2016)

3.2.3 Categories of Poverty

Most classification of poverty has been on the dimension of economic well-being. Economic well-being measures of income, consumption and welfare have bordered on basic needs. And they have been defined using absolute, relative, and subjective concepts.

Absolute poverty has been the primary level of economic well-being signifying the 'lack of basic means of survival' (Wagle, 2006). UN (1995) defines poverty as 'severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information' and is related to 'access to social services'. To Mowafi (2014), absolute poverty is the set of resources a person must acquire in order to maintain a 'minimum standard of living'. A base line normally referred to as poverty line is set below which a person is defined as poor in absolute poverty classification. These base lines are either consumption oriented (criteria requiring a level of nutritional intake) or income oriented. If physical human subsistence (expressed in terms of nutrition, clothing and housing) is not guaranteed, this is referred to as **primary** (absolute) poverty whiles exclusion from participation in normal social life or the non-attainment of a minimum level of conventional social or cultural existence is **secondary** (absolute) poverty (Anyanwu, 1997).

Relative poverty is when a household or person is regarded poor in comparison to other persons or households when their provision with goods is lesser. It doesn't necessarily mean that those involved live a life that is unworthy of human dignity but that distributional structures in a society puts them in a disadvantage when they are compared to other people.

Objective and subjective relative poverty exists. Differences in the (individual) satisfaction of basic needs or in (individual) income values which can be objectively determined and which are described-by value judgement-as 'excessive', are an expression of objective relative poverty, irrespective of particular individual perceptions but if such differences are perceived as being 'excessive' irrespective of whether this is objectively measurable, there is a case of subjective relative poverty (Anyanwu, 1997).

Another classification is underpinned on individual circumstances. Conjunctural poverty occurs when individuals become poor due to crisis say climatic crises or political turmoil. It is often a temporal phenomenon. Structural poverty is long term and often caused by individual circumstances. In land-rich societies, poverty may arise from lack of labour power or injury. In land-scarce societies, poverty may arise from these same factors but also, in addition, lack of access to land, unemployment or employment that can't sustain a person at basic subsistence. Structural features of poor households that can cause structural poverty include lack of education, income fluctuations, lack of access to social credit and single headed families (mostly female headed households)

Locational poverty also exists. Poverty exists in urban areas depicted by slums and shanties in the form of low per capita income, social exclusion, pollution, poor welfare services and lack of capital resources. In rural areas, it can be found in the form of high illiteracy, high population growth, unemployment, underemployment, lack of access to social infrastructure and poor health.

Table 3.2: Typology of poverty

Classification Basis	Typology of poverty	

1. Basic Needs	1a. Absolute Poverty
	    -Primary(absolute) poverty
	   -Secondary(absolute) poverty
		1b. Relative Poverty
		   -Objective relative poverty
		   -Subjective relative poverty

2. Individual Circumstances	2a. Conjunctural Poverty	2b. Structural Poverty
3. Microeconomic versus macroeconomic	3a. Microeconomic concept of poverty	3b. Macroeconomic concept of poverty

4. Locational	4a. Urban Poverty	4b. Rural poverty

Source: Anyanwu (1997)

3.3 Empirical review of literature

3.3.1 Socio-economic correlates of poverty

Trying to establish the most suitable benchmark for factors that are associated with the poverty positions of households/individuals has led to preoccupation of poverty modelling. Rouband and Razafindrakoto (2003) argue that there is relationship between the objective and subjective poverty measures (cited in Fissuh and Harris, 2005). Because poverty is multidimensional in nature, there is an increasing attempt in various literatures to shift from the popular monetary approach of measuring poverty. Kanbur and Squire (1999) as cited in Fissuh and Harris (2005) conclude that there is little confusion so far and that there is "no material difference in the number of poor identified as poor by employing different approaches". Since the extremely poor are poor in multiple dimensions, this argument seems to be persuasive. However, the conventional approach of measuring poverty monetary wise can be contended for since it is the one most related with other subjective measures (it by no means denounces its augmentation with non-monetary approaches).

Currently, two approaches exist in modelling the correlates of poverty: the use of consumption expenditure per adult equivalent whilst regressing it against explanatory variables (potential) and the use of discrete choice models (Geda et al., 2005). Mahama et al. (2018) employed the use of per capita consumption in the determination of poverty in Ghana. One limitation of this approach is that households may overestimate their consumption expenditure and also the use of consumption as an index for welfare measurement and the premise that consumption of both poor and non-poor are determined by the same process.

Discrete choice model is a popular approach used in poverty analysis of many studies. It involves the use of logistic regression in the form of logit or probit model (a binary dependent variable). It is used to evaluate how likely a household would be considered poor based on certain household characteristics. Other methodologies used in different studies include ordinary least square regression which has the dependent variable as continuous and quantile regression with income as the dependent variable.

Human and physical capital form two major groups that constitutes household endowments in the determination of poverty (Grootaert, 1997). Physical capital consists of productive household asset endowments which include ownership of farmlands, vehicles and other resources. Human capital includes age, sex, level of education and these are mostly embodied in the members of the household. Locational variables such as urban or rural areas are also significant correlates of poverty status.

Canagarajah and Potner (2002) used the Ghana Living Standards Survey (GLSS) rounds 3 and 4 to investigate factors that lead to poverty in rural and urban Ghana. They used the log of consumption as the dependent variable whiles community, household characteristics and general variables formed explanatory variables. Their regression analysis showed that access to potable water and toilet and having post-junior secondary school education were major causes of poverty in urban households. Also, access to bank services, good roads, potable water and toilet facilities also contributed to the poverty status of individuals greatly. Educational attainment and the presence of a health post were insignificant variables.

Osei-Amponsah et al. (2010) assessed poverty correlates amongst fishing households in Bankuman, Tema in Ghana. They collected data on demographic characteristics of households such as gender of household head, size of household, and dependency ratio. Type of employment of spouse, use and access to family planning method and consumption expenditure formed the economic characteristics they investigated. Analysis was done using the binary probit model which was adapted from Samir and Mohmmed, 2001; Oyugi, 2000 and UNESCO, 2001 as cited in their work. The major correlated factors of poverty were household size, age of fishmonger and the squared of her age. Household size decreased the probability of being poor whilst married women were more prone to be poor than unmarried ones. Also, a positive relationship exists between the likelihood of a woman being poor and her age until a certain middle age level.

Donkor (2010) used a probit model to find out poverty factors in Ghana using the fifth round of the GLSS. He found out that male headed households, households with aged heads, households in rural areas, households in coastal zones, households that live far from the capital and households consisting of greater number of dependants are more likely to be poor in Ghana. The probability of being poor reduces when one receives remittances from abroad and owns durable assets. Also, households living in urban areas are less likely to be poor compared to those in rural areas.

Ennin et al. (2011) employed a binomial logistic regression model to find out the factors that are associated with household poverty in Ghana. They used data from the third, fourth and fifth rounds of the GLSS. They used explanatory variables like size of household head, ecological zone, age, sex, literacy of household, size of household, and locality. Their analysis showed that households with large sizes, heads that have agriculture as primary occupation and households with illiterate heads were poor. Location wise, households in savanna and rural communities are poorer. Sex of household heads was insignificant.

Ewusi, 1987 as cited in Ennin et al. (2012) used the first household budget survey 1974/75 to analyse income. His findings revealed that incomes in urban areas are generally higher than rural ones, bringing to light the inequality existing between the rural and urban areas. He further defined a poverty line of per capita household income of which 75% of the sample fell below.

Havi (2015) examined poverty correlates among pre-tertiary school teachers in the Eastern Region of Ghana. His study adopted and updated the moderate poverty line in GLSS 4 with the consumer price index. He made use of the binary logistic regression model and poverty indices to analyse poverty correlates. From the study, the results show that an inverse relationship existed between years of service of teachers and their standard of living. Teachers who served more years recorded high incidence of poverty. Also, higher standard of living was associated with teachers with smaller households. Variables that were statistically significant correlates of poverty included small household size, tertiary and secondary educational level of one's spouse. Male teachers were poorer than female teachers and with regards to the poverty line used, teachers are not poor averagely.

In assessing the contributory factors of poverty in Northern Ghana, Mahama et al. (2018) used data from the sixth round of the Ghana Living Standard survey comprising 1702 households in the 26 districts of the region. They employed the use of Ordinary Least Square regression method to establish the relationship between poverty and selected variables. They used ordered probit regression to check for robustness of the model. They also used per capita consumption as the dependent variable although reservations have been raised lately as to whether income or consumption should be used to measure household welfare. Donkoh (2010) argues that consumption expenditure may be overestimated, and income underestimated. The authors, (citing Ravillion,1992 and Gounder,2012) explain that consumption contains smaller measurement errors with income and that realized standard of

living is actually defined by consumption and non-consumption expenditure (as cited in Narsey,2008 by Mahama et al.,2018; Ayimpusah and Opoku-Afriyie,2008, Haruna and Anawart, 2012). Household size, marital status, education and assets are positive and important correlates of poverty in the Northern region. Age, however, is not important in influencing poverty.

Haruna and Anawart (2012) investigated the factors of poverty in the Kwabre East district of of Ghana. Primary data collected from 208 random households was used. Backing the reason for their use of Weighted Least Square multiple regression as their method for analysis, they described it as 'an efficient method that makes good use of small data sets' (p.25). This method has also been used by Ayimpusah and Opoku-Afriyie (2008). Per capita household consumption normalised by the absolute poverty line was the dependent variable used. Their results showed that age and education were insignificant variables and failed to explain poverty status as expected. Female headed households were likely to be poor. Value of home assets, skilled jobs and access to microcredit had positive relationships with household welfare.

In analysing the factors that are associated to incomes and poverty in Latin America among rural households, Sadoulet and de Janvry (2000) employed a tobit model using household level data from Mexico. Household assets endowments, and the geographical and social context in which these assets are used, play vital roles in explaining rural incomes. They found out that rural poverty is deeper than urban poverty in Peru, Guatemala and Honduras. Their result showed that in Mexico, household access to land is an important factor of total income. Also, human assets like level of adult education and number of adults as well as migration also have positive impacts to create large incomes. Ethnicity however reduces income amongst rural households.

By analysing data from the Eritrean Household Income and Expenditure Survey, Fissuh and Harris (2005) modelled the correlates of poverty. They used the DOGEV model which they described as an "attractive model from class of discrete choice models for modelling determinants of poverty" as well as ordered logit model. The dependent variable used was poverty whilst demographic, labour force, remittance and community variables formed part of explanatory variables used. They analysed that household size has inverse relationship with well-being of a household. The effect of size of household on poverty varies across categories but greatest in the absolute poverty group. As in most researches, age of household

head was insignificant. Education decreased the likelihood of a person being poor. Poverty also had a positive relationship with regional unemployment.

In 2015, Ranathunga and Gibson estimated the factors that explain household poverty in the estate sector of Sri Lanka. They employed probit regression for their analyses. Their study evaluated that education of the household head is a strong explanatory variable of poverty as it holds a negative relationship with poverty. There was also a strong correlation between spatial characteristics and poverty. Households that lived close to the Western Province were prone to be poor. Local remittance and female headed household had strong negative correlation with poverty.

In 2002, Rodriguez used data from the 1996 National Survey of Income and Expenditures of Households to examine poverty correlates in Mexico. A logistic regression model was employed to analyse the data. He used the probability of being extremely poor as the dependent variable and economic and demographic variables such as gender, age, school attendance and literacy status as explanatory variables. Variables that had positive correlation with poverty are size of household, living in a rural area, and being a domestic worker. Their work shows that a household is more likely to be non poor when educational level increases. Their findings did not support their hypothesis of feminization of poverty since its parameter estimate was not statistically different from zero. The probability of being poor was high if one was from a rural family.

Akerele and Adewuyi (2011) used household level data to examine household poverty and welfare in Ekiti State, Nigeria. They used the Ordinary Least Square Multiple regression to develop a welfare model to find out various factors that explain household welfare. The dependent variable used was household per capita expenditure because studies have revealed that it provided insight into the living condition of households especially those whose income were from the informal sector. Their findings revealed that poverty was feminized as female household heads were prone to be poorer. The likelihood of a household being classified as poor was high for household with large sizes, few assets and more dependants. They also found that household welfare would be increased if education of household head and spouse improved.

Spatial differences existing in the North West province of South Africa was studied by Serumaga and Naude (2002). They investigated the correlates of poverty in rural and urban households in that geographical region. Multi-stage stratified cluster sampling was used to

draw the household representative sample. Probit model was used to make the analyses. The findings revealed that education is a strong correlate of poverty in both rural and urban households. Two significant differences were established between rural and urban areas in the study. There is a likelihood of gender discrimination in rural areas than urban areas since poverty increased with an extra female adult in a household. Also, households with heads as migrant workers were less prone to be poor in rural areas. The same did not apply in urban areas.

De Silva (2008) used a logistic regression to analyse poverty correlates with data from the Sri Lankan Integrated Survey. He found out that in Sri Lanka, the education of the household head, head of household having a salaried job were significant positive correlates of poverty. Conversely, probability of one being defined as poor increases if the household size is large, household is headed by females, residing in rural areas and being a casual wage earner.

A report from the World Bank on Sri Lanka in 2007 indicated that a strong positive relationship exists between poverty and household attributes such as family size, employment status and educational attainment. Also, the probability of one being poor depends on larger households (those with children). A household with a member working abroad is less likely to be poor.

Sekhampu (2012) analysed the correlates of household poverty amongst female headed households in South Africa using household level data consisting of 585 households. Employing a logistic regression, he stated that size of household increased likelihood of being poor whilst age and employment status of the head of household decreased the likelihood of being classified poor. A household head being educated was not important in reducing the likelihood of being in a poor household.

3.3.2 Summary of literature review

The empirical studies reviewed indicate a plethora of interesting findings. It has contributed to the understanding of variables and methods used in explaining poverty status in many countries. The reviewed literature shows that the method of estimation used in analysing data sets on socioeconomic characteristics of the household is very important and cannot be downplayed. Also, there wasn't a wide difference in results if different dependent variables (either consumption expenditure or income) were used. The reviewed literature shows that age is not a significant variable in explaining the poverty status of a household. Education,

location, size of household, and household head were important correlates of poverty. Education of the household head reduced the risk of members of the household being poor. Also, poverty was mostly feminized in the rural areas with households headed by females at high risk of being poor.

4. DATA AND METHODOLOGY

4.1 Study Data

The main source of data is from the sixth and seventh rounds of the Ghana Living Standard Survey (GLSS) that took place in 2012/13 and 2016/17. The GLSS is a nationwide survey that brings to fore knowledge and understanding of the wellbeing and living conditions of Ghanaians. It covers the socio, economic and demographic decompositions of households in the country.

The questionnaires used for the sixth and seventh rounds were almost identical, with a mixed deflator used to adjust real welfare levels making it easier to compare both years. The data collection instruments and methodology used in 2012/13 and 2016/17 are identical. Five (5) sets of questionnaires were used to gather information from respondents: household questionnaire, non-farm household questionnaire, community questionnaire, governance, peace and security questionnaire and prices of food and non-food items questionnaire. The questionnaires reflected on key elements of socio-economic life.

The survey made use of a two-stage stratified sampling design. One advantage of a two-stage sampling process over a pure random sample process is that cost of the survey is reduced as well as the scope of the fieldwork. However, its main disadvantage is that standard errors are usually larger. At the first stage, 1200 and 1000 enumeration areas formed the primary sampling units (PSU) for 2012/13 and 2016/17 respectively. These were allocated into the 10 regions and the enumeration areas further divided into urban and rural residences. Selected PSU comprising of a list of complete households formed the secondary sampling units (SSU). 15 households were selected systematically from each of the PSU at the second stage. Thus, the total sample size for 2012/13 and 2016/17 were 18,000 and 14,009 households respectively. Fieldwork was conducted by personnel who underwent training. The fieldwork covered a twelve-month period for each respective survey. Results from the fieldwork was cross checked and monitored to ensure data quality. The survey received a response rate of 93.2 percent.

I duly obtained permission from the Ghana Statistical Service in December 2018 and February 2019 for use of this data for academic purposes.

4.2 Methodology

4.2.1 Measurement of poverty

The determination and use of a poverty line are necessary for econometrically analysing the socioeconomic correlates of poverty. The World Bank introduced a dollar-a-day poverty line in 1990. This has become the international poverty line and used to measure extreme poverty. It currently stands at $1.90 a day.

Poverty analysis in Ghana has concentrated on consumption poverty. The consumption needs of the household or individual involves both food and non-food items. Consumption poverty involves the calculation of the expenditure on a minimum consumption basket of an individual that enables him or her to satisfy both his or her basic food and non-food needs, and this expenditure is known as the poverty line (GSS, 2018). In Ghana, two poverty lines are used: upper poverty line (referred to as poverty line) and lower poverty line (referred to as the extreme poverty line) (GSS, 2018). The extreme poverty line is calculated based on the consumption expenditure for a minimum food basket of 2,900 calories per adult equivalent. This corresponds to 792.05 Ghana cedis ($1.10 per day). The absolute poverty line is calculated at 1314.00 Ghana cedis ($1.83) and is the result of any additional expenditure incurred on non-food items added to the extreme poverty line.

This study makes use of the national poverty lines defined by the Ghana Statistical Service as discussed above. Household standard of living was measured using the total consumption expenditure (GSS, 2018). This helped in differentiating the poor from the non-poor based on their aggregate expenditure on food and non-food items. The upper poverty line, which includes both essential food and non-food consumption, implied that individuals which consumed above this level were considered able to buy enough food to satisfy their nutritional requirements and their non-food needs. It connoted to 44.9 percent of mean consumption level in 2012/13. The lower poverty line connoted to 27.1 percent of the mean consumption level in 2012/13. This looks at what is needed to meet the nutritional requirements of household members. If total expenditure of individuals fell below this lower poverty line, they were deemed to be living in extreme poverty. This is because they wouldn't be able to meet their nutritional requirements even if all their budget was allocated to food.

In measuring poverty, a number of methods can be identified: the headcount index, poverty gap index and poverty gap squared index (GSS, 2017).

The Headcount index refers to the number of the population who are poor. It is calculated by dividing the number of poor individuals by the total number of individuals in the population thus measuring the percentage of the population beneath the poverty line. It is known as the simplest poverty measure. The poverty incidence or headcount ratio can be expressed as:

$$H = P_o = (\frac{q}{n})\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Where q is number of individuals under the poverty line and n is total population

Although the headcount index makes it beneficial to easily track the percentage changes of the population, it is very poor in revealing the extent or depth of poverty.

The poverty gap helps revealing the extent of poverty. The poverty gap ratio is the difference between the poverty line and the mean income of the poor (Anyanwu, 1997). It reveals how poor the poor are or the extent of the poor averagely. It measures the amount of money that would be needed or required to raise the average poor up to the poverty line expressed as I or the average income shortfall (Anyanwu, 1997). It can be expressed as:

$$I = (\frac{z-y_a}{z})\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots..(2)$$

Where I is average income shortfall, y is average income of the poor and z is poverty line

Combining the numbers of both poor and depth of poverty would result from the product of H and I. We can refer to it as P_1, thus the P_1 ratio is:

$$P_1 = HI = \frac{q}{n} * \frac{z-y_a}{z}\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(3)$$

The poverty gap shows the **depth** of poverty but unable to distinguish the poorest amongst the poor. It hence doesn't reveal how **severe poverty** is.

A combination of the headcount ratio and the poverty gap index still cannot adequately reveal how severe poverty is because there might be some transfer from the poor to "a relatively richer one" one but since both are below the poverty line, no changes in the headcount or poverty gap is recorded. Implying that inequality amongst the poor isn't observed or allowed.

Foster, Greer and Thorbecke (1984) composed a class of additively decomposable measures (P_a). It incorporates the poverty index and poverty gap. It reveals a distributionally sensitive measure by employing a choice of 'poverty aversion' parameter 'a'. The severity of poverty

depends on the size of *a*. The larger the size of *a*, the greater weight attached to the severity of poverty. This poverty measure satisfies the three axioms of sensitivity to changes in inequality, changes in income gap and changes in the number of the poor. In the Foster-Greer-Thorbecke (FGT) class of measures, poverty is viewed as dependent on the poverty gap ratio, with the power of the ratio being parameter *a*.

$$P_a = \frac{1}{n} \Sigma_{i=1}^{q} \left(\frac{z-y}{z}\right) a \qquad \text{………………………………………………………(4)}$$

Where:

a is poverty aversion parameter which can be a value of 0,1,2 depending on what we are interested in; *n* is aggregate number of household; *q* is number of households under the poverty line; *y* is welfare measure of household; $z - y$ is shortfall below the poverty line.

When $a > 0$, P_a meets the monotonicity axiom defined by Sen. A decrease in the mean income, must led to an increase in the poverty measure. When $a > 1$, P_a meets the weak transfer axiom of Sen. This indicates that there is a resultant rise in the value of the poverty measure if a pure transfer takes place from a poor individual who is beneath the poverty line z to a richer individual. When a > 2, P_a Kwakwani's transfer sensitivity axiom is satisfied. This states that if a transfer of income takes place from a poor person with income I to a person with income (I+γ), then for a given γ>0 the magnitude of increase in the poverty measure decreases as I increases (Adane, 2003).

4.2.2 The Probit Regression Model

This study employs probability regression model in finding out how socioeconomic variables relate to poverty in Ghana. I did so by using repeated cross-sectional survey data conducted in 2012/13 and 2016/17. To identify the factors that contribute to the likelihood of a household being considered poor, I employ a probability model. This is because when the dependent variable is binary (0,1), OLS regression technique produces parameter estimates that are inefficient and heteroscedastic error structure (Adane, 2003). This leads to inaccurate and misleading hypothesis testing and confidence interval. According to Ranathunga and Gibson (2015), probability models are one of the appropriate regression techniques used for analysing regressions with discrete dichotomous natures. Either a probit or logit technique can be employed. This is because they produce fairly similar results and are only differentiated by their probability distribution functions. Whiles probit involves the

cumulative normal probability distribution function, logit involves the logistic probability distribution function (Adane, 2003). Probit and logit models have advantage over other models like OLS when analysing dichotomous variables because they solve the heteroscedasticity problem and predicted probabilities would be in the range of zero and one. I therefore choose to analyse my data with the probit regression model. The dependent variable of the model is poverty status of the household. I have aggregated the extremely poor and poor into one category and so deem a household as poor if he/she falls below the upper poverty line. I assign a value of 1 to a household if poor and a value of 0 if non poor. Thus, the predicted values lie between one and zero. And the predicted values are explained as probabilities.

The probit model is shown as follows:

$Y_i^* = X_i\beta + \varepsilon_i$ …………………………………………………… (5)

Where Y_i^* represents the latent variable denoting propensity to have Y=1(i.e. household to be beneath the upper bound poverty line), X_i is a matrix of independent variables (K × 1regressor vector; K denotes number of parameters), β is a vector of parameters to be estimated and ε_i is the error term with the assumption of being normally distributed.

The binary variable is defined as:

y= 1 if y* < z and

y= 0 if y* > z

z = national poverty line.

y= observed variable

The binary logistic model is represented as:

Prob (y=1|X) = (Xβ) ………………………………………………. (6)

Table 4.1: Definition and measurement of variables

Variable	Definition
Poverty status	This variable was used as the dependent variable. Poverty status was defined as non poor, poor or very poor. Households whose poverty levels lied above 1314 cedis a day were classified as non poor; below 792.05 cedis as very poor and between 1314 and 792.05 cedis as poor. Poor and very poor categories were combined to form the poor status of the household.
Locality/area of residence	This variable measured the geographical location of households. 0 represented households in rural areas whiles 1 represented household in urban areas.
Household size	This measures the number of people in a household. The minimum household size was 1 and the maximum household size was 28. This work expects large household sizes to be poorer than smaller household sizes.
Sex	Sex of household heads was grouped into male and females. 0 represented female-headed households whiles 1 represented male-headed households.
Age	This was used as an independent variable and ranged between 0 and 99 years.
Ecological zones	Four ecological zones were identified: the coastal, forest, savannah and Greater Accra metropolitan area. Coastal zone was used as reference in this category. It is expected that households in the Accra area would be less poor because they are in urban areas.
Literacy	This variable is defined as the ability to read or write. 1 represented the ability to read and write whilst 0 represented otherwise.
Ever attended	This variable indicates whether one has ever stepped into school during his or her lifetime. 0 indicates never been to school and 1 indicates been to school before.
Employment status	It measured whether one was actively working or not. Those who were unemployed and not in labour force were grouped together as unemployed in this study. 1 represented those who are employed and 0 represented those who are not.
Marital status	This variable showed whether household heads were living together, divorced, married monogamously or polygamously, widowed or never married. It is expected to have a meaningful effect on poverty status
Level of education	This variable was grouped in 5 categories to reflect the

educational levels of household heads. It is expected to impact poverty status both positively and negatively.

4.3 Summary statistics

Table 4.2: Introduction to dependent variable

Poverty status	2012/13 Frequency (%)	2016/17 Frequency (%)
Non poor	12,758 (76.07)	10,427 (74.43)
Poor	2,367 (14.11)	2,060 (14.70)
Very poor	1,647 (9.82)	1,522 (10.86)

Non poor households decreased by 2% from 2012 to 2017. Poor households increased marginally, and very poor households increased a little above 1% from 2012 to 2017.

Table 4.3: Introduction to explanatory variables

Continuous/Dummy	2012/13 (mean, std.deviation)	2017 (mean, std deviation)
Location (rural/urban)	1.444 (0.497)	1.430 (0.495)
Household size	4.264 (2.783)	4.200 (2.867)
Employment status	1.003 (0.601)	1.331 (0.683)
Literacy	1.527 (0.557)	1.402 (0.535)
Ever attended	1.685 (0.465)	1.786 (0.410)
Sex of household head	1.718 (0.450)	1.485 (0.499)

The differences between means of the populations in 2012 and 2017 are very marginal. Variations from the mean were higher sex of household head, employment status and household size in 2017 than in 2012. Overall, mean and standard deviations for both years are similar.

4.3.1 Introduction to categorical variables

Table 4.4: Educational level

	2012/13 (%)	2016/17 (%)
no education	28.4	20.8
adult literacy program	3.4	0.9
primary (completed and not completed)	49.9	66.1
secondary or post-secondary	13.0	10.5
university and higher	5.2	1.7

Household heads that attained university education fell by 3.5% from 2012 to 2017. The highest difference was recorded for household heads with primary education. It increased by 16.2% from 2012 to 2017. Household heads without education reduced from 28% in 2012 to 21% in 2017.

Table 4.5: Marital status

	2012/13 (%)	2016/17 (%)
Common law, living together	8.4	6.1
Divorced/separated	10.6	4.7
Married monogamous	54.7	34.6
Married polygamous	4.3	4.1
Never married	10.7	43.4
Widowed	11.4	7.0

Only 4.7% of household heads in 2017 were divorced as compared to 11% in 2012. 43% of households in 2017 were never married whilst 10% were never married in 2012. Widowed heads were 11.4% and 7% in 2012 and 2017 respectively.

Table 4.6: Ecological zones

	2012/13 (%)	2016/17 (%)
Coastal	13.8	20.5
Forest	41.7	39.8
Savannah	34.4	35.3

Coastal zones accounted for 14% and 21% of household heads respectively in 2012/13 and 2016/17. Compared to the Savannah zone, there was a slight increase from 2012 to 2017. Forest zones were the most settled zones by households for both years.

4.4 Introduction to demographic statistics

Table 4.7: Sex

	2012/13 Frequency (%)	2016/17 Frequency (%)
Female	4,729 (28.20)	30,313 (51.5)
Male	12,043 (71.80)	28,531 (48.5)

Households headed by males exceeded female headed households by 44% in 2012/13. But in 2016/17, majority of households were dominated by females (52% to 49%). Female headed households in 2012/13 were less than that of 2016/17 by 24%. Male headed households in 2012/13 were more than those in 2016/17 by 23%.

5. RESULTS AND DISCUSSION

The results and analysis of the econometric estimation of the data is discussed in this chapter. Table 5.1 indicates the results of the binomial probit model. This is followed in section 5.2 with the interpretation of the results.

5.1 Results of Binomial Probit model

Probit model was used to analyse how selected household socioeconomic characteristics are correlated or associated to poverty status. The coefficient and t-test for both years are reported below.

Table 5.1: Estimated results of Binomial Probit Model of socioeconomic variables correlated to poverty in Ghana 2012/13 and 2016/17

X's	2012/13		2016/17	
	Coefficient	t-test	Coefficient	t-test
Urban	-0.633**	-21.31	-1.033**	-26.20
Household size	0.154**	28.84	0.139**	23.75
Male	0.842**	2.23	-0.063	-0.19
Age of Household head	0.001	1.58	0.001	0.47
Ecological zones				
Forest	-0.028	-0.69	-0.045	-0.89
Savannah	0.531**	12.68	0.922**	19.04
Employed	-0.096	-1.11	-0.309**	-7.86
Literacy	-0.284**	-8.23	-0.024	-0.54
Ever attended	0.065	0.31	1.160	1.45
Level of education				
Adult education program	-0.358**	-5.82	0.299	1.04
Primary	-0.307	-1.42	-1.006	-1.25
Secondary and post secondary	-0.743**	-3.33	-0.983	-1.22
University or higher	-1.101**	-4.54	-1.106	-1.37
Marital status				

Divorced/separated	0.003	0.05	0.086	0.99
Married monogamously	-0.055	-1.16	-0.047	-0.73
Married polygamously	-0.452**	-5.99	0.149	0.68
Never married	0.091	1.31	-0.039	-0.61
Widowed	0.101	1.56	-0.057	-0.57
Intercept	-1.078	0.000	-1.238	0.000
Observations	16764		9461	
LR chi2(18)	4937.81		3458.13	
Prob > chi2	0.000		0.000	
Pseudo R2	0.2677		0.3124	

** Significant at 0.05

Probit regressions involve regression coefficients which have an effect on the probability. The coefficients depict odds and not just simple numerical relationships. The coefficients in the model are explained as interpretation of the probabilities but to give a numerical effect, i use the marginal effects at mean (MEM). The general definition is marginal effect of x (change in the predicted probabilities) when x is increased by one unit and all other variables are held constant at their means. The full results of the margin are provided as an appendix as well as the margin plots derived for the model. The results of the predicted probabilities of the probit model are shown below. Comparisons are made between the two years in question at 95% confidence interval

Table 5.1 shows the log likelihood estimation results for the probit model explaining the probability of being poor in Ghana. A cross sectional analysis is made between years 2012/13 and 2016/17 to find out factors that influence welfare or poverty status. The pseudo R2 values of 0.2677 and 0.3124 for the two models represent a very good fit model. The likelihood ratio (LR) chi-square test statistic indicate 18 predictors for the model overall thus 18 degrees of freedom. The p-values of 0.000 indicate that the model is statistically significant.

5.2 Interpretation of results

Living in rural areas increases the probability of being poor. This is not surprising as rural poverty has accounted for more than 80% of Ghana's poverty incidence between 2005 to 2017. Ennin et al (2011) also established similar findings in their work. Rural incomes seem

to be low compared to urban incomes. Because job availability is higher in urban areas than in rural areas, rural-urban migration is higher in Ghana. This is evidenced by the surge in urban population by nine times more than the total population of the country between the censuses of 1921 and 1960. Also, uneven development existing between the urban and rural areas makes it difficult for rural households to be empowered to live above the poverty line. Educational and entertainment facilities, good health care, telecommunications and credit facilities are mostly found in urban areas thus increasing the human resource value of urban residents in earning high paying jobs. Lack of credit facilities in rural areas inhibits their capital accumulation. The predicted probability of a household head becoming poor reduces from 24% when he/she lives in a rural area to 9% when he/she lives in an urban area for 2012/13. For 2016/17, we see that there is a decrease from 32% to 7%. Households living in urban areas have high probability of being non poor than those in rural areas.

The coefficient and significant levels of household size variable were expected. In both years, increased household size is associated with a probability of being poor. According to the 2010 Ghana Population and Housing Census report, the dependent population (below 15 years and above 64 years) was 44% of the total population. With a total unemployment rate of 11.9% of the total active labour force, it is evident that fewer household heads may be capable of providing support to their members. It is thus likely for a household with a large size to be more prone to poverty than a household with a smaller size. This is consistent with the findings of Donkor (2010), White and Masset (2003) and Ranathunga and Gibson (2015).

Male headed households are more likely to be poor than female headed households in 2012/13. In most Ghanaian cultures, breadwinning is the primary responsibility of a man with a little support from the wife. If the man is unemployed and unable to make ends meet, it increases the probability of the household being poor as all members depend on him for support. Donkor (2010) also estimated that male headed households in Ghana are poorer than female headed households. Also, most interventions by non-governmental organisations to reduce poverty are targeted at improving female livelihoods in the rural areas. This could explain the reduction in poverty amongst female headed households. On the contrary, feminization of poverty is more pronounced insignificantly in 2017. Female-headed households are likely to be poorer than male headed ones. Buvinic et al (1978) cited modernisation as a prime cause of this. The aim of trying to transform rural ways of living to act as urban ones mostly leaves females vulnerable as it takes time for them to fit in. Sekhampu (2009) found out that household size was one factor that increased the probability

of a female-headed household in South Africa becoming poor. Anyanwu (1997) revealed a high probability of female headed households being poorer in Nigeria than male headed households. The predicted probability of a household head being poor in 2012/13 increases from 15% if she's a female to 17% if he's a male. Female headed households in 2016/17 are poorer (20%) compared to male headed households in 2012/13 (15%).

The likelihood of being poor increased with households whose heads are old in both 2012 and 2017. This met the prior expectations of this study as older people are mostly retired or have decreased incentives to work. They therefore mostly engage in peasant work. The economically active population averages around 14 million people. Over the past years, efforts have been made to empower the youth. Notable among them is the National Youth Employment Program (NYEP) that provides skills to the youth.

Of the ecological zones, the forest areas were insignificant in 2012 and 2017 whilst the Savannah areas were significant for both years. Households living in coastal areas are likely to be poorer than those in forest areas. There is a high probability for households in savannah areas to be poorer than those in coastal areas. According to GSS (2018), poverty incidence is higher in the rural savannah areas than other ecological zones. Altogether, poverty incidence increased in the rural savannah zone from 55% in 2012/13 to 67.7% in 2016/17. During the same periods, the rural coastal areas experienced a reduction from 30.3% to 29% (GSS, 2018). Household heads living in savannah zones are predicted to be the poorest: 28% (2012) and 39% (2017) compared to household heads living in coastal areas 13% (2012) and 11% (2017). The number of poor household heads in the savannah zone increased by 11% from 2012/13 to 2016/17 whiles those in the forest zones decreased by 2% within the same period.

For 2012/13, the likelihood of a household head being poor reduces significantly compared to one with no education if the household head has attained an adult education program. Household heads with lower levels of education (primary and secondary education) also have insignificantly lower probability of being poor as compared to those with no education. As one attains higher levels of education, the likelihood of being non-poor increases. Since education increases the stock of human capital, this is not surprising. Datt and Jolliffe (2005) buttressed this when they found out in their study that welfare increased for every one and two-year increase in average schooling of a household head. The prior expectations were same for the year 2016/17 in all educational levels except adult education which increased the probability of a household head being poor than a household head with no education.

Cegolon (2017) suggests a negative effect of age to adult skills. The association between age and numeracy and skills reduces as age increases as compared to the youngest individual. Anyanwu (1997) however estimated that the probability of one being poor increases with education in Nigeria. Thus, education is not sufficient as a factor alone to help one escape from poverty. Holding all variables at their mean values for both years, the probability of a household head being poor is 25% (2012) and 51% (2017) among those with no education;16%(2012) and 52%(2017) among those with adult education and 3%(2012) and 14%(2017) among those with University education. Household heads with no education in 2012/13 have highest probability of being poor (25%) whilst those with adult education have highest predicted probability of being poor in 2016/17 (52%).

Households with literate heads have a high probability of being non poor than households with heads who cannot read or write. This is not different from expected as majority of illiterate household heads are found in the rural areas of Africa where the poverty incidence is high. The source of income for illiterate household heads may be small as they mostly engage in agriculture. Literate household heads may be public servants or self-employed who generate much income averagely. Interestingly, some adults who are household heads have currently enrolled into the government's Free Senior High School education program to learn numeracy and writing. Adult literacy rate is estimated at 77% in 2015. Household heads who can read and write are less likely to be poor (13%) than those who cannot (20%) in 2012. The probability for household heads being poor falls from 20% for those who can't read or write to 19% for those who can read and write. There was an increase in number of household heads who can read and write from 2012 to 2017 by 7%.

Household heads who are employed have low probability of being poor. This isn't a new phenomenon as employment acts as security and a source of hope for the future. Households with employed heads can be assured of at least the provision of nutritional and basic necessities of life. The probability of an employed household head in 2012/13 being predicted as poor is 16% as against 18% who is unemployed. Unemployed household heads increased by 8% between 2012 to 2017. There was a 2% increase in the number of household heads who were employed between 2012 and 2017. There is a high probability for unemployed households to be poorer than employed ones for both years.

One finding of this work that was not expected is the high probability of household heads who have never attended school being non poor than those who have ever been to school. This could be attributed partly to the freeze on public sector employment by the International Monetary Fund (IMF). Because the public sector employs a high percentage of the labour force, this has rendered many unemployed. Those who have never been to school can work in the agricultural sector and earn income. Ennin et al (2011) also found similar results in their analysis. Probability of household heads being predicted as poor if they have been to school before is 17% as against 15% if they have not. In 2017, household heads who haven't been to school have predicted probabilities of being poor by only 3% whilst those who have been to school before are predicted to be poor by 23%. The predicted probability of a household head who have been to school before being poor increased by 6% between 2012 and 2017.

Concerning marital status, household heads in monogamous and polygamous marriages are less likely to be poor as compared to household heads who are cohabiting for the year 2012/13. Couples in legal relationships have advantage in accessing government facilities than those in relationships not backed by law and may enjoy certain incentives. For 2016/17, household heads in monogamous marriages are less likely to be poor than those in cohabitation but not so for household heads who are in polygamous marriages. There is a positive correlation between household heads who are never married and poverty in 2012/13 but otherwise in 2016/17. Divorced or separated household heads have high probability of being poor than those who are living in cohabitation. The predicted probability of a household head being poor is 17% (2012) and 29% (2017) among those who live in cohabitation, 8% (2012) to 25% (2017) among those who are in monogamous marriages and 17% (2012) and 23% (2017) among those who are divorced or separated. The probability of a widow household head becoming poor decreased by 1% from 2012/13 to 2016/17.

In summary there exists a linkage between the socioeconomic factors considered in this study and the structural and cultural theories of poverty described in Chapter 3 of this work. Poverty is prevalent in rural areas than urban areas over the course of time. Children born into rural households would tend to see poverty as systematic and a continuation of their "identity". The way they see themselves prevents them from being socially mobile thus a perpetuating of their poverty conditions. This perhaps explains why it has been difficult to eradicate poverty in rural Africa even though massive efforts have been made through the

building of schools and provision of other amenities. Also, a household head who has never been to school would dare not venture to engage in any job considered for educated people. Illiterate household heads mostly engage in agriculture which does not require high level skills. The way they see themselves go a long way in perpetuating their poverty condition.

However, the socioeconomic settings in which the poor live can be changed to improve their living conditions. Socioeconomic factors like household size, employment, underemployment, low income etc. can be changed to directly affect the poor positively. Households with large sizes can be given government supports to improve their conditions. Provision of jobs and increase in wages can leap people from poverty. Thus, the structural setting in which the poor live can be fixed to positively improve their welfare.

6. CONCLUSION AND POLICY IMPLICATION

6.1 Summary

Poverty is multidimensional and can be explained from the social, political, historical and economic points of view. One great concern about poverty is its ability to prevent individuals and households from even operating on a subsistence level. Efforts to reduce poverty should encompass a careful consideration of all factors that create such a condition and try to harmonize it and find relevant society/country-specific means of overcoming it.

The study looked at assessing the factors that contribute to household poverty. It had the objective of finding out the degree of correlation of household socioeconomic characteristics like education and locality with poverty status. It examined the relationship between household poverty status and socioeconomic factors. The study made use of secondary data obtained from the sixth and seventh rounds of the Ghana Living Standard Survey of the Ghana Statistical Service. A two-stage stratified sampling design was used. At the first stage, the PSU comprised of 1200 enumeration areas. In the second stage, 15 households were systematically selected from each of the PSU that were divided into rural and urban areas from across the 10 regions of the country. 18,000 households were selected overall.

Welfare or poverty status was measured using the monetized consumption approach. A minimum food basket of 2900 calories per adult plus additional expenditure on non-food items was used to derive a poverty line. Households were measured as poor or non poor based on whether they lied above or below the poverty line. The degree of association of the selected socioeconomic correlates of poverty were estimated using a binomial probit model.

Using the test statistics, there is a significant difference between education and poverty status, with poverty decreasing with higher levels of education. The educational variables have large coefficients for both years but not all are significant. There is also a significant difference between location and poverty status. Households in rural areas are poorer than those in urban areas over the years. Variables like locality, household size and savannah zones were statistically significant at less than 5% probability levels. Educational level, sex of household head, ecological zones and literacy are strong correlates of poverty status of households. Some findings in the study were conspicuous. Households headed by males had high probability of being poorer than female headed households in 2012/13. Also, household heads who had never been to school had a high probability of being non poor than household heads who had been to school.

The findings of the study indicate the need to engage stakeholders to come out with relevant proposals and policies to tackle poverty. It is evident that poverty thrives at the micro level and amalgamates into a national issue.

6.2 Policy Implication

Some policies have been recommended to help alleviate poverty at the household level from the findings. These include:

(1) Policy to help facilitate access to microcredit for households. This would benefit both urban and rural households to expand production in both farm and non-farm activities.

(2) Agricultural policies geared at solving land tenure issues and bottlenecks associated with acquisition of farms in rural areas. Agricultural implements should be supplied freely to farmers to help them adopt modern technologies since the sector is the second highest contributor to GDP.

(3) Educational policies including increased supply of school uniforms, text books and other necessary learning materials aimed at encouraging people to attend school. Also, dormant educational policies like school feeding and existing ones like free universal compulsory education should be enforced.

(4) Policy to ensure massive infrastructure development in the rural areas. Construction of roads, schools, entertainment facilities should all be a priority to bring about even development between the rural and urban areas of the country.

(5) Regional-specific policies and directives that would tackle the identified grassroot cause of poverty in every region.

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8. APPENDICES

## APPENDIX 1: SUMMARY OF PREDICTED PROBABILITIES FOR PROBIT MODEL

	2012/13					2016/17			
		Delta-method					Delta-method		
Variable	Margin	Std. Error	z	P > |z|		Margin	Std. error	z	P > |z|
Educational Level									
No education	0.255	0.0477	5.35	0.000		0.512	0.284	1.80	0.072
Adult education program	0.155	0.0373	4.16	0.000		0.629	0.259	2.43	0.015
Primary	0.167	0.0177	9.46	0.000		0.164	0.022	7.19	0.000
Secondary and post secondary	0.08	0.0128	6.28	0.000		0.170	0.024	6.84	0.000
University or higher	0.039	0.0109	3.61	0.000		0.141	0.027	5.19	0.000
Locality									
Rural	0.243	0.0057	42.60	0.000		0.329	0.007	46.37	0.000
Urban	0.092	0.0039	23.14	0.000		0.070	0.004	15.07	0.000
Ecological Zone									
Coastal	0.132	0.0077	17.07	0.000		0.117	0.008	14.22	0.000
Forest	0.127	0.0045	27.75	0.000		0.108	0.005	19.63	0.000
GAMA	0.073	0.0101	7.29	0.000					
Savannah	0.280	0.0074	37.71	0.000		0.394	0.009	40.98	0.000
Sex									
Female	0.149	0.0072	20.59	0.000		0.195	0.006	28.93	0.000
Male	0.170	0.0046	36.85	0.000		0.193	0.007	27.26	0.000
Employment status									

Not employed	0.188	0.0227	8.26	0.000		0.268	0.012	23.14	0.000
Employed	0.163	0.0037	43.25	0.000		0.177	0.005	33.13	0.000
Literacy									
Can't read or write	0.202	0.0062	32.14	0.000		0.199	0.009	20.39	0.000
Can read or write	0.132	0.0049	26.37	0.000		0.193	0.006	30.22	0.000
Ever attended school									
Never attended	0.153	0.0352	4.35	0.000		0.029	0.047	0.62	0.537
Attended	0.169	0.0175	9.65	0.000		0.232	0.028	8.29	0.000
Marital Status									
Common law/cohabitation	0.171	0.0113	15.13	0.000		0.293	0.015	12.86	0.000
Divorced/separated	0.172	0.0113	15.11	0.000		0.229	0.020	11.05	0.000
Married monogamously	0.158	0.0048	32.79	0.000		0.190	0.009	20.89	0.000
Married polygamously	0.081	0.0093	8.63	0.000		0.248	0.067	3.68	0.000
Never married	0.1956	0.0154	12.69	0.000		0.192	0.009	21.03	0.000
Widowed	0.198	0.0123	16.12	0.000		0.188	0.023	8.30	0.000
No. of observations	**16764**					**9461**			

APPENDIX 2: USING MARGINS TO PREDICT PROBABILITIES OF CORRELATES OF HOUSEHOLD POVERTY
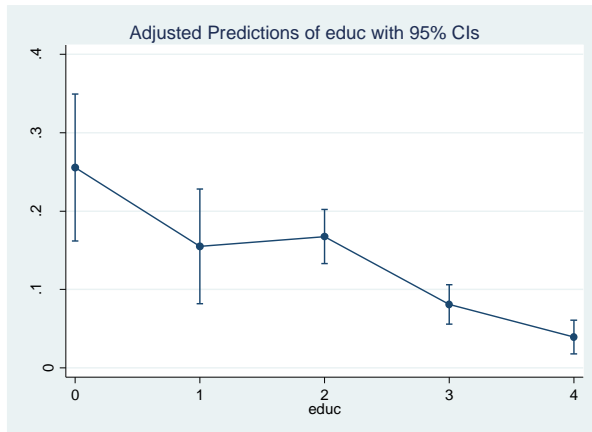
Educational level in 2012/13
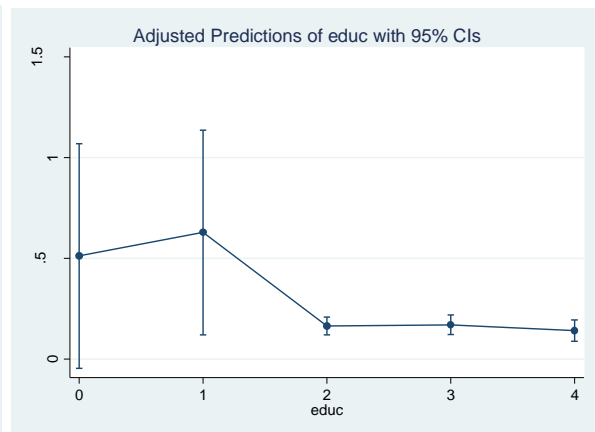
Educational level in 2016/17
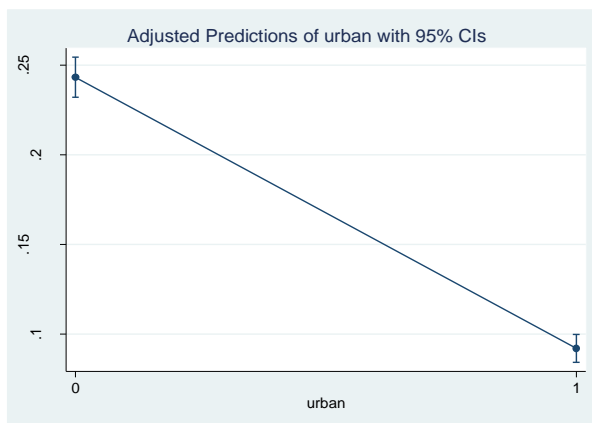
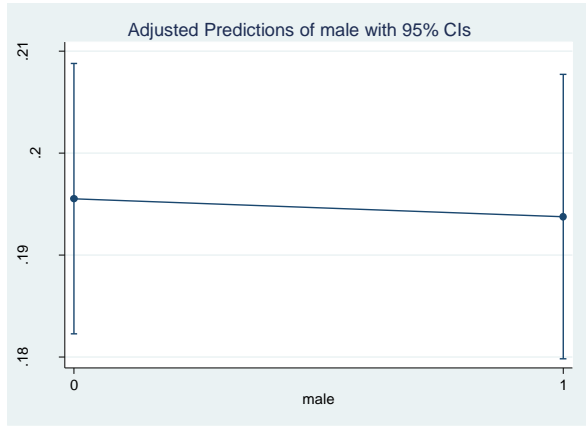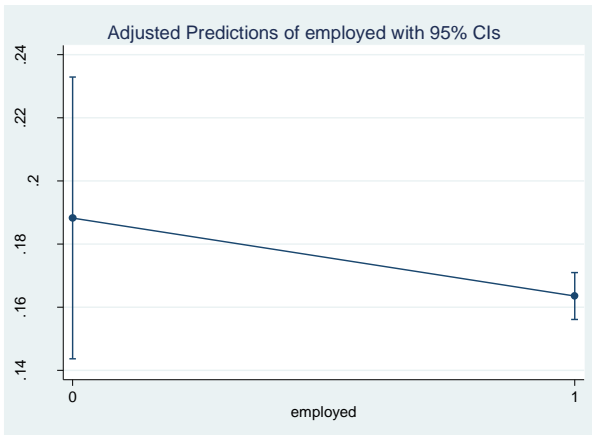**Locality 2012/13**
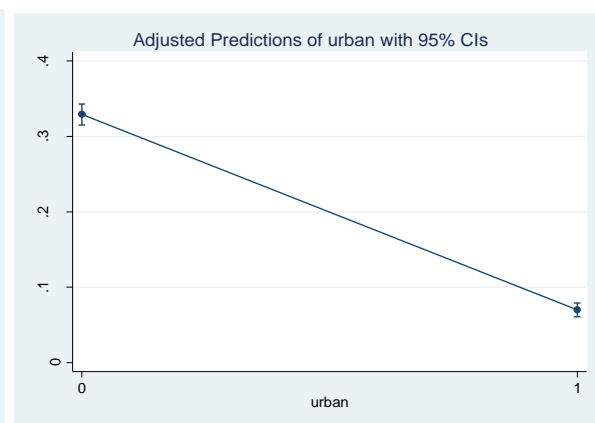
locality 2016/17
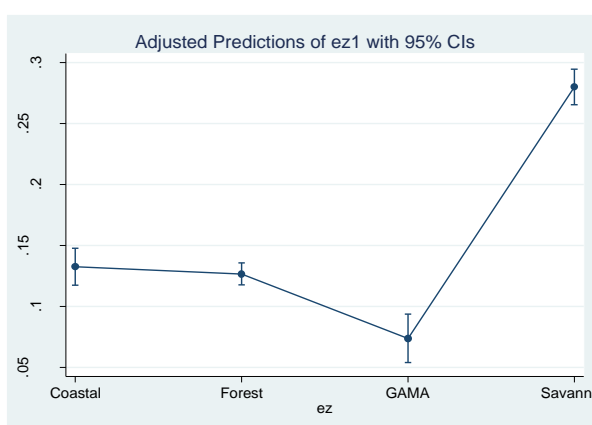
Ecological zone 2012/13
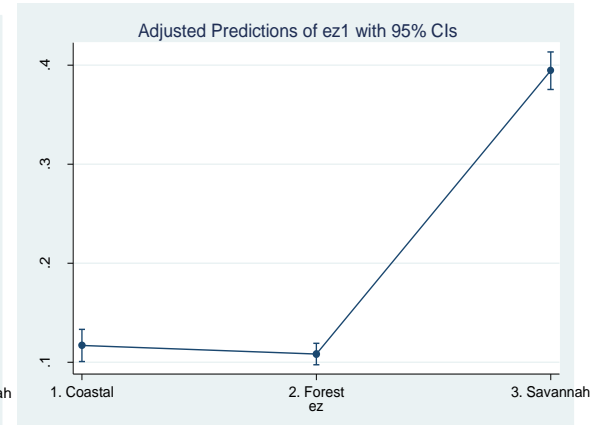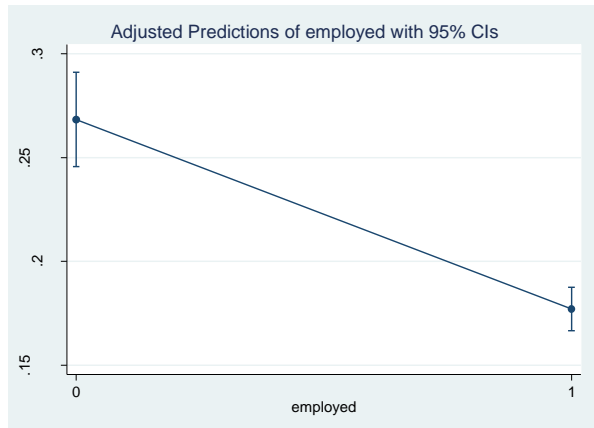

Ecological zone 2016/17
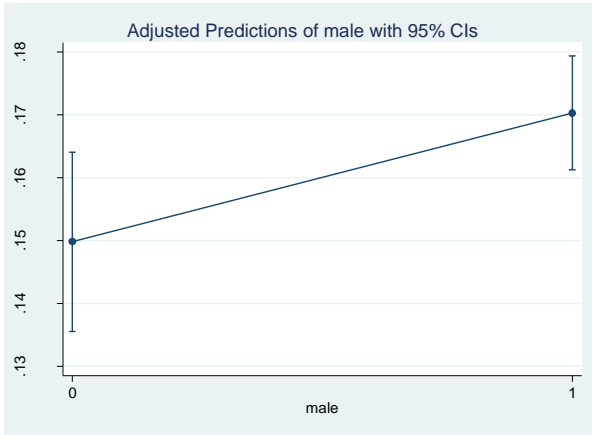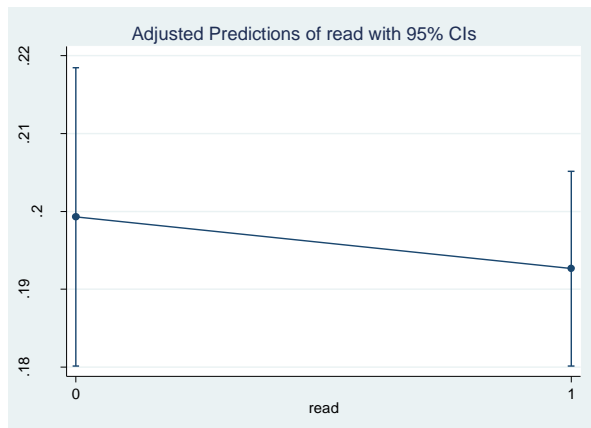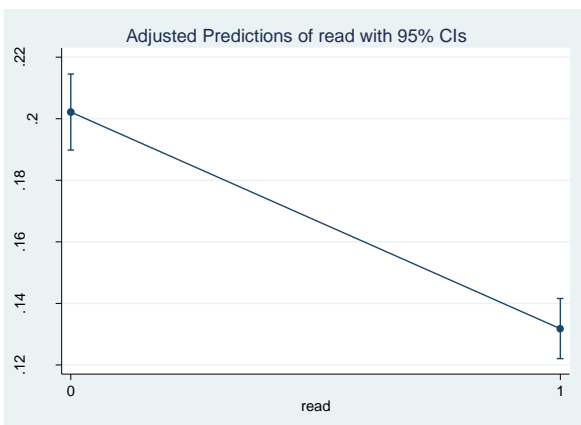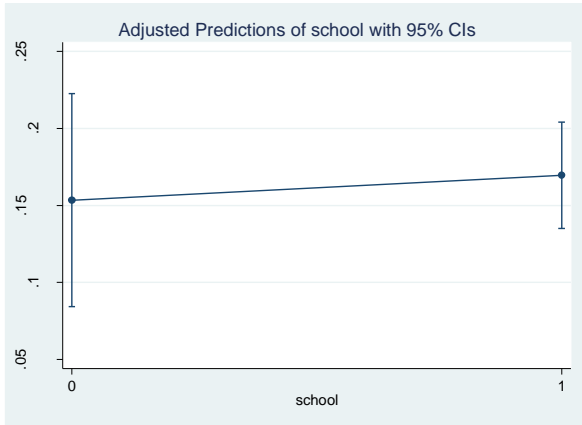
Sex in 2012/13

Sex in 2016/17

Employment status in 2012/13
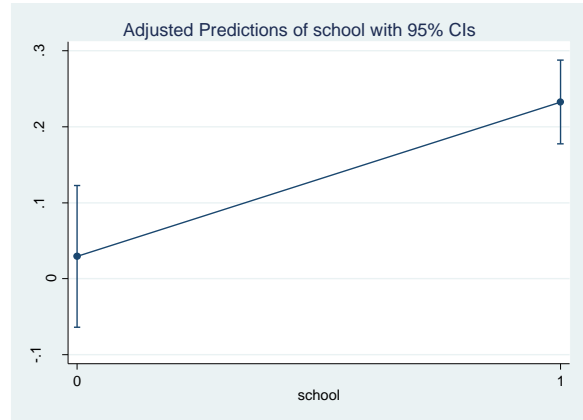

Employment status in 2016/17

Literacy in 2012/13

Literacy in 2016/17

Adjusted Predictions of school with 95% CIs

Adjusted Predictions of school with 95% CIs

Ever attended in 2012/13

Ever attended in 2016/17

.

Adjusted Predictions of HHMARST1 with 95% CIs

Adjusted Predictions of MARSTAT1 with 95% CIs

Marital status in 2012/13

Marital status in 2016/17