INEQUALITY DIAGNOSTICS FOR GHANA

ACEIR
African Centre of Excellence for Inequality Research

| An African Centre of Excellence for Inequality Research (ACEIR) Report |

Richmond Atta-Ankomah, Robert Darko Osei, Isaac Osei-Akoto, Felix Ankomah Asante, Abena D. Oduro, Nkechi Owoo, Monica Lambon-Quayefio, Stephen Afranie

| JULY 2020 |

ISSER University of Ghana Knowledge for Development
UNIVERSITY OF GHANA
ACEIR African Centre of Excellence for Inequality Research
AFD AGENCE FRANÇAISE DE DÉVELOPPEMENT

Inequality diagnostics for Ghana

An African Centre of Excellence for Inequality Research (ACEIR) Report

Richmond Atta-Ankomah[1]
Robert Darko Osei[1]
Isaac Osei-Akoto[1]
Felix Ankomah Asante[1]
Abena D. Oduro[2]
Nkechi Owoo[2]
Monica Lambon-Quayefio[2]
Stephen Afranie[3]

This project is of part of the EU-AFD Research Facility in Inequalities, funded by the European Union. The program coordinated by the AFD, which is leading more than 20 studies with academic and institutional partners in a number of developing, emerging and developed countries. The research projects supported in this context will be used to identify the most relevant approaches and policies to fight inequality.

Contact at AFD: DAVID Anda (davida@afd.fr)

Robert Darko Osei
Country Lead
ACEIR Ghana-Node
ISSER, University of Ghana
Accra
E: rdosei@ ug.edu.gh

1 Institute of Statistical, Social and Economic Research (ISSER), University of Ghana
2 Department of Economics, University of Ghana
3 Centre for Social Policy Studies (CSPS), University of Ghana

FOREWORD

Over the last three decades, many African countries have made good progress in terms of economic growth. Associated with this progress, many of the countries have experienced reduction in poverty levels. However, the reduction in poverty has not been commensurate with economic growth, even in better performing countries such as Ghana. Part of the reason may be the high levels of inequality, which has persisted in many African countries. This report documents the nature and dynamics of inequality in Ghana over time.

The report is undertaken by researchers of the Ghana node of the African Centre of Excellence for Inequality Research (ACEIR). ACEIR was established with the aim of addressing analytical, and data needs required for policy interventions, so as to turn the tide against inequality in Africa. The report uses data from the last three rounds of the Ghana Living Standards Surveys (GLSS) data conducted in 2005/06, 2012/13 and 2016/17 and the first two waves of the Ghana Socioeconomic Panel Survey data collected in 2009/2010 and 2013/2014 to explore the basic dynamics in economic and welfare mobility among households in Ghana. This is clearly a plus as it begins to properly explore answers to the question of why households move along a particular direction on the welfare ladder.

I hereby express my sincere admiration and compliments for the depth of the analytical skills exhibited by the researchers who have put this report together. It is my hope that the tools used and the results obtained will stimulate scholarly interest and influence policy decision based on a robust understanding of the link between economic growth, inequality and welfare outcomes in Ghana.

Professor Samuel K. Annim

Government Statistician

Ghana Statistical Service

Accra

EXECUTIVE SUMMARY

Many African countries have recorded significant economic progress over the last two decades, but the continent has not been able to reduce its poverty rates in commensurate proportions. In large part, this may be attributed to high levels of inequality or the role income distribution plays in poverty reduction. Hence, it is important for countries to better understand the nature of inequality and how it is changing over time. This report seeks to document the nature of inequality in Ghana and its dynamics over time. It does this by describing the different types of inequality and the various factors that drive these respective types over time. Ultimately, the motivation is to draw policy attention to the issues bordering on inequality and how it weakens the growth and poverty nexus in Ghana.

The analyses in the report are largely based on the last three rounds of the Ghana Living Standards Surveys (GLSS). The GLSS is a cross-sectional and nationally representative survey and the last three rounds were conducted in 2005/06, 2013/14 and 2016/17 respectively. The GLSS follows a two-stage stratified random sampling design. With the GLSS data, we explore inequality in household consumption expenditure, wage income for individuals in paid employment and household asset index derived from the ownership of household durable assets. Three measures of inequality – the Gini, the Theil L and the Palma indices – are used in this report as a way of complementing each other because of their different strengths and limitations. The Thiel's L is additively decomposable into within-group and between-group components and this feature allows us to determine the relative importance of the various possible drivers of inequality in Ghana. We also take advantage of the first two waves of the Ghana Socioeconomic Panel Survey (2009/2010 and 2013/2014) to explore some of the basic dynamics in economic and welfare mobility among Ghanaian households.

Our analyses show that consumption inequality at the national level has increased while the incidence of poverty has declined. The dynamics at the regional level are mixed: consumption inequality increased in some regions but fell in others over the survey periods. Some regions which experienced declines in poverty recorded increases in inequality while the reverse is observed for other regions. Generally, however, consumption inequality is high in regions with high incidence of poverty and low in regions with low incidence of poverty, and this positive association appears to have become stronger over time. In the three survey periods, the incidence of poverty was higher in the Northern Region, Upper West Region, Upper East Region and Volta Region than the other regions. These four regions also recorded relatively high levels of consumption inequality in all three periods. Both the incidence of poverty and inequality worsened in rural localities between 2012/13 and 2016/17 while for urban localities both the incidence of poverty and level of inequality fell. This suggests that the poor in the urban localities may have benefited more from economic growth within that period than the poor in rural localities.

The Thiel's L decomposition of consumption inequality shows that for all the different covariates that this report looked at, inequality was found to be largely from within the respective groups as opposed to between the groups. In other words, for most variables, inequality between groups accounted for only a small proportion of total inequality. In the case of the sex of the household head, for example, inequality between groups contributed less than 0.3 of a percentage point to total inequality in 2017.

We also find that the general trend in real wage income distribution, for individual in paid employment only, suggests that although the richest 10% account for a large share of real wage income, this share has witnessed some significant reduction over time. Apart from the top 10%, for which the average real wage fell between 2012/13 and 2016/17, all the deciles recorded consistent increases in the average real wage for the three periods, suggesting that there is a growing middle class population in Ghana. We also find that inequality declined in 2016/17 after an increase between 2005/06 and 2012/13. The trends and patterns of wage inequality in the regions also vary. The Greater Accra Region has the highest mean real wage for all the three periods while the average real wage in urban areas is significantly higher compared to rural areas. Wage inequality in rural localities is however higher than in urban areas. Similarly, average real wages have increased for both male and female-wage earners, but that of males is significantly higher than that of females while inequality is higher among female wage-earners than their male counterparts. The average real wages in the public sector are significantly higher than the private sector in all three periods. However, inequality in wages is lower for the public sector than it is for the private sector over the period, except in 2012/13, where the reverse is observed.

In terms of asset inequality we find that it increased between 2005/06 and 2012/13 but declined in 2016/17. Asset inequality was consistently higher in rural areas than in urban areas and was lower among male-headed households than among their female counterparts.

We find that households within higher welfare quintiles tend to have increased access to electricity, toilet facilities, appropriate waste disposal methods and live in better quality houses, compared to those within the lower welfare quintiles. Moreover, access to social amenities favours urban households more than rural households while the Northern Region, Upper East Region and Upper West Region have very low access to social amenities, compared to the other regions. Female-headed households generally have better access to social amenities than their male counterparts. However, we argue that this should not be interpreted to mean that females have better access to social amenities compared to males. Rather it is suggestive of the fact that when heads of households are women, they tend to favour welfare improving amenities.

We also find that economic and welfare mobility among Ghanaian households between 2009 and 2014, based on analysis from the Ghana Socioeconomic Survey data, largely corroborates the trends and dynamics of welfare depicted by the analyses from the three waves of the GLSS. Between 2009 and 2014, 9 percent of all households remained in poverty while 29 percent moved into or moved out of poverty. This may suggest that most of those who move out of poverty are still close to the poverty line and have minimal impact on inequality. Added to this is the fact that an equally large number of households also moved from being non-poor into poverty and mobility into the higher quintiles remained low. This may be explaining the persistence of inequality in Ghana in the face of reducing poverty.

In conclusion, we note that although successive governments have managed to put Ghana on a relatively stable and high growth path and achieved significant reduction in poverty, inequality persists in Ghana. We therefore suggest that there is the need to further deepen inclusive growth policies and strategies through the following:

a. Enhancing general access to social amenities and services by investing more in economic and social infrastructure while ensuring that financial constraints for poor households are minimised, as it negatively affect access to some of these services.

b. Ensuring that any programme of enhanced investment in social and economic infrastructure addresses existing regional or locational disparities in the distribution of these services.

c. Enhancing existing social protection programmes, by expanding coverage, addressing targeting challenges, and embedding production inclusion strategies into these programmes.

d. Addressing gender constraints in labour market that negatively affect labour market outcomes for women.

Table of contents

List of Tables

List of Figures

ACRONYMS

ACEIR	African Centre for Inequality Research
BECE	Basic Education Certificate Examination.
CPESDP	Coordinated Programme of Economic and Social Development Policies
EAs	Enumeration Areas
ERP	Economic Recovery Programme
ESP	Education Strategy Plan
FCUBE	Free Compulsory Universal Basic Education
GDP	Gross Domestic Product
GE	Generalized Entropy
GES	Ghana Education Service
GSS	Ghana Statistical Service
GLSS	Ghana Living Standards Survey
GoG	Government of Ghana
GPRS	Ghana Poverty Reduction Strategy
GSGDA	Ghana Shared Growth and Development Agenda
ISSER	Institute of Statistical Social and Economic Research
LEAP	Livelihood Empowerment Against Poverty
MASLOC	Microfinance and Small Loans Centre
MDAs	Ministries, Departments and Agencies
MDG	Million Development Goal
MMDAs	Ministries, Municipalities, Departments and Agencies
MoE	Ministry of Education
MSLC	Middle School Leaving Certificate
MTEF	Medium Term Expenditure Framework
NHIS	National Health Insurance Scheme
PCA	Principal Component Analysis
PAYE	Pay As You Earn
PNDC	Provisional National Defence Council
SDGs	Sustainable Development Goals
SHS	Senior High School
UNCTAD	United Nations Conference on Trade and Development
UNICEF	United Nations Child Education Fund

1. INTRODUCTION & BACKGROUND

1.1 Introduction

In spite of the significant economic progress recorded in many African countries over the last two decades, the continent has not been able to reduce its poverty rates in commensurate proportions. This, according to Fosu (2015), may be attributed in large part to the initial high levels of inequality. In understanding the economic growth – poverty nexus, studies such as Easterly (2000); Adams (2004) and Chen and Ravallion (2008) have all highlighted the critical role that income distribution plays in the poverty reduction story. Specifically, these studies have argued that lower initial inequality would imply a greater income elasticity which then translates into larger reductions in poverty levels with increases in national income levels. As shown by Ravallion (2011) and Fosu (2015), understanding country specific idiosyncrasies with respect to inequalities, will provide a guide to policy makers in developing countries as they formulate policies to achieve the sustainable development goals.

With this backdrop, it is critical for any country to understand the nature of its inequality as well as the dynamics over time, so as to formulate the most appropriate policies to achieve the SDG on poverty reduction. It is in view of this that the African Centre of Excellence for Inequality Research (ACEIR) has developed a handbook for inequality diagnostics to provide policy makers and other

stakeholders with relevant and current data to facilitate the policy discourse on inequality (and poverty) in the respective countries. This diagnostic report is aimed at providing a documentation of the nature of inequality in Ghana and how this has changed over the years. The report describes the different types of inequality and the various factors that drive these different types of inequality over time. The report mainly relies on the last three rounds of the Ghana Living Standards Survey (GLSS). The GLSS is a cross-sectional and nationally representative survey, and the last three rounds were conducted in 2005/06, 2013/14 and 2016/17 respectively. Using the three rounds allows us to examine the nature of inequality and how it has changed over time, particularly in the last decade. To provide insights into economic and welfare mobility among households in Ghana, we also use the Ghana Socioeconomic Panel Survey, of which two waves (2009/10 and (2013/14) are currently available, to explore the extent and nature of economic mobility or transitions that occurred between the two waves.

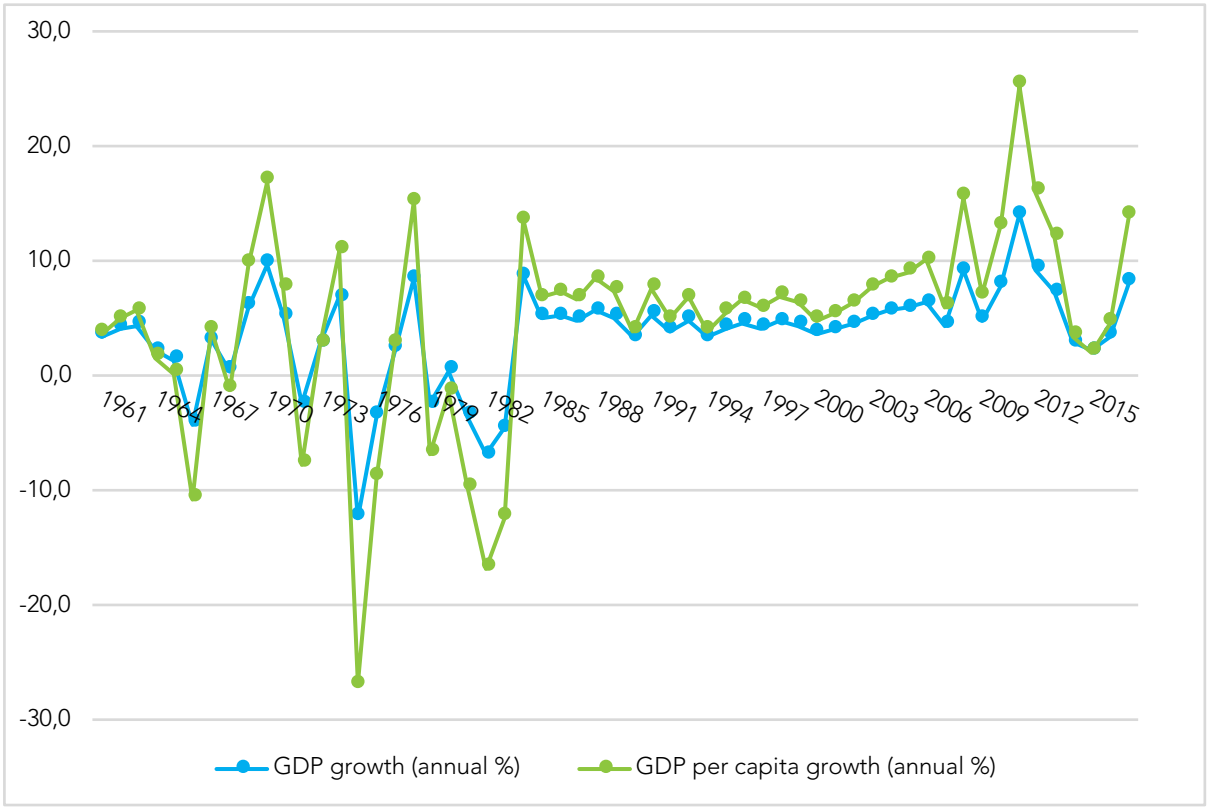
The report is structured as follows. The first section provides the economic and social background to the current report, followed by a review of the policy space in Section 2. Section 3 provides a description of the data and the methodology used for the analysis. Section 4 discusses the results, while Section 5 and 6 respectively provide the conclusion and recommendations respectively.

1.2 Background and Context

1.2.1 Trends in GDP growth and economic structure

The growth story of the country can be recounted under two main periods: the pre- and post-reform periods. The pre-reform period, 1961 to 1982, was characterized by low, downward-trending and highly unstable GDP growth rates (Figure 1). However, about half a decade of this period (that is, 1960-1966) was devoted to a massive industrialization programme by the then Nkrumah`s administration (Killick, 2010). The oil price shocks in the 1970s, political instability and severe droughts that hit the country in the early 1980s contributed to the decline in GDP growth rates in the pre-reform era. Also, the poor economic performance during the pre-reform period has been associated with a continuous implementation of anti-liberalization policies such as state ownership of enterprises, and credit, exchange rate and price control regimes, among others during this period (see Sowa 2002). Thus, it was against this backdrop that the government of the Provisional National Defence Council (PNDC) embarked on the Economic Recovery Programme / Structural Adjustment Programme (ERP/SAP) in 1983. This reform saw the implementation of neo-liberal policies such as deregulation of state controls, liberalization of trade, encouragement of foreign direct investment, abolition of exchange rate and credit controls, withdrawal of subsidies and reduction in welfare programmes (Hague, 1999). Generally, the reform focused extensively on macroeconomic stabilisation and economic growth with little attention to poverty reduction and income distribution until the early 2000s when it became clear that the adjustment policies had had some adverse poverty and distributional effects (Sowa, 2002).

FIGURE 1: GDP growth and GDP per Capita Growth, 1961 - 2017

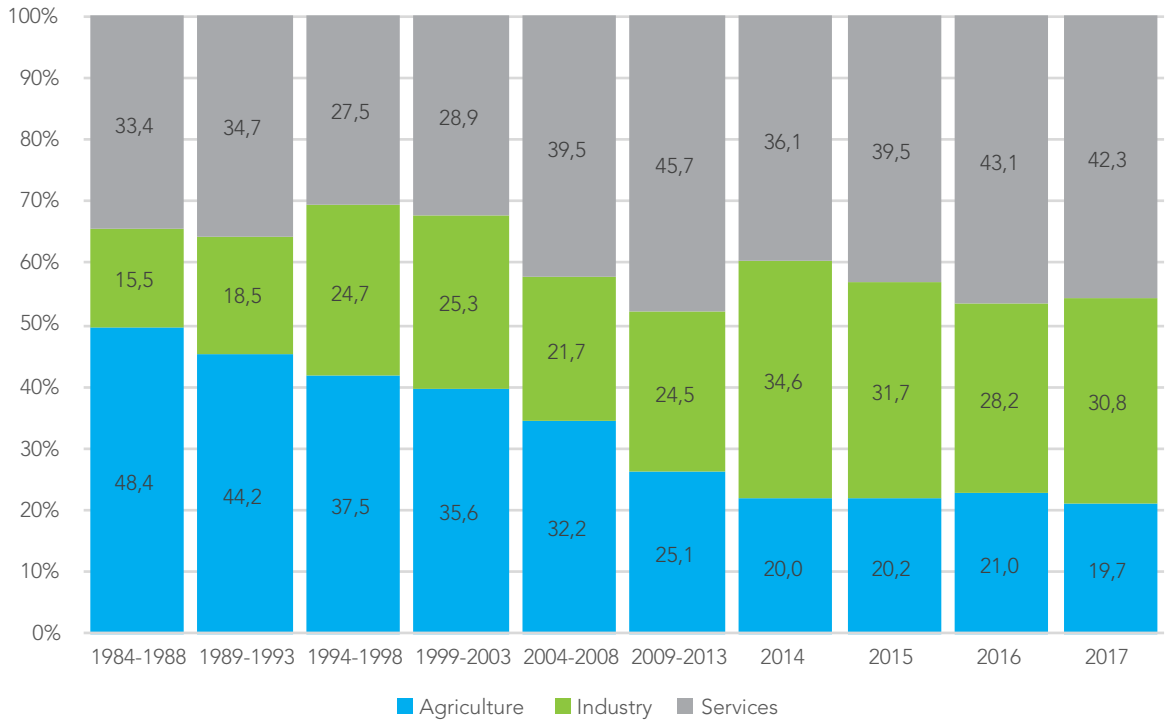


Source: Authors' construction based on data from the World Development Indicators, World Bank (2018)

Figure 1 indicates that GDP growth rate responded positively to the reform. Specifically, GDP growth rate increased from an average of -1.17 percent in the period 1981-985 to an average of 5.16 percent in 1986- 1990. It is important to note that since the period 1986-1990, GDP growth rates have remained positive and followed an upward trajectory. The growth resurgence has been partly attributed to the implementation of the ERP (Osei & Jedwab, 2016). To some extent, the country's economic growth has also exhibited some resilience to external shocks. For example, in spite of the global financial crisis which began 2007, GDP growth averaged 6.13 percent for the period 2006-2010, and was higher than the average of 4.60 percent for the period 2001-2005. The period 2011-2015 recorded an increase in the average GDP growth rate of 2.16 percent over what was achieved for the 2006-2010 period.

An important trend that can also be associated with the reform is the changing structure of Ghana's economy. Traditionally, Ghana's economy was predominantly agrarian. Figure 2, however, shows that the agricultural sector, which was the largest contributor to GDP in 1984-88 period, lost grounds to the services sector during 2004-2008 period. More recently, the industrial sector's contribution to GDP has also become larger than that of the agricultural sector, particularly with the emergence of oil production in Ghana. While the GDP contribution of industrial sector has doubled and that of services has increased by about 10 percentage points, compared to their corresponding contributions in 1984-88 period, agricultural sector's contribution fell by nearly 30 percentage points. The dominance of the services sector in terms of its share of GDP since 2004-08 period has been attributed to emerging services and heightened demand for technologically-driven products and services (ISSER, 2017).

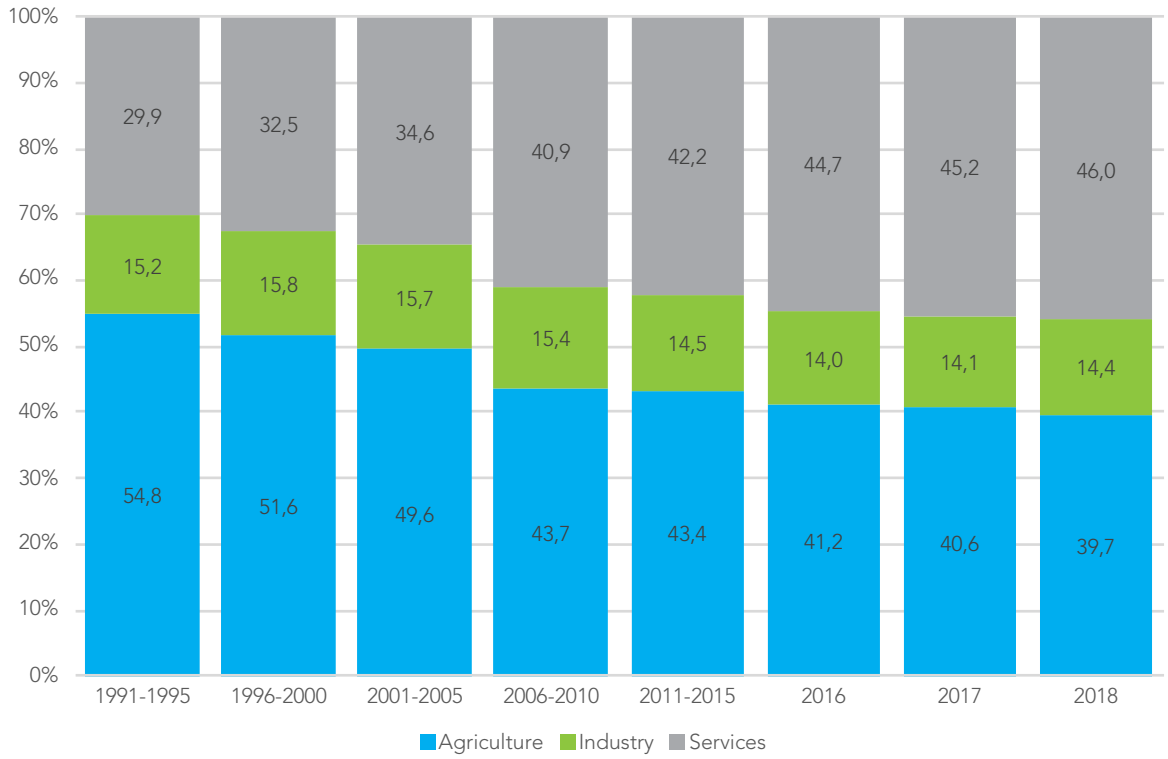
FIGURE 2: Sectoral Contribution to GDP, from 1984 to 2017 (%)



Source: Authors' construction based on data from Ghana Statistical Service and the World Development Indicators, World Bank (2018)

While agricultural sector's contribution to GDP has dwindled significantly, we do not observe such a drastic decline in its share in total employment (Figure 3). In 2018, agriculture accounted for 40 percent of total employment, which was more than twice that of industrial sector, and accounted for 31 percent of GDP (Figure 3). The services sector, over the 2011-15, remained the largest contributor to total employment, with its share in employment at 46 percent in 2018. Thus, contrary to the traditional development trajectory seen in most advanced economies where contraction in agriculture over time was associated with a movement of labour from agriculture into industry, in Ghana's case we observe that the release labour has been largely absorbed into low productivity areas within services sector. According to Osei & Jedwab (2016), this trend has meant that growth-enhancing impact of structural change in Ghana has been largely muted. The employment impact of the expansion in the industrial sector, has been minimal and this may be due to the fact that oil and mining activities which account for a large share of the industrial sector growth, are highly capital and skill intensive. They have therefore offered limited opportunity for the release of labour from the agricultural sector. These trends have implications for inclusive growth and income distribution.

FIGURE 3: Sectoral Employment (% of Total Employment), 1991 to 2018.



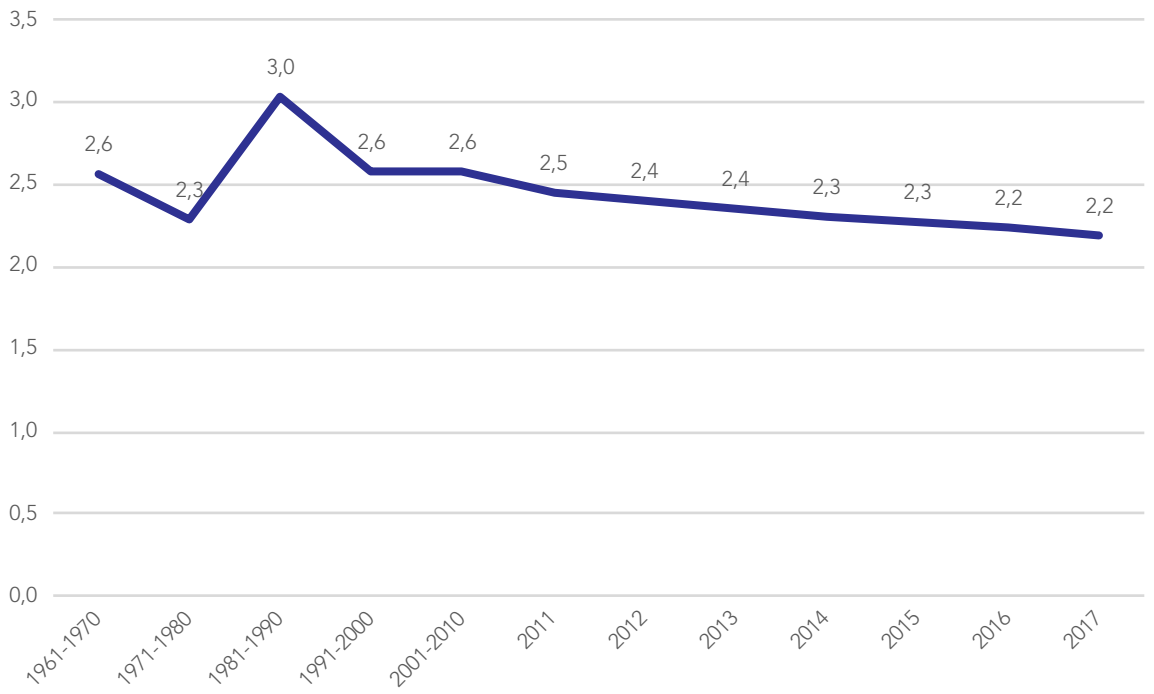
Source: Authors' construction based on data from the Ghana Statistical Service and the World Development Indicators, World Bank (2018)

1.2.2 Population Growth and Population Distribution

Ghana's population has quintupled from 6 million at independence in 1957 to about 30.10 million in 2019. The population increased rapidly from 18.9 million in 2000 to 24.7 million in 2010 and further to 28.8 million in 2017 (National Population Council, 2017; World Bank, 2018). Based on an annual growth rate of 2.5 percent, the population of Ghana is projected to increase to 45 million by 2040 (National Population Council, 2017). Figure 4, however, indicates that the annual population growth of the country has been declining, although at a very low rate.

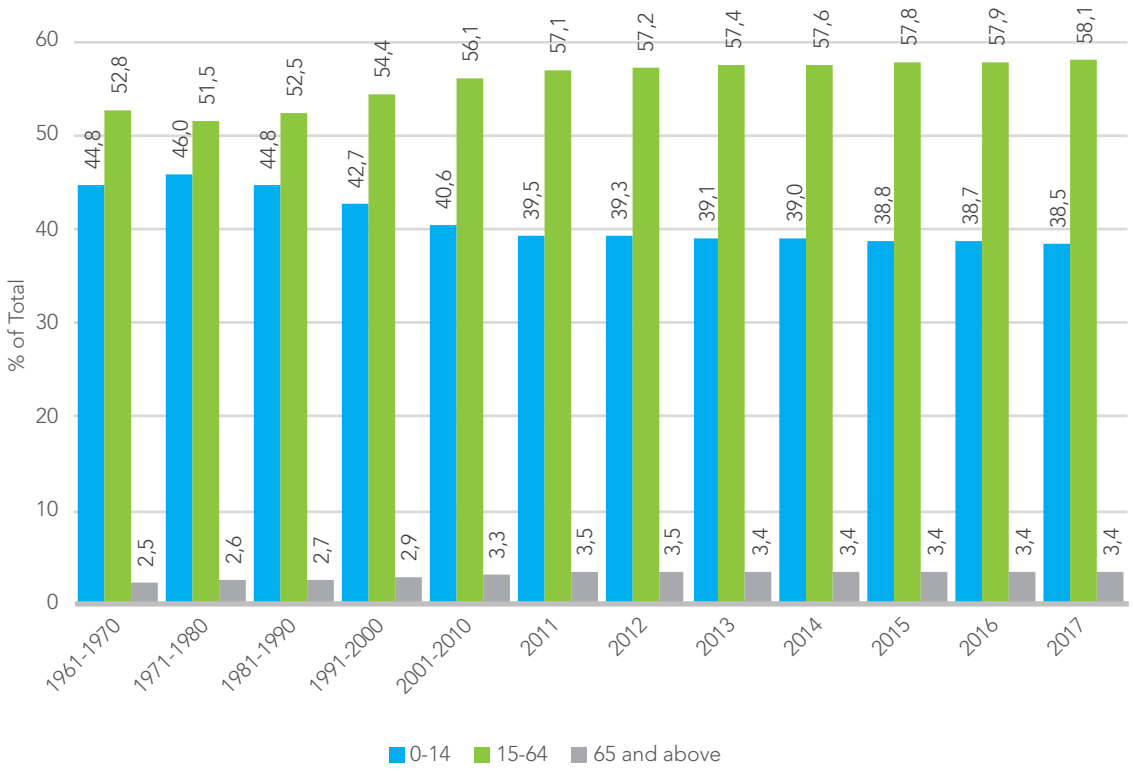
In terms of the population structure of the country, Figure 5 reveals that from 1961 to 2017, the country's population was largely dominated by those in the active/working age bracket, 15 to 64 years. For instance, the share of those belonging to the age bracket, 15 to 64 years remained the highest and saw a gradual increase over time. This implies that the country has a growing and economically active population, which when targeted with appropriate strategies and interventions would contribute meaningfully to economic growth and development. The share of those belonging to the age bracket, 0 to 14 years, constitutes the second largest component of the population. In contrast to those in the working age bracket, Figure 5 indicates that the share of the population between 0 and 14 years, has seen a slow decline over time. We further note that persons aged 65 years and above account for the lowest proportion of the population although their share has increased steadily since 1961 (Figure 5). Predominantly, the population of Ghana can be described as youthful and is indicative of the so called youthful bulge that characterises the population structure in other African countries.

FIGURE 4: Annual Population Growth (%) since 1961.



Source: Ghana Statiscal Service (1995), Ghana Statistical Service (2002) and the World Development Inicators, The World Bank.

FIGURE 5: Age Distribution of the Population, from 1961 to 2017.



Source: The World Development Indicators, World Bank (2018).

TABLE 1: Distribution of population by region, 1960 - 2017

Region	1960	1970	1984	1992*	1999*	2000	2006	2010	2013*	2017**
All regions	100	100	100	100	100	100	100	100	100	100
Western	9.3	9	9.2	10.2	11.6	10.2	10.1	9.6	9.2	10.2
Central	11.2	10.4	9.4	10.4	8.9	8.4	8.8	8.9	8.9	8.6
Greater-Accra	8.1	10.6	11.6	11.7	11.9	15.4	13.9	16.3	16.3	16.3
Volta	11.6	11.1	9.8	9.0	12.4	8.6	7.5	8.6	8.7	8.6
Eastern	15.5	14.1	13.8	12.9	11.6	11.1	13.4	10.7	10.4	10.7
Ashanti	16.5	17.3	17.1	15.9	16.8	19.1	16.8	19.4	19.7	19.11
Brong Ahafo	8.7	9	9.7	11.8	8.7	9.6	9.2	9.4	9.9	9.4
Northern	7.9	8.5	9.5	9.5	10.2	9.6	12.2	10.1	10.0	10.1
Upper East	7	6.3	6.3	5.6	4.5	4.9	4.8	4.2	4.1	4.2
Upper West	4.3	3.7	3.6	3.1	3.2	3	3.6	2.8	2.9	2.8

Source: Ghana Statistical Service (1995), Ghana Statistical Service (2002), Ghana Statistical Service (2012) and Ghana Statistical Service (2014).

Note: *GSS estimates from various GLSS. **Authors' estimation from GLSS 7

The distribution of the population by region, presented in Table 1, shows that the Ashanti region has consistently had the largest share of the country's population and its share has been rising steadily over time. Specifically, Ashanti region`s share of the population increased from 16.5 percent in 1960 to 17.3 percent in 1970, and increased further to 19.1 percent in 2000. Between 2010 and 2013, Ashanti region's share of the population increased by 0.3 percentage points (Table 1). Similarly, Greater-Accra experienced a steady increase in its share of the population – its share of the population increased from 8.1 percent in 1960 to 10.60 in 1970 and further to 11.6 percent in 1984. From 2000 to 2010, Greater-Accra Region's share of the country's population increased from 15.4 percent to 16.3 percent and remained at 16.3 percent in 2013 and 2017. However, Western, Eastern, Upper East and Upper West regions experienced declines in their share of the population between 2006 and 2013.

2. REVIEW OF THE POLICY CONTEXT

Several policy interventions have been initiated or implemented to achieve sustained growth, reduce poverty and maintain social cohesion. Key examples of these policies include the National Health Insurance Scheme (NHIS), the Livelihood Empowerment Against Poverty (LEAP), Free Compulsory Universal Basic Education (FCUBE), and Free Senior High School policies among others. These policies are designed to favour the poor and so have important implications for inequality. This section provides an overview of some of these policies as well as the economic development policy framework, on which many of these policies and interventions were hinged. The sub-section also briefly highlights results from studies that have assessed the effects of these policies on inequality.

2.1 Economic development policy frameworks

Article 36 (clause 5) of the 1992 Constitution of Ghana requires the President to present to Parliament a co-ordinated programme of economic and social development policies (CPESDP), including agricultural and industrial programmes at all levels and in all the regions of Ghana. The CPESDP outlines the president's medium-term development vision for the country and the broad policy measures for realising the vision. To operationalize the broad policy proposals outlined in

the CPESDP, a medium-term national development policy framework is developed. This framework then forms the basis for localised district medium-term development plans prepared by the MDAs and MMDAs. The plans prepared by the MDAs and MMDAs then provide a basis for the annual national budget. The medium term plan used from about 2009 to 2016 was known as the Ghana Shared Growth and Development Agenda (GSGDA). This was preceded by the Ghana Poverty Reduction Strategy-GPRS I (2001-2005) and the Growth and Poverty Reduction Strategy - GPRS II (2006-2009).

2.2 Income Tax Reforms

Income tax reforms have been used by successive governments to reduce inequality. The focus of tax reforms after 1985 was broadened to include the enhancement of efficiency of the tax administration and improve equity of the tax system (Kusi, 1998). Specifically, it paid more attention to the strengthening of private sector incentives. In place of the previous 17 tax brackets, 5 new tax brackets were introduced in 1986 with new effective tax rates that provided substantial relief to low-income earners, which served to reduce inequality (Kusi, 1998). Furthermore, as part of the reforms after 1985, taxpayers could also claim additional relief for expenses incurred on their children's education. The introduction of non-taxable income and the "Pay As You Earn" system ensures reduction in income inequality among taxpayers. However, this may have had only a minimal impact on inequality given that Ghana's informal sector remains large and people employed in this sector are not captured under PAYE.

2.3 The National Health Insurance Scheme

A major intervention in the health sector which seeks to improve access to healthcare by the poor is the National Health Insurance Scheme (NHIS) which came into force with the passage of Act 650 in 2003 (Blanchet et al, 2012). The scheme seeks to replace the "cash and carry" system, where one is required to make full and upfront payment for healthcare services at the point of access. In addition, the scheme exempts children below 18 years, pregnant women, physically challenged persons and the aged from paying premiums. The NHIS covers about 95% of diseases in Ghana whilst services such as beautification surgery, treatment of chronic renal failure, heart and brain surgery are not covered by the NHIS (Blanchet, Fink and Osei-Akoto, 2012).

Various empirical studies that assessed the effect of NHIS on healthcare utilization found improvements in healthcare utilization and health outcomes (Blanchet et al, 2012; Gobah & Liang, 2011; Mensah and Schmidt, 2010). Specifically, Blanchet et al (2012) found that individuals, who enrolled on the NHIS were more likely to obtain prescriptions, visit clinics, and seek formal healthcare when they were sick. However, despite the positive effects of NHIS, challenges still remain. For instance, a study by Witter and Garshong (2009) observed that only one-third of persons enrolled on the NHIS scheme paid their premium, which made the scheme financially unsustainable. Similarly, Addae-Korankye (2013) noted that low premiums charged and inadequate funding were the main

challenges of the scheme. Alhassan et al (2016) is of the view that factors such as cost escalation, possible political interference, inadequate technical capacity, spatial distribution of health facilities and health workers, inadequate monitoring, broad benefits package, large exemption groups, inadequate client education and limited community engagement posed challenges to the sustainability of the scheme. In terms of subscribers` perception of quality of services provided by the NHIS, Nketiah-Amponsah et. al (2019) revealed that rural subscribers indicated a better perception of quality of services provided by the NHIS than urban subscribers. However, variables such as age, out-of-pocket payment for healthcare and region of residence were significant in explaining perceived quality of service rendered by the NHIS.

2.4 The Livelihood Empowerment Against Poverty

The Livelihood Empowerment Against Poverty (LEAP) is a cash transfer programme by government to reduce poverty and inequality in Ghana. It was introduced in 2008 to provide cash and health insurance to extremely poor households across Ghana in order to encourage long term human capital development and alleviate poverty (Handa et. al 2014). This cash transfer programme was started on a pilot basis and had reached over 70,000 households across Ghana by 2014, with an annual expenditure of approximately USD 20 million. It was initially funded by the Government of Ghana (50 percent), donations from DFID and a loan from the World Bank (Handa et. al 2014). The eligibility for the cash transfer is based on poverty status and having a household member in at least one of the following three demographic categories – households with an orphan or vulnerable child, elderly poor, or persons with extreme disability and unable to work. LEAP also provides free health insurance through the National Health Insurance Scheme to the beneficiaries (Handa et. al 2014).

Empirical studies found several positive effects of LEAP. Atulley (2015) found that LEAP in the Bongo District of the Upper East region increased the consumption of basic needs and entrepreneurial activity. In addition, LEAP has resulted in drastic improvement in social cohesion due to transfers and gifts (Handa et al 2014). Credit was also more easily accessible to LEAP beneficiaries relative to non-beneficiaries (Bawelle 2016). However implementation challenges remain and included the lack of knowledge of the full benefits of the LEAP programme, difficulty in geographically accessing some households, inclusion and exclusion errors resulting from obscure and politically tampered selection procedure and the lack of data on the poverty status of some households (Agbenyo et al 2017). Agbaam and Dinbabo (2014) proposed the following to improve the LEAP programme: increase in the cash transfer; regular payments of cash transfers and employment and training of human resources for administering LEAP.

2.5 Single Spine Pay Policy

The Government of Ghana adopted the Single Spine Pay Policy (SSPP) in 2009 to replace the Ghana Universal Salary Structure (GUSS) and Pay policies. The main objective was to address challeng-

es with GUSS particularly to reduce the number of public sector pay negotiations and to reduce actual and perceived wage differences within the public sector by paying more to middle level staff benchmarked below median pay for the public service as a whole (Cavalcanti 2009). The SSPP covers all public sector employees listed in Article 190 of the 1992 Constitution of the Republic of Ghana, namely: public sector employees in the Civil Service, the Judicial Service, the Audit Service, the Ghana Education Service, the Ghana Health Service, the Parliamentary Service, the National Fire Service, Ghana Revenue Authority, the Local Government Service, the Police Service, the Prisons Service, workers in non-profit public corporations, statutory public services excluding public services such as the Parliament.

2.6 Free Compulsory Universal Basic Education and associated policies

The government of Ghana started implementing the United Nations (UN) Free Compulsory Universal Basic Education (FCUBE) in 1995. A key objective of FCUBE was to increase access to basic education among the poor and vulnerable children (Adamu-Issah et. al, 2007). The government of Ghana demonstrated its commitment to achieving universal primary education (MDG 2) through policies and interventions such as Education Strategy Plan (ESP) for 2003-2015 and the Growth and Poverty Reduction Strategy (Adamu-Issah et. al, 2007). Some of the specific policies/programmes adopted include the Capitation Grant (School Fee Abolition), expansion of Early Childhood Development services, promotion of measures to improve Gender Parity in primary schools, and the Nutrition and School Feeding programme.

The above policies and programmes have led to improvement in various key indicators in education in recent years, notably, Gross Enrolment Rates, Gender Parity Index, and Net Enrolment Rate. For example, in terms of primary school enrolment, the country experienced an increment of about 14% in the year following the introduction of Capitation Grant (World Bank and UNICEF, 2009).

Capitation Grant sought to abolish the payment of school fees at the basic level in order to attain the Millennium Development Goal of achieving primary education for all. Some studies have showed that Capitation Grant has had mixed results. Acheampong (2011) observed that although educational access improved as a result of the Capitation Grant, dropout and over-age enrolments were very prevalent in schools. Furthermore, Osei et al (2009) found that Capitation Grant had an insignificant effect on educational outcomes, specifically gross enrolment rates, pass rates and the difference in the performance of boys and girls. Meanwhile, a study by Ampratwum and Armah-Attoh (2010) on tracking Capitation Grant revealed that there were leakages in the disbursement of funds from GES to districts and districts to beneficiary schools. In addition, there were irregular release of funds resulting in schools charging fees or levies, poor record keeping and insufficient Capitation Grant per pupil (Ampratwum and Armah-Attoh, 2010; Osei et al 2009; Pajibo and Tamanja 2017).

2.7 Free Senior High School

The government of Ghana introduced the Free Senior High School (SHS) programme in 2017. The specific aim of the Free SHS policy is to address the issue of access to education at the secondary level by taking away the financial burden from parents and guardians (GoG, 2017). The implementation of the Free SHS programme begun in the 2017/2018 academic year and it is mainly financed by government's revenue from oil and natural resources (GoG, 2017). In addition to free tuition, the policy seeks to grant free textbooks, uniforms, and meals, and to also remove examination fees, admission fees and library fees for the beneficiary students (GoG, 2017). However, the initial challenge to the policy was that there were not many classrooms and facilities to support the policy. This compelled government to introduce the *Double Track* system, an intervention that allows schools to accommodate more students with the same number of facilities (MoE, 2017). Studies have shown that the free secondary education may increase the probability of beneficiary students enrolling in tertiary institutions (Duflo et al, 2017). Furthermore, the free SHS policy may help reduce poverty as a study by Owusu-Afriyie and Nketiah-Amponsah (2014) has shown that secondary education reduces female poverty in Ghana.

2.8 Other policies/programmes

Other policy interventions, relevant for poverty and inequality and which have been introduced by the government of Ghana include the youth employment Programme, free maternal care, establishment of Microfinance and Small Loans Centre (MASLOC), Mass Cocoa Spraying Exercise, and the Youth Enterprise Support Programme (GoG, 2017). Recently, a National Social Protection Law was enacted to provide the legal framework for ensuring the sustainability of social protection programmes in Ghana.

3. DATA AND METHODOLOGY

3.1 The Ghana Living Standards Surveys

The analyses in this report mainly rely on data from the three most recent rounds of the Ghana Living Standards Surveys – GLSS 5 (2005/06), GLSS 6 (2012/13) and GLSS 7 (2016/17) – produced by the Ghana Statistical Office. The GLSS is a household survey which collects information on many different dimensions of living conditions, including education, health, employment, and household expenditure on food and non-food items (GSS, 2018). A total of seven rounds of data have been collected since 1987/88. This report uses the last three rounds because, according GSS (2018), unlike the other older rounds, the questionnaires used for the last three rounds are nearly identical, and thus, allow for a direct comparison of the results from them.

The GLSS follows a two-stage stratified random sampling design. In the first stage, enumeration areas (EAs) are randomly selected from the various regions and this is followed by the second stage involving the random selection of a fixed take of 15 households per an EA. The distribution of the selected EAs for the regions or strata is based on proportionate allocation using the population. The method also allows for representativeness at localities (i.e. rural and urban) and ecological zones in Ghana. Table 2 provides the total number of EAs and households surveyed in each of the three rounds of the GLSS used in this report.

TABLE 2: Sample size for GLSS

GLSS waves	Total EAs selected	Number of household interviewed
2005/06	580	8687
2012/13	1200	16772
2016/17	1000	14009

Source: Authors' computations from the GLSS rounds, 5, 6 &7

In assessing economic inequality, the report relies on household consumption expenditure. The GLSS collects comprehensive information, covering both food and non-food items, to estimate total consumption expenditure of each household. The reliance on household consumption expenditure is because it is known to be more accurately estimated than other indicators such as income in developing country contexts. However, we also explore inequality in wage income for individuals in paid employment and household asset index. The GLSS also collects information on wage-employment income of individual members of the households who are in wage employment. Thus, with the GLSS, we are able to explore the distributions of wage income derived from paid employment. In addition, the GLSS provides data on households' ownership of durable assets, which are used to create the household asset index using principal component analysis (PCA). The asset index is used in this report as an indicator for measuring multidimensional inequality as has been done in recent studies such as McKenzie (2005) and Wittenberg and Leibbrandt (2017).

Although the GLSS data is reach and robust for most of the data analyses required in this report, the disadvantage with it is that it does not all allow for intertemporal analysis of the welfare and poverty status of the same households because it is not longitudinal. We therefore fall on the Ghana Socioeconomic Panel Survey (GSPS) data which has got two waves (2009/2010 and 2013/2014) to analyse transitions in household welfare and poverty status to complement the analyses from the GLSS data. Produced through a collaboration between Institute of Statistical, Social and Economic Research (ISSER), University of Ghana and the Economic Growth Centre (EGC) of Yale University, the panel survey is made of about 5009 households, which were also selected through a multistage probability sampling technique to ensure representativeness at the national level. The GSPS has a standard consumption model, similar to those used in the various GLSS, and hence, allows us to construct a consumption measure of welfare and study its dynamics over the two waves. Compared to the GLSS of which the most recent wave was conducted in 2017, however, the GSPS data has relatively smaller sample size and the most recent wave is nearly six years old.

3.2 Measures of Inequality

Multiple measures of inequality can be identified in the literature. This report makes use of three of the widely used measures of inequality: the Gini, the Theil L index and the Palma index. Like all measures of inequality, each of these three have some disadvantages although these three indexes complement each other in terms of strengths and limitation.

3.2.1 The Gini coefficient

The Gini coefficient is based on the Lorenz curve, which is a cumulative frequency curve that compares the distribution of a variable (for example, income or consumption) with the uniform distribution that represents equality (Haughton and Khandker, 2009). Assuming x_i is a point on the x-axis, and y_i a point on the y-axis of the graph of Lorenz curve, the Gini coefficient can be formally derived as follows:

$$Gini = 1 - \sum_{i=1}^{N} (x_i - x_{i-1})(y_i - y_{i-1})$$

The Gini coefficient always has zero as the lower bound and one as the upper bound. Zero represents a situation of perfect equality in which income is shared equally among all members of the society, whereas one corresponds with a situation of perfect inequality where one person receives all the income. The Gini coefficient uses data from the entire income distribution but it is not additively decomposable. Another disadvantage of the Gini coefficient is that it cannot be further decomposed by sources of inequality.

3.2.2 GE and Theil's L index

We also consider the generalised entropy (GE) measures (specifically, the Theil's L index), which are additively decomposable and satisfy the subgroup consistency property (Haughton and Khandker, 2009). The formula for the GE class of inequality measures is as follows:

$$GE(\alpha) = \frac{1}{\alpha\,(\alpha - 1)} \left[\frac{1}{N} \sum_{i=1}^{N} \left(\frac{y_i}{\mu} \right) - 1 \right]$$

Where, y_i represents individual income, μ is mean income, and N is population size. α is a parameter which can take on any value and it represents the weight given to the distances between income at different parts of the distribution. Lower values of α make the GE more sensitive to changes at the lower tail of the distribution; while, for higher values, GE becomes more sensitive to changes at the upper tail of the distribution. The GE measures range from zero to infinity, with zero indicating perfect equality, while higher values represent higher levels of inequality. The GE with α equal to zero is called the Theil L index or the mean log deviation which is formally expressed as follows:

$$T_L = -\frac{1}{N} \sum_{i=1}^{N} ln \left(\frac{y_i}{\mu} \right)$$

As noted above, the Thiel's L is additively decomposable. This feature allows the overall index to be decomposed into two components or sources of inequality (within group component and between group component), which can be applied to various factors or sub groupings of the population or sample. A given factor matters to inequality if the absolute or relative contribution of the between group component to the overall index is relatively high, compared to that of the within group component.

3.2.3 Palma index (decile ratio)

The decile dispersion ratio, also called the Palma index, is a simple and widely used measure of inequality. It is obtained by dividing the average consumption or income of the richest 10 percent of the population by the average consumption or income of the poorest 10 percent of the population. The decile ratio can also be derived for other percentiles. While this measure of inequality is easily interpretable, it does not use the incomes in the middle of the distribution nor the information about the distribution of incomes within the top and bottom deciles.

4. RESULTS

4.1 Consumption inequality

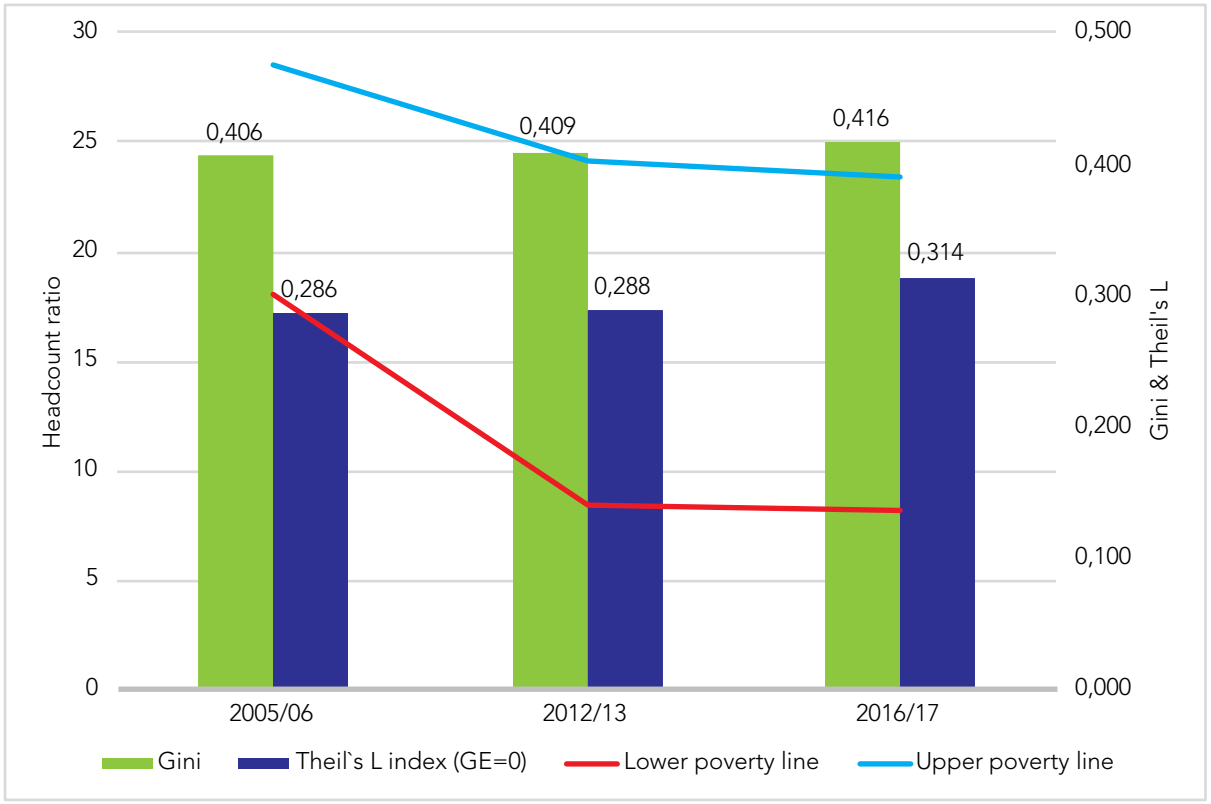
4.1.1 Trends at the national and regional levels

The incidence of poverty in Ghana declined between 2005/06 and 2016/17. Using the upper poverty line, we show in Figure 6 that the national headcount ratio declined from 28.5% (2005/06) to 24.2% (2012/13) and slightly to 23.4% (2016/17). Similarly, extreme poverty (measured using the lower poverty line) declined sharply from 18.1% (2005/06) to 8.4% (2012/13) and fell again to 8.2% (2016/17). This minimal gain in poverty reduction effort between 2012/13 and 2016/17, resulted in large part from increases in the incidence of poverty in some regions, particularly, the Northern, Upper East and Volta Regions. Table 3 shows persistent increases in the headcount ratios for Western and Volta Regions over the three survey periods while the Greater Accra Region, which has always had the lowest incidence of poverty witnessed a persistent decline in the headcount ratio. There was also a continuous decline in the headcount ratio for Ashanti Region and Central Region. In all the three survey periods, the incidence of poverty was higher in the Upper West, Upper-East and Northern Regions compared to the other regions (Table 3). The Upper West Region recorded the highest headcount ratio in the three survey periods.

While the incidence of poverty declined, inequality at the national level worsened within the same period. Figure 6 shows an upward trend in the national inequality between 2005/06 and 2016/17, as can be observed from all three inequality measures (Gini, Palma-90/10, and Theil's L indices). Specifically, the Gini index steadily increased from 0.406 in 2005/06 to 0.409 and 0.416 in 2012/13 and 2016/17, while the Palma-90/10 ratio increased from 6.356 (in 2005/06) to 6.812 and 7.267 in 2012/13 and 2016/17 respectively (Table 3). Similarly, the Theil's L index increased from 0.286 (in 2005/06) to 0.288 and 0.314 in 2012/13 and 2016/17 respectively (Figure 6). In spite of the increased consumption inequality at the national level, some regions experienced a decline. For instance, the Central, Ashanti and Greater-Accra regions experienced a decline in almost all the three inequality indices over the three survey periods (Table 3). In addition, consumption inequality in 2005/06 was highest in the Greater-Accra and Upper West regions but lowest in Eastern region (Table 3). By 2016/17, consumption inequality was still most pronounced in the Upper-west region, while the Greater-Accra region had experienced a large decline and actually recorded the lowest consumption inequality in 2016/17 (Table 3). The trends also reveal that inequality has generally remained relatively high in regions with high incidence of poverty, particularly, the Northern, Upper East and Upper West Regions. The trends and pattern in consumptions inequality across the regions in relation to the poverty rates seem point to the fact that the relatively high and stable economic growth achieved in the last two decades (discussed in Section 1) may have been highly centred in a few regions. Hence, opportunities for poverty reduction and fairer income distribution were limited in the regions where poverty rates were high and inequality was on the rise. This is not surprising given that the regions with high poverty rates and growing inequality largely remain agrarian while (as discussed in Section 1) the agricultural sector's contribution to GDP and growth has dwindled significantly in the last three decades.

Interestingly, the results from the Theil's L decomposition for the three survey periods indicate that consumption inequality is more attributed to within-region differences rather than between-region differences. For example, in 2005/06, within-region differences contributed 0.233 to consumption inequality, while between-region differences contributed only 0.053, representing 18.5% of the inequality (Table 3). In 2012/2013, the inequality due to within-region differences increased to 0.242 while between-region differences declined to 0.046, which accounted for 16.0% of inequality (Table 3). In 2016/2017, however, the inequality due to within-region differences amounted to 0.237 while between-region differences contributed 0.077 (Table 3). The relative contribution of between-region differences increased from 16% in 2012/13 to 24.5% in 2016/17. Thus, although regional differences in economic opportunities and other region-specific factors matter for inequality, the decomposition of inequality measures by region generally suggests that consumption inequality appear to arise more from general systemic factors than from factors that are specific to the individual regions.

FIGURE 6: Headcount ratio and consumption inequality



Source: Authors' estimation based on waves 5,6 and 7 of the GLSS.

TABLE 3: Headcount ratio and consumption Inequality by administrative region

GLSS Waves	Regions	Headcount ratio (Upper poverty line)	Inequality measures			Theil`s L Decomposition (GE=0)	
			Gini	Palma (90/10)	Theil's L(GE=0)	Within Group	Between Group
2005/06	Western	18.6	0.355	4.57	0.207		
	Central	19.9	0.388	5.29	0.245		
	Greater-Accra	11.8	0.410	6.10	0.282		
	Volta	31.7	0.346	4.67	0.191		
	Eastern	14.7	0.319	3.95	0.171	0.233	0.053
	Ashanti	20.5	0.377	5.66	0.236		
	Brong-Ahafo	29.7	0.357	4.91	0.210		
	Northern	52.2	0.400	6.54	0.267		
	Upper-East	70.5	0.399	6.14	0.262		
	Upper-West	87.9	0.413	5.47	0.291		

GLSS Waves	Regions	Headcount ratio (Upper poverty line)	Inequality measures			Theil`s L Decomposition (GE=0)	
			Gini	Palma (90/10)	Theil's L(GE=0)	Within Group	Between Group
2012/13	Western	20.9	0.368	5.58	0.230		
	Central	18.8	0.370	5.00	0.232		
	Greater-Accra	5.6	0.356	5.13	0.219		
	Volta	33.8	0.402	5.37	0.270		
	Eastern	21.7	0.365	5.23	0.225	0.242	0.046
	Ashanti	14.8	0.371	5.27	0.227		
	Brong-Ahafo	27.9	0.369	4.99	0.225		
	Northern	50.4	0.413	6.04	0.290		
	Upper-East	44.4	0.395	6.81	0.271		
	Upper-West	70.7	0.477	6.88	0.383		
2016/17	Western	21.1	0.348	4.56	0.202		
	Central	13.8	0.359	5.18	0.214		
	Greater-Accra	2.5	0.339	4.31	0.191		
	Volta	37.3	0.381	5.47	0.255		
	Eastern	12.6	0.341	4.72	0.194	0.237	0.077
	Ashanti	11.6	0.358	5.17	0.218		
	Brong-Ahafo	26.8	0.372	5.82	0.242		
	Northern	61.1	0.443	7.71	0.335		
	Upper-East	54.8	0.431	6.72	0.322		
	Upper-West	70.9	0.474	11.3	0.437		

Source: Authors' computations from the GLSS rounds, 5, 6 &7

4.1.2 Gender of household head, poverty and consumption inequality

The incidence of poverty among male-headed households declined consistently between 2005/06 and 2016/17, while for female-headed households, it remained at 19% (Table 4). Table 4 further shows that the incidence of poverty was persistently lower among female-headed households than male-headed households. Also, consumption inequality was higher among male-headed households than among their female counterparts over the three survey periods (Table 4). Both male and

female headed households experienced increasing inequality as indicated by the upward trend in the three indicators for these two types of households.

The results from the Theil's L decomposition indicate that within-gender differences account for more of the consumption inequality than between-gender differences. Specifically, in 2005/06, within-gender differences contributed 0.284 to consumption inequality, while between-gender differences accounted for only 0.002, representing only 0.7% (Table 4). In 2012/2013, within-gender differences contributed 0.287 to consumption inequality, while between-gender differences contributed 0.001, representing only 0.3% (Table 4). However, in 2016/2017, within-gender differences contributed 0.312 to consumption inequality, while between-gender differences contributed only 0.001, representing 0.3% (Table 4). Here also the results suggest that the gender of the head of household is not necessarily what drives inequality; rather it is more systemic factors that explain economic inequality.

TABLE 4: Headcount Ratio and Consumption Inequality by Gender of Household Head

GLSS Waves	Sex	Headcount ratio (Upper poverty line)	Inequality measures			Theil's L Decomposition (GE=0)	
			Gini	Palma (90/10)	Theil's L (GE=0)	Within Group	Between Group
2005/06	Male	31.5	0.412	6.63	0.296	0.284	0.002
	Female	19.0	0.380	5.65	0.243		
2012/13	Male	25.9	0.414	6.87	0.295	0.287	0.001
	Female	19.1	0.392	6.15	0.264		
2016/17	Male	25.8	0.424	7.72	0.328	0.312	0.001
	Female	19.1	0.394	6.19	0.272		

Source: Authors' computations from the GLSS rounds, 5, 6 &7

4.1.3 Locality, poverty and consumption inequality

The incidence of poverty is more pronounced in rural localities than in urban localities (Table 5). The headcount ratios were 39.3% and 10.7% in rural and urban localities respectively in 2005/06 (Table 5). In 2012/13, the headcount ratio for rural localities declined to 37.9% but was reversed in 2013/17 where a headcount ratio of 39.5% was recorded for rural localities. In contrast, the headcount ratio for urban localities declined continuously from 10.7% in 2005/06 to 7.8% in 2016/17 (Table 5). The level of inequality in consumption expenditure was higher in urban localities than in rural localities in 2005/06, but in 2012/13 and 2016/17, inequality in rural localities was higher than that of urban communities (Table 5). Thus, the decline in the incidence of poverty in urban localities, observed between 2005/06 and 2016/17, was associated with a fall in inequality, suggesting that the poor in the urban localities may have benefited more from economic growth within that period. Conversely, both the incidence of poverty and inequality worsened in rural localities between 2012/13 and 2016/17.

TABLE 5: Headcount Poverty Ratio and Consumption Inequality by Locality

GLSS Waves	Locality	Headcount Poverty (Upper poverty line)	Inequality measures			Theil's L Decomposition (GE=0)	
			Gini	Palma (90/10)	Theil's L index (GE=0)	Within Group	Between Group
2005/06	Urban	10.7	0.373	5.24	0.239	0.234	0.052
	Rural	39.3	0.366	5.42	0.232		
2012/13	Urban	10.6	0.373	5.65	0.232	0.246	0.043
	Rural	37.9	0.389	5.97	0.259		
2016/17	Urban	7.8	0.365	5.05	0.225	0.260	0.054
	Rural	39.5	0.405	7.07	0.295		

Source: Authors' computations from the GLSS rounds, 5, 6 &7.

The results from Theil's L decomposition indicates that within-locality differences contributed more to consumption inequality than between-locality differences. In addition, the inequality due to within-locality differences increased over the three periods while that for the between group fell in 2012/13 but increased in 2016/17 (Table 5). Consequently, the relative contribution of between group difference to inequality declined from 18.2% in 2005/06 to 14.9% in 2012/13 but increased to 17.2% in 2016/18.

4.1.4 Education, poverty and consumption inequality

In 2005/06, the incidence of poverty among the households whose heads had never attended school was 49.7%, compared to 28.8% for those with less than basic education (MSLC/BECE), 17.5% for those who had completed basic education and 6.4% for those with secondary or higher educational background (Table 6). This pattern remained the same in both 2012/13 and 2016/17. Whereas the headcount ratio declined in both periods for each of the categories of educational level, the reduction for households whose head had no education was the highest in both 2012/13 and 2016/17 (Table 6).

TABLE 6: Headcount Ratio and Consumption Inequality by Educational Level of Household Head

GLSS Waves	Level of education	Headcount Poverty (Upper poverty line)	Inequality measures			Theil's L Decomposition (GE=0)	
			Gini	Palma (90/10)	Theil's L (GE=0)	Within Group	Between Group
2005/06	No education	49.7	0.351	3.49	0.212	0.21	0.031
	Less than MSLC/ BECE	28.8	0.358	4.96	0.218		
	Completed MSLC/ BECE	17.5	0.348	4.72	0.199		
	Secondary/Vocation and Higher	6.40	0.381	5.48	0.245		
2012/13	No Education	30.4	0.373	5.32	0.247	0.221	0.036
	Less than MSLC/ BECE	27.2	0.351	5.24	0.209		
	Completed MSLC/ BECE	15.7	0.357	5.15	0.213		
	Secondary/Vocation and Higher	6.10	0.381	5.70	0.247		
2016/17	No Education	25.9	0.403	6.55	0.284	0.229	0.034
	Less than MSLC/ BECE	25.9	0.364	5.32	0.234		
	Completed MSLC/ BECE	13.5	0.352	5.15	0.213		
	Secondary/Vocation and Higher	5.10	0.376	5.34	0.245		

Source: Authors' computations from the GLSS rounds, 5, 6 &7.

While the incidence of poverty among households whose heads had no education significantly reduced, consumption inequality among these households was relatively high and consistently increased over the three survey periods (Table 6). In contrast, there was a slight reduction in level of inequality among the households whose heads had secondary and higher education, specifically between 2012/13 and 2016/17 (Table 6). For household whose heads had less than basic education, inequality fell slightly in 2012/13 but rose in 2016/17, while a reverse trend was observed for households whose head had completed basic education.

In all the three survey periods, we observe that consumption inequality due to within-group differences was higher than that for between-group differences, in terms of the educational background of the head of households (Table 6). In 2005/06, for instance, within-group differences contributed 0.210 to consumption inequality, while between-group differences contributed 0.031, representing 12.7% (Table 6). In 2012/2013, the contribution by both within-group and between-group differenc-

es increased to 0.221 and 0.036 respectively (Table 6). The relative contribution of between-group differences was 14.0% in 2012/13 and fell to 12.9% in 2016/17, whereas the inequality due to within-group and between-group differences were 0.229 and 0.034 respectively in the 2016/2017 period (Table 6).

4.1.5 Type of employment, poverty and consumption inequality

The type of employment of the household head (that is, whether the head is in paid employment, non-agriculture self-employment or other forms of employment) appears important for incidence of poverty. Households whose heads are in paid employment have the lowest incidence of poverty, followed by those in non-agricultural self-employment, while households, whose heads are in agricultural self-employment have the highest incidence of poverty (Table 7). This pattern is generally consistent in the three periods, except for 2016/17 where the incidence of poverty among those in non-agriculture self-employment was slightly lower than that of those in paid employment. Interestingly, in all the three periods, the incidence of poverty among the households with heads in agricultural self-employment was higher than that among those whose heads were either unemployed or were not in the labour force.

TABLE 7: Headcount Ratio and Consumption Inequality by Employment Status of Household Head

GLSS Waves	Type of employment	Headcount Poverty (Upper poverty line)	Inequality measures			Theil's L Decomposition (GE=0)	
			Gini	Palma (90/10)	Theil's L (GE=0)	Within Group	Between Group
2005/06	Paid Employment	11.6	0.386	5.57	0.252	0.237	0.050
	Non-Agric Self Employment	16.7	0.369	5.37	0.237		
	Agric Self Employment	42.5	0.364	5.28	0.230		
	Unemployed	13.0	0.367	5.52	0.235		
2012/13	Paid Employment	9.60	0.378	5.93	0.243	0.242	0.046
	Non-Agric Self-Employment	12.8	0.366	5.36	0.226		
	Agric Self-Employment	39.2	0.371	5.39	0.236		
	Unemployed	28.1	0.421	10.5	0.330		
	Not-In-Labour-Force	20.5	0.426	6.59	0.314		

GLSS Waves	Type of employment	Headcount Poverty (Upper poverty line)	Inequality measures			Theil's L Decomposition (GE=0)	
			Gini	Palma (90/10)	Theil's L (GE=0)	Within Group	Between Group
2016/17	Paid Employment	9.60	0.379	5.77	0.249	0.259	0.054
	Non-Agric Self-Employment	8.90	0.360	4.89	0.221		
	Agric Self-Employment	42.7	0.380	6.22	0.258		
	Unemployed	29.4	0.432	8.78	0.345		
	Not-In-Labour-Force	24.0	0.412	8.56	0.326		

Source: Authors' computations from the GLSS rounds, 5, 6 &7

While the incidence of poverty has been lower among households with heads in paid employment than their counterparts in self-employment (both agriculture and non-agriculture), inequality is rather higher among those in paid employment (Table 7). However, we observe a decline in inequality among those in paid employment over the three periods, which may be as a result of the implementation of the SSPP in the public sector. Inequality among those in agriculture self-employment increased consistently over the three periods while that for those in non-agriculture self-employment declined over the same period (Table 7). The inequality among the unemployed and those not in the labour force have been higher than the other groups in 2012/13 and 2016/17, whereas both had lower levels of inequality than the other groups in 2005/06.

The Theil's L decomposition by the type of employment indicates that within-group differences contribute more to consumption inequality than between-employment group differences and this is consistent in all the three periods (Table 7). The inequality due to within-group differences increased in both 2012/13 and 2016/17, while that for between-group differences fell in 2012/13 but increased in 2016/17 (Table 7). Similarly, the relative contribution of the between group differences fell from 17.4% in 2005/06 to 16% in 2012/13 but increased to 17.3% in 2016/2017.

4.1.6 Poverty status and consumption inequality: Are the non-poor more unequal than the poor?

In all the three periods, consumption inequality was much higher among non-poor households than poor households (Table 8). This is expected given that, for nonpoor households, there is no upper limit on their consumption expenditure while the upper limit for poor households is the poverty line. The dynamics of inequality among these two groups over time are, however, of more importance. The three inequality indices in Table 8 indicate that consumption inequality generally increased among non-poor households between 2005/06 and 2016/17 while for the poor, inequality declined in 2012/13 but increased in 2016/17. This suggests that the nonpoor are consistently

becoming more unequal, while in the case of the poor, the recent increase in inequality may suggest that social protection programmes need to be more targeted and scaled up. The within-group differences contribute more to inequality than between-group differences except in 2005/06 where the opposite is observed (Table 8). The relative contribution of within-group differences to inequality fell by 3.2 percentage points to 47.1% in 2012/13 but rose by a percentage point in 2016/17. The inequality due to within-group differences for the poverty status of the household in all the three periods is relatively high, compared to all the other variables used for the Theil's L decomposition in this report.

TABLE 8: Consumption Inequality by Poverty Status of the Household

GLSS Waves	Poverty Status	Inequality measures			Theil's L Decomposition (GE=0)	
		Gini	Palma (90/10)	Theil's L (GE=0)	Within Group	Between Group
2005/06	Non-poor	0.326	3.81	0.170	0.142	0.144
	Poor	0.188	2.72	0.072		
2012/13	Non-poor	0.339	4.26	0.182	0.153	0.136
	Poor	0.176	2.52	0.062		
2016/17	Non-poor	0.338	4.12	0.183	0.163	0.151
	Poor	0.208	3.12	0.097		

Source: Authors' computations from the GLSS rounds, 5, 6 &7

4.2 Labour market and inequality

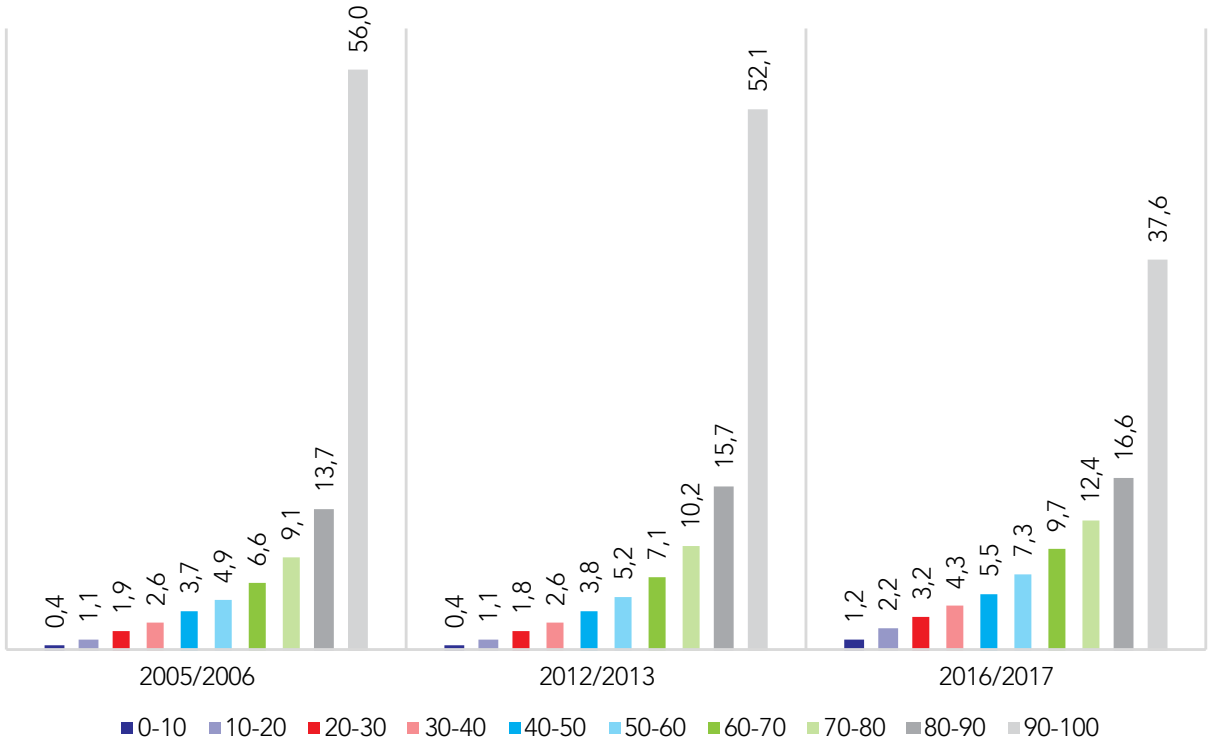
4.2.1 Wage inequality and earnings distribution

This subsection explores inequalities in real wage income for individuals in paid employment in the three periods. Unlike the previous section, where the analysis was conducted at the household level and in some cases used information relating to the household head, the analysis in this section is conducted for all individuals sampled in the survey, who were in paid employment. Thus, the sample used for the analysis under consumption inequality is not the same as the one used for the analysis in this section. Consequently, we do not expect the trends in inequality revealed in the results presented in this subsection to reflect the trends observed in consumption inequality. This is also partly because in developing countries such as Ghana there is usually large divergence between wages (or income, generally) and consumption expenditure levels, an observation which is well acknowledged in development literature (Deaton 1997; Deaton & Zaidi 2002; Korinek et al 2006).

Real wages, instead of nominal wages, are used in order remove the effect of inflation which has

a negative impact on purchasing power. Thus, the use of the real wage and allows us to compare the distribution over time. Because the data on wages are in nominal values, the real wages for the individuals were derived by converting the nominal values into 2012 values in Ghana Cedis using the consumer price index. Figure 7 presents decile percentage shares of wage income for the three periods. The results show that the top 10% of wage income earners accounted for more than half (56%) of the real wage income from paid employment in 2005/06. The proportion of the income for the top 10% however reduced to 52% in 2012/13 and further to 38% in 2016/17. Figure 7 further shows that the bottom 10% accounted for less than a percentage of the wage income in the 2005/06 and 2012/13 periods, but in 2016/17 the bottom 10% accounted for 1.2% of the total real wage.

FIGURE 7: Percentage shares of real wage income (in 2012 Ghana Cedis), by deciles



Source: Authors' computations from the GLSS rounds, 5, 6 &7

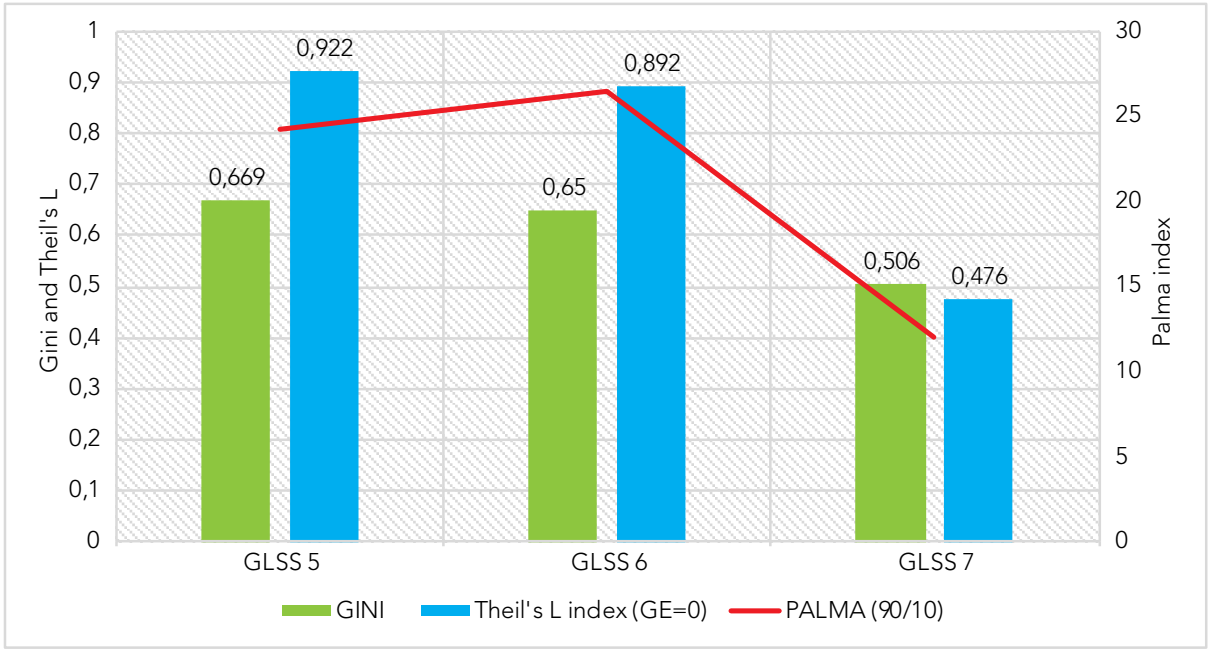
Generally corroborating the patterns and trends observed in the percentage shares are the mean real wages for the deciles reported in Table 9. Between 2005/06 and 2012/13, there was a large increase in real wages across all deciles. Similar increases also occurred in 2016/17, except for the top decile which saw a decline in the average real wage. In some cases, particularly the bottom two deciles, the increases in 2016/17 were larger than what were respectively observed in 2012/13. This trend does not only point to a likely reduction in wage inequality but it may also point to a growing middle income in Ghana. Indeed, Figure 8 shows that inequality in wages from paid employment, particularly between 2012/13 and 2016/17, declined substantially. A likely explanation for this trend is the implementation of the SSPP which began at end of the noughties with different groups of workers in the public sector being roped in sequentially at different times.

TABLE 9: Average real wage income (in 2012 Ghana Cedis) by deciles

	2005/2006	2012/2013	2016/2017
0-10	107.17	209.73	680.71
10-20	269.66	577.99	1280.56
20-30	468.09	955.60	1822.98
30-40	641.75	1382.78	2500.20
40-50	914.48	1991.81	3185.14
50-60	1201.51	2710.59	4232.19
60-70	1607.65	3738.22	5593.92
70-80	2227.37	5342.46	7196.63
80-90	3349.86	8254.46	9638.46
90-100	13725.94	27384.54	21796.06

Source: Authors' computations from the GLSS rounds, 5, 6 &7

FIGURE 8: Wage Inequality for each wave



Source: Authors' computations from the GLSS rounds, 5, 6 &7

A regional breakdown of the Gini Coefficient indicates that the Northern Region had the highest wage inequality in 2005/06, followed by the Upper East Region while the lowest inequality was recorded in the Volta region, followed by the Ashanti region (Table 10). In 2012/13, the Upper West recorded the highest inequality in wage income, followed by the Brong-Ahafo, Volta and Central regions. The region with the lowest wage inequality in 2012/13 was the Greater Accra region, followed

by the Western region. Wage inequality in 2016/17 reduced across all regions compared to their corresponding levels in 2005/06 and 2012/13. While the Upper West had the highest Gini Coefficient in 2012/13, it turned out to be the region with the second lowest Gini in 2016/17 after the Central region (Table 10). Generally, the regional patterns revealed by the Gini are confirmed by the Theil's L indices reported for the regions in Table 10.

The trends in inequality varied across the regions. As shown in Table 10, while some regions, like the Western and Greater Accra regions, consistently recorded reductions in wage inequality between 2005/06 and 2016/17, many others recorded higher levels of inequality in 2012/13 but a fall in 2016/17. For example, although the Volta region recoded the least Gini (55%) in 2005/06, it recorded the third highest Gini (70.6%) in 2012/13 but had the fourth lowest Gini (49.7%) in 2016/17. The Theil's L decomposition shows that the wage inequality in the three periods was mainly due to within group differences rather than between group differences. The relative contribution of between group differences was 6.8% in 2005/06 and fell to 1.9% in 2012/13; it however increased to 3.4% in 2016/17.

The Greater Accra region recorded the highest mean real wage in 2005/06, followed by the Western region while the Upper West region recorded the lowest mean real wage (Table 39 in the Appendix). Table 39 further shows that average real wage was again highest in Greater Accra for 2012/2013. In 2016/17, the Greater Accra region still recorded the highest mean real wage followed by the Western and Ashanti regions. The region with the least average real wage in 2016/17 was the Volta region followed by the Northern region. A test of no significant differences between the regions (F-test) indicates that the differences observed between regions are significant for all three periods.

TABLE 10: Wage Inequality by region

Regions	Gini coefficient			Theil's L Index (GE=0)		
	2005/06	2012/13	2016/17	2005/06	2012/13	2016/17
Western	0.663	0.595	0.532	0.880	0.751	0.535
Central	0.663	0.701	0.452	0.944	1.002	0.383
Greater Accra	0.685	0.590	0.492	0.917	0.671	0.431
Volta	0.549	0.706	0.497	0.590	1.085	0.473
Eastern	0.641	0.630	0.499	0.834	0.809	0.472
Ashanti	0.598	0.635	0.502	0.695	0.851	0.452
Brong- Ahafo	0.649	0.726	0.513	0.892	1.170	0.491
Northern	0.724	0.689	0.522	1.115	1.054	0.534
Upper East	0.691	0.626	0.546	1.018	0.861	0.562
Upper West	0.642	0.793	0.482	0.498	1.479	0.474
Theil's L Decomposition	Within group			0.859	0.875	0.461
	Between group			0.063	0.017	0.016

Source: Authors' computations from the GLSS rounds, 5, 6 &7

The average real wages in urban localities are higher than those in rural localities in each of the three periods and the observed difference for each period is statistically significant (Table 39 in the Appendix). For both urban and rural localities, the average real wages increased consistently, although the observed increase in 2016/17 was relatively negligible. There are also observed differences in wage inequality between rural and urban areas between 2005/06 and 2016/17 (Table 11). Generally, the indices on wage inequality in Table 11 show that wage inequality in the rural localities has been higher than in the urban localities, although the 2012/13 Gini for rural localities was slightly lower than that for the urban localities. In both localities, the indices show that inequality in 2016/17 was lower than their corresponding values in 2005/06 and 2012/13. For the rural localities, however, the Gini declined slightly whereas the Theil's L increased slightly between 2005/06 and 2012/13. The Theil's L decomposition suggests that a larger part of the observed inequality variations between rural and urban Ghana is explained by within-group differences and not by between-group differences. The relative contribution of the between group differences also declined from 3.6% in 2005/06 to 3.9% in 2012/13 and further to 1.5% in 2016/17.

TABLE 11: Wage inequality by locality

Location	Gini coefficient			Theil's L Index (GE=0)		
	2005/06	2012/13	2016/17	2005/06	2012/13	2016/17
Urban	0.642	0.629	0.499	0.820	0.812	0.456
Rural	0.676	0.667	0.516	0.939	0.943	0.499
Theil's L decomposition	Within group			0.888	0.866	0.470
	Between group			0.033	0.026	0.007

Source: Authors' computations from the GLSS rounds, 5, 6 &7

Between male and female individuals in paid employment, there are also observed differences in inequality and also in terms of changes in inequality over time (Table 12). Inequality was higher among males than among their female counterparts in 2005/06 but the opposite is observed for 2012/13 and 2016/17. Inequality in wages consistently declined for males and the reduction between 2012/13 and 2016/17 was particularly substantial. There was also a large reduction in inequality among females in 2016/17 after a marginal increase in 2012/13. The Theil's L decomposition by gender of the wage earner indicates that within-group inequality accounts for more of the observed inequality than between-group inequality in all the periods. Having declined from 5% in 2005/6 to 0.7% in 2012/13, the between-group inequality increased substantially to 4.6% in 2016/17.

While wage inequality is now higher among females than males, Table 39 (in the Appendix) shows that in all the three periods, average real wage of male wage-earners was higher than that of their female counterparts. Table 39 further shows that the average real wage for both male and female wage earners increased over the three periods, except for a slight reduction for females between 2012/13 and 2016/17. The observed difference in average real wages for males and females in each of the periods is highly significant (Table 39 in the Appendix).

Table 13 shows wage inequality by employment sector. Employment sector is defined in terms of whether an individual is employed within the public or private sector. An individual's employment is classified as public sector employment if he/she is employed in the civil service, parastatals or any other public entity; otherwise the individual is employed in the private sector. The inequality indices in Table 13 show that wage inequality is generally high in the private sector, particularly in 2016/17. For both public and private sectors, inequality increased in 2012/13 but fell in 2016/17. In the case of public sector, the increase in 2012/13 was relatively substantial and so was the reduction in 2016/17. Indeed, the Gini recorded for the public sector in 2016/17 was lower than the corresponding value in 2005/06. The Theil's L decomposition suggests that a larger part of the observed inequality between public and private sectors was explained by within-group differences rather than by between-group differences.

TABLE 12: Wage inequality by gender of the wage earner

Gender	Gini			Theil's L Index (GE=0)		
	2005/06	2012/13	2016/17	2005/06	2012/13	2016/17
Male	0.673	0.643	0.489	0.928	0.866	0.444
Female	0.636	0.667	0.513	0.820	0.948	0.476
Thiel's L decomposition	Within group			0.876	0.886	0.454
	Between group			0.046	0.006	0.022

Source: Authors' computations from the GLSS rounds, 5, 6 &7

TABLE 13: Wage inequality by sector of employment

Location	Gini			Theil's L Index (GE=0)		
	2005/06	2012/13	2016/17	2005/06	2012/13	2016/17
Public	0.494	0.580	0.366	0.448	0.664	0.267
Private	0.537	0.560	0.536	0.532	0.635	0.522
Thiel's L decomposition	Within group			0.506	0.642	0.463
	Between group			0.048	0.069	0.009

Source: Authors' computations from the GLSS rounds, 5, 6 &7

On average, public sector employees enjoy higher real wages than their counterparts in the private sector (see Table 39 39 in the Appendix). The average real wages in the public sector in 2016/17 was lower than was observed in 2012/13, while that of the private sector increased in 2016/17. The observed differences between the average wages of the public and private sectors are statistically significant (Table 39 in Appendix).

4.2.2 Unemployment rate

This sub section explores the level of unemployment by gender, locality and regions and over time. An individual is considered unemployed if the individual's age falls within 16 – 64 years age bracket and the individual was without work in the reference period (last 7 days) although he/she was available for work. Table 14 presents the overall unemployment rates and also by gender and locality. The overall unemployment rate fell from 8% in 2005/06 to 4.4% in 2012/13. This trend however could not be sustained as the rate of unemployment reverted to 7.9% in 2016/17. In all the three periods, the unemployment rate was higher among females than among males. Following the trend at the national level, the unemployment rate for both males and females declined between 2005/06 and 2012/13 but rose between 2012/13 and 2016/17 with the 2016/17 rates being slightly lower than the corresponding rates in 2005/06. The unemployment rates by locality show a clear difference between rural and urban areas in each of the three periods, with the unemployment rate in urban areas being higher than in the rural areas. While the rate for both rural and urban localities went down in 2012/13, the corresponding rates in 2016/17 increased for both localities.

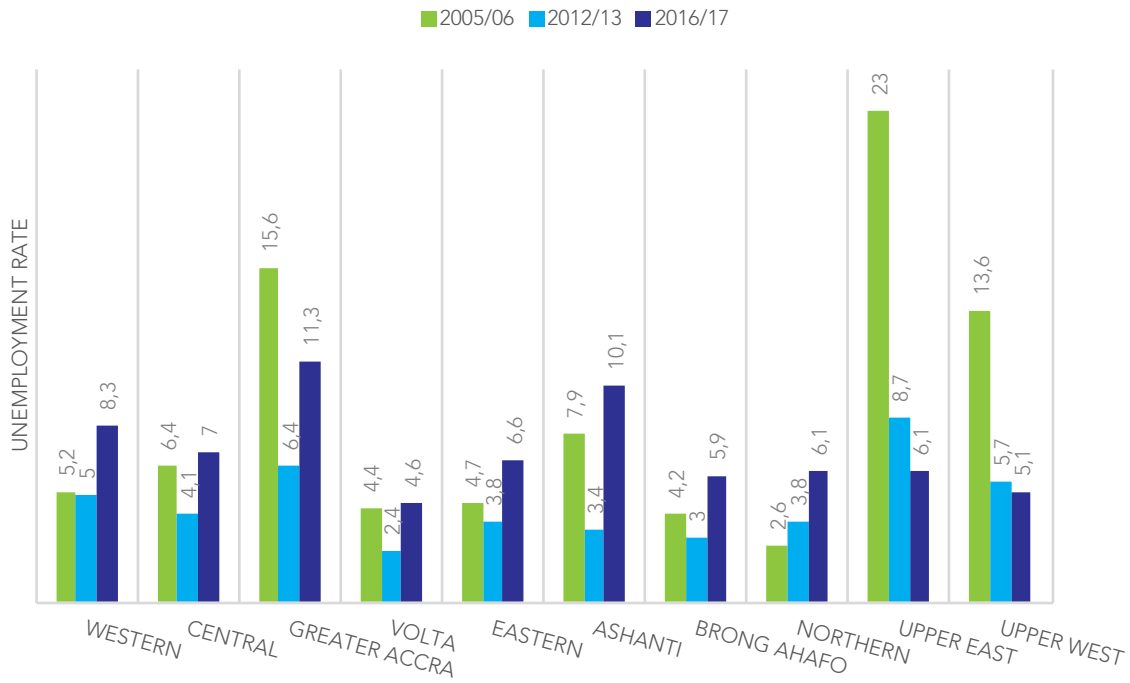
Table 14: Unemployment rate by gender and location

Category	Subgroups	2005/06	2012/13	2016/17
Gender	Male	0.072	0.037	0.070
	Female	0.086	0.050	0.088
Locality	Rural	0 .050	0.030	0.048
	Urban	0.126	0.057	0.109
All	-	0.080	0.044	0.079

Source: Authors' computations from the GLSS rounds, 5, 6 &7

Figure 9 provides a breakdown of the unemployment rates in the three periods by region. In 2005/06, the unemployment rate was highest in the Upper East region (23%), followed by Greater Accra (15.6%), Upper West (13.6%) and then Ashanti region (7.9%). In 2012/13, the Upper East region (8.7%), the Greater Accra region (6.4%) and Upper West region maintained their 2005/06 position in 2012/13, but Ashanti region's position in 2005/06 was taken by Western region in 2012/13. The unemployment rates across the various regions in 2016/17 suggests that the Greater Accra region had the highest unemployment rate of 11.3%, followed by Western and then Central regions with unemployment rates of 8.3% and 7% respectively.

FIGURE 9: Unemployment rate by regions



Source: Authors' computations from the GLSS rounds, 5, 6 &7

4.2.3 Labour force participation rate among the youth

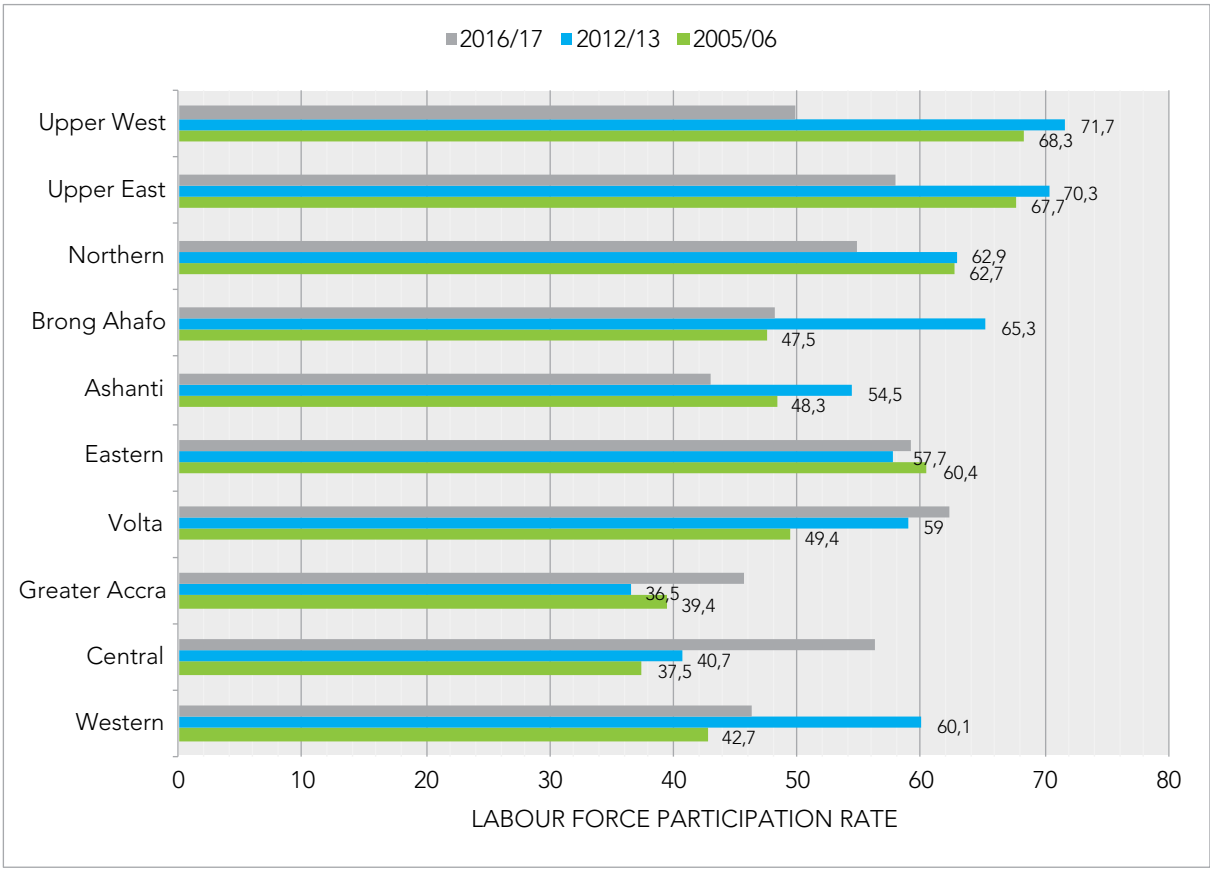
The labour force participation rate for the youth is the proportion of the youth population in the labour force. Table 15 presents the labour force participation rate among the youth by gender and location while regional breakdowns are presented in Figure 10. The observed differences in youth participation rates over the three periods are minimal. The rate in 2012/13 was slightly higher than the rates recorded for 2005/06 and 2016/17 (Table 15). The participation rate among females was higher in 2005/06 and 2016/17 but the opposite is observed in 2012/13. While the trends in the rates among males and females followed the national trend, the reduction in the rate among males in 2016/17 was much higher than the reduction observed for females (Table 15).

TABLE 15: Labour force participation rate among the youth (15-24) by gender and locality

Category	Subgroups	2005/06	2012/13	2016/17
Gender	Male	0.493	0.566	0.489
	Female	0.508	0.527	0.525
Locality	Rural	0.403	0.664	0.575
	Urban	0.578	0.436	0.447
All	-	0.501	0.547	0.507

Source: Authors' computations from the GLSS rounds, 5, 6 &7

FIGURE 10: Labour force participation rate by regions



Source: Authors' computations from the GLSS rounds, 5, 6 &7

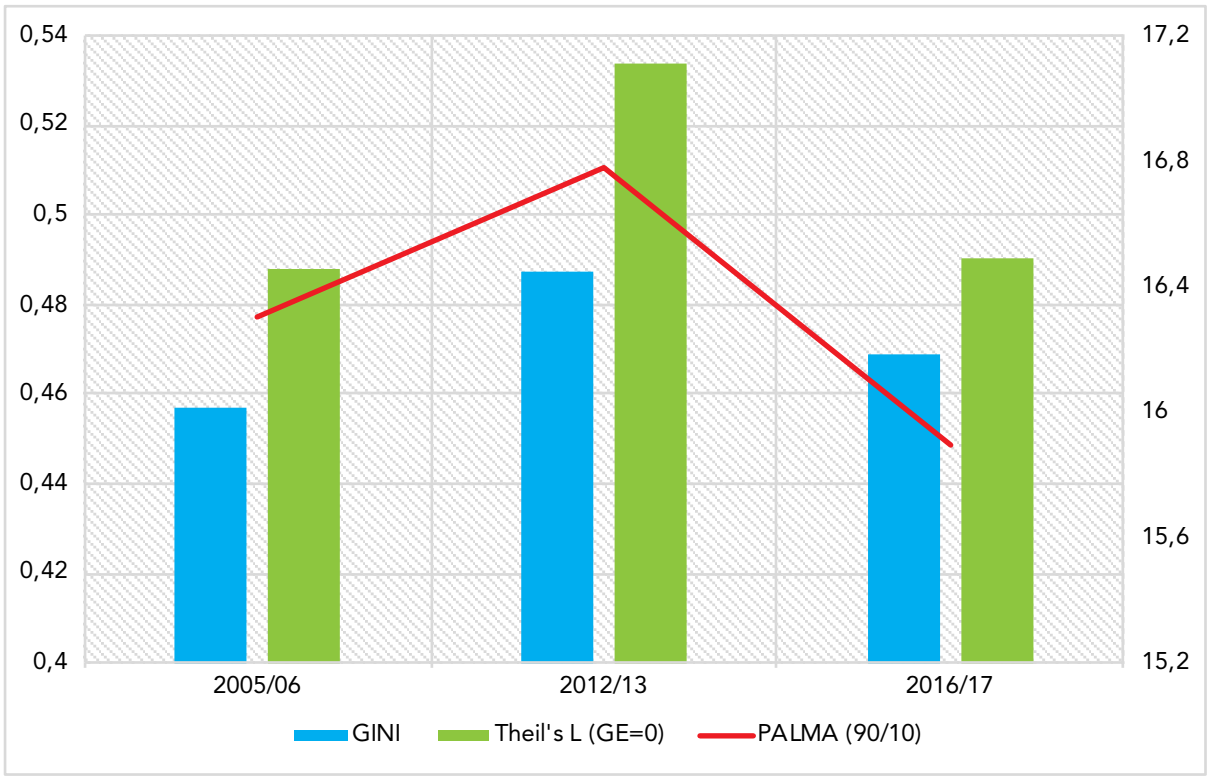
From Figure 10, the Upper West region recorded the highest participation rate in 2005/06 and 2012/13, followed by the Upper East region. In 2016/17, however, the Volta region recorded the highest participation rate. The Greater Accra region recorded the lowest participation rate in both 2005/06 and 2012/13, while the Ashanti region recorded the lowest rate in 2016/17. In general, the rate for the Ashanti region in each period was among the lowest rates recorded. The participation rates are generally high in the Northern, Upper East and Upper West regions, compared to the other areas.

4.3 Asset Inequality

The measure for asset inequality used in this report is based on the distribution of PCA scores derived from ownership of household durable assets. Like the inequality in wage income, the Gini for asset inequality increased between 2005/06 and 2012/13 but declined in 2016/17. This trend is confirmed by both the Theil's L and the Palma indices (Figure 11).

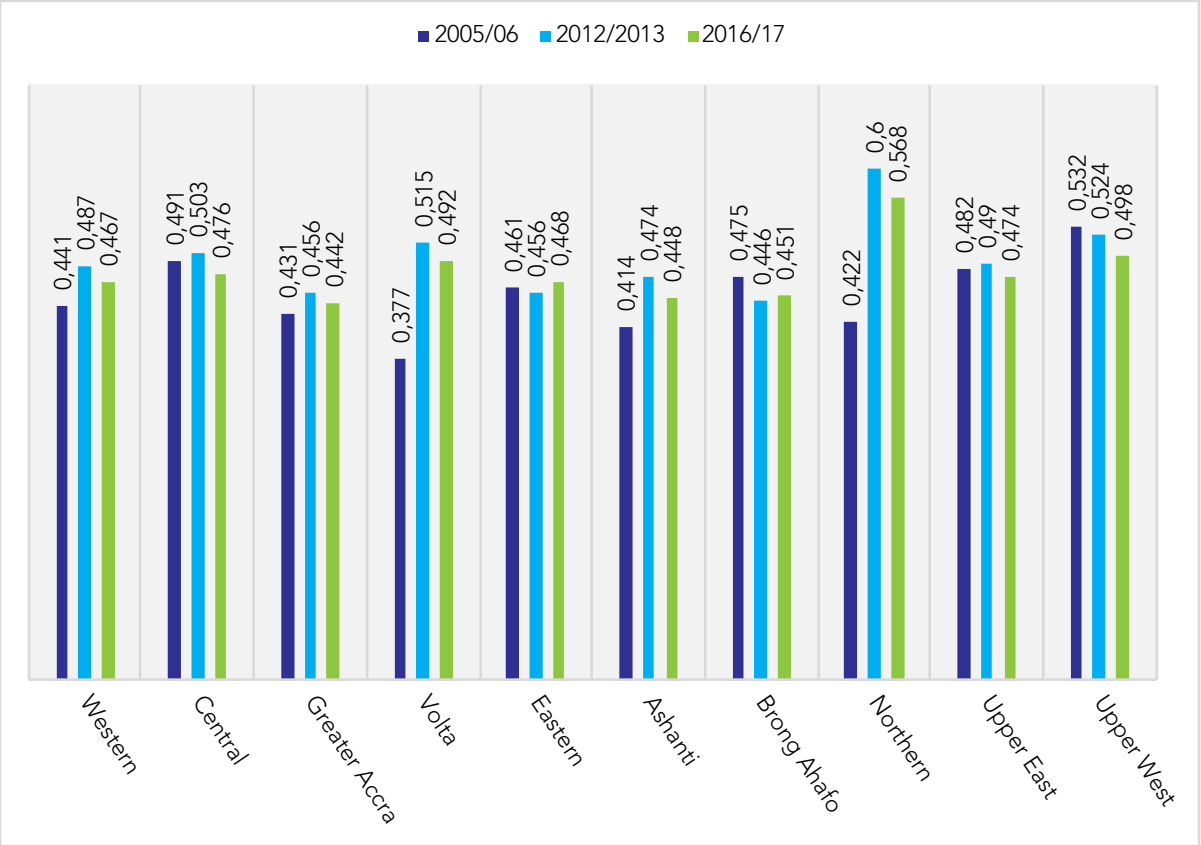
Figure 12, which shows information on asset inequality by the administrative regions in Ghana, indicates that five regional Gini indices were higher than the national level Gini in 2005/06. These five regions were the Central (0.491), Eastern (0.461), Brong Ahafo (0.475), Upper East (0.482) and Upper West (0.532) regions. Aside from the Eastern region, Brong Ahafo and the Upper West, where inequality fell slightly, asset inequality in the other regions increased between 2005/06 and 2012/13 (Figure 12). Interestingly, the Eastern and Brong Ahafo regions experienced a slight increase in asset inequality between 2012/13 and 2016/17 whereas the remaining eight regions experienced a decline in inequality, at varying degrees. In particular, the Northern region experienced the highest reduction in inequality between 2012/13 and 2016/17, while it was the region with the highest increase in inequality between 2005/06 and 2012/13.

FIGURE 11: Asset Inequality



Source: Authors' computations from the GLSS rounds, 5, 6 &7

FIGURE 12: Asset Inequality by region



Source: Authors' computations from the GLSS rounds, 5, 6 &7

Asset inequality has been consistently higher in rural areas than in urban areas (Table 16). Asset inequality in the urban localities increased in 2012/13 but declined in 2016/17. A reverse trend was however observed for asset inequality for the rural localities. A decomposition of the Theil's L index indicates that asset inequality is more attributable to within-group differences than between-group differences.

TABLE 16: Asset inequality by location

Location	Gini			Theil's L Index (GE=0)		
	2005/06	2012/13	2016/17	2005/06	2012/13	2016/17
Urban	0.420	0.468	0.447	0.410	0.490	0.426
Rural	0.511	0.498	0.511	0.585	0.560	0.601
Theil's L Decomposition	Within group			0.462	0.507	0.475
	Between group			0.027	0.027	0.015

Source: Authors' computations from the GLSS rounds, 5, 6 &7

Similarly, the Theil's L decomposition by gender of the household head shows that the differences in asset inequality among male and female headed households are largely due to within-group differences, rather than between-group differences (Table 17). Asset inequality was lower among male-headed households than among their female counterparts in all the three periods. In both male and female-headed households, inequality increased between 2005/06 and 2012/13 but this trend was reversed for the period between 2012/13 and 2016/17 (Table 17).

TABLE 17: Asset inequality by Gender of the Household head

Location	Gini coefficient			Theil's L Index (GE=0)		
	2005/06	2012/13	2016/17	2005/06	2012/13	2016/17
Male	0.448	0.485	0.465	0.458	0.532	0.478
Female	0.486	0.493	0.480	0.595	0.541	0.521
Thiel's L Decomposition	Within group			0.485	0.534	0.489
	Between group			0.003	0.000	0.000

Source: Authors' computations from the GLSS rounds, 5, 6 &7

4.4 Social Issues

This section explores inequality in access to key social services such as education, health, sanitation and appropriate waste disposal. We also explore differences in households' access to basic amenities such as water, electricity and the nature of housing used by households.

4.4.1 Education

A key indicator of access to education is the amount of time taken to commute to and from school. The commute time is defined here to include both the time taken to go to school and the time taken to return from school. Table 18 presents the average commute time for welfare quintiles, which are based on the annual consumption expenditure of the households. In 2012/2013, households within higher wealth quintiles reported higher commute time to and from school; this was generally not observed in 2005/06 and 2016/17. In 2012/13, the average time to and from school increased to 21 minutes (from 14 minutes reported in 2005/06) but subsequently reduced to 15 minutes in 2016/17.

TABLE 18: Mean time to and from school by welfare quintile

Welfare Quintile	2005/06	2012/13	2016/17
1	13.3	19.3	14.4
2	15.3	19.7	15.0
3	15.5	19.7	15.8
4	15.5	21.4	16.4
5	10.6	23.8	15.7
All	14.3	20.6	15.3

Source: Authors' computations from the GLSS rounds, 5, 6 &7

TABLE 19: Mean time to and from school by locality and sex of household head

GLSS waves	Locality			Gender of Household head	
	Rural	Urban		Male	Female
2005/06	14.5	14		14	15.3
2012/13	18.8	22.4		20.6	20.6
2016/17	14.8	14.8		15.3	15.6

Source: Authors' computations from the GLSS rounds, 5, 6 &7

Urban households reported a slightly lower average commute time than rural households in 2005/2006 (Table 19). In 2012/13, however, the urban households reported a higher commute time than their rural counterparts (Table 19). Both localities recorded equal commute time in 2017. There was no difference in the average commute time between male and female headed households in 2012/13. However in the other years, the commute time for female headed households was slightly higher than their male counterparts.

The average commute time by region, presented in Figure 13, shows that the Brong Ahafo region and the Central region had the highest average commute time in 2005/2006, while the Northern region reported the lowest time. However, the Greater Accra region, followed by the Upper East region reported the highest commute time, whereas the Northern region, followed by the Brong Ahafo region reported the lowest commute time in 2012/2013. The Upper East region had the highest commute time in 2016/17 followed by Greater Accra while the least average commute time was recorded in the Eastern Region, followed by the Ashanti region.

FIGURE 13: Mean time to and from school by regions

Source: Authors' computations from the GLSS rounds, 5, 6 &7

In addition to the commute time to school, we also examined the trends and patterns in net school attendance rates in the primary, junior high school and senior high schools, with the results presented in Table 20 and Figure 14. Overall net primary school attendance rate increased by 6.4 percentage points between 2005/06 and 2012/13. Most of the regions especially Northern, Upper East and Upper West Regions recorded relatively high increases while Volta and Eastern Regions recorded declines over same period (Table 20). The 2016/17 period saw only a marginal increase in the overall primary net attendance rate. By and large, this increase was accounted for by a rebound in the net attendance rates for Volta and Eastern Regions. In each of the three periods, Greater Accra recorded the highest net primary attendance rate, closely followed by Ashanti and the Central Region. While regions such as the Upper East, Upper West, Northern and Brong Ahafo were among the regions with low net primary attendance rates in 2005/06, they experienced remarkable increases in the attendant rates in both 2012/13 and 2016/17. Generally, these trends and patterns also characterise both junior high school and senior high school net attendance rates for the three periods, except that the net attendance rate at these higher levels of education (especially senior high schools) were lower for all regions and for the nation as whole. The results in Table 20 thus suggest that, spatially, access to education (from primary to senior high school) in Ghana is generally becoming less unequal.

TABLE 20: Net school attendant rate by region and gender

Level of education	Region	2005/06			2012/13			2016/17		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Primary	Western	70.5	69.1	69.8	73.4	73.5	73.4	72.6	74.9	73.7
	Central	71.7	70.3	71	76.7	76.4	76.5	76.8	80.4	78.4
	Greater Accra	80.4	78.7	79.5	87.2	80.8	84.1	80.6	86.8	83.8
	Volta	66.7	67.3	67	62.6	62.9	62.7	67.3	74.4	70.7
	Eastern	73.1	76	74.5	73.6	71.7	72.7	76.9	81	79
	Ashanti	80.2	77.8	79	79	86.9	82.8	79.8	85.6	82.6
	Brong Ahafo	60.9	65.8	63.4	70.7	76	73.4	75.4	74.3	74.8
	Northern	50	45.1	47.7	63.9	60.3	62.2	63.8	60.3	62.1
	Upper East	56.3	51	53.9	70.1	77.1	73.5	74.8	77.2	76
	Upper West	52.5	55.3	53.8	68	69	68.5	68	68.2	68.1
	All regions	68.3	67.9	68.1	74	75.1	74.5	74.4	77.7	76
JHS	Western	22.9	19.6	21.4	27.9	28.7	28.3	38.7	28.5	34.2
	Central	26.2	33.3	29.9	26.2	23.9	25.1	34.1	42.9	38.5
	Greater Accra	45.3	44.9	45.2	50.9	56.1	53.6	49.4	56.5	52.8
	Volta	20	18.7	19.3	18.2	17.4	17.8	26.2	31.7	28.9
	Eastern	30.8	29.7	30.2	23.5	37.1	29.9	27.7	35.1	31.2
	Ashanti	32.8	29.9	31.4	33.5	37.7	35.5	40.8	47.4	44.1
	Brong Ahafo	15.3	18.8	17.1	21	24.7	23	31.4	29.4	30.4
	Northern	8.2	7.5	7.9	14.6	18.2	16.3	15.7	20.1	17.8
	Upper East	7.7	12.9	10	12.6	19.7	16.3	16	24.5	20.1
	Upper West	13.9	13	13.5	16.8	16.6	16.7	14.1	17.3	15.6
	All regions	24.7	25.3	25	28.3	32.1	30.2	33.2	37.5	35.2
SHS	Western	11.8	11.8	11.8	16.2	22.3	19.3	15.3	16.8	16.1
	Central	9.5	10.7	10.1	15.1	14.6	14.8	18.5	19.8	19.2
	Greater Accra	28.7	29.8	29.3	34.8	31.4	32.9	33.9	42.4	38.4
	Volta	8.3	10.7	9.6	15.3	12.2	13.8	11.7	12.9	12.3
	Eastern	9.8	19.2	14.2	15.8	20.7	18.4	8.7	21.5	15
	Ashanti	19.6	12.2	15.9	17.7	25.9	21.8	24.8	27.4	25.9
	Brong Ahafo	6.3	7.7	7	14.7	16	15.4	13.7	16.2	15
	Northern	3.9	5.5	4.5	12.9	9.6	11.4	6.6	9.5	7.8
	Upper East	2.3	3.9	3	10.5	11	10.7	6.5	7.7	7.1
	Upper West	3.6	0.8	2.3	11.7	6.8	9.5	8.2	8.6	8.4
	All regions	12.1	13.6	12.9	17.7	19.9	18.8	17.3	22.1	19.6

Source: Authors' computations from the GLSS rounds, 5, 6 &7

Note: JHS and SHS stand for Junior High School and Senior High School respectively

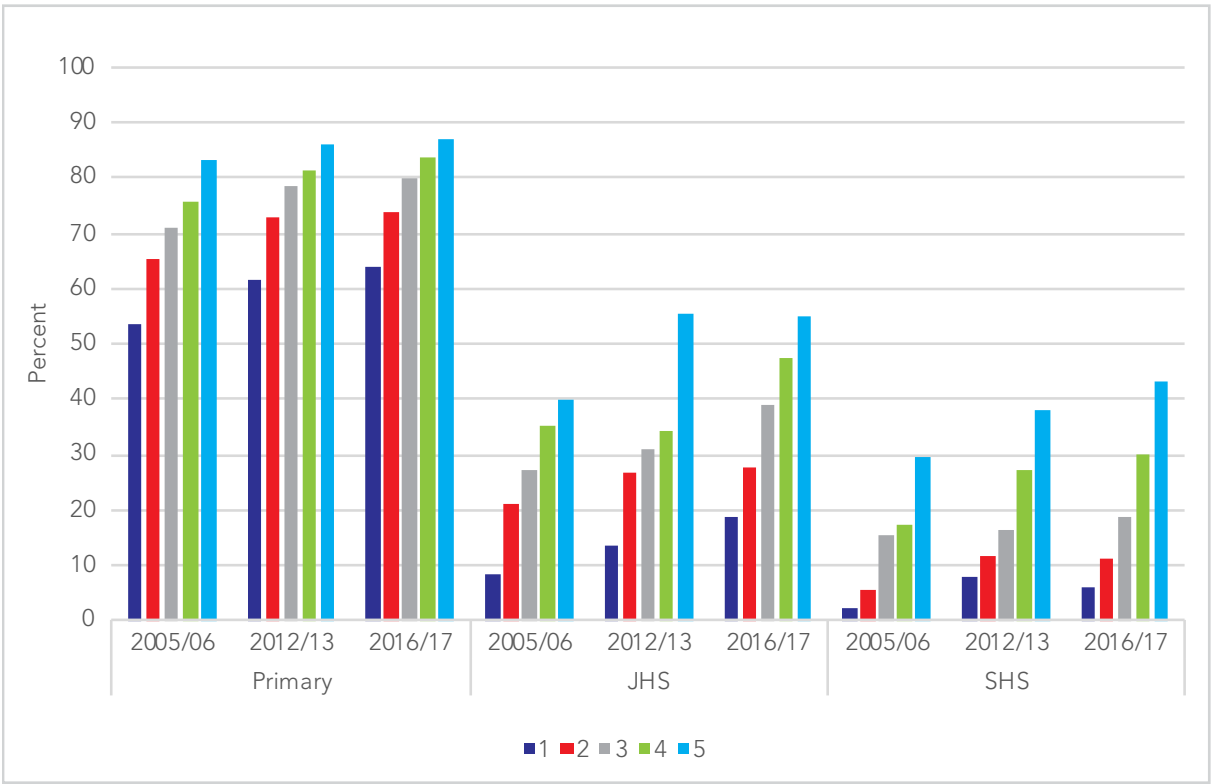
Another interesting trend in Table 20 has do with the gender dimension of the attendance rates. In 2005/06, primary net attendance rates for males and females were about the same for both sexes (around 68 percent). In 2012/13, however, the rate for females was a percentage point higher than that of males and this gap further widened in favour of females in 2016/17 period to about 3.3 points. At both junior high and senior high school levels, net attendance rates for girls have been consistently higher in the three periods while the gap is generally becoming wider in favour of girls although for some of the regions the gender trends and patterns in the net attendance rates are mixed. The

higher and increasing rates for girls can be linked to an affirmative action strategy enshrined in recent education policy and programmes in Ghana to address the historical systemic disparity against girls. It appears it is now time to rethink these affirmative action strategies, at least for pre-tertiary levels, to ensure that neither boys nor girls are left behind regarding access to education.

These successes achieved in enhancing access to education including addressing gender disparity did not happen by chance. As indicated under Section 2, two to three decades ago, Ghana adopted the FCUBE programme and has since instituted several education intervention programmes/policies such as the Capitation Grant (School Fee Abolition), expansion of Early Childhood Development services, and Nutrition and School Feeding Programme as well as the promotion of measures to improve gender parity in education. All these efforts have had an overall goal of improving access to education to all constituents of the country.

While inequalities in access to education across regions and gender have gradually diminished, inequalities in access by consumption quintiles have not seen much improvement, especially at junior high and senior high schools (Figure 14). Access to junior and senior high schools by the bottom quintile was relatively low particularly in 2005/06, while the rates were slightly better in recent years. Table 20 generally show an upward trend for net attendance rates at all school levels over the three periods. It reflects the countrywide expansion in access to pre-tertiary education alluded to earlier. With the introduction of Free SHS programme in September 2017, it expected that attendance rate at SHS, which has been the lowest among the three levels, will see a significant improvement.

FIGURE 14: Net school attendant rate, by consumption quintiles



Source: Authors' computations from the GLSS rounds, 5, 6 &7

4.4.2 Health

Similar to access to education, the travel time to a health facility is an important indicator of access to healthcare. Based on the travel time (including both the time taken to and from the health facility) for visits within the last two weeks prior to the survey, Table 21 presents mean travel time by welfare quintiles. The average travel time was 26 minutes in both 2005/2006 and 2012/2013 but rose to 43.8 minutes in 2016/17. In general, there seem to be an association between the welfare quintile and the travel time to the health facility; the households in the upper quintiles spend more travel time than those in the lower quintiles in each of the three periods.

TABLE 21: Mean time to and from health facility by welfare quintile

Welfare Quintile	2005/06	2012/13	2016/17
1	25.2	20.1	128.1
2	21.5	28.3	24.2
3	20.5	25.3	17.8
4	27.9	23.0	33.1
5	39.2	31.9	41.8
All	26.0	26.2	43.8

Source: Authors' computations from the GLSS rounds, 5, 6 &7

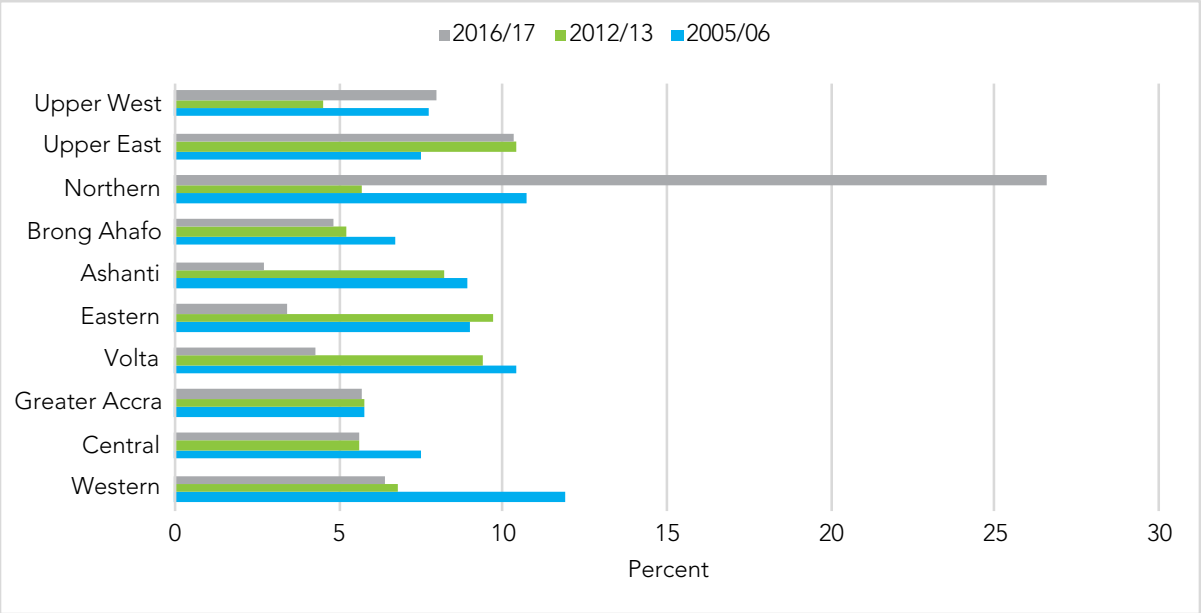
Compared to rural households, urban households reported a lower average travel time in all the three periods (Table 22). Female-headed households reported a higher travel time in 2005/06 but this pattern was reversed in the subsequent periods (Table 22).

TABLE 22: Mean time to and from health facility by locality and sex of household head

GLSS waves	Locality			Gender of Household head	
	Rural	Urban		Male	Female
2005/06	29.5	20.6		25.6	27.2
2012/13	31.4	20.7		27.5	24.1
2016/17	57.1	27.4		52.5	27.5

Source: Authors' computations from the GLSS rounds, 5, 6 &7

FIGURE 15: Mean time to and from the health facility by region



Source: Authors' computations from the GLSS rounds, 5, 6 &7

Figure 15 presents the average travel time to access health facility by regions. The Western Region followed by the Northern region reported the highest average travel time in 2005/06. In 2012/13, however, the Upper East region had the highest travel time, followed by the Eastern region. The Northern region reported the highest travel time in 2016/17, followed by the Upper East Region.

Aside from the commute time to a health facility, we also explore the trends and patterns in the proportion of individuals who consulted a doctor compared to those who consulted other healthcare practitioners within the last two weeks prior to each survey. Table 23 shows that the proportion of all individuals who consulted a doctor instead of any other healthcare practitioner increased from 38.9 percent in 2005/06 to 50.8 percent in 2012/13 and remained around 50 percent in 2016/17. In each of the three periods, the Greater Accra had highest proportion while the Northern, Upper East and Upper West Regions were the regions with relatively low proportions for individuals who consulted a doctor (Table 23). However, while the Greater Accra saw a decline by nearly 10 percentage points in 2012/13, all the other regions recorded an increase in 2012/13. In 2016/17, Ashanti, Volta and especially Greater Accra recorded an increase while the others saw a decline. Thus, regional trends are mixed although there has been some general improvement in access to doctors, particularly, in 2012/13 period. This improvement or upward trend suggest that the population is increasingly having access to doctors, and more crucially, that regional disparities in access to doctors have generally declined. This trend may be partly associated with the introduction of the National Health Insurance Scheme which, in spite of challenges alluded to under Section 2, has addressed financial constraints on access to good healthcare by a large section of the Ghanaian populace.

The countrywide proportions recorded for the sexes show that in each of the three periods the proportion of females who consulted a doctor was higher than that of males and the gap has remained

around 4-5 percentage points (Table 23). Also, for the majority of the regions, we find that females had a higher proportion than males in each of the periods. So what accounts for the gender differences in access to doctors? The answer to this question requires further interrogation, and one that is beyond the scope of this report. For now it may suffice to hypothesize that this difference rather than being systemic may be associated with gender differences in the risk preferences of individuals. Thus, males on average may be less likely to push to see a doctor or would care less about seeing a 'less qualified' health professional than females.

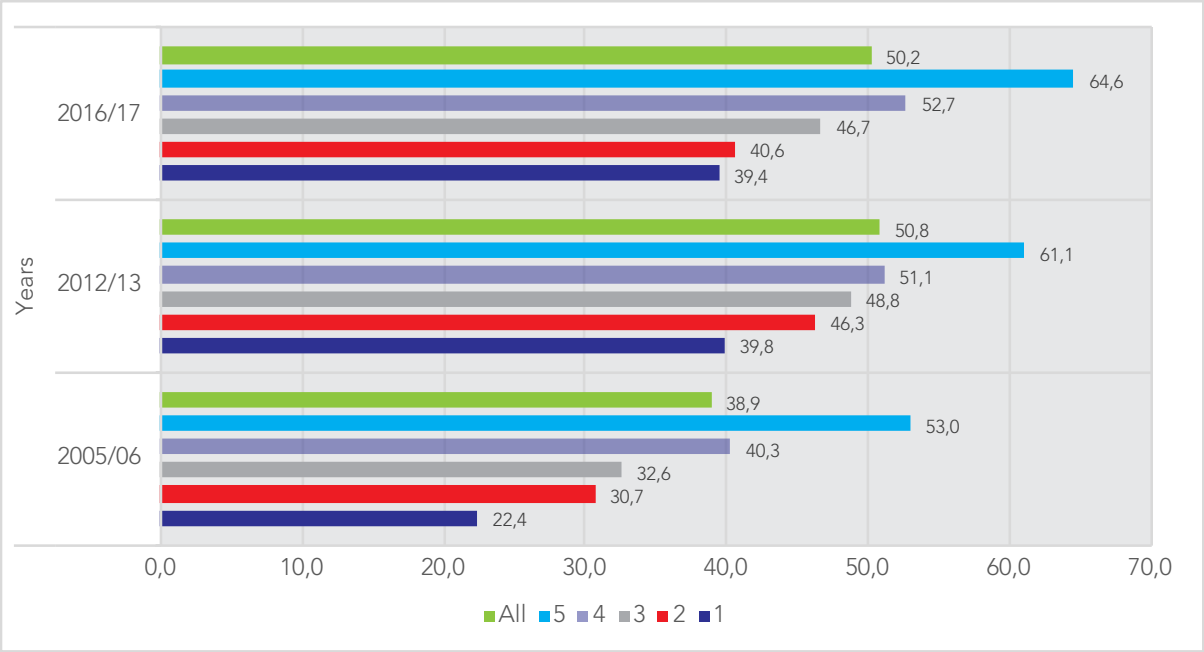
TABLE 23: Proportion of individuals who consulted a doctor by region and gender

REGION	2005/06				2012/13				2016/17		
	Male	Female	Total		Male	Female	Total		Male	Female	Total
Western	30.1	43.4	36.9		45.5	51.3	49.1		47.0	48.9	48.1
Central	53.5	51.3	52.2		45.5	60.6	55.1		41.4	45.9	44.2
Greater Accra	69.4	70.9	70.3		53.8	65.2	60.7		64.2	73.1	69.2
Volta	27.6	31.3	29.6		39.7	42.7	41.4		55.4	49.0	51.3
Eastern	41.6	48.9	45.8		53.4	53.8	53.6		42.9	51.7	48.2
Ashanti	38.0	38.0	38.0		52.3	53.3	52.9		56.3	61.1	59.3
Brong Ahafo	24.5	30.9	28.1		53.6	61.3	58.4		46.7	50.4	49.0
Northern	22.4	22.8	22.6		40.2	43.1	41.7		38.5	43.1	41.1
Upper East	20.4	25.6	22.9		36.6	39.4	38.1		40.1	29.4	34.4
Upper West	24.4	21.6	22.7		32.2	31.4	31.7		27.1	30.6	29.1
All	36.1	41.0	38.9		47.8	52.9	50.8		48.3	51.5	50.2

Source: Authors' computations from the GLSS rounds, 5, 6 &7

An assessment of the proportion of individuals who consulted a doctor by consumption quintile shows inequalities in access to doctors (Figure 16). Between 2005/06 and 2012/13, there was an increase in the proportion of individuals who consulted a doctor for each quintile. In 2016/17 however, only the top two quintiles experienced an increase while the other quintiles (especially the second quintile) saw various declines in their respective proportions. Thus, it appears that while inequality in access by consumption quintile improved in 2012/13, the gains appear to have been eroded somewhat in 2016/17.

FIGURE 16: Proportion of individuals who consulted doctor by quintiles



Source: Authors' computations from the GLSS rounds, 5, 6 &

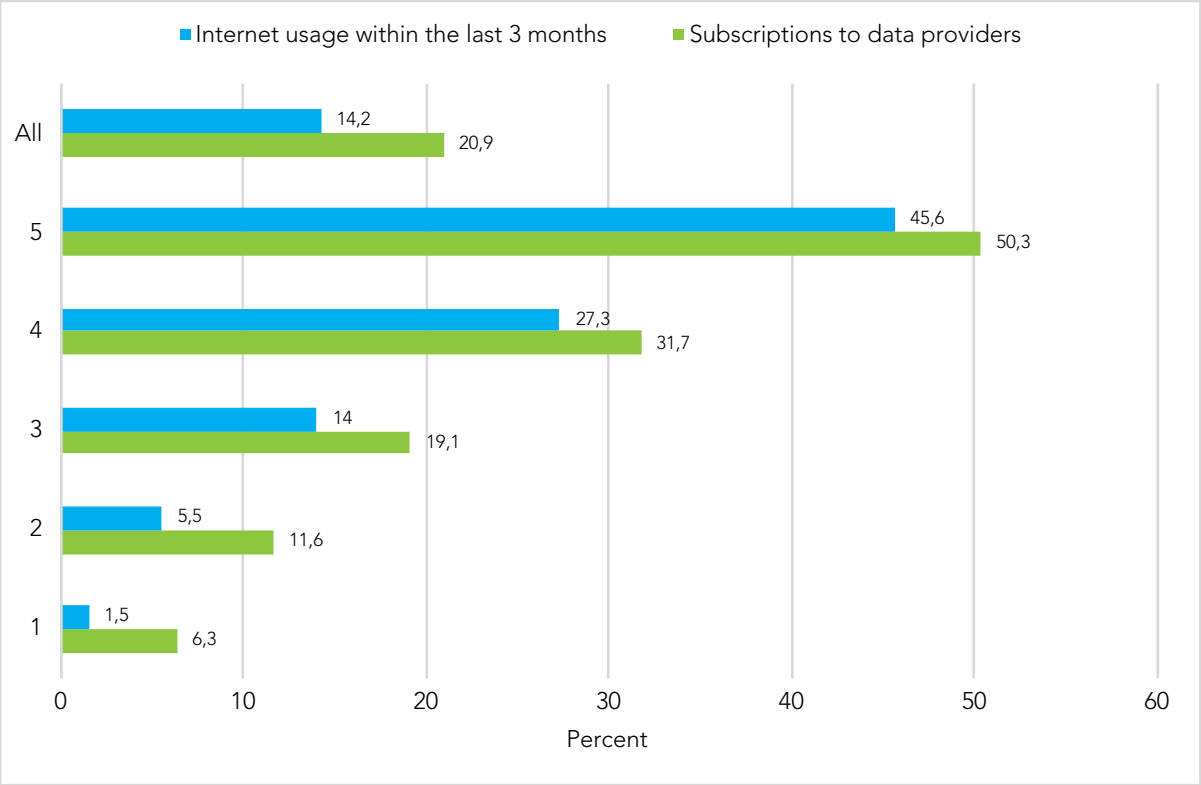
4.4.3 Access to the internet

The internet is a gateway to the digital world; hence, this sub section assesses individual's access to internet. We define internet access by using subscription to a data service provider within the last 3 months and usage of the internet from any location within the last 3 months. Figure 17 presents access to the internet by welfare quintiles in 2016/17[1]. While 20.9 percent of Ghanaians had internet data subscription in 2016/17 a lower proportion (14.2 percent) of Ghanaians used the internet within the three months prior to the survey. Subscription and usage of the internet were greater among individuals within higher welfare quintiles.

Among urban dwellers, 29.5 percent had data subscriptions, compared to only 12.2 percent of rural dwellers (Table 24). The proportion of urban dwellers who had used internet in the three months prior to the survey was 24.8 percent, compared to only 5.8 percent for rural dwellers. A higher proportion of individuals from male-headed households had subscribed to data (22.3 percent) and also used internet (15.9 percent), compared to the proportion of female-headed households that had subscribed to data (15.9 percent) and the proportion that used internet (8.8 percent) (Table 24).

1 The questions on internet access in GLSS 5 and 6 were respectively different and did not allow comparison between the different waves of the GLSS. That is why we have only reported results from the GLSS 7.

FIGURE 17: Access to the internet by welfare quintile



Source: Authors' computations from the GLSS 7 (2016/17)

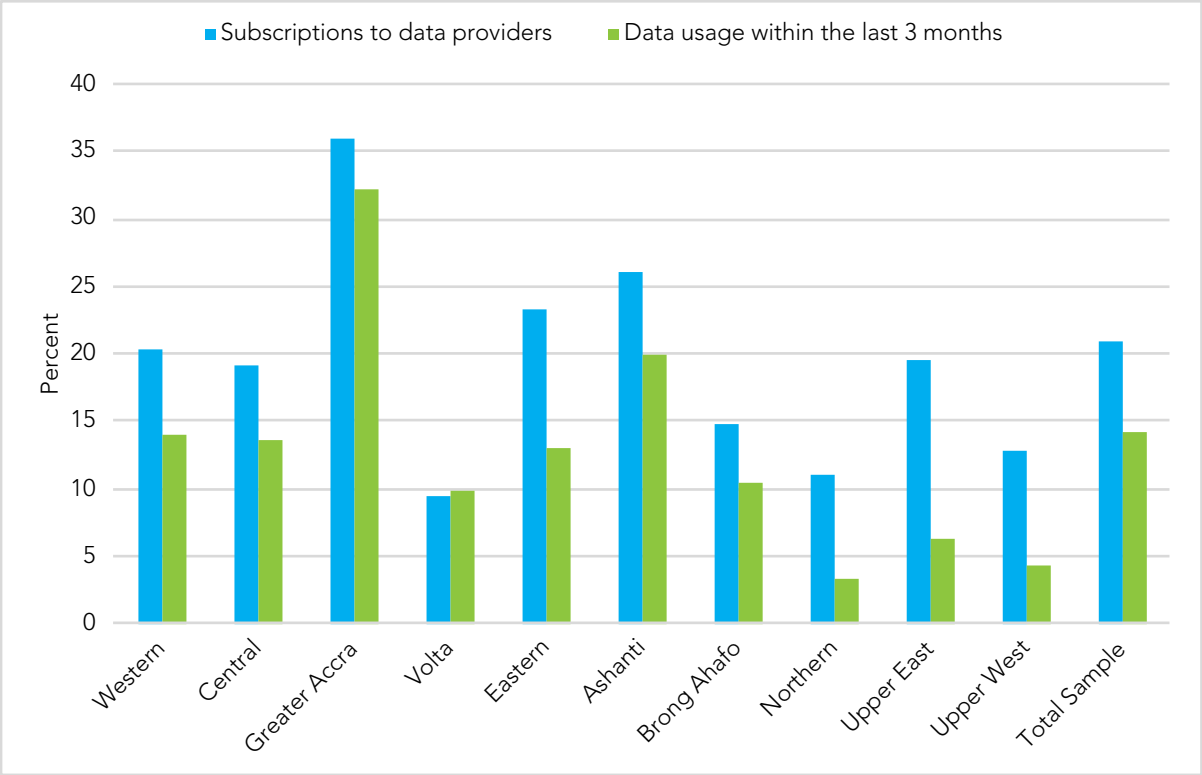
TABLE 24: Access to the internet by location and sex of household head

GLSS waves	Locality		Gender of Household head	
	Rural	Urban	Male	Female
Subscriptions to data providers	29.6	12.2	22.3	15.9
Internet usage within the last 3 months	24.8	5.8	15.9	8.8

Source: Authors' computations from the GLSS 7 (2016/17)

Access to internet varies across regions. As shown in Figure 18, the Greater Accra and the Volta regions, respectively, had the greatest and least proportion of individuals who had subscribed to data. With regards to internet usage, the Northern region, followed by the Upper West region had the least proportion of users, while the Greater Accra region had the highest proportion of internet users (Figure 18).

FIGURE 18: Access to the internet by region



Source: Authors' computations from the GLSS 7 (2016/17)

4.4.4 Water

This sub-section assesses the incidence of access to safe drinking water by households within different welfare quintiles. In this report, safe sources of drinking water consist of pipe water (within dwelling or outside dwelling), public standpipes, boreholes, protected wells, and protected springs; whereas unsafe sources include rainwater, sachet water, bottled water, water vendor/delivery trucks, lakes, rivers, ponds, unprotected wells and unprotected springs. The information in Table 25 shows that the majority of households drank water from safe sources in all the three periods. However, the proportion of safe water users reduced from 74.7 percent in 2005/06 to 62.5 percent in 2012/2013 and further to 62.0 percent in 2016/17. In 2005/06, a high proportion of households in the higher welfare quintiles had access to safe drinking water, compared to those in the lower quintiles. This pattern was reversed in the subsequent periods. Thus, the households in the higher welfare quintiles seem to have shifted to unsafe sources of drinking water as per the classification used. This shift however may be because the households in the higher quintiles have moved to sachet/bottled water, which per the definition of safe sources of drinking water in this report, has been classified as unsafe.

The shift to sachet/bottled water by the households in the higher quintiles is reflected in the pattern and trends of access to safe drinking water across rural and urban areas (Table 26). A higher proportion of urban households (88 percent) drank from safe sources than in the rural areas (67 percent) in 2005/06. This pattern was however reversed in 2012/13 and 2016/17. Thus, rural households had better access to safe drinking water than urban households in both 2012/13 and 2016/17. For

each of the three periods, a greater proportion of households with female household heads used water from safe sources, compared to male-headed households (Table 26).

TABLE 25: Main source of drinking water by welfare quintile

	Welfare Quintile	Safe sources	Unsafe sources
2005/06	1	70.1	30.0
	2	70.3	29.7
	3	75.3	24.7
	4	80.2	19.8
	5	83.5	16.5
	All	74.7	25.3
2012/13	1	70.6	29.4
	2	70.2	29.8
	3	66.9	33.2
	4	59.1	41.0
	5	39.9	60.1
	All	62.5	37.5
2016/17	1	69.6	30.4
	2	71.3	28.7
	3	62.9	37.1
	4	49.6	50.4
	5	38.5	61.5
	All	62.0	38.1

Source: Authors' computations from the GLSS rounds, 5, 6 &7

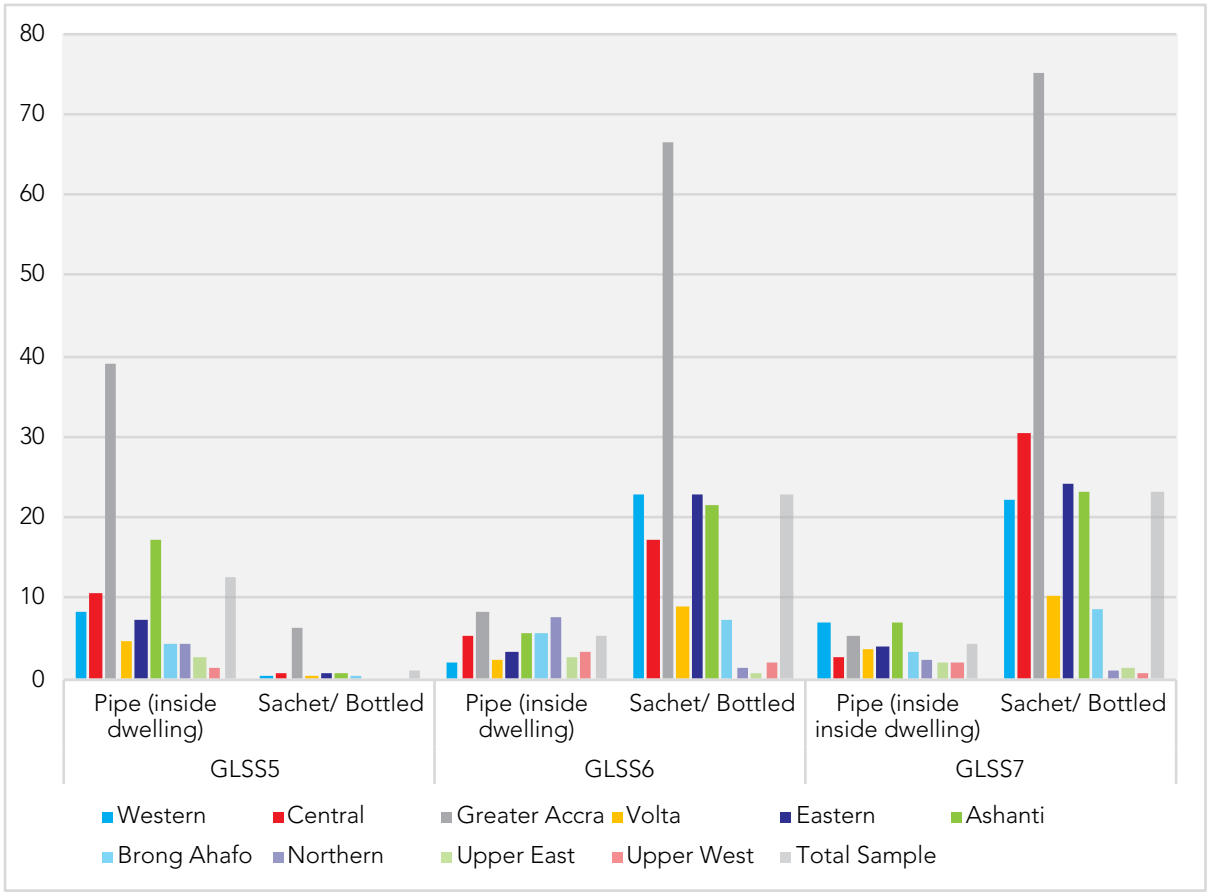
TABLE 26: Main source of drinking water house by locality and sex of household head

GLSS Waves	Locality/gender	Locality		Gender of household head	
		Rural	Urban	Male	Female
2005/06	Safe	66.6	88.1	72.9	80.8
	Unsafe sources	33.4	11.9	27.1	19.2
	Total	100	100	100	100
2012/13	Safe	68.7	56.4	61.9	64.4
	Unsafe sources	31.3	43.6	38.1	35.6
	Total	100	100	100	100
2016/17	Safe	67.5	55	61.9	62.1
	Unsafe sources	32.5	45	38.1	37.9
	Total	100	100	100	100

Source: Authors' computations from the GLSS rounds, 5, 6 &7

To provide further insight to the growing importance of sachet/bottled water as the main source of drinking in many households in Ghana, Figure 19 compares the proportion of households in each regions using pipe-borne water (inside dwelling) with the proportion that rely on sachet/bottled water. Greater Accra region had the greatest proportion of households that depended on pipe-borne water in 2005/2006 but the subsequent two periods saw a dramatic and continuous decline in the proportion of households in Greater-Accra that depend on pipe-bone water. Figure 19 confirms that there has been a general shift from pipe-bone water to sachet/bottled water across all the regions. Thus, while the consumption of sachet/bottled water increased in 2013/13 and 2016/17, the use of pipe-borne water became less popular particularly in the Greater Accra, Western, Eastern, Ashanti and Central regions. The Northern, Upper East and Upper West regions comparatively saw a minimal shift to sachet/bottled water and reliance on pipe-borne remained higher than sachet/bottled water. Also worth-noting is that access to pipe-borne (inside dwelling) water is still lower in the Northern, Upper East and Upper West Regions, compared to the other regions.

FIGURE 19: Pipe (inside dwelling) and sachet/bottled water by region



Source: Authors' computations from the GLSS rounds, 5, 6 &7

4.4.5 Electricity

Access to electricity for lighting seem to depend on the welfare quintile of the households. As shown in Table 27, the proportion of households in the upper quintiles who depend on electricity as their main sources of lighting is higher than their counterparts in the lower quintiles in each of the three periods. However, the proportion for all households that use electricity as the main source of lighting increased consistently from 45.3 percent in 2005/06 to 66.5 percent in 2012/13 and further to 76.3 percent in 2016/17.

In all the three periods, a higher proportion of urban households used electricity as the main source of lighting than rural households (Table 28). Access to electricity in both rural and urban areas followed the national trend where there was an increase in both 2012/13 and 2016/17. In all the three periods, a greater proportion of households with female household heads used electricity for lighting compared to male-headed households.

TABLE 27: Source of lighting by welfare quintile

Welfare Quintile	2005/06	2012/13	2016/17
1	17.6	36.0	49.0
2	36.2	58.3	74.6
3	48.4	71.0	85.5
4	65.8	82.5	93.2
5	80.3	90.1	97.3
All	45.3	66.5	76.3

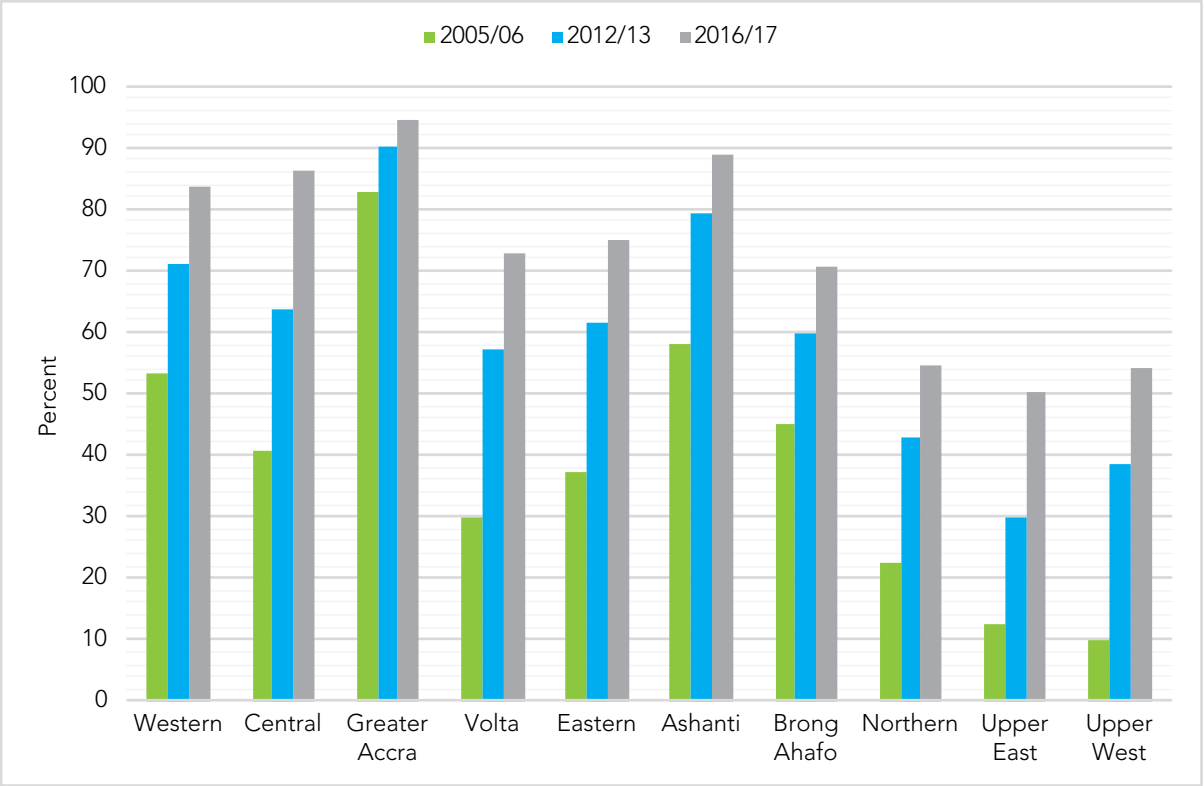
Source: Authors' computations from the GLSS rounds, 5, 6 &7

TABLE 28: Electricity as the main source of lighting by location and sex of household head

GLSS waves	Locality			Gender of Household head	
	Rural	Urban		Male	Female
2005/06	12.8	48.1		16.3	24.7
2012/13	44.5	88.2		64.4	72.4
2016/17	63.5	91.7		74.4	81.6

Source: Authors' computations from the GLSS rounds, 5, 6 &7

FIGURE 20: Electricity as the main source of lighting by region



Source: Authors' computations from the GLSS rounds, 5, 6 &7

The proportion of households using electricity in each of the 10 regions increased in both 2012/13 and 2016/17 (Figure 20). In all the three periods, the Greater Accra Region, followed by the Ashanti Region, had the highest proportion of households that use electricity for lighting. In contrast, electricity usage was lowest in the Upper East Region, followed by the Upper West Region and then Northern Region in 2012/13 and 2016/17 while the Upper West region had the lowest in 2005/06 (Figure 20).

4.4.6 Sanitation (toilet facility)

The nature of toilet facility availability to households is key to any effort at addressing sanitation issues in Ghana. This sub section examines the type of toilet facilities used by households in different welfare quintiles and explores the prevalence of open defecation among households. Table 29 shows that in 2005/06 a quarter of all households practised open defecation, 32 percent used pit latrines while 22 percent used public toilet facilities. Only 9 percent and 11 percent of all households in 2005/06 respectively used water closets and KVIPs, which are recognised as improved toilet facilities. Access to water closets and KVIPs however improved slightly, with the incidence of open defecation declining slightly to 23 percent in 2012/13 (Table 29). The use of public toilet recorded the highest incidence among all households in 2012/13 and 2016/17, although the incidence in 2016/17 was lower than what was recorded the 2012/13. It is worrying to note that the prevalence of open defecation among all households in 2016/17 was 26 percent and higher than that in 2005/06, even though access to water closets and KVIP improved marginally in 2016/17 (Table 29).

TABLE 29: Toilet facility decomposed by welfare quintile

GLSS waves	Welfare Quintile	Open defecation	WC	Pit latrine	KVIP	Pan/ bucket	Public toilet	Other
2005/06	1	52.3	0.4	28.7	4.8	0.1	12.6	1.1
	2	25.7	3.1	38.7	9.2	0.8	20.6	2.0
	3	15.8	6.2	35.5	13.4	1.2	26.9	1.1
	4	10.4	14.4	30.1	13.9	2.3	27.7	1.3
	5	6.7	33.7	19.8	14.5	1.9	22.6	0.9
	All	24.6	9.0	31.8	10.6	1.1	21.7	1.3
2012/13	1	48.4	1.3	19.2	4.5	0.00	26.5	0.15
	2	27.0	4.0	23.4	8.8	0.10	36.6	0.05
	3	18.8	7.3	23.9	12.3	0.13	37.5	0.05
	4	10.4	18.1	16.9	18.5	0.04	35.9	0.13
	5	6.1	35.3	14.9	13.3	0.64	29.6	0.21
	All	22.8	12.0	20.0	11.4	0.16	33.6	0.11
2016/17	1	56.1	0.6	21.1	7.9	0.3	14.0	0.07
	2	26.8	3.7	29.4	11.0	0.1	29.0	0.08
	3	15.2	10.6	20.1	17.5	0.9	35.7	0.03
	4	7.2	23.1	18.2	17.2	0.2	34.1	0.01
	5	3.2	46.9	13.1	14.0	0.1	22.7	0.01
	All	25.7	12.2	21.7	13.1	0.3	27.0	0.05

Source: Authors' computations from the GLSS rounds, 5, 6 &7

It is important to note that the incidence of open defecation in all the periods is much higher among households in the lower welfare quintiles than among their counterparts in the higher quintiles (Table 29). In contrast, the use improved toilet facilities, particularly water closets and KVIPs is very low among households in the lower quintiles, compared to those in the higher quintiles in all the three periods. Table 29 further shows that the incidence of open defecation has declined over time among households in the fourth and fifth welfare quintiles while the incidence in the lower welfare quintiles has generally worsened.

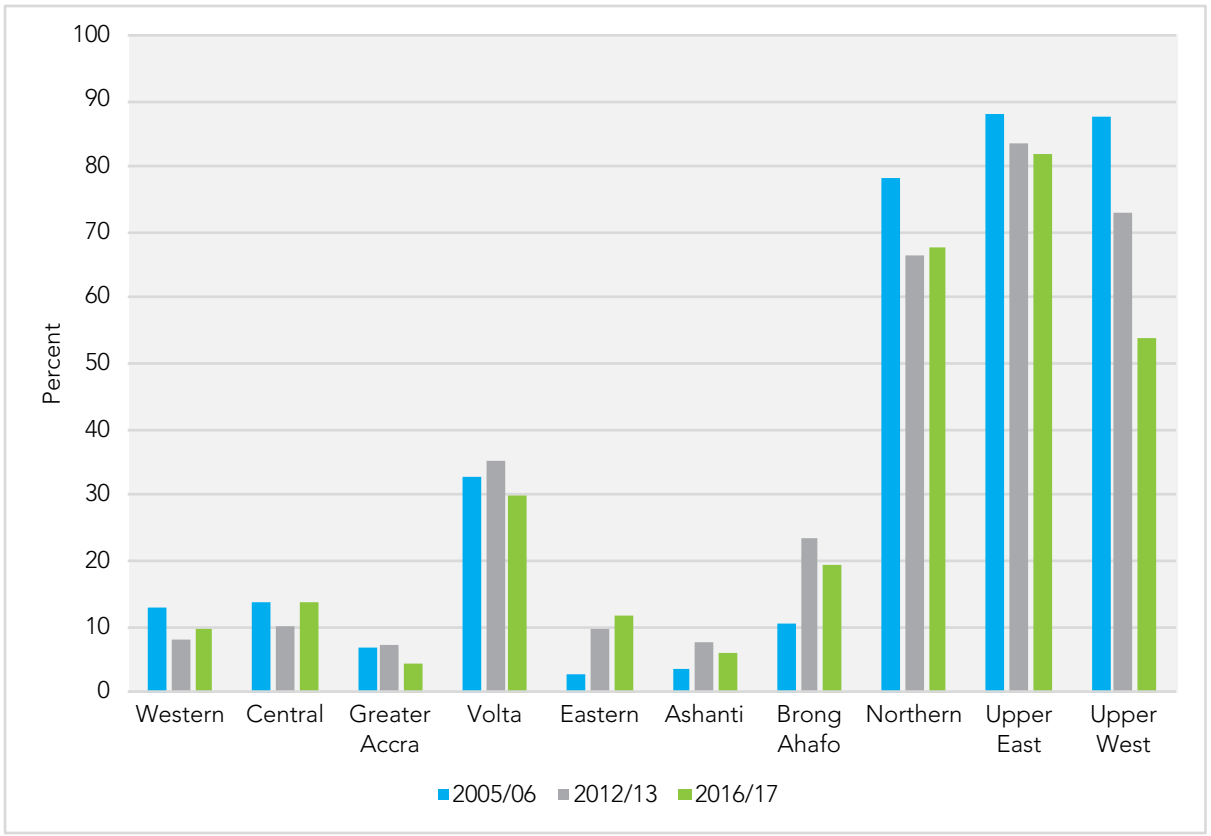
Open defecation is largely a rural phenomenon in Ghana. In all the three periods, the incidence of open defecation in rural areas was about five to six time as high as the incidence in urban areas (Table 30). The prevalence of open defecation increased in rural areas in both 2012/13 and 2016/17 while the urban areas had no change in the prevalence in 2016/17 after an increase in 2012/13. Table 30 also shows that a greater proportion of male-headed households had no access to toilet facilities, compared to female-headed households, in all the three periods.

TABLE 30: Open defecation by location and sex of household head

GLSS waves	Locality			Gender of Household head	
	Rural	Urban		Male	Female
2005/06	35.7	6.3		27.7	14.6
2012/13	37.3	8.3		25.3	15.0
2016/17	39.7	8.3		28.6	16.1

Source: Authors' computations from the GLSS rounds, 5, 6 &7

FIGURE 21: Open defecation by region



Source: Authors' computations from the GLSS rounds, 5, 6 &7

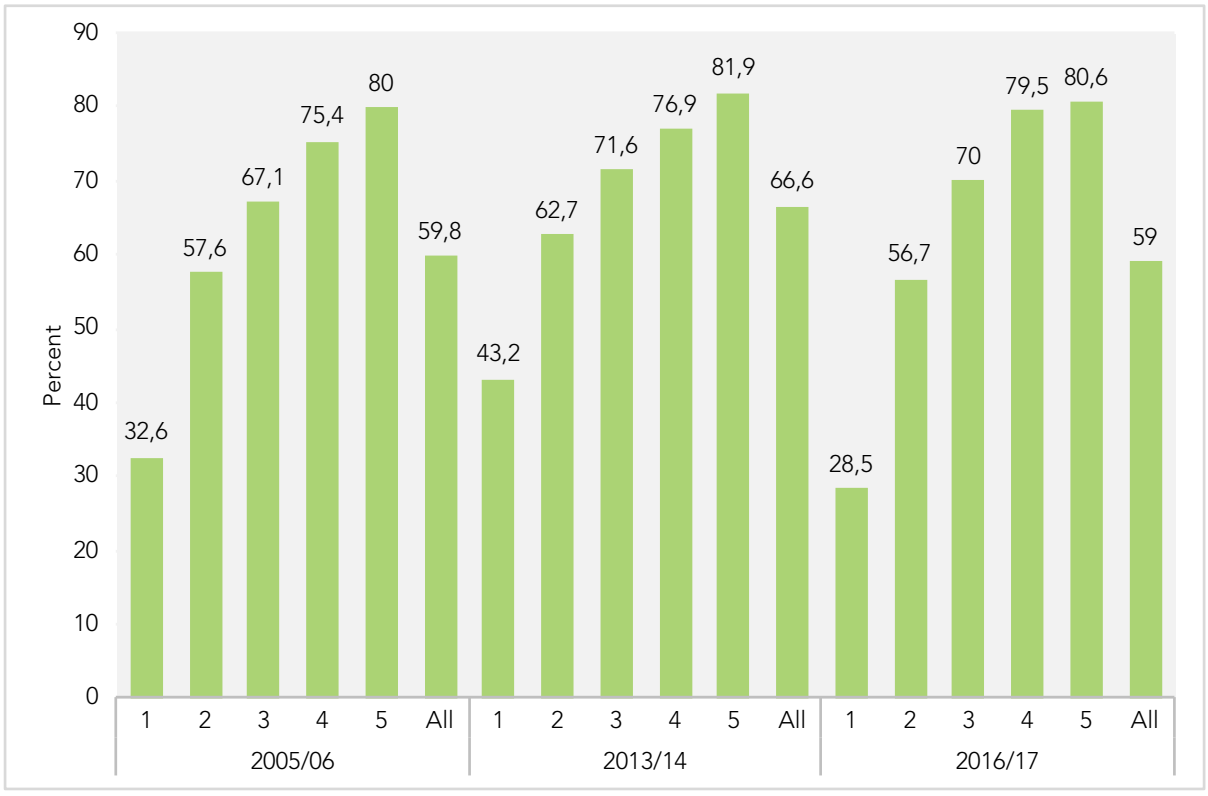
The prevalence of open defecation varies highly among the regions, as shown in Figure 21. Open defecation is relatively low in in Greater Accra, Ashanti and Eastern regions where the incidence in

each of the three periods was below 10 percent, except in the case of Eastern Region in 2016/17 where the incidence was 12 percent, up from 3 percent in 2005/06. In contrast, open defecation has been very high in the Northern region, Upper West region and Upper East region and has gone worse over time. The Upper East region had the highest incidence in all the three periods, followed by either the Northern region or the Upper West region in each of the periods. The incidence in the Volta region remained between 30-35 percent in the three periods, and was high compared to the incidence in the Greater Accra region, for example.

4.4.7 Waste removal

Solid waste removal is also an important aspect of sanitation and this sub section deals with the waste disposal methods used by households in different welfare quintiles. Households in Ghana used varied disposal methods for solid waste and so classify the methods into either appropriate or inappropriate ones. In this report an appropriate waste disposal method means the waste was either collected by a waste management service provider or dumped by the household at a public dumpsite while with inappropriate method, the waste was either burned, buried or dumped indiscriminately by the household. As shown in Figure 22, about 60 percent of households in 2005/06 used appropriate dumping methods and this proportion increased to 67 percent in 2012/13 but fell to 59% in 2016/17. Also, note that the proportion of households that used appropriate waste dumping methods in all three periods was higher for the households in the higher quintiles than for those in the lower quintiles.

FIGURE 22: Households using appropriate waste disposal method by welfare quintile (%)



Source: Authors' computations from the GLSS rounds, 5, 6 &7

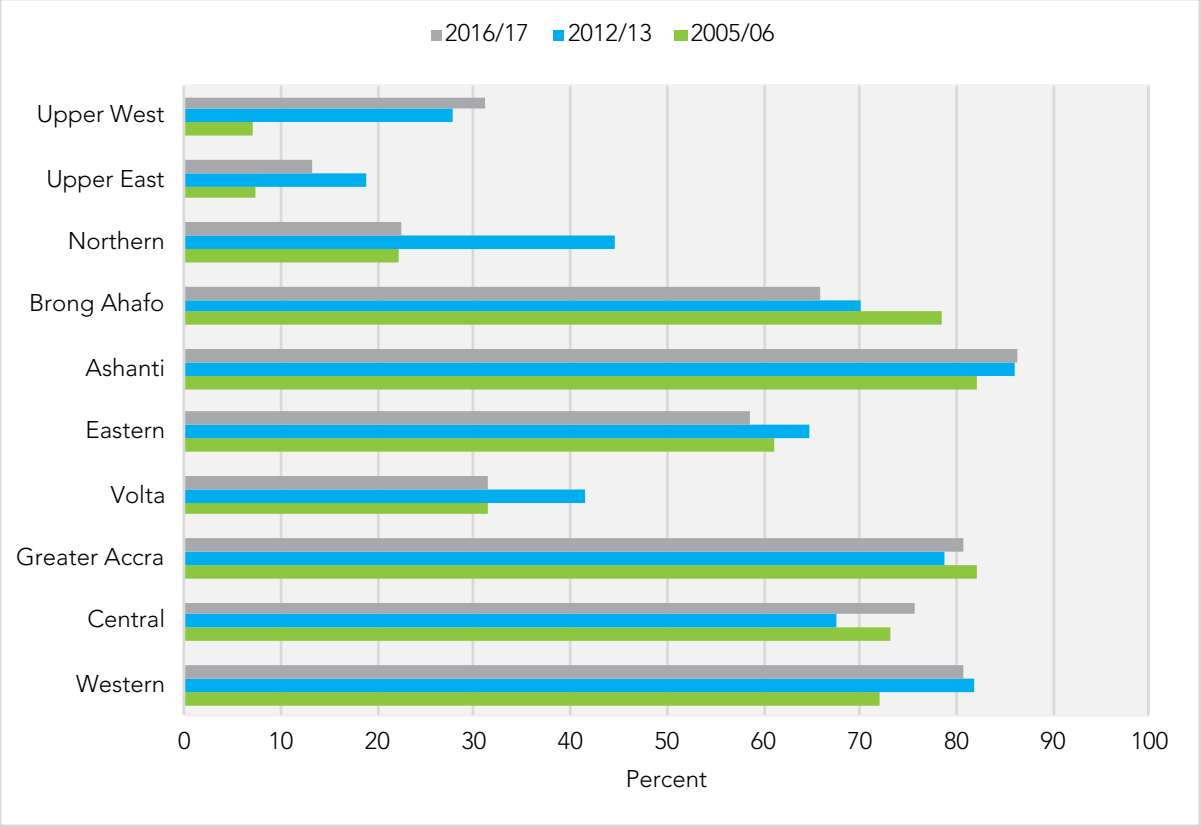
The use of appropriate dumping methods varies between rural and urban households (Table 31). Compared to rural households, Table 31 indicates that a higher proportion of urban households used appropriate dumping methods in the three periods. While the proportion of urban households using appropriate methods declined slightly and continuously between 2005/06 and 2016/17, that for rural households increased in 2012/13 but fell in 2016/17 to a figure below what was recorded in 2005/06 (Table 31). Between female-headed and male-headed households, the proportions using appropriate dumping methods were equal in 2005/06 and both proportions increased in 2012/13 but fell in 2016/17. However, in 2012/13 and 2016/17, the proportion of female-headed households that used appropriate dumping methods were higher than that for their male counterparts.

TABLE 31: Appropriate waste disposal by locality and sex of household head

GLSS waves	Locality			Gender of Household head	
	Rural	Urban		Male	Female
2005/06	46.5	81.9		55.7	55.7
2012/13	52.5	80.6		63.8	75.3
2016/17	43.9	77.7		54.5	73.9

Source: Authors' computations from the GLSS rounds, 5, 6 &7

FIGURE 23: Appropriate waste disposal by region



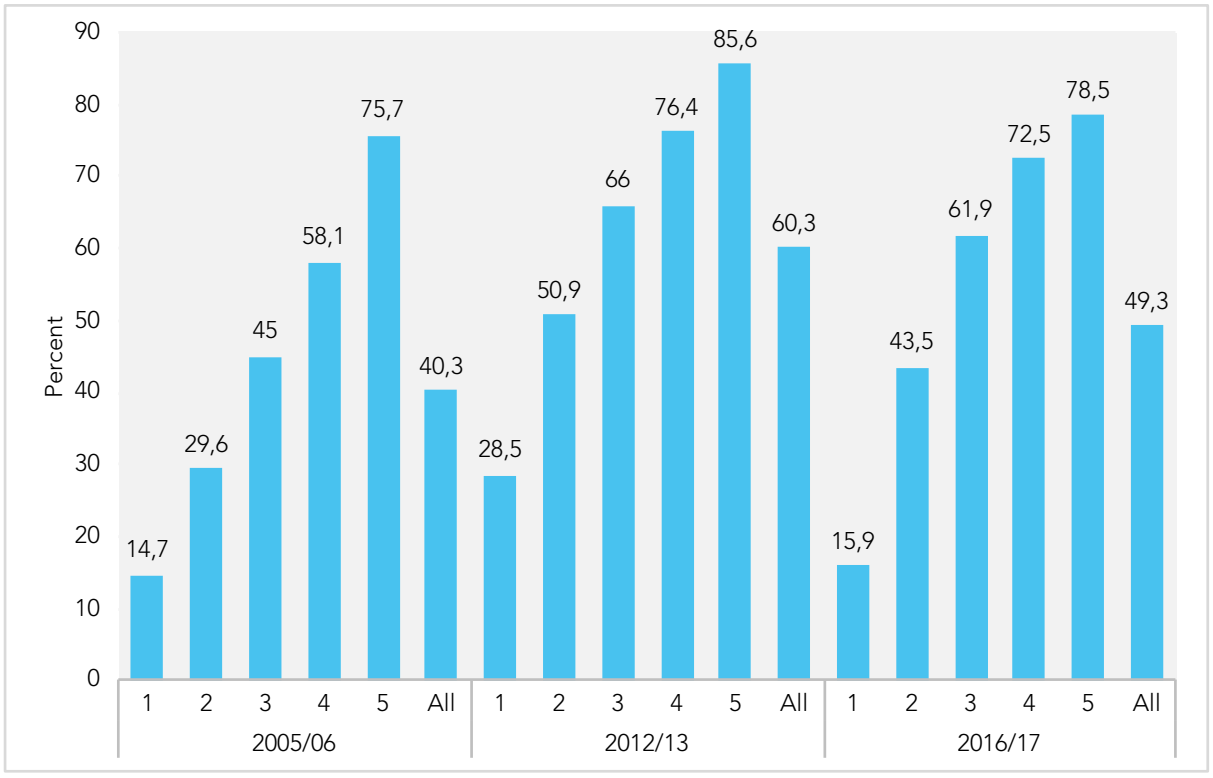
Source: Authors' computations from the GLSS rounds, 5, 6 &7

Figure 23 shows a large regional variation in the proportion of households using appropriate dumping methods. A relatively low proportion of the households in the Northern region, Upper East region and Upper West region used appropriate dumping methods in the three periods, compared to those in the other regions, particularly Ashanti region which recorded the highest proportion in all the three periods.

4.4.8 Housing

A feature of housing that is indicative of the quality of the housing structure is the nature of the main material used for constructing the outer walls. While houses in Ghana are constructed with several different materials, those that are constructed with cement blocks or concrete are generally known to be of a higher quality, compared to the others. Figure 24 therefore presents the proportion of households in different welfare quintiles whose houses were constructed with cement blocks or concrete as the main material for their outer walls. From Figure 24, a greater proportion of households within the higher welfare quintiles lived in houses with cement blocks or concrete as the main material used for the outer wall in all the three periods. The proportion of all households that lived in houses with cement blocks or concrete used for the outer wall increased from 40.3 percent in 2005/06 to 60.3 percent in 2012/13 but fell to 49.3 percent in 2016/17.

FIGURE 24: Cement blocks or concrete as main outer wall material for the outer wall by wealth quintile



Source: Authors' computations from the GLSS rounds, 5, 6 &7

The results in Table 32 show unsurprisingly that, in all the three periods, a higher proportion of households in urban areas lived in houses with cement blocks or concrete as the main material

used for the outer wall while the respective proportions for households in rural areas were relatively low. It can also be observed from Table 32 that a greater proportion of households with female heads lived in houses with cement blocks or concrete as the main material used for the outer wall, compared to male-headed households in each of the three periods.

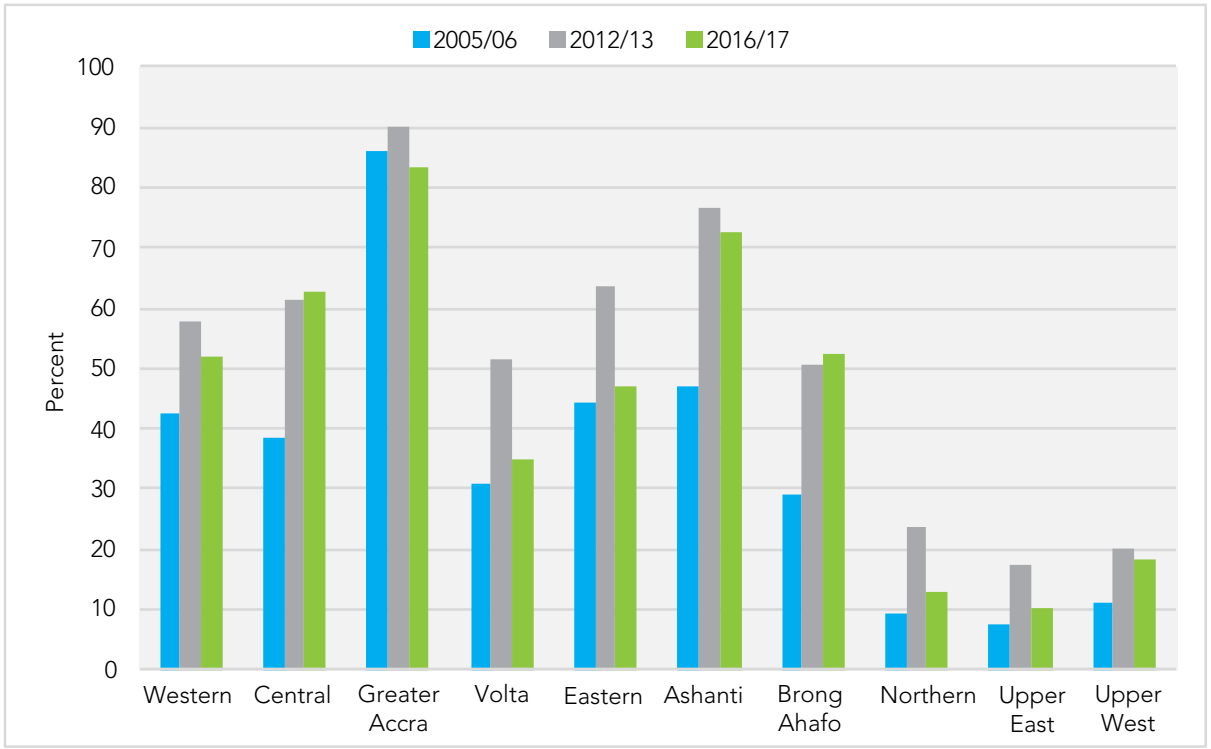
TABLE 32: Cement as main outer wall material by location and sex of household head

GLSS waves	Locality			Gender of Household head	
	Rural	Urban		Male	Female
2005/06	19.1	75.4		38.1	47.7
2012/13	36.5	84.0		57.3	69.5
2016/17	29.4	74.1		45.5	62.0

Source: Authors' computations from the GLSS rounds, 5, 6 &7

Just as in the case of access to appropriate dumping methods, one observes from Figure 25 that there is also high variation between regions with respect to the proportion of households living in houses with cement blocks or concrete as the main material for the outer walls. In all the three periods, the Greater Accra region, followed by the Ashanti region had the highest proportion of households living houses with outer walls built from cement blocks or concrete. The Northern Region, Upper East Region and Upper West Region, however, had relatively low proportions of households that lived in houses with cement blocks or concrete as the main material for the outer walls.

FIGURE 25: Cement blocks or concrete as main outer wall material by region



Source: Authors' computations from the GLSS rounds, 5, 6 &7

4.5 Economic and welfare transitions between 2009 and 2014

This section uses the two rounds of the Ghana Socio Economic Panel Survey data to provide a dynamic analysis of welfare (including subjective wellbeing), households' saving behaviour as well as employment and economic activity status of individuals surveyed in the two rounds of the panel which were respectively carried out in 2009/10 and 2013/14. We use transition matrixes to explore these dynamics. Although it is largely descriptive, a transition matrix helps us to determine the probability of a household/individual moving from a given state to another (which may be welfare enhancing or otherwise) between the two periods of the survey. We also use (normalised) Shorrocks Mobility Index (SMI) derived from the transition matrix to show the extent of mobility that occurred among households or individuals on selected economic and welfare indicators. The (normalised) SMI takes on values between zero and one, where zero stands for a situation of no mobility and one corresponds with a situation of complete mobility.

4.5.1 Welfare (consumption expenditure) and subjective wellbeing

In this sub-section, we explore transitions in households' poverty status (i.e. whether poor or non-poor), household consumption expenditure (welfare) quintiles as well as subjective well-being of the household heads. Subjective wellbeing is measured by whether the household head reported that he/she was happy with his/her life or not at each of the rounds of the survey. Table 33 presents the transition matrix for poverty status of the households between the two survey periods. Panel A presents the row percentages for the transition matrix and shows that 82 percent of the non-poor households in 2009 remained non-poor in 2014, with 18 percent of these households transitioning from being non-poor to poor between 2009 and 2014. More interestingly, 64 percent of households which were poor in 2009 became non-poor households in 2014, leaving the remaining 36 percent still poor.

Panel B of Table 33 also shows the transition matrix for poverty status but the values are represented as a percentage of all households. We observe from Panel B that almost the same percentage of households made transitions from being poor to non-poor and vice versa between 2009 and 2014. In particular, 14 percent of all households transitioned from being non-poor to poor as against 15 percent of all households who transitioned from being poor to non-poor status between 2009 and 2014. About 62 percent and 9 percent of all households remained non-poor and poor respectively. Stated differently, about 62% of all households could be described as never poor between 2009 and 2014 whereas 9% of all households appear to experience chronic poverty over the same period. The remaining 29% of all households experienced transitory poverty between 2009 and 2014. The extent of mobility in poverty status among households, as measured by the Shorrocks Mobility Index is 41 percent (see Table 33).

TABLE 33: Transitions in poverty status

Transitions in poverty status (row percentages)			
Wave 1 (2009/10)	Wave 2 (2013/14)		Row Total
	Non-poor	Poor	
Non-poor	82	18	100
Poor	63.52	36.48	100
All	77.56	22.44	100
Shorrocks Mobility Index (Normalised) = 0.41			
Transitions in poverty status (as percentages of all households)			
Wave 1 (2009/10)	Wave 2 (2013/14)		Total
	Non-poor	Poor	
Non-poor	62.27	13.67	75.94
Poor	15.28	8.78	24.06
Total	77.56	22.44	100

Source: Generated by authors from the Ghana Socioeconomic Panel Survey Data, Waves I & II

Table 34 presents the transitions in welfare quintiles both as row percentages (Panel A) and as percentages of all households (Panel B). For households who were in the first quintile in 2009, 38 percent of them (Panel A), representing about 7.3 percent of all households (Panel B) remained in the first quintile in 2014 while the rest (about 62 percent) moved into higher welfare quintiles. The 62 percent that transitioned from the first quintile in 2009 comprises of 26 percent, 20 percent, 10 percent and 6 percent for those who respectively moved to the second, third, fourth and fifth quintiles. Together, these households represent 12 percent of all households (Panel B of Table 34).

For households in the second quintile in 2009, 29 percent of them maintained their status in 2014, with 26 percent of them slipping into the first quintile and the rest of them moving into higher welfare quintiles. It is interesting to note that the percentage of households in the third quintile observed to have slipped to lower quintiles (24 percent and 19 percent for first and second quintiles respectively) was more than those who transitioned to higher welfare quintiles in 2014 (18 percent and 16 percent for fourth and fifth quintile respectively). We also observe from Table 35 that a quarter of households (25 percent) in the fourth quintile remained in the same quintile in 2014 whereas 28 percent of them moved to the fifth quintile, with the rest falling into lower quintiles (12%, 17% and 18% respectively for first, second and third quintiles respectively). For households in the fifth quintile in 2009, 32 percent stayed in the same quintile in 2014 while 26 percent and 22 percent of them fell into the fourth and third quintile respectively. Another interesting observation is that 8 percent and 11 percent of households in the fifth quintile in 2009 fell into quintiles one and two respectively in 2014. Mobility across quintiles, as measured by SMI, was 0.71 which is much higher than that for the binary (poor-nonpoor) measure of welfare discussed above.

TABLE 34: Transitions in household welfare quintiles

Transitions in welfare quintiles (row percentages)						
Wave 1 (2009/10)	Wave 2 (2013/14)					Row Total
	1	2	3	4	5	
1	37.6	25.7	20.3	9.9	6.4	100
2	26.1	29.0	19.9	15.2	9.8	100
3	24.2	18.5	22.9	18.0	16.4	100
4	12.1	16.8	17.8	24.9	28.4	100
5	8.3	11.1	22.2	26.1	32.3	100
All	21.5	20.1	20.6	19.0	18.9	100
Shorrocks Mobility Index (Normalised) = 0.71						
Transitions in welfare quintiles (as percentages of all households)						
Wave 1 (2009/10)	Wave 2 (2013/14)					Total
	1	2	3	4	5	
1	7.3	5.0	3.9	1.9	1.2	19.4
2	5.1	5.7	3.9	3.0	1.9	19.5
3	4.9	3.7	4.6	3.7	3.3	20.3
4	2.5	3.4	3.6	5.0	5.8	20.2
5	1.7	2.3	4.6	5.4	6.7	20.7
Total	21.5	20.1	20.6	19.0	18.9	100.0

Source: Generated by authors from the Ghana Socioeconomic Panel Survey Data

The transition matrix for subjective wellbeing (Table 35) shows that 65% of unhappy household heads in 2009 reported to be happy in 2014 and this represents 17.6 percent of all the household heads. Those who remained unhappy between the two periods accounted 9 percent of all the household heads and 35 percent of the household heads who were unhappy in 2009. It is interesting to note that 77.5 percent of happy household heads in 2009 remained happy in 2014 while the remaining 22.5 percent became unhappy in 2014. Those who remained happy in both periods accounted for 57 percent of all household heads while those who were happy in 2009 but became unhappy in 2014 constituted 16.5 percent of all the household heads. The transition probabilities presented in Panel A of Table 35 translate into an SMI of 0.44 which is largely not different from the SMI obtained for the transitions in welfare using the poor versus non-poor classification.

TABLE 35: Transitions in subjective wellbeing (i.e. being happy with your life or not)

Transitions in subjective happiness (row percentages)			
Wave 1 (2009/10)	Wave 2 (2013/14)		
	Not Happy	Happy	Total
Not Happy	34.8	65.2	100
Happy	22.5	77.5	100
Total	25.9	74.1	100
Shorrocks Mobility Index (Normalised) = 0.44			
Transitions in subjective happiness (as percentages of all household heads)			
Wave 1 (2009/10)	Wave 2 (2013/14)		
	Not Happy	Happy	Total
Not Happy	9.4	17.6	27
Happy	16.5	56.5	70
Total	25.9	74.1	100

Source: Generated by authors from the Ghana Socioeconomic Panel Survey Data

4.5.2 Employment and activity status

This subsection explores the economic activity status of individuals between 2009 and 2014. Specifically, the sub section deals with transitions in the employment status of the individuals and the type of economic activities the individuals were engaged in over the two waves of data. Table 36 presents the transition matrix for whether individuals were employed or unemployed between 2009 and 2014. As observed from the table, more than a quarter of the individuals who were unemployed in 2009 (27%), representing about 1.6% of the working population remained unemployed in 2014 whereas 73% of unemployed individuals in 2009 who represent 4.2% of the workforce were able to find jobs by 2014. Table 36 further shows that 95% of those employed in 2009 kept their jobs or remained employed in 2014 but the remaining 5% became unemployed. Individuals belonging to the always employed category represent 89% of the total working population whereas those who transitioned from being employed to unemployed constitute 5% of the working population. The SMI for transitions in employment status between the two periods is 0.39, as indicated in Table 36, which seems to suggest relatively low mobility in and out of the labour market between 2009 and 2014.

Table 37 presents information on the nature of economic activities that individuals were engaged in and shows the transitions from one category of economic activity to the other between 2009 and 2014. In both 2009 and 2014, individuals who were in farm/household non-farm category were in the majority, followed by full-time students, paid employees and then unpaid household workers

in that order (Table 37). An interesting observation is that the proportion of individuals who were in farm/household non-farm employment in 2009 and remained in this activity in 2014 were relatively much more than their counterparts who were in paid employment in both 2009 and 2014 (35%). While 10% of farm/household non-farm workers in 2009 moved into paid employment in 2014, as much as 37% of paid employees in 2009 moved into farm/household non-farm employment. About the same percentage of paid employees and farm/household non-farm employee in 2009 became full-time students in 2014. The majority of student in 2009 (50%) found jobs in farm/nonfarm activities in 2014 while 18% became paid employees in 2014 and 20% were still in school in 2014. However, the incidence of unpaid household worker status in 2014 was just slightly higher among those who were paid employee in 2009 than for their counterparts who were in farm/household non-farm activities (Table 37).

TABLE 36 : Transitions in employment status

Transitions in employment status (row percentages)			
Wave 1 (2009/10)	Wave 2 (2013/14)		
	Unemployed	Employed	Total
Unemployed	27.2	72.8	100
Employed	5.3	94.7	100
Total	6.5	93.5	100
Shorrocks Mobility Index (Normalised) = 0.39			
Transitions in employment status (as percentages of the working population)			
Wave 1 (2009/10)	Wave 2 (2013/14)		
	Unemployed	Employed	Total
Unemployed	1.6	4.2	5.7
Employed	5.0	89.3	94.3
Total	6.5	93.5	100

Source: Generated by authors from the Ghana Socioeconomic Panel Survey Data

TABLE 37: Transitions in economic activity status of individuals

Transitions for various economic activities (row percentages)					
Wave 1 (2009/10	Wave 2 (2013/14)				
	Paid employee	Farm/Household Non-Farm worker	Full-time Student	Unpaid HH worker	Total
Paid Employee	35.07	36.6	18.8	9.5	100
Farm/Household Non-Farm worker	10.1	64.7	18.7	6.6	100
Full-time Student	17.8	50.1	24.6	7.5	100
Unpaid HH worker	20.6	43.5	20.1	15.9	100
Total	16.9	55.1	20	8	100
Shorrocks Mobility Index (Normalised) = 0.65					
Transitions in engaging in various economic activities (as % of all households)					
Wave 1 (2009/10	Wave 2 (2013/14)				
	Paid employee	Farm/Household Non-Farm worker	Full-time Student	Unpaid HH worker	Total
Paid Employee	6.3	6.63	3.4	1.7	18.1
Farm/Household Non-Farm worker	5.5	35.2	10.2	3.6	54.5
Full-time Student	3.5	9.9	4.9	1.5	19.8
Unpaid HH worker	1.6	3.3	1.6	1.2	7.7
Total	16.9	55.1	20	8	100

Source: Generated by authors from the Ghana Socioeconomic Panel Survey Data

The likelihood for someone to move out of unpaid household work into farm/household non-farm activities is more than twice that for movement out of unpaid household work into paid employment. The SMI for movement across the different types of economic activity between 2009 and 2014 is 0.65 (Table 37), with paid employment experiencing the highest outward movement while farm/household non-farm employment had the highest inward movement.

4.5.3 Savings behaviour

Ownership of financial assets, particularly bank account and savings, is a good indicator of financial inclusion and access to financial services while its dynamics over time shows the evolution of savings behaviour which may have implications for trends in economic inequality. This subsection therefore assesses this indicator and the saving behaviour of households between 2009 and 2014. Panel B of Table 38 shows that households with at least one account kept with bank or other finan-

cial institution as a percentage of all households increased from 30% to 44% between 2009 and 2014[2]. In contrast, the percentage for households who kept savings exclusively at home reduced from 31% in 2009 to 18% in 2014. It is also interesting to note that the percentage for all households with no savings was 38.5% in 2009 and only declined by less than a percentage point in 2014.

TABLE 38: Transitions in household savings culture

Transitions in household saving behaviour (row percentages)					
Wave 1 (2009/10)	Wave 2 (2013/14)				
	Home Only	Bank/other only	Home and Bank	No Savings	Total
Home Only	22	20.6	16.8	40.7	100
Bank/other only	11.8	47.3	23.7	17.2	100
Home and Bank	9.5	47.6	24.8	18.1	100
No Savings	20.8	17.02	10.4	51.8	100
Total	18	18.7	16.6	38	100
Shorrock's Mobility Index (Normalised) = 0.64					
Transitions in household saving behaviour (as percentages of all households)					
Wave 1 (2009/10)	Wave 2 (2013/14)				
	Home Only	Bank/other only	Home and Bank	No Savings	Total
Home Only	6.9	6.4	5.2	12.7	31.3
Bank/other only	1.3	5.1	2.6	1.9	10.8
Home and Bank	1.9	9.3	4.8	3.5	19.5
No Savings	8	6.5	4	19.9	38.5
Total	18	27.4	16.6	38	100

Source: Generated by authors from the Ghana Socioeconomic Panel Survey Data

The changes described above also reflect in the transition probabilities for household savings behaviour (Table 38). For households who only kept savings with bank or other financial institutions in 2009, 72% of them still had accounts with banks/other financial institutions in 2014. This proportion is made up of those who continued to save with bank/others only (47.3%) and those who moved from holding bank account only to savings with bank/others and home savings (24.8%). About 12% and 17% of those who kept savings only with financial institutions in 2009 respectively transitioned to keeping savings only at home and to having no savings in 2014. For households who kept savings both at home and with financial institutions in 2009, 9.5% and 18% of them respectively moved to saving at home only and to having no savings in 2014; while the majority (48%) moved to saving at bank/other financial institutions only and 25% continued to save both at home and

2 The percentage for the households with at least an account with a bank and other financial institutions for each period is the addition of the percentages for households with savings at bank/other financial institutions only and those with savings at both the bank/other financial institutions and home.

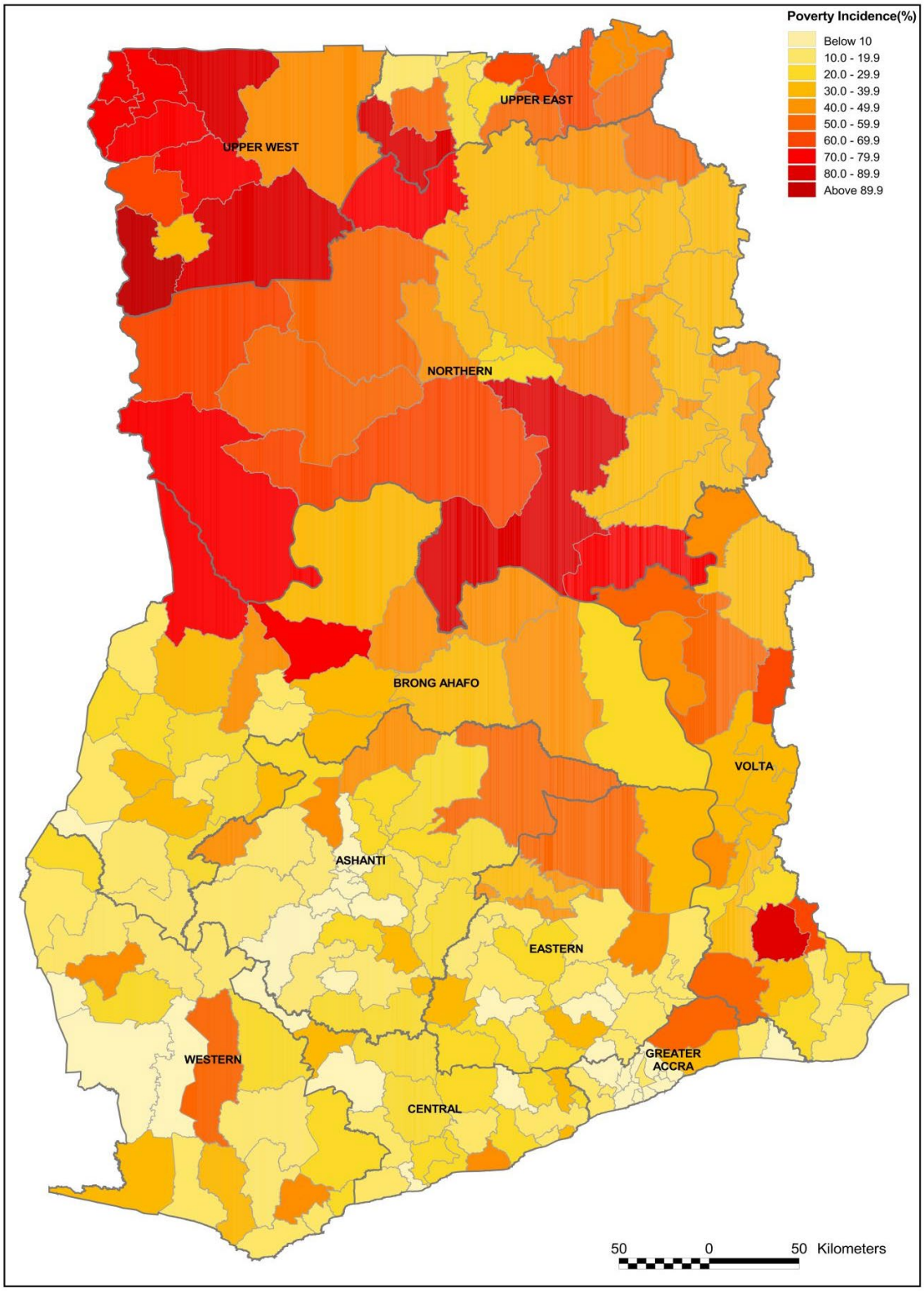
financial institutions. Meanwhile, 37% of households who had savings at home only in 2009 moved to having savings with the bank or other financial institutions. Of this proportion, 20.6% only saved with a financial institution whiles 16.8% had savings both at home and with a financial institution. The majority (41%) of households with savings only at home in 2009 kept no savings in 2014. Table 38 further shows that 52% of households with no savings in 2009 also did not have savings in 2014. The extent of mobility in the saving behaviour of households is estimated at 0.64 (Table 38).

4.6 Spatial Inequality

The analyses so far point to a spatial variation in inequality in Ghana, particularly across the regions. In this section we discuss briefly consumption inequality across regions using inequality maps for Ghana. From Figure 27, we observe that inequality does not only vary across region but it also varies markedly across district within the same regions in Ghana. For instance, within the western region, consumption inequality by district varies considerably. Among districts such as Sefwi, Bibi-ani-Anhwiaso, Bekwai, Wassa Amenfi East, Prestea/Huni Valley, Wassa East, Mpohor, Ahanta West, Takoradi and Shama it ranged from 0 to 0.349. However, it was relatively higher (i.e. from 0.350 to 0.449) among the rest of the districts in the region (see Figure 28 in the appendix).

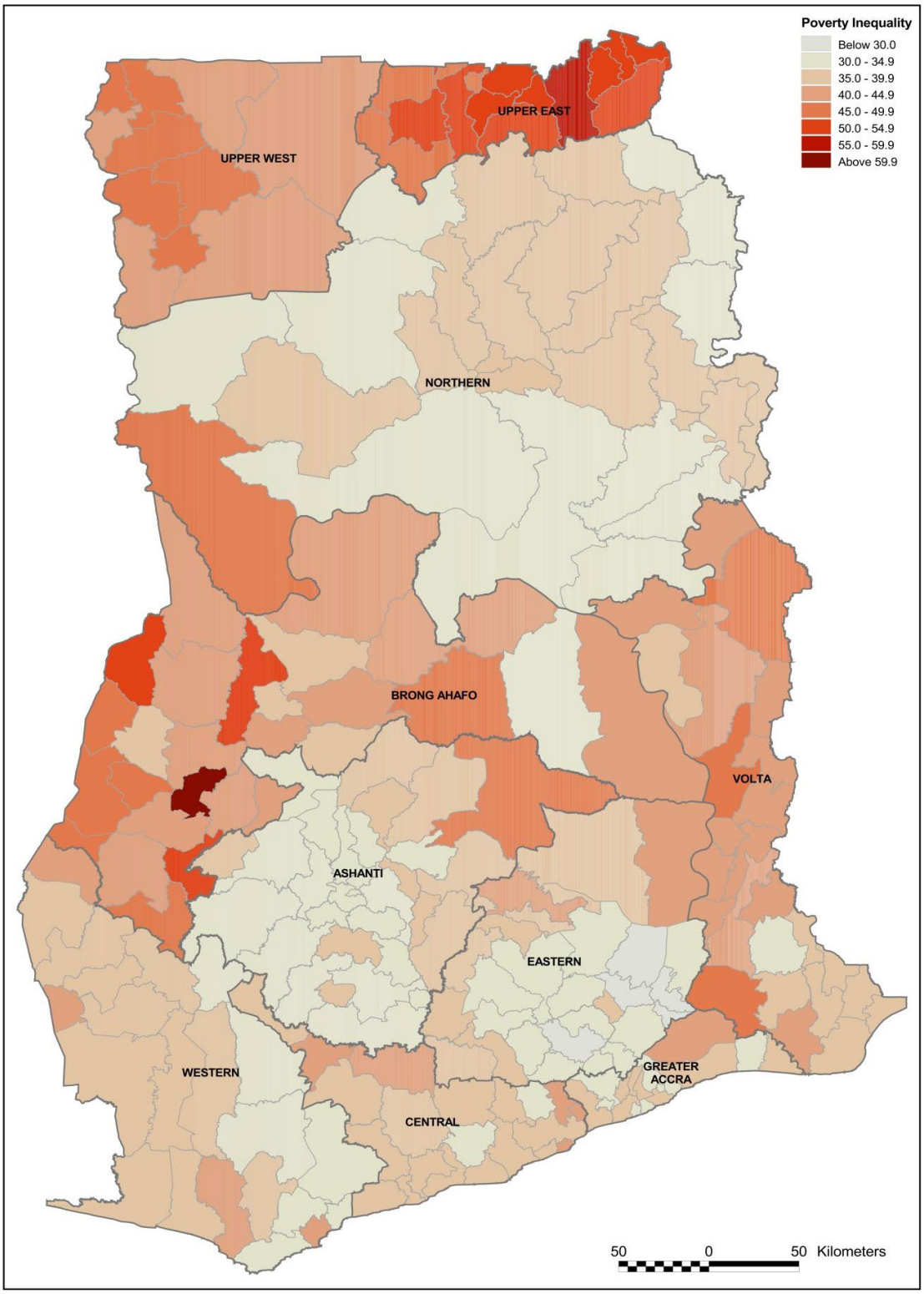
Among the districts of Central region, the analysis indicates that consumption inequality varied slightly in 2012/13. For instance, whilst districts of central region such as Agona East, Ajumako and Enyan-Esiam experienced consumption inequality at a very low rate (i.e. from 0 to 0.349) in 2012/13, the others experienced inequality at relatively high rates (i.e. from 0.350 to 0.449) (see Figure 29 in the appendix). Similar to Central region, the districts of Greater Accra region experienced slightly varied consumption inequality rates in 2012/13. Specific districts such as Ga West, Ga Central, Kpone Katamanso, Lad Dede Kotopon, Ledzokuku/Krowor, Ashaiman and Ada West had very low inequality rates whilst the rest experienced relatively high inequality rates (see Figure 30 in the appendix). In the Volta region, consumption inequality was highly varied in 2012/13. It is worth noting that inequality in the Ashanti region was similar to that of the Northern region in 2012/13. However, in the Upper East region, consumption inequality was high in almost all the districts (see Figure 34 in the appendix) although poverty incidence was relatively low, compared to the Upper West region. As we note from Figure 26 there are many dark patches signifying high incidence of poverty. However the reverse is true in Figure 27 signifying relatively lighter patches compared to the Upper East region.

FIGURE 26: Incidence of poverty map for Ghana, 2012/13



Source: Ghana Statistical Service (2015)

FIGURE 27: Consumption inequality map for Ghana, 2012/13



Source: Ghana Statistical Service (2015)

4.7 Gender inequality

In this section, we discuss the key gender issues related to inequality that the findings of this report and other studies bring up. In particular, our interest is to try and pull out important gender dimensions of inequality in Ghana that policy needs to pay attention to.

The results from Table 4 show that the incidence of poverty among households headed by women has remained unchanged over the period. This is broadly in line with the trend for other African countries where poverty among households headed by women had not declined over time (Owusu-Afriyie and Nketia-Amponsah 2014; Millazzo and van de Valle 2015). Meanwhile, between 2005/2006 and 2016/2017, consumption inequality among female-headed households was consistently lower than that for male-headed households although both experienced increasing inequality. We note that within gender consumption inequality, particularly among male-headed households, is of greater concern than between gender inequality. Interestingly, however, asset inequality by gender of the household head is found to be higher among female headed households than it is among their male counterparts in all the three periods.

The above results on gender come with an important caveat. It is well accepted that household level data does not provide adequate information on the wellbeing of individuals and is not always ideal for gender analysis of poverty and inequality. This is because resources are not equally allocated among all household members. Information on individual asset or wealth provides further insights into gender inequality in Ghana. Oduro et al (2011) find that there is a gender gap biased against women in the ownership of assets such as land, housing and livestock. With the exception of businesses, the incidence of asset ownership is lower amongst women compared to men. In addition to this gap in asset ownership, the assets women own are on average of lower value than those owned by men. As a result, it is estimated that in 2010 only about 31% of gross household physical wealth was owned by women. Inheritance and marital regimes that discriminate against women and girls are important drivers of the gender inequality in asset ownership and wealth (Deere et al 2013).

To better appreciate the gender dimensions of inequality, we interrogate the data for wages in Ghana over the years. The data on wages from the employment modules in the GLSS was collected at the individual level, hence, may be more effective at bringing out the gender dynamics in the labour markets. We note that in general, average real wages have consistently favoured men over women in all the three consecutive waves of the GLSS data. For instance, in 2016/17, the average real wage of males exceeded that of females by about 59.6% and was also in excess of the national average by about 13.4%. These observed between-differences in average real wages for males and females are highly statistically significant (see Table 39 in the Appendix). Wage inequality was higher among females in 2012/13 and 2016/17 while in 2005/06 it was higher among males. For each of the three periods considered, unemployment rate was higher among females than among males. These results together suggest that females seem to experience more constraints in the labour market than males while among females in employment, a fewer number are able to participate in the high-paying segment of the labour market, which could be the reason for higher wage inequality among females in employment.

Access to social amenities differed among male-headed and female-headed households in very interesting ways. For instance, across all the waves of the GLSS, the following emerge. First, a greater proportion of households with female heads source drinking water from safer sources, compared to male-headed households. Second, a greater proportion of households with female heads used electricity as their main source of lighting, compared to male-headed households. Third, a smaller proportion of households with female heads had no access to toilet facilities, compared to male-headed households. Fourth, a greater proportion of households with female heads used appropriate dumping methods, compared to male-headed households. Lastly, a greater proportion of households with female heads live in houses with cement blocks or concrete as the main material used for the outer wall, compared to male-headed households across the three consecutive waves of the GLSS. It is important to note that these results are not suggesting that females have better access to social amenities compared to males. Rather it is suggestive of the fact that when heads of households are women, they tend to favour welfare improving amenities.

For health and education, the GLSS data allows us to conduct gender analyses at the individual level. In the case of health, for example, we find that, among individuals who consulted a health facility in the two weeks prior to the survey, the proportion of females who consulted a doctor, instead of other healthcare practitioners, was higher than that for males. We note that this could be as a result of gender differences in individuals' risk preferences rather being a systemic issue. Net school attendance rate at all levels of pre-tertiary education was slightly higher among males in 2005/06. However, the gap in net attendance rates at all pre-tertiary levels turned in favour of females in 2012/13 and began to widen in favour of females in 2016/17. This suggests that there is a need to rethink affirmative action strategies in education policies and programmes, particularly at the pre-tertiary levels.

The household level analysis suggests that, in Ghana, households headed by women do better than those headed by men on many of the indicators of interest. Individual level analysis, however, reveals a different picture. There is evidence of gender inequality biased against women in asset ownership, wealth and wages. The enactment of the Property Rights of Spouses Bill and Intestate Succession Bill will be important first steps to address issues of gender inequality in asset wealth. The successful implementation of policies to promote equal access to education will contribute to closing the gender wage gap and so will a greater policy focus on issues surrounding unpaid care work and the implications this has for the nature of women's engagement in the labour market.

5. CONCLUSIONS

This report presents a diagnostic of inequality in Ghana with a view to understanding its key correlates and inform policy accordingly. We make use of the last three rounds of the Ghana Living Standard Surveys as well as the first two waves of the Ghana Socio-economic Panel surveys for the diagnostics. We note that between 1992 and 2017, Ghana experienced a decline in poverty from 56.5% to 23.4% with the absolute number of people living in poverty also decreasing over the same period. In spite of the high growth and poverty reduction performance, not all benefitted equally from the economic improvements, resulting in a persistence in inequality. Unfortunately the lack of progress with respect to inequality has the potential to adversely affect the objective of sustained growth and poverty reduction. Understanding how and why Ghana's records on inequality have not matched poverty reduction is an important policy issue. We have therefore examined the nature of inequality and how it has changed over time, particularly in the last decade. Our main findings are summarised as follows:

First, we find that although national poverty incidence has decreased, consumption inequality at the national level has increased over the three survey periods (i.e. 2005/2006, 2012/2013 and 2016/2017). However, at the regional level, the study finds mixed experience in terms of the trend of consumption inequality over the survey periods.

Second, we note that for the many different covariates that this report looked at, inequality was found to be largely from within the respective groups as opposed to between the groups. In other words, for many of the variables, inequality between groups accounted for only a small proportion of total inequality. For instance by sex of the head of household, inequality between groups contributed less than 0.3 of a percentage point to total inequality in 2016/17.

Third, the general trend in real wage income distribution across the population deciles suggest that although the richest 10% account for a large share of real wage income, this share has witnessed some significant reduction over the period 2005/06 to 2016/17. The percentage shares in real wages for the top 10% has consistently reduced from more than 50% in 2005/06 to about 38% in 2016/17. This reduction in the share of real wage by the richest 10% is also confirmed by the average real wage distribution. Apart from the top 10%, all the deciles recorded consistent increases in the average real wage for the three periods.

Fourth, inequality in wage income increased between 2005/06 and 2012/13 but declined in 2016/17. The regional patterns in wage income inequality across the periods have been largely different. In terms of the mean wages one notes that the Greater Accra region is the region with the highest mean real wage for all the three periods. Average real wages in urban areas are significantly higher compared to rural areas, but wage inequality in rural localities are higher than the urban. Similarly, average real wages have increased for both male and female-wage earners, but that of males is significantly higher than that of females while inequality is higher among female wage-earners than it is for their male counterparts.

Fifth, the average real wages in the public sector are significantly higher than the private sector in all three periods. However inequality in wages is lower for the public sector than it is for the private, except in 2012/13, when public sector wage inequality was slightly higher than that of the private sector. The huge reduction in public sector wage inequality between 2012/13 and 2016/17 is worth noting – from 0.58 to 0.37. This reduction in inequality among public sector workers may be attributable to the harmony achieved in salary structure after the full implementation of the Single Spine Salary Structure (SSSS) introduced by the Government in 2010.

Sixth, as found for inequality in wage income, we do find that asset inequality increased between 2005/06 and 2012/13 but declined in 2016/17. Asset inequality has been consistently higher in rural areas than in urban areas and is lower among male-headed households than among their female counterparts in all the three periods. In both male- and female-headed households, inequality in assets increased between 2005/06 and 2012/13 but this trend was reversed for the period between 2012/13 and 2016/17.

Seventh, we find that households within higher welfare quintiles tend to have higher access to electricity, appropriate waste removal methods, internet, toilet facility (and more so improved facilities such as water closets and KVIPs) and better housing (i.e. houses with the outer wall constructed from cement blocks or concrete), compared to those within the lower welfare quintiles. By locality, we find that urban households have better access to internet (subscription and usage of data), electricity, toilet facilities, appropriate waste disposal methods and better housing. There were also regional disparities in access to these amenities: In particular, access was much lower in the Northern, Upper East and Upper West regions.

Eighth, analyses on transitions in welfare shows relatively high levels of chronic and transitory poverty. Between 2009 and 2014, 9 percent of all households remained in poverty while 29 percent moved into or moved out of poverty. The transitions in poverty status may be partly associated with the dynamics of labour market outcomes. The chronic nature of poverty may be pointing to the fact that most of those who move out of poverty are still close to the poverty line and have minimal impact on inequality. Added to this is the fact that an equally large number of households also moved from being non-poor into poverty and mobility into the higher quintiles remained low. This may be explaining the persistence of inequality in Ghana in the face of reducing poverty.

We conclude that by noting that although successive governments have played an active role in increasing growth and reducing poverty in the country, through a number of different interventions, inequality in Ghana continues to persist. This means that the benefits of economic growth over the years have not been evenly distributed among sub-groups within the population such as regions, urban/rural localities, gender, among others. This situation, if it persists could potentially undermine the economic growth and poverty reduction link, weaken social cohesion and exacerbate social tensions in Ghana.

6. RECOMMENDATIONS

This report shows that consumption inequality is on the rise in a context where poverty rates have declined significantly. This suggests that the distribution of the gains from growth remains skewed with the nonpoor benefitting much more than the poor. This calls for a deepening of inclusive growth strategies to allow the poor or generally, households in the lower consumption quintiles to participate more meaningfully in the economic growth process and wealth creation. Thus, in broad terms, expanding the economic opportunities for households in the lower consumption quintiles is crucial for ensuring that consumption inequality trend is reversed so that it does not become inimical to economic growth, peace and stability. Based on the findings of this report, we make the following recommendations with a view to helping in reversing the inequality trends.

1. There is the need to significantly enhance general access to social amenities and services by investing more in economic and social infrastructure while ensuring that financial constraints which negatively affect poor households' access to these services are minimised. To this end, government's adoption of FCUBE, Capitation Grant, Free SHS, and other programmes in education (for example) which have also been accompanied by expansion in educational infrastructure are laudable although significant deficits still exist.

2. Any programme of enhanced investment in social and economic infrastructure should address existing regional or locational disparities in the distribution of these infrastructures and social services. This is because access to improved amenities including housing and social services tend to be consistently lower in certain regions and in rural localities.

3. There is the need to enhance existing social protection programmes, by expanding coverage, addressing targeting challenges as well as embedding production inclusion strategies into these programmes. This will help sustain the reduction in poverty rates by preventing vulnerable households from relapsing into the poverty category.

4. While the gender gap in access to pre-tertiary education has begun to turn in favour of girls women continue to face significant constraints in the labour market, earning lower on average and with a higher level of wage inequality and unemployment rate than males. There is therefore the need to intensify efforts at translating increased female attendance rates at pre-tertiary schools to the tertiary level. In addition education and campaigns against work-related gender stereotyping should be intensified.

References

Adams, J.R., Cuecuecha, A., and Page, R.J. (2008). The impact of remittance on poverty and inequality in Ghana, World Bank Research Working Paper 4732, September 2008.Washington DC.

Addae-Korankye, A. (2013). Challenges of financing health care in Ghana: the case of national health insurance scheme (NHIS). International Journal of Asian Social Science, 3(2), 511-522.

Agbaam, C., &Dinbabo, M. F. (2014). Social grants and poverty reduction at the household level: Empirical evidence from Ghana. *Journal of Social Sciences*, *39*(3), 293-302.

Agbenyo, F., Galaa, S. Z., & Abiiro, G. A. (2017). Challenges of the targeting approach to social protection: An assessment of the Ghana Livelihood Empowerment against Poverty Programme in the Wa Municipality of Ghana. *Ghana Journal of Development Studies, 14*(1), 19-38.

Alhassan, R. K., Nketiah-Amponsah, E., & Arhinful, D. K. (2016). A review of the National Health Insurance Scheme in Ghana: what are the sustainability threats and prospects?. *PloS one, 11*(11), e0165151.

Ampratwum, E., & Armah-Attoh, D. (2010). Tracking capitation grant in public primary schools in Ghana. *Ghana Centre for Democratic Development. Briefing Paper*, *10*(1), 1-8.

Atulley, K.A. (2015). An Assessment of the Livelihood Empowerment Against Poverty Programme in The Bongo District, Ghana. An Unpublished Master of Science in Development Policy and Planning Thesis, Department of Architecture and Planning, Kwame Nkrumah University of Science and Technology.

Bawelle, E. B. G. (2016). Impact of livelihood empowerment against poverty programme in Ghana: The case of Wa West District. *International Journal of Social Science Research*, *4*(2), 24-43.

Blanchet, N. J., Fink, G., & Osei-Akoto, I. (2012). The effect of Ghana's National Health Insurance Scheme on health care utilisation. *Ghana medical journal*, *46*(2), 76-84.

Cavalcanti, G. (2009). Estimating the Fiscal Costs of Implementing Ghana's Single Pay Spine Reform. Policy Research Working Paper 5150. The World Bank Africa Region Poverty Reduction and Economic Management Front Office

Deaton, A. (1997). The Analysis of Household Surveys: A Micro econometric Approach to Development Policy. The Johns Hopkins University Press, Baltimore and London.

Deaton, A. and S. Zaidi. (2002). 'Guidelines for Constructing Consumption Aggregates for Welfare Analysis', *World Bank LSMS Working Paper 135.*

Deere, Carmen Diana, Oduro, A.D., Swaminathan, H. & Doss, C. (2013.) Property Rights and the Gender Distribution of Wealth in Ecuador, Ghana and India. *Journal of Economic Inequality*, 11(2), 249-265.

Duflo, E., Dupas, P. and Kremer, M. (2017). The Impact of Free Secondary Education: Experimental Evidence from Ghana. Massachusetts Institute of Technology Working Paper

Fosu, A. K. (2015). Growth, Inequality and Poverty in Sub-Saharan Africa: Recent Progress in a Global Context, Oxford Development Studies, 43:1, 44-59, DOI: 10.1080/13600818.2014.964195

Ghana Statiscal Service (1995). Analysis of Demographic Data, Priliminary Analysis Report, Vol. 1.

Ghana Statistical Service (2002). 2000 Population and Housing Census. Summary Report of Final Results.

Ghana. Statistical Service. (2007). Pattern and trends of poverty in Ghana, 1991-2006. Ghana Statistical Service.

Ghana Statistical Service (2008). Report on the GLSS 5, 2005/2006.

Ghana Statistica Service (2012). 2010 Population and Housing Census. Summary Report of Final Results.

Ghana. Statistical Service. (2014). 2010 Population and Housing Census Report: Population Projection/Prospects.

Ghana Statistical Service.

Ghana. Statistical Service. (2014). Ghana Living Standard Survey 6 (GSS 6): Poverty Profile in Ghana, 2005-2013. Ghana Statistical Service.

Ghana. Statistical Service. (2018). Ghana Living Standard Survey 7 (GSS 7): Poverty Trends in Ghana, 2005-2017. Ghana Statistical Service.

Gobah, F. F., & Liang, Z. (2011). The National Health Insurance Scheme in Ghana: prospects and challenges: a cross-sectional evidence. *Global Journal of Health Science*, *3*(2), 90.

GoG (2017). The Coordinated Programme of Economic and Social Development Policies (2017-2024). An Agenda for Jobs: Creating Prosperity and Equal Opportunity for All. Government of Ghana.

GPEDR (undated). Ghanaian Panel on Economic Development Report. Friedrich Ebert Stiftung Ghana.

Hague, M.S. (1999). The Fate of Sustainable Development Under Neo-Liberal Regimes in Developing Countries. International Political Science Review (1999), Vol. 20, No.2, pp. 197-218.

Handa, S., Park, M., Darko, R. O., Osei-Akoto, I., Davis, B., & Daidone, S. (2014). Livelihood empowerment against poverty program impact evaluation. *Carolina Population Center,* Chapel Hill, NC: University of North Carolina.

Jaha, I. R., & Sika-Bright, S. (2015). Challenges of the Livelihood Empowerment Against Poverty programme in the Upper West region of Ghana: the institutional perspective. *UDS International Journal of Development*, *2*(1), 188-205.

Klasen, S. (2000). Does Gender Inequality Reduce Growth and Development? Evidence from Cross-Country Regressions. World Bank Policy Research Report Working Paper No. 7

Korinek, A., Mistiaen, J. and Ravallion, M. (2006). Survey nonresponse and the distribution of income. *Journal of Economic Inequality*, 4(1): 33-55.

Lewis, W.A., 1954. "Economic development with unlimited supplies of labour', Manchester School, May: n9·91

Mancini, L. (2009). Comparative Trends in Ethno-Regional Inequalities in Ghana and Nigeria: Evidence from Demographic and Health Surveys. Centre for Research on Inequality, Human Security and Ethnicity, Working Paper No. 72.

McKay, A., Pirttilä, J. and Tarp, F. (2015). Ghana: Poverty Reduction over Thirty Years. UNU-WIDER Working Paper 2015(052) Helsinki: UNU-WIDER.

Mensah, J., Oppong, J. R., & Schmidt, C. M. (2010). Ghana's National Health Insurance Scheme in the context of the health MDGs: An empirical evaluation using propensity score matching. *Health economics*, *19*(S1), 95-106.

MoE (2017). An Implementation of the Free SHS Programme and the Double Track System. Ministry of Education, Accra.

NDPC (2017). Medium Term Expenditure Framework (MTEF) for 2017-2019. Programme Based Budget Estimates for 2017. National Development Planning Commission, Accra, Ghana.

Nyarko, S. H. (2014). Assessment of the school feeding programme in Ghana: A study of primary schools in the Abura-Asebu-Kwamankese district in the Central region of Ghana. *International Journal of Research in Social Sciences*, *4*(2), 13.

Oduro, A.D., Baah-Boateng, W. & Boakye-Yiadom, L. (2011). *Measuring the Gender Asset Gap in Ghana,* Accra: University of Ghana and Woeli Publishing Services. http://www.genderassetgap.org

Oduro, C.Y. Peprah, C. and Adamtey, R. (2014). Analysis of the Determinants of Spatial Inequality in Ghana Using Two-Stage Least-Squares Regression. Developing Country Studies, Vol. 4, No. 20, pp. 28-44.

Osei, R. D., & Jedwab, R. (2016). Structural Change in a Poor African Country: New Historical Evidence from Ghana. In M. McMillan, D. Rodrik, & C. Sepúlveda, Structural Change, Fundamentals and Growth: A Framework and Case Studies (pp. 161-196). Washington DC: International Food Policy Research Institute. Ravallion M. 1997. Can High Inequality Developing countries escape absolute poverty? Econ Lett. 56.51-57.

Osei, R. D., Owusu, G. A., Asem, F. E., & Afutu-Kotey, R. L. (2009). Effects of capitation grant on education outcomes in Ghana. *Accra, Institute of Social and Economic Research.*

Owusu-Afriyie, J. and Nketiah-Amponsah, E. (2014). An Individual Level Test of the Feminization Hypothesis: Evidence from Ghana. Journal of Developing Societies 30, 1 (2014): 25–43

Pajibo, E., &Tamanja, E. M. (2017). Influence and Challenges of the Capitation Grant on Education Delivery in Basic Schools in Ghana. *Asian Journal of Education and Training*, *3*(1), 53-63.

Portes, L.S.V. (2009). Remittances, Poverty and Inequality. Journal of Economic Development, Vol. 34, No.1, pp. 127 – 140.

Schultz, T.W. 1964. Trans/arming Traditional Agriculture, Yale University Press, New Haven.

Sendia, B. (2011). Does Non-Farm Income Improve or Worsen Income Inequality? Evidence from Rural Ghana. African Review of Economics and Finance, Vol. 2, No. 2, pp. 104-121.

Senedza, B. (2012). Education inequality in Ghana: gender and spatial dimensions. Journal of Economic Studies, Vol. 39, No. 6, pp. 724-739

Sossou, M-A. (2011). We Do Not Enjoy Equal Political Rights: Ghanaian Women`s Perceptions on Political Participation in Ghana. SAGE Open, pp. 1-9. DOI: 10.1177/2158244011410715

Sulemana, M., Ngah, I., & Majid, M. R. (2013). The challenges and prospects of the school feeding programme in Northern Ghana. *Development in Practice*, *23*(3), 422-432

Tutuani, B. (2015). Analysis of Spatial Differentials of Income Inequality in Ghana: Application of Bayesian Estimation. An Unpublished Master of Philosophy Thesis, Department of Statistics, University of Ghana.

Wang, H., Otoo, N., & Dsane-Selby, L. (2017). Ghana National Health Insurance Scheme: improving financial sustainability based on expenditure review. The World Bank.

Witter, S., &Garshong, B. (2009). Something old or something new? Social health insurance in Ghana. *BMC International health and human rights*, *9*(1), 20.

Appendix

TABLE 39: Mean analysis of real wages by region, gender, location and sector of employment

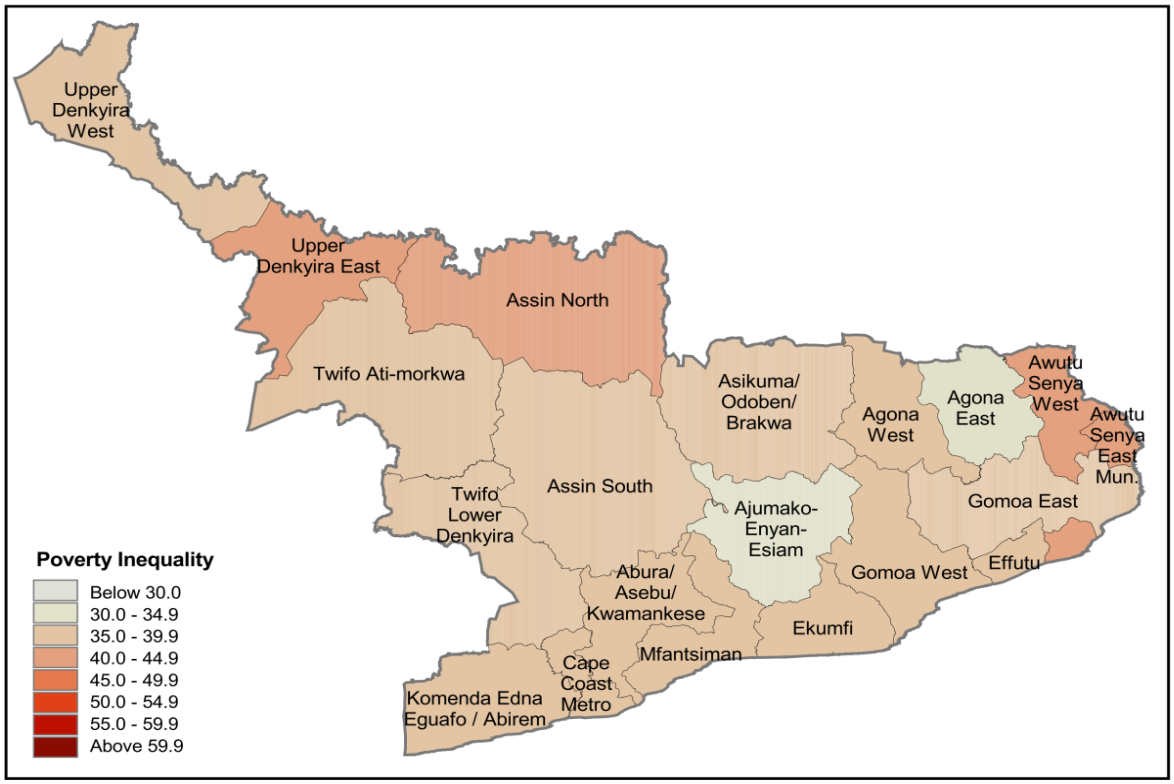
	2005/06	2012/13	2016/17
OVERALL	2451.35	5254.82	5792.683
Regions			
Western	2586.11	5432.13	6625.51
Central	2077.56	5444.87	4774.40
Greater Accra	4415.78	6306.85	6894.00
Volta	1396.47	4637.89	3939.15
Eastern	2182.02	4028.94	5538.86
Ashanti	2077.94	5830.67	5999.12
Brong- Ahafo	2176.84	4779.90	4601.07
Northern	2132.37	3498.51	4299.04
Upper East	1167.65	3284.20	4334.68
Upper West	1014.99	6143.42	5981.60
F	3.90	7.24	11.86
Prob>F	0.0001	0.000	0.000
Gender			
Male	3143.91	5571.65	6569.51
Female	1704.22	4285.90	4116.97
t	4.5209	5.1171	11.0326
Pr(|T| > |t|)	0.0000	0.0000	0.0000
Locality			
Urban	3189.42	6221.13	6225.47
Rural	1901.30	3882.46	4825.37
t	4.4575	9.1166	8.0383
Pr(|T| > |t|)	0.0000	0.0000	0.0000
Employment Sector			
Public	4740.31	11044.01	7233.62
Private	2485.20	4889.51	5286.49
t	4.5420	10.7542	12.6232
Pr(|T| > |t|)	0.0000	0.0000	0.0000

Source: Authors' computations from the GLSS rounds

FIGURE 28: Consumption inequality - Western Region

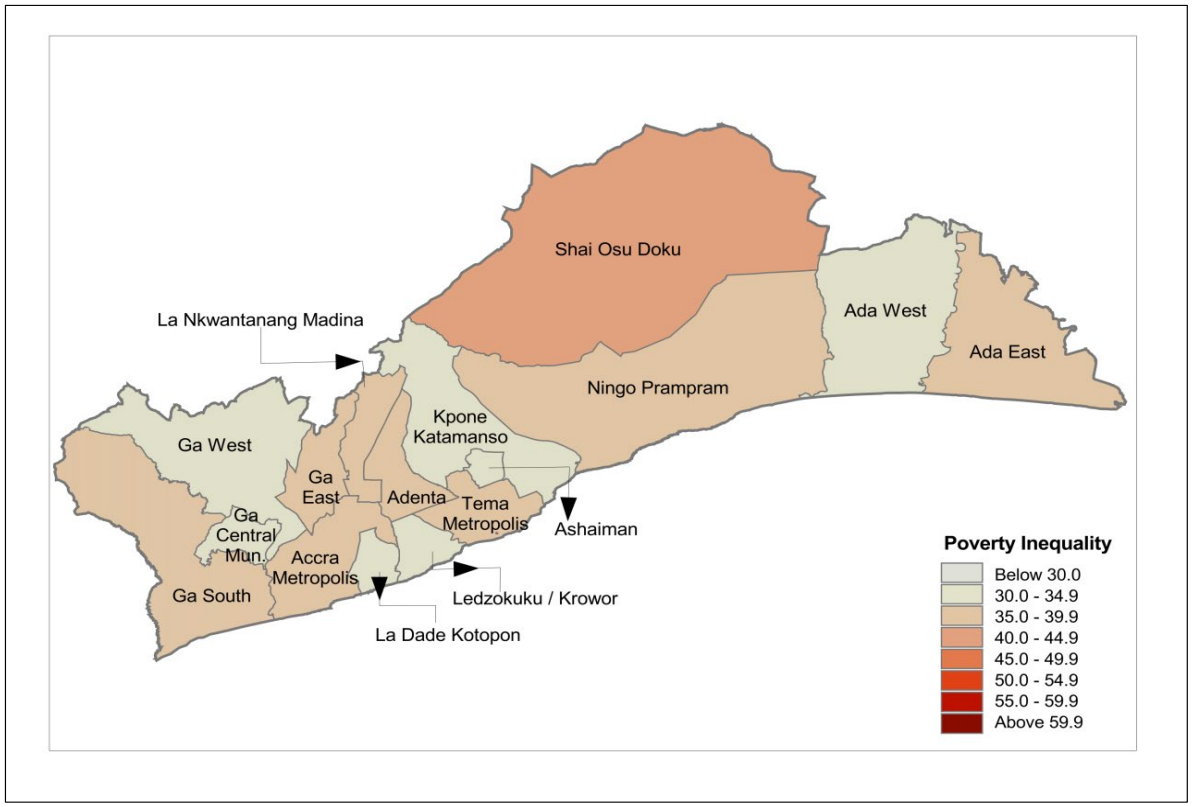
Source: Ghana Statistical Service (2015)

FIGURE 29: Consumption inequality - Central Region



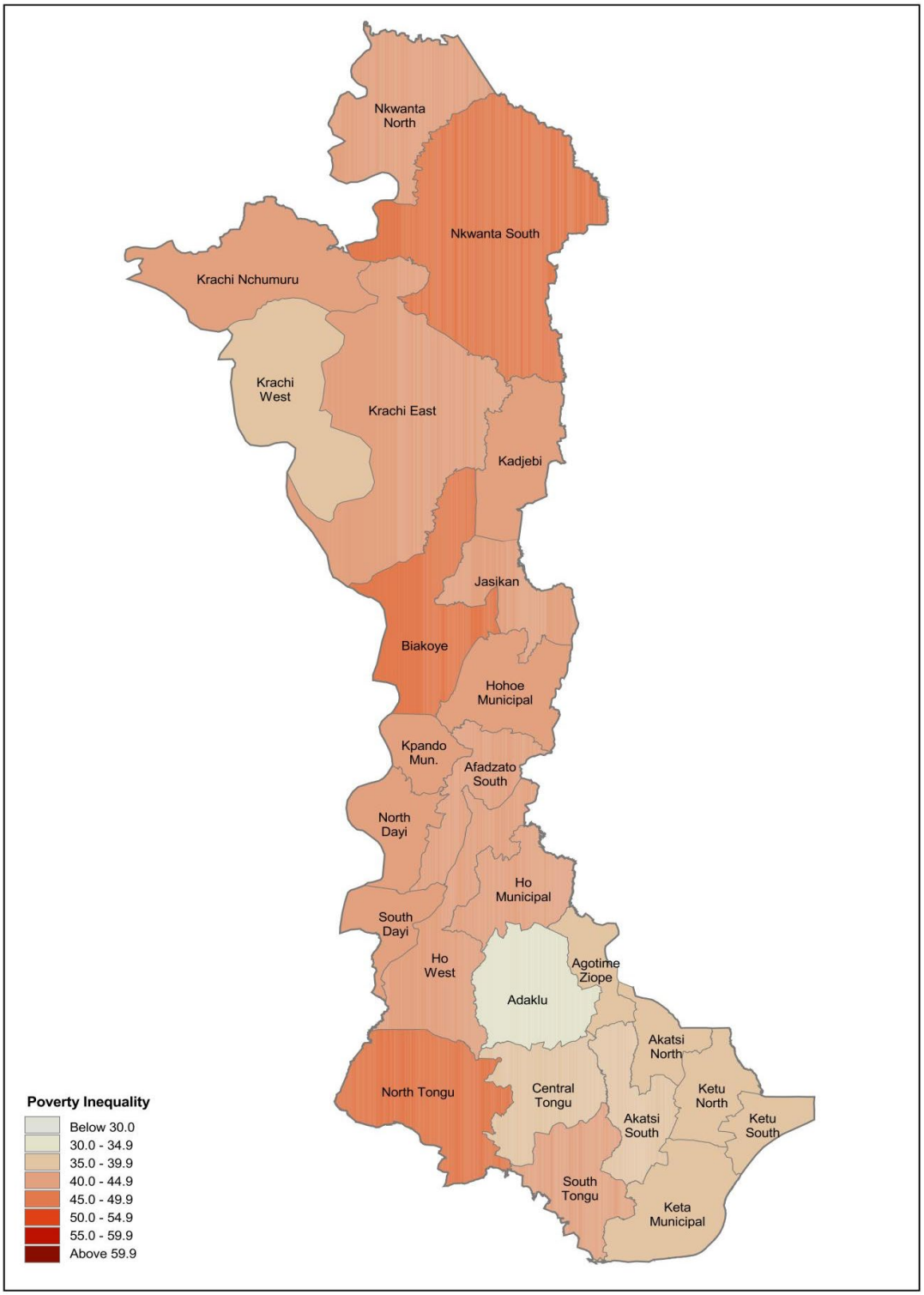
Source: Ghana Statistical Service (2015)

FIGURE 30: Consumption inequality - Greater Accra Region



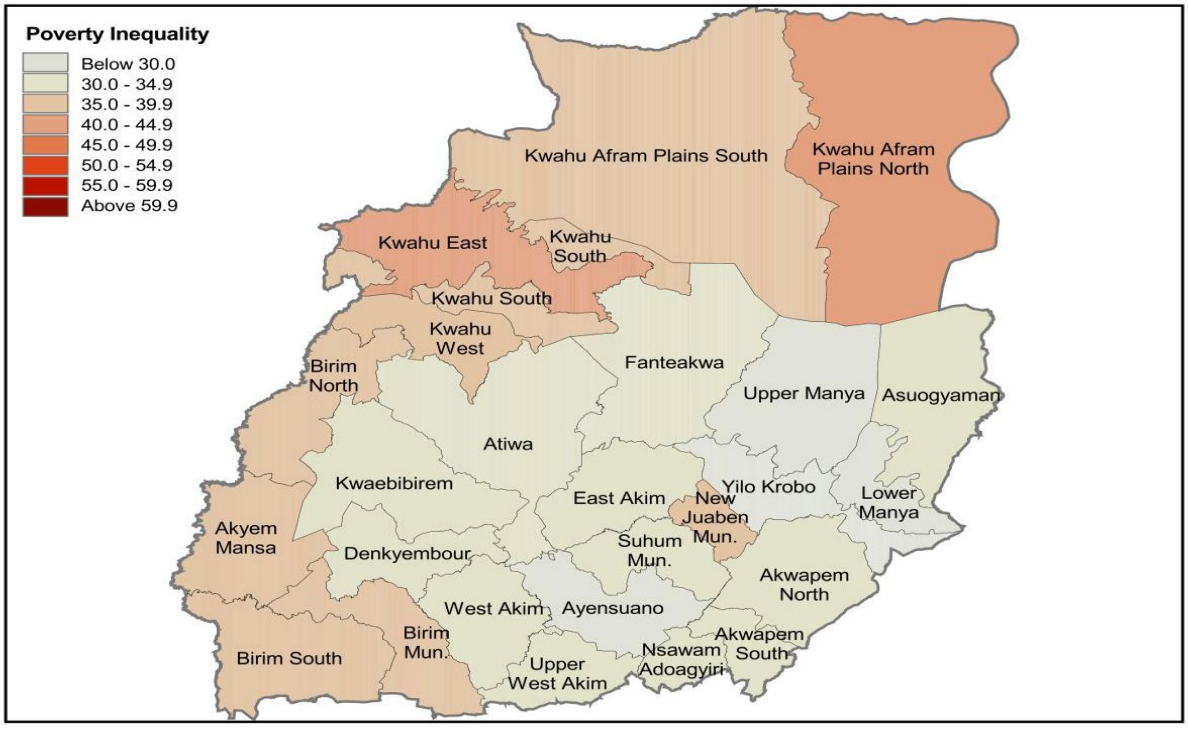
Source: Ghana Statistical Service (2015)

FIGURE 31: Consumption inequality - Volta Region



Source: Ghana Statistical Service (2015)

FIGURE 32: Consumption inequality - Eastern Region

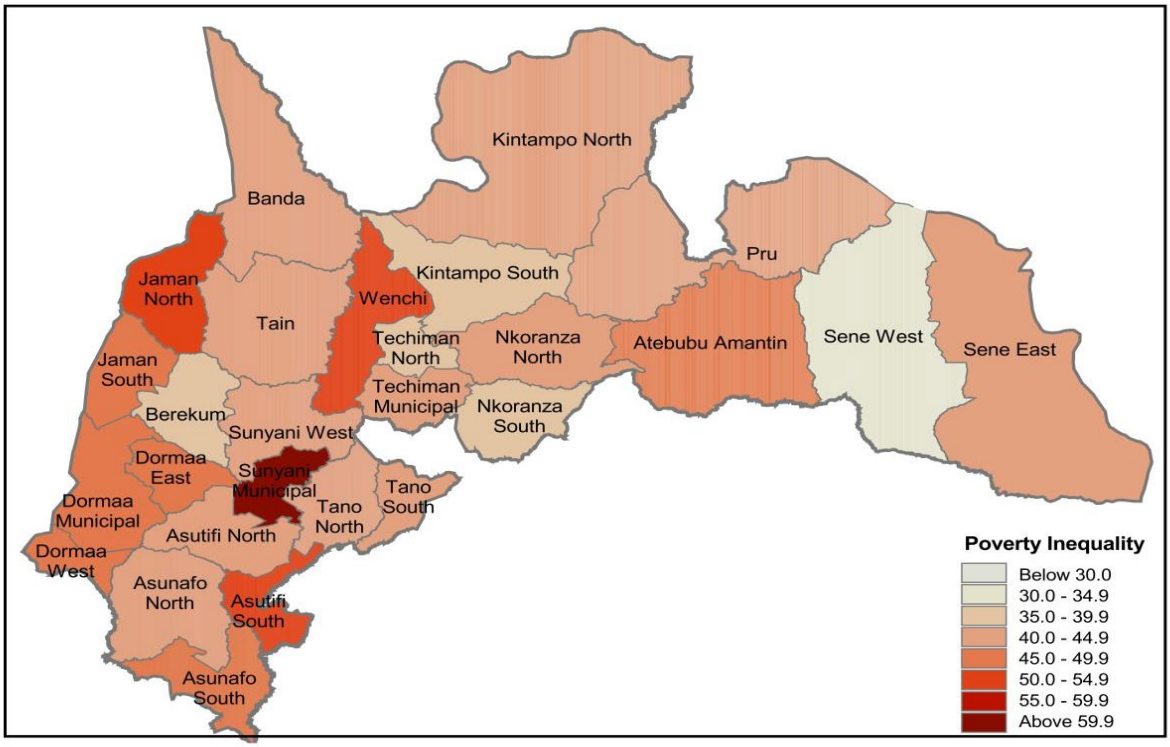


Source: Ghana Statistical Service (2015)

FIGURE 33: Consumption inequality - Ashanti Region

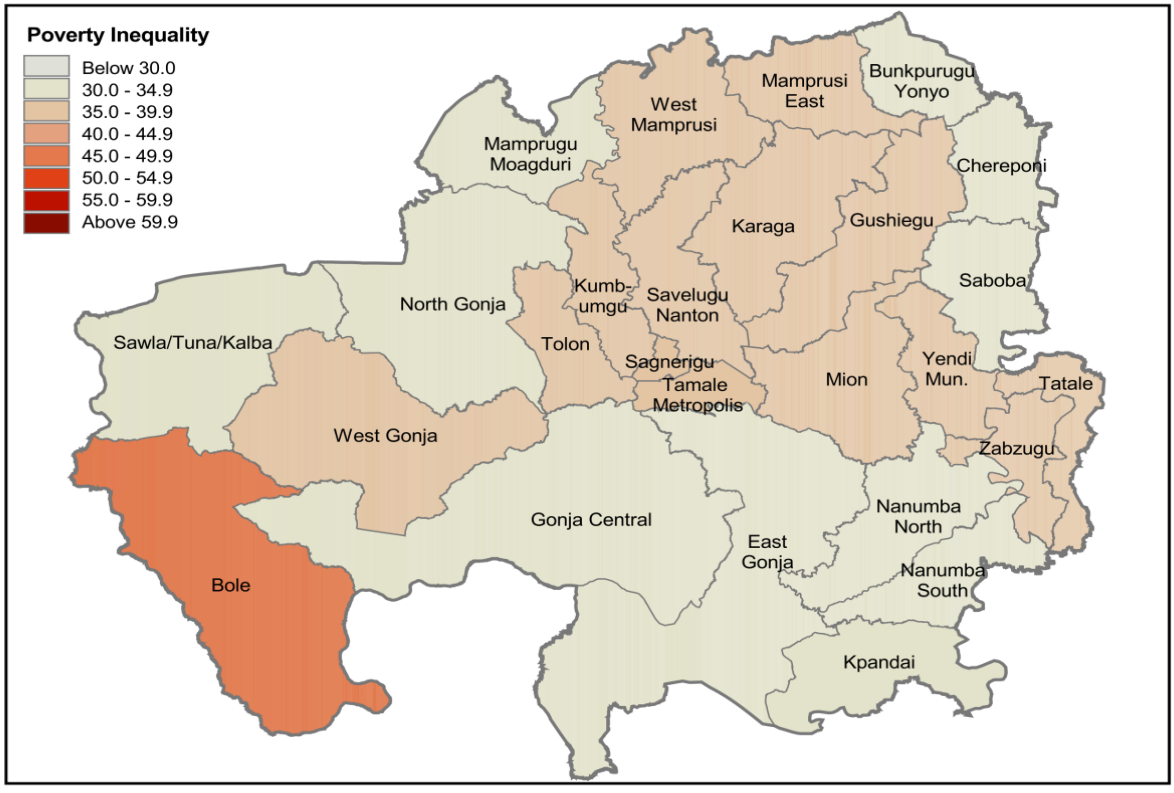
Source: Ghana Statistical Service (2015)

FIGURE 34: Consumption inequality - Brong Ahafo Region



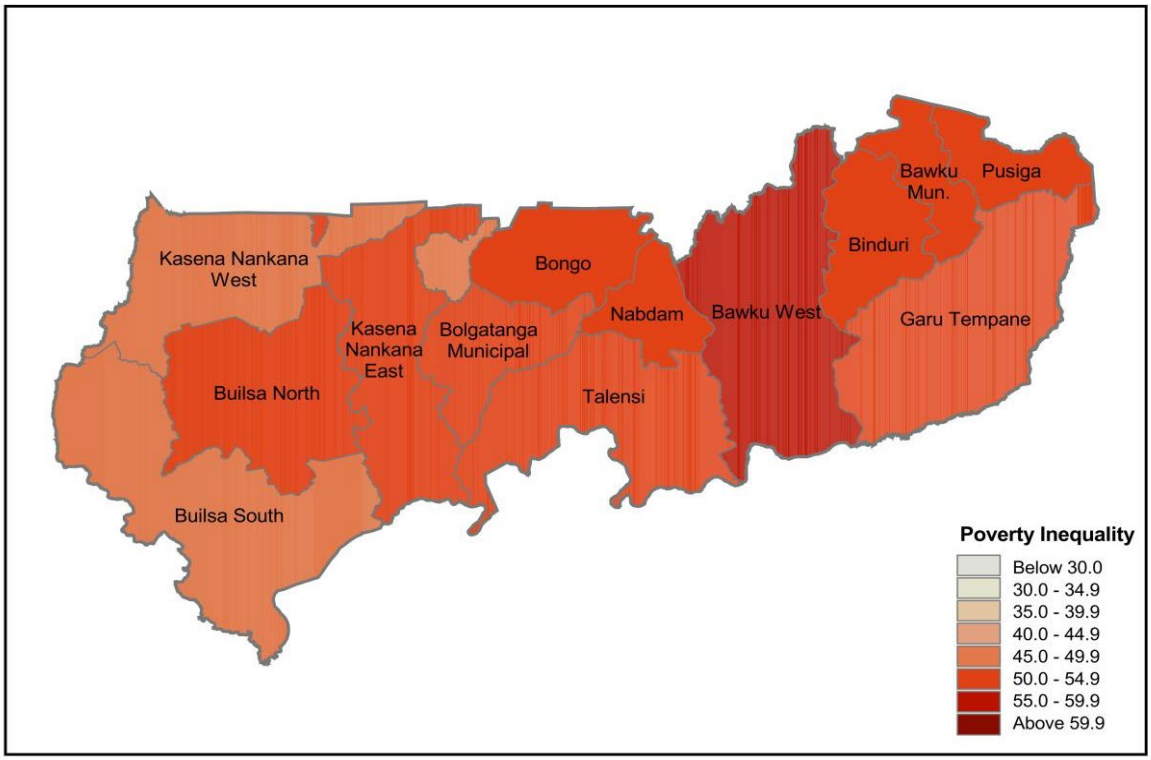
Source: Ghana Statistical Service (2015)

FIGURE 35: Consumption inequality - Northern Region



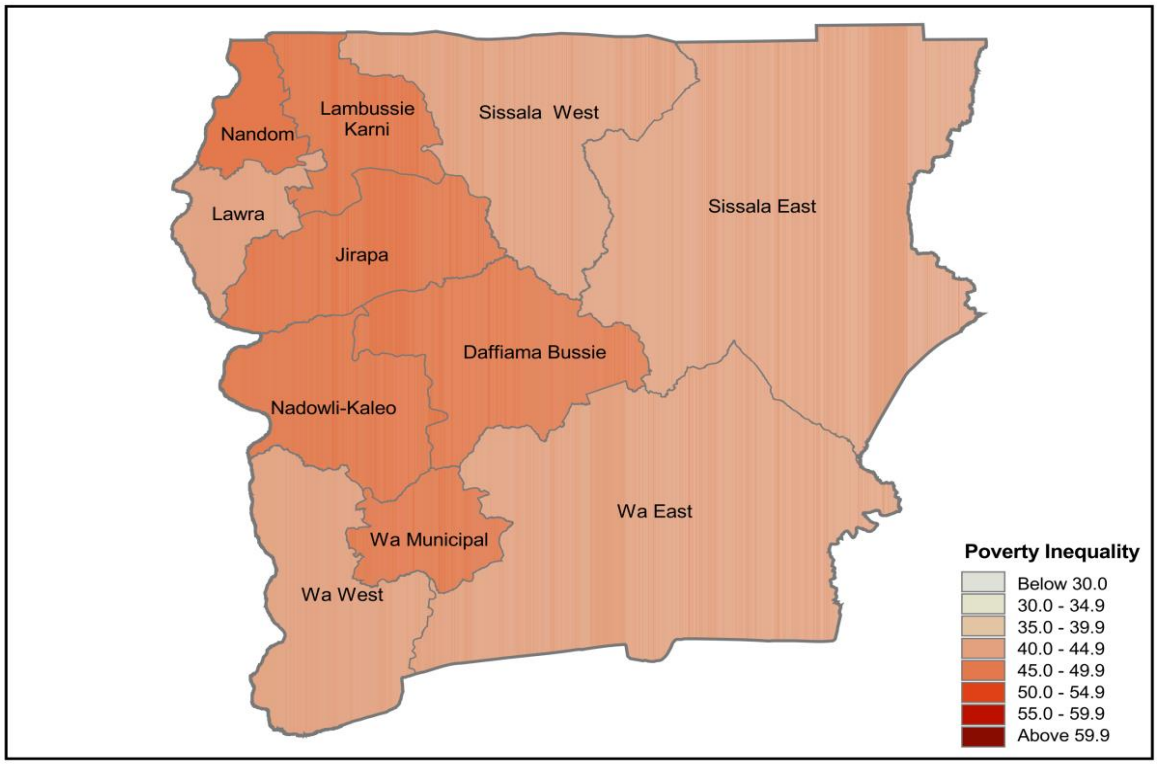
Source: Ghana Statistical Service (2015)

FIGURE 36: Consumption inequality - Upper East Region



Source: Ghana Statistical Service (2015)

FIGURE 37: Consumption inequality - Upper West Region



Source: Ghana Statistical Service (2015)

NOTES