NON-INCOME INEQUALITY AMONG RURAL HOUSEHOLDS IN NIGERIA

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DEDICATION

To the Alpha and the Omega, the Beginning and the End, the One that watches over His words to perform it, the giver of wisdom, the source of all knowledge, to Him that owns the cattle's upon a thousand hills, the Giver of all Good things and the Fountain of all blessings. For by only His Grace I am what I am. Also to my Dear Mum, Mrs Adeola Awoniyi for her love for education and for her keen interest in the research work.

ABSTRACT

Inequality is an important factor in understanding the welfare of rural households. Most discussions on inequality have focused primarily on income to the exclusion of non-income dimensions such as skills, education, political participation, health and life expectancy. Knowledge of non-income inequality will enhance the understanding of the key welfare attributes of Rural Households (RHs). The extent of and factors affecting non-income inequality among households in rural Nigeria were investigated.

The data were from 2006 Core Welfare Indicator Questionnaire Survey obtained by National Bureau of Statistics (NBS). Respondents were selected using a two-stage cluster sampling technique involving the selection of 10 Enumeration Areas (EA) from each Local Government Area followed by the selection of 10 housing units from each EA. Of the 77,400 households sampled by NBS, 59,567 were rural. Data set used included socio-economic characteristics, housing condition, assets, household educational attainment, access to health care services and political participation. Generalized Entropy, Shapley decomposition and ordered probit regression were employed in analyses (p=0.05)

Mean age for respondents (RHs) was 48.7±15.3 years; Farming Households (FHs) and Non-Farming households (NFHs) were 48.7±16.2 and 48.7±14.9 years respectively. Mean household size for RHs was (4.9±2.1); FHs (4.9±3.2) and NFHs (4.8±1.9) respectively. Education, political and health inequalities among RHs were 0.409, 0.196 and 0.320 respectively. Education inequality was higher among FHs (0.413) compared with NFHs (0.407). There was higher political inequality among FHs relative to NFHs with indices of 0.200 and 0.195, respectively. Health inequality was also higher among FHs (0.327) than NFHs (0.300) respectively. North-West zone had the highest education inequality for both FHs (0.432) and NFHs (0.412). Political inequality was highest in the South-East zone for both FHs and NFHs with indices of 0.220 and 0.213 respectively. North-East zone had the highest health inequality at 0.350 and 0.319 for FHs and NFHs respectively. Between 82.7% and 95.4% of education, political and health inequalities across the zones were explained by within group disparity while the rest was by between group dynamics for all RHs. Sanitation index, asset base index, house ownership and condition index increased probability of RHs having high educational attainment by 0.004, 0.003 and 0.029 respectively. Household size and age of household head reduced educational inequality by 0.002 and 0.001. A percentage change in asset base index as well as house-ownership and condition index increased political inequality among RHs by 0.001 and

0.001 respectively. One percent increase in household size and age reduced it by 0.001 and 0.001 respectively. The probability of RHs having high access to health care increased by 0.002, 0.002 and 0.022 with 1% increase in sanitation index, asset base index, house ownership and condition. However, household size and age reduced it by 0.004 and 0.001 respectively.

Educational inequality was highest across regions in the country when compared with other non-income welfare attributes. Households in the North are more politically balanced but with higher level of inequality in education and health. Furthermore, farming households are disadvantaged as they have higher inequalities in education, political participation and health care.

Keywords: Household inequality, Non-income welfare attributes, Rural Nigeria

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Olabisi Alaba Awoniyi.

CERTIFICATION

I certify that this work was carried out by Miss Olabisi Alaba Awoniyi, in the Department of Agricultural Economics, University of Ibadan.

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CHAPTER ONE
INTRODUCTION

1.1: Background to the study

The World has undergone rapid and tremendous changes in the last decade, much of it attributed to some facets of globalization. The inherent equity consideration in the implementation of globalization policies is affected by at least two facts. First is the use of rules that benefit the developed countries at the expense of less developed nations, leading to unequal rate of economic and social development among developing countries [United Nations Development Project, (UNDP) Nigeria 2003)]. Second, is its human expression which hinges on the extent to which all groups within a nation can participate in its income–growth process (UNDP, Nigeria 2003) Unequal participation of people and groups in the new trade opportunities created by globalization brings about the paradox of income growth and increasing poverty of segments of the same population and therefore creates inequalities, which have consequences on educational level, political stability, opportunities both in terms of social and economic attainment and health status.

The issue of inequality is especially important in Sub-Sahara Africa (SSA) where economic growth has been slow. Inequality harms growth because it leads to a decrease in the stock of human capital in the economy and thus decreases the individuals' capacity to access better jobs and higher incomes. The stock of human capital in a given society depends on several variables, namely the health status of households, educational level, access to social protection systems and participation in politics and decision-making process. In many instances especially in agrarian economies of SSA, equality of participation, equality of response to opportunities is something that cannot be guaranteed. Therefore, while many of the earlier analyses of liberalization effects have been positive on growth, more recent studies have shown that these benefits of globalization are contingent on the management of other evolving phenomena, one of the principal concerns being inequality (Akanji, 2007).

In recent years, inequality has come back on the agenda in international development debate and practice. Specifically, the 1990s witnessed resurgence in theoretical and empirical attention by development economists to the distribution of income and wealth (Atkinson and Bourguignon, 2000). The potentially negative effects of

inequality and the recent increase in inequality observed in a significant number of industrialized and developing countries have led to the revival of inequality as a central topic in economics (Atkinson, 1996).

Despite this renewed interest in inequality, most studies [Olaniyan and Awoyemi (2006), Alayande (2003), Aigbokhan (2000) and Litchfield (1999)] are by and large concerned with inequalities in the distribution of income and other forms of monetary indicators. Also, the standard practice in economic literature concerning inequality measurement is to compare single-dimensional welfare indicators, such as income, consumption and expenditure. For instance, the basic needs approach of Streeten (1981) perceives development as an improvement in an array of distribution of basic human needs and not just as growth of income which is a uni-variate index of income inequality in a society. However, in order to have a holistic evaluation of the social state of an individual, more than one criterion often needs to be applied, since economic disparity does not arise from the distribution of income alone. As was stressed by Sen (1993), Kolm (1977), Maasoumi (1999) and many other scholars, analysis of different individual attributes is crucial to understanding and evaluating inequality among people since people are different in income, education, health and other welfare attributes.

Sen (1992) nevertheless argues that unequal distributions of health, education and other welfare attributes also have important impact on human well-being: "The extent of real inequality of opportunities that people face cannot be readily deduced from the magnitude of inequality of incomes, since what we can or cannot do, can or cannot achieve, does not depend just on our incomes but also on the variety of physical and social characteristics that affect our lives and make us what we are." To some extent, the distributions of health, education and other welfare attribute outcomes reflect private expenditures, and hence the distribution of income. Publicly provided goods and services may be unequally distributed as well, because access to them is politically driven and affected by discrimination on the basis of race, ethnicity, religion, or gender. Because inequalities in the distribution of health, politics and education have negative effects on human well-being, and are not simply a function of income inequality, they too should enter into measures of social welfare.

Consequently, human well-being should be treated from the non-monetary dimension as indicated by Sen (1985, 1993), Stewart (1985), Doyal and Gough (1991), Cummins (1996) and Narayan *et al* (2000). This is because income may not be sufficient for characterizing adequately the level of social welfare in a given society, which may also depend on other welfare attributes, such as employment conditions, access to land and other assets, access to health care facilities, education, rights of access to political power and legal institutions and security from crime and violence. Moreover, income distributions will not fully reflect all individual benefits, needs or abilities, particularly those that cannot be priced as they are non-tradable such as education, asset acquisition and health among others (Sen, 1997; Narayan *et. al*., 2000).

Due to the multidimensional nature of well-being, uni-variate index of income inequality provide an inadequate basis on which to measure the extent of inequality in a society. Multidimensional measures of inequality allow taking this multidimensionality explicitly into account. One of the important added values of such an approach - compared to the standard uni-dimensional ones - is its sensitivity to the dependence between the dimensions. This study therefore investigated the state of distribution of non-income welfare attributes. This is because of the multidimensional nature of well-being and the need to take into account its complex and pervasive nature. In particular, analysis of inequality and welfare attributes based on education, health and political participation was examined in order to know the state of education and level of access to health.

1.2: Statement of the Problem

Nigeria is the largest country in Sub Sahara Africa (SSA) with a population of 140 million or about one-fifth of the total population of the region (NPC, 2006). Nigeria is also an oil exporter and the second largest economy in SSA with a GDP of $216.4 billion in 2008. With its reserves of human and natural resources, Nigeria has the potential to build a prosperous economy and provide for the basic needs of the population. Hence, despite its vast resources, Nigeria has been ranked amongst the top 10% of unequal countries in the world (UNDP, Nigeria 2003). The percentage of people living below the poverty line was estimated to have escalated dramatically from 27.2% in 1980 to 65.6% in 1996, an annual average increase of 8.83 % in the 16-year period. However, between 1996 and 2004, total poverty head count declined

by an annual average of 2.1% to 5.4%. Over the same period, the percentage of population in the core poor category rose from 6.2% to 29.3% before declining to 22% in 2004. In addition; differences among Nigerian citizens' standards of living and access to opportunities have been documented by various institutions (CBN 2005, World Bank 2001, FOS 1999, Heymans and Pycroft 2005, UNDP Nigeria 2009).

The Nigerian populace has been undergoing a distinct bifurcation in both monetary and non-monetary standards of living, exactly counter to the trend for most countries in the world. Minority of 20% of Nigerians control one-half of the country's entire wealth, and the poverty gap is widening (Mashood and Young 2003). The richest 10% of the population spend more than 16 times what the poorest 10% of the people in the country spend. The rich spend 22 times what the poorest 10% spend on non-food items and 11 times what the poorest 10% spend on food consumption items. The poorest fifth of the world's population receives less than 2% of the world's total income while the richest fifth receives more than 80% (UNDP, Nigeria 1992). Inequality level further shows that the wealthiest 2% possessed incomes equivalent to the total income of the poorest 17% in 1970 and the poorest 55% in 2000 (Sala-i-Martin and Subramanian, 2003).

World Bank (1996) revealed that the extent of inequality in the distribution of income is important in reducing poverty and as a consequence, increases welfare. It was observed that national poverty in Nigeria would have decreased by 13.6% as against 8.9% achieved by growth if income distribution did not worsen between 1985 and 1992.

Furthermore, the Nigeria Human Development Index of 0.511 ranks 158th among 182 countries portraying the country among the poorest countries in the world (UNDP, Nigeria 2009) and with highest level of inequality especially among the rural dwellers (World Bank 2004). Poverty and inequalities are therefore two of the important constraints on the way to development in developing countries. Poverty has been documented to be severe in the rural areas of the country (Mahmood 2001). Rural households are not only poor; they also suffer from vast inequality in incomes, in assets, in control over public resources, and in access to essential services as well as pervasive insecurity (World Bank, 2000). Access of the poor to these basic services,

such as electricity, water or gas is often viewed as very important to the well-being of households.

The poverty problem in Nigeria goes beyond low income, savings and growth but also high inequality which manifests in highly unequal income distribution, differing access to basic infrastructure, education, training and job opportunities (UNDP, Nigeria 2009). Incidentally, the importance of unequal access to opportunities, assets and income is indescribable as it plays important roles in reducing poverty and spurring the economy to long-term development. The impact of the incidence becomes more important because of the high inequality associated with low level of household income and unequal access to other welfare attributes (Aigbokhan, 2000). This is because it has become evident that the presence of strong foreign investment and policy environment required for economic growth cannot be provided where inequality and poverty persist (Aigbokhan, 1999; Clarke *et al* 2003).

Until recently, most people perceived income inequality in Africa as quite low and, at best, of no serious impediment to poverty reduction (e.g. Fields, 1998). As a result, there was a general sense of apprehensiveness when it was learnt that inequality in SSA was in fact one of the highest in the world (Table 1) as indicated in the level of income disparity that was carried out to see the level of dispersion among households income for some selected countries. Another study that was carried out to examine the level of income inequality among selected countries from developed and developing countries using data from Nigerian Living Standard Survey (2004) by World Development, revealed that Nigeria has one of the highest levels of inequality in the world (Table 2). This study therefore examined if the unfavourable trend of income inequality in the country are also found in other non-income welfare attributes and proffer policy recommendations to help reduce the level of inequality among these non-income welfare attributes (Education, Political participation and health).

Table 1: Median Values of Gini Coefficient by Region

Region	1960s	1970s	1980s	1990s
Eastern Europe	22.76	21.77	24.93	28.60
South Asia	31.67	32.32	32.22	31.59
OECD and High Income Countries	32.86	33.04	32.20	33.20
East Asia and Pacific	34.57	34.40	34.42	34.80
Middle East and North Africa	41.88	43.63	40.80	39.72
Sub-Saharan Africa	49.90	48.50	39.63	42.30
Latin America	53.00	49.86	51.00	50.00

Source: Sahn and Stifel 2003

Table 2: Comparison of Gini coefficients in selected countries

Country	Gini coefficient
Nigeria	56.9
Ethiopia	30.0
India	32.5
Brazil	59.3
Madagascar	47.5
Niger	50.5
United States	40.8
Sweeden	25.0

WDR 2005, except for Nigeria NLSS 2004

Despite the commitment shown by many developing countries towards reducing inequality, there is lack of sufficient knowledge on how to design a holistic approach for addressing the issues (Clarke 2003). Unless distributional elements are included in developmental programmes and reforms, it will be difficult to solve human development crisis, which might also deter the development of the economy most especially in the rural areas (IFAD 1999). This is because rural infrastructure in Nigeria has long been neglected. Investments in health and education have been focused largely on the cities. As a result, the rural population has extremely limited access to services such as schools and health centres (IFAD 1999).

In the light of the foregoing, this study provides policy relevant outcomes to the following research questions: Firstly, what is the state of access of rural households to this non-income (education, health and political participation) welfare attributes? This will help to know in particular the level of household educational attainment, level of involvement of households in politics and decision making and the density of and access to health infrastructure. Secondly, what is the extent of vertical inequalities across different population groups in rural Nigeria? Answer to this question will help to know the group with the highest level of disparity in accessing this non-income welfare attributes. Thirdly, what is the contribution of within and between non-income inequalities to the total non-income inequality? Proffering solution to this will help to understand whether inequality is more as a result of dynamics within or between population groups and to identify the groups that contribute most to inequality. Finally what are the factors that determine non-income (education, political participation and health) inequality among rural households in Nigeria? Identification of these factors will help policy makers to know the type of programme interventions that they can design and the groups that they are to target.

The answers to these questions have important implications for economic policy, since if the benefits of economic growth are already being shared across the various strata of an economy, departures from an unmitigated growth-oriented policy need not be made in concession to distributional goals. Therefore, this study helps to identify the population group with the most unequal access to the selected non-income welfare indicators and how they can benefit form the growth and development process in the country in order to enhance the level of their household wellbeing.

1.3: Objectives of the Study

The major objective of this study is to measure non-income (education, political participation and health) inequalities and to analyze the contributions of these welfare attributes to rural household's inequality level in Nigeria.

The specific objectives are to:

1. profile the non-income (education, political participation and access to health care service delivery) inequality among rural households in Nigeria.
2. evaluate the vertical inequality of non-income welfare attributes across different population groups and estimate the contributions of between and within group non-income inequalities to the total non-income inequality.
3. identify the factors that influence non- income inequalities (education, political participation and health) among households in rural Nigeria.

1.4: Justification of the study

The focus of the international community on achieving the Millennium Development Goals (MDGs) — one of which is to cut by half, by 2015, the percentage of people in the world with incomes below $1 a day is drawing greater attention to the various factors that influence poverty trends. In order to achieve this goal, a minimum pace of increase in the mean per capita consumption must be attained and secondly, the benefits of that increase have to be sufficiently well distributed in the direction of the poor (De vreyer *et. al.* 2003). Inequality thus matters for achievement of the MDGs. (NEPAD 2001) and given the depth of poverty in Nigeria, growth may not be enough without giving attention to easing inequality and eliminating barriers that constrain poor people in benefiting from a growing economy (Iwayemi *et. al*., 2000). Unless distributional elements are included in developmental programmes and reforms, it will be difficult to solve human development crisis, which might also deter the development of the economy.

That most countries in Africa have relatively high inequality which is among the highest in the world is generally well known (UNDP 2009). Yet, on further reflection, this fact represents a puzzle that has been little researched. This may be simply due to the fact that while literatures on income inequality and poverty in individual African countries have recently become much more common, studies on inequality are rare (Milanovic, 2003). This has therefore led to the on-going and increasing interest in

measuring and understanding the level and causes of inequality (Heshmati, 2004). This might be because in extremely unequal and relatively rich countries, the reduction of inequality can be an important strategy for the reduction of poverty. However, recent empirical work, which has brought it back on the development agenda tend to focus primarily on inequality in incomes or consumption levels. One of the several dimensions of inequality that has been relatively neglected is inequality in health (Omilola, 2004) and other non-income aspects

Contrary to the numerous studies (Aigbokhan (2000), Olaniyan and Awoyemi 2006; Oyekale *et al*, 2009; Adewusi, 2009) on poverty, equity and redistribution of existing wealth, one scarcely finds studies that analyse equitable distribution of opportunities such as education, political participation and health among others that equally constitute a precondition for individual's productivity and ability to move beyond the poverty line. Indeed, inequality in the context of more than one variable has seldom been studied and indeed literature on multidimensional inequality is rather sparse. For example, Aigbokhan (2000) considered only income inequality over time and across regions using Gini index but did not investigate the causal factors of regional inequality. Alayande (2003) used a regression-based approach to decompose income inequality among Nigerians by their income source using 1996 National Consumer Survey data. Awoyemi (2004) used Shapley method to decompose income inequality similar to Alayande (2003) who also used the 1996 National Consumer Survey data. Adewusi (2009) also used Shapley method to decompose poverty and income inequality and also employed the regression based approach for households in Nigeria. From the foregoing, all the work on inequality so far in Nigeria are uni-dimensional and do not consider and compare level of inequality among other welfare attributes with the exception of few studies on multidimensional analysis. The study that existed on multidimensional analysis (Oyekale *et al* 2009) examined multidimensional poverty among rural households in Nigeria and did not take into consideration inequality in the distribution of the non-income welfare attributes among rural households in Nigeria. This study therefore extends the measurement and decomposition of inequality to education, political participation and health care.

From the analytical level, studies (Adewusi 2009, Aigbokhan 2000, Alayande 2003, Awoyemi 2004, Olaniyan and Awoyemi 2006, Oyekale *et al* 2009) have measured

and decomposed inequality using conventional methods such as coefficient of variation, Lorenz curve and Gini Coefficient. In Nigeria as in many developing countries, the Gini coefficient is the commonly used measurement of income inequality due to its easy interpretation but its major weakness is that it is not easily decomposable and it measures inequality only across the mean of the population therefore the need for the use of Generalized Entropy which is rarely used in the measurement of inequality. The few studies that used it, Olaniyan and Awoyemi (2006) used it to measure Inequality in the Distribution of Household Expenditure in Rural Nigeria and the National Bureau De Statistics that used it used it did so to determine the poverty profile of Nigeria in 2004 but did not extend it to non-income welfare attributes. This study therefore further employed the use of Generalized Entropy to complement the Gini Coefficient to profile the level of disparity in access to educational attainment, political participation and health care service delivery therefore justifying this study.

Inclusion of non-income welfare attributes in inequality model are now important since inequalities in health and education which are key components of human development matter deeply to social welfare. Yet the best-known measures of social well-being either ignore distributional inequalities altogether or at best account for only some of their effects.

The growing disparity in economic outcomes, therefore calls for analysis of various aspects of inequality not only income (monetary) but also other non-income welfare attributes, including its measurement, decomposition and causal factors. The distributional consequences of economic growth are therefore one of the main policy issues in Nigeria, especially, among the rural dwellers who are mostly vulnerable. This is because within the context of the underlying concepts, we can situate that inequalities in Nigeria led to the growing disparity among the rural dwellers. First, it is reasonable to attribute inequalities in part to the past defective colonial economic policy with regard to the concentration of socio-economic and other development programmes in the urban centres, where European administrators and their allies, the African elite lived while the rural areas, where the majority of the African lived were neglected. Thus, the pivotal development advantages, which the urban centres and city dwellers enjoyed in terms of education, employment opportunities and health

facilities among others, set the skewed structure of development (Olaniyan and Awoyemi 2006)

This study would further add to the increasing literature on inequality and it is desirable for both arithmetic and analytic reasoning in order to help policy makers to understand the relationship between socio-economic characteristics and non-income inequality in order to shed light on the structure and dynamics of non-income inequality within and between different socio-economic groups in rural Nigeria. The non-income attributes selected are education, health and political participation because they are three fundamental measures of well-being that contribute to the development of human capital.

Furthermore, political inequality is an important and often overlooked dimension of inequality. Political and social policy decisions in developing countries are frequently determined by the interest of powerful families and large enterprises, which have considerable influence on government policies. This influence may yield high costs for the rest of the population and lead to persistence of political inequalities (Tilly, 1998) which may lead to exclusion of large fractions from development process.

This study therefore identifies the non-income welfare attributes that rural households in the country are mostly deprived of, which of the sub-group in the population are most vulnerable and which of the geo-political have the highest inequality in access to the specified non-income welfare attributes. It further determines the possible causes of inequality and also shows possible ways by which these attributes can be equitably re-distributed among households in order to improve their welfare status. This is because the identification of the most vulnerable groups who are believed to be usually neglected in development plans and therefore hardly benefit from growth process would be targeted in re-distributional policies. This study helps to determine whether the worrying trend of increasing income inequality in Nigeria is found in non-income dimensions as well.

1.5: Plan of the Report

The study is divided into seven chapters. Chapter two provides the theoretical framework and review of literature on inequality. The methodology, explaining the estimation of inequality, its decomposition and determining factors are presented in chapter three. Chapter four features the results of the level of access to the non-income welfare attributes by different socio-economic characteristics of the households and across the six geo-graphical zones. Chapter five presents the inequality profile for the country, its decomposition across various socio-economic characteristics and the marginal contribution of within and between group contributions to total inequality. The factors that determine the educational, political participation and health inequalities are discussed in chapter six while chapter seven contains the summary, conclusion, policy implications and policy recommendations with suggestions for further research.

CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1: Theoretical Framework

2.1.1: Welfare Theory

The term welfare as defined by economists means one's sense of well-being, one's happiness or satisfaction with life, or one's potential (given one's resources) for obtaining these things (Schwartz and Winship 1980). The welfare of the individuals is represented by utility, usually understood as desire fulfilment or preference satisfaction. This approach is anchored in microeconomics theory of welfare or utility that is generally important in accounting for the behaviour and the wellbeing of individuals. This theory postulates that individuals are rational and that they are best judges of the sort of life and activities which maximize their utility and happiness given initial level endowments, technology and prevailing market prices, individuals make production and consumption choices using their set of preferences over bundles of consumption and production activities.

Welfare economics is concerned with the evaluation of the level of individual and social welfare, and the welfare impact of economic and social policies. Social welfare is an aggregation of the individual welfare by means of an aggregator function which can be interpreted as a social welfare function. Social welfare functions can have different forms, implying that some of them will take distributional considerations into account while others will not. If the social welfare function is the maximization of the non-weighted sum of the individual welfares, then it is a utilitarian social welfare function.

Although there is some debate on the exact properties and characterization of the notion of utility, there is a general agreement that utility as used in economics is a one-dimensional concept. Thus, most research in welfare economics uses individual utilities as the exclusive basis of welfare judgments. This tradition, which has been dominant for the last two centuries, is called welfarism. However, in recent decades several important departures from welfarism have been made, by including non-utility information in the evaluation of individual welfare. Pattanaik (1994) distinguishes between two broad areas of non-welfaristic research in welfare economics. The first area is the work on individual rights and liberties, which was pioneered by Sen’s work

on the liberal paradox (Sen 1970). The second area concerns the measurement of the standard of living, inequality and poverty using an informational basis that is broader than utilities only. It is in this second line of departure from welfarism that the capability approach is situated. The core critique of the capability approach on welfare economics is the exclusive use of utility, which is represented by income or expenditure as the measure of welfare. More specifically, there are three problems with the use of income: the omission of the impact of non-market goods and services on the individual's welfare; secondly, a disregard of interpersonal heterogeneity in converting income into welfare; and thirdly, the neglect of the intrinsic value of choice. Two main ethical theories have the lead in welfare economics, welfarism and equality of opportunity. Welfarism is of the view that individual utilities are all what matters for equitable decision making. Public decisions of resource allocation should all be driven by their impact on individual utilities.

Recently, theories of justice based on the idea that opportunities should be equalized have been applied to economic issues and there are several competing theories of equality of opportunity. There are three branches of economic literature on equality of opportunity. The first branch of literature, initiated by Roemer (1993), directly addresses the question of the definition of the social optimum, in the social welfare function tradition. The second branch, initiated by Fleurbaey (1994) and Bossert (1995), tries to define the social optimum axiomatically, and focuses on the possible dilemma between the principles of compensation and responsibility. The third one, initiated by Kranich (1996), concentrates on the compensation principle, and axiomatically develops ways to measure the degrees of achievements of the compensation goals.

The three branches of economic literature on equality of opportunity differ in several respects. First, they do not all give the same emphasis on the responsibility principle. Second, they do not use the same method of justification to their proposals. Some are axiomatic, while some are not. Third, the extent to which they have led to applications varies from one another. All agree that differences in agents' outcomes come from differences in characteristics they should be responsible for (e.g. because they control the value taken by those characteristics) and differences in characteristics they should not be responsible for. Equalizing opportunities consists of allocating external,

transferable resources in such a way that difference in the latter characteristics, and only those differences, are eliminated (Maniquet 2002).

2.2: Sen's Capability Approach

The capability approach is an evaluative framework for individual welfare and social states. The core concepts are functioning's and capabilities. Sen defines functioning's and capabilities as follows: "The primitive notion in the approach is that of functioning — seen as constitutive elements of living. A functioning is an achievement of a person: what he or she manages to do or to be, and any such functioning reflects, as it were, a part of the state of that person. The capability of a person is a derived notion. It reflects the various combinations of functioning's (doings and beings) he or she can achieve. It takes a certain view of living as combinations of various 'doings and beings'. Capability reflects a person's freedom to choose between different ways of living" (Sen 2003).

In traditional economic welfare evaluation, particularly in the context of poverty and inequality, income or expenditure is analyzed. In the capability approach, an evaluation involves the analysis of a capability set, Xi, which is defined over the different potential activities or states of being b of individual i

$$Xi\ (Qi) = \{bi|bi = fi\ (c\ (qi)\ ,\ zi)\ \forall\ fi \in Fi \text{ and } \forall\ qi \in Qi\} \quad (1)$$

where qi is a vector of commodities chosen by the individual, c (·) is a function that maps goods into the space of characteristics, zi is a vector of personal characteristics and societal and environmental circumstances, fi is a function that maps characteristics of goods into states of being or activities bi, conditional on zi. Xi is the set of all possible bi, given the entitlement constraint Qi (Sen [60]:7-10). The vector of commodities qi is the demand for goods.

2.3: Definition and Concept of Inequality

2.3.1 Definition of Equity and Inequality

Equity is defined as the equality of opportunities and potentials and the avoidance of deprivation in outcomes (World Development Report 2006). The study of inequality is important in itself to understand and address disparities in living standards but also because disparities in access to welfare attributes also have implications for economic

growth and poverty reduction (Benabou 1996, Ravallion 2001). Evidence has suggested that majority of the poor people remain poor due to the persistence of high level of economic, social and political inequalities. They are poor because high level of inequality creates exclusion and pockets of persistent poverty amongst certain population groups. Understanding inequality is important for growth, efficiency, poverty reduction, and many political processes (Fields, 2001).

Inequality has been 'rediscovered' in recent years for a number of reasons including the following: Firstly, research results affirming that on average, the rate at which growth reduces poverty is higher, the lower the level of inequality will be (Ravallion, 1997); Secondly, a growing, though still inconclusive, body of evidence suggesting that higher inequality reduces the rate of growth (Aghion and Garcia-Penalosa 1999); thirdly, the fact that some social ills, such as crime and conflict, appear to be a function of inequality and not 'absolute' poverty levels (Bourguignon, 1998); and lastly, the rapid rise in inequality in some OECD, transition and developing countries in recent years (Cornia 1999); and the apparent increase in the world distribution of income (Milanovic 1999).

The 1990s signified a shift in research previously focused on economic growth, identification of the determinants of economic growth and convergence in GDP per capita across countries to analysis of distribution of income, its development over time and identification of factors determining the distribution of income. This shift in focus is specifically from the issues of convergence or divergence of per capita incomes to the long-term equalization or polarization of incomes across regions and countries. This shift is not only a reflection of technological change and raised human capacity to create growth and wealth, but also due to awareness of the growing disparity and importance of resource redistribution and poverty reduction (Heshmati, 2004).

Kuznets (1955) stressed that economic, social and political factors explain the statistical regularities that he has observed. But the foremost of these factors which provided the focus of Kuznet analysis and has become important is the shift of population from traditional to modern activities. The process of population shift, together with a formalization of what he regarded as “stylized facts” of economic

development, allowed Him to predict the behaviour of inequality during the course of development. The common wisdom, known as the Kuznets hypothesis (Kuznets 1955), states that when a country begins developing economically, its income inequality worsens. But after a few decades when the rich begin investing more in the economy and wealth begins to "trickle down," income equalizes and people are wealthier than they would have otherwise been. The Kuznets theory therefore claimed that inequality rises with growth at least at the initial stages of the growth process and economists and policy makers have, for a long time, accepted that economic growth will typically be accompanied by a certain level of inequality. As such, inequality has been viewed as a side-effect of the development process, and not necessarily a negative one. As a consequence, inequality is seldom perceived as a problem on its own and is usually analyzed in conjunction with concerns over poverty and general welfare. Although not all the types of inequality are adverse, inequalities that arise from lack of opportunities, political connections and forms of discrimination are often associated with the exclusion of some population groups from the process of development and may pose constraints to economic growth and the establishment of fully functioning market economies.

The principle of inequality has been part of the most diverse political ideologies, currents of philosophical thought, and moral and religious beliefs, especially in societies under the influence of Western culture. Inequality means different things to different people: whether inequality should encapsulate ethical concepts such as the desirability of a particular system of rewards or simply mean differences in income is the subject of much debate. Inequality has been defined as the unequal relationship existing among individuals or groups in a society as regard income, wealth, prestige, power, race or even sex. Inequality also refers is the dispersion of distribution, whether that of income, consumption or some other welfare indicators or attributes of a population (Litchfield, 1999).

Justino and Archarya (2003) defines inequality as not only referring to differences in income or consumption expenditure between population groups that hinder the welfare of these groups, but also to discrepancies in social and political indicators. However, inequality is a broader concept than poverty because it is defined over the whole distribution (Litchfield, 1999). Although it is commonly accepted that poverty

and inequality are related phenomena, inequality, like poverty, can have many dimensions. The two concepts are not equivalent as inequality is often studied as part of broader analyses covering poverty and welfare, although these three concepts are distinct (Justino *et al* 2003). The crucial difference between the concepts of poverty and inequality lies in their main focus: when examining poverty, whether we are concerned with material deprivation or less tangible, psychological dimensions of poverty, we focus on people, families and/or households that lie below some poverty line. When talking about inequality we no longer focus solely on poor people, but on the whole distribution.

Not all the types of inequality are adverse as there is some scope for personal choice in the processes that lead to inequalities. Justino *et al* 2003 distinguished between *functional* inequalities that is: inequalities that are likely to arise in a market economy as a result of rewards to risk-taking, enterprise, skill acquisition and saving and *dysfunctional inequalities* - inequalities that arise from lack of opportunities, social and political exclusion of certain population groups and other forms of discrimination, from a colonial legacy or from political connections and inherited wealth.

2.3.2 Concept of Inequality

The concept of inequality can be associated with the concept of social exclusion. The concept of social exclusion was originally developed as a form of categorising conceptually population groups that were left at the margin of social insurance systems in Europe: the mentally and physically handicapped, single parents, etc (Behrman, Gaviria and Székely, 2002). Throughout the 1980s, the concept started to be adopted by most social sciences and its original meaning extended to form a framework for thinking about deprivation and poverty in terms of material and non-material disadvantages – such as poor educational opportunities, low wages, employment insecurity and so forth – and the nature of social justice (as emphasised by the question 'equality amongst whom?'), social participation, lack of social integration and lack of power (Behrman, Gaviria and Székely, 2002). This interpretation of the concept of social exclusion is closely related to the notion of inequality, when considering inequality in its many dimensions (economic, social, political and cultural).

However, similarly to inequality and poverty, inequality and exclusion are not equivalent notions. Whilst inequality refers to differences in income, assets and access to social and political institutions between various populations groups, it does not necessarily imply that those groups will be excluded from accessing those economic, social and political institutions. Being excluded will, however, imply the existence of inequalities, when exclusion is not voluntary.

Social exclusion can, in the context of (i), be understood as a manifestation of extreme forms of inequality. Involuntary forms of exclusion – which result from the absence of opportunities for large segments of society (Behrman, Gaviria and Székely, 2002) - can, thus, be understood as a consequence of extreme forms of inequality across the economic, social and political elements listed above. The various types of inequality are of course not homogeneous across society and are likely to differ between rural and urban areas, between regions and between different population groups.

Figure One, (discussed in Justino and Acharya, 2003) summarises the different aspects of inequality. From the previous various definitions of inequality, inequality can be categorized into three groups which are the Economic, (this includes the monetary aspects such as income, expenditure among others), Social (this includes access to education, health and other social services) and Political participation (right to vote and to be voted for, ability to involved and to participate in decision-making. The various dimensions of inequality include dynamics between groups, location and across various regions. Furthermore, Ajakaiye and Adeyeye (2001) posited that uneven distribution of assets, access to public capital goods and human capital explained by varying degrees of skills largely influence the observed differences in welfare attributes among individuals and households and the dimensions of explaining inequality either in terms of

1. Horizontal and Vertical inequality
2. Temporal (time, space) spatial (location, space) inequality

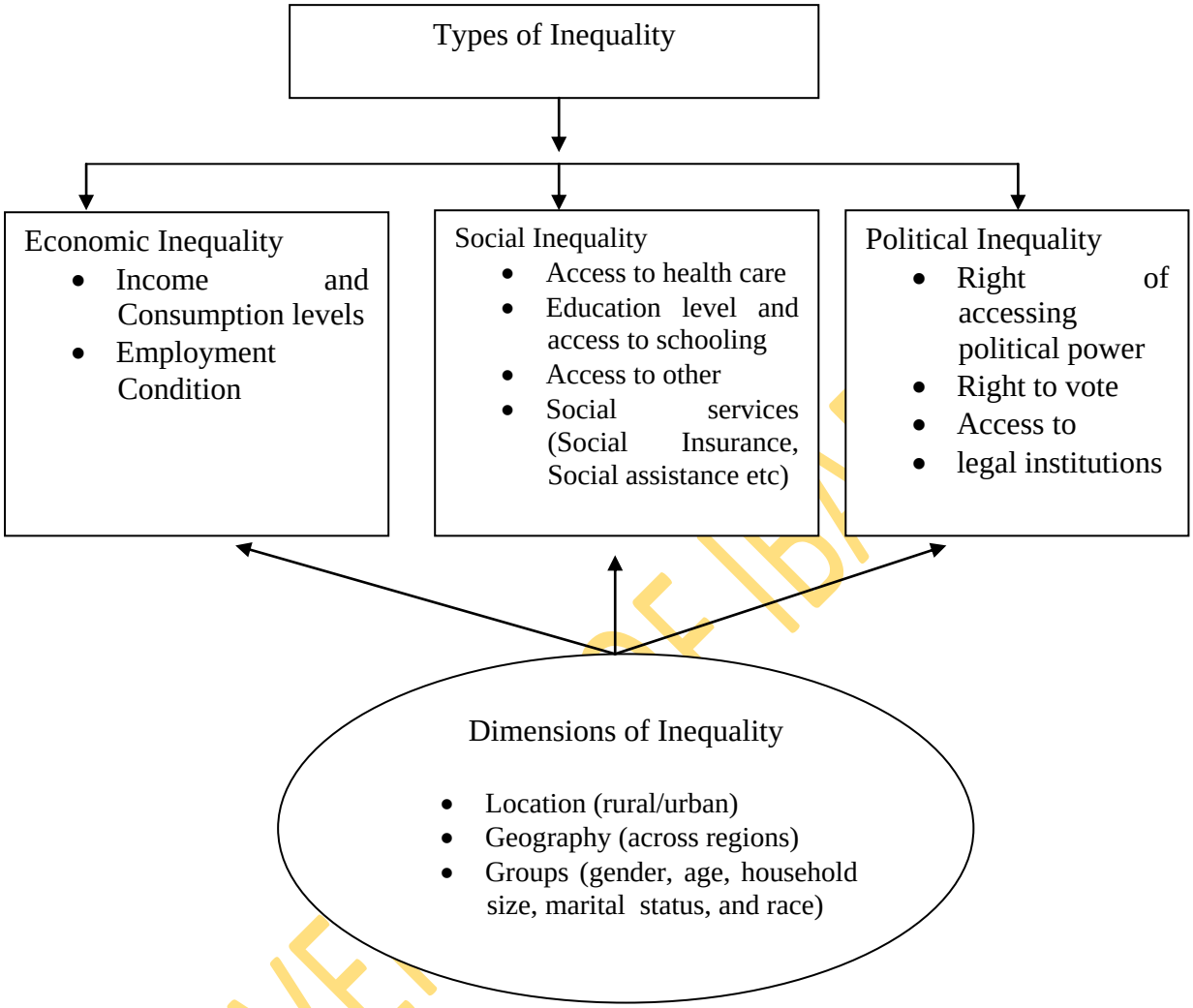

Figure 1: Framework for Analyzing Inequality in Nigeria
Source: Justino (2003).

2.3.2.1: Vertical and Horizontal Inequality

Different dimensions of inequality can be distinguished in terms of how a population is disaggregated. Stewart (2002) noted that most analyses of poverty and inequality focus on the individual: they are, "concerned with the numbers of individuals in poverty in the world as a whole, not with whom they are, or where they live." In a discussion of the origins of violent conflict, Stewart (2002) goes on to distinguish between "vertical" and "horizontal" dimensions of inequality. He hypothesis that an important factor that differentiates the violent from the peaceful [countries] is the existence of severe inequalities between culturally defined groups, which He define as horizontal inequalities to differentiate them from the normal definition of inequality which lines individuals or households up vertically and measures inequality over the range of individuals and this type of inequality is defined as vertical inequality. Vertical inequality occurs when people with different level of skills, capital endowments are equally remunerated. One major source of inequality is excess labour that stems from increased level of unemployment in the economy.

Horizontal inequality is when people with of equal level of skills, capital, and endowments are not equally rewarded. People can be grouped in many ways, and most people are members of many groups. There is a large range of types of groups: national, racial, ethnic, religious, gender and age are some obvious important ways that people are categorized.
Some group affiliations are clearly more important than others.

Group affiliation matters both instrumentally and for well-being, particularly, when:
• Group boundaries are relatively tight, so people cannot move easily (sometimes at all) from one group to another. An example is being of one gender; another is being a citizen of a particular country. If it is easy to change groups then the affiliation matters much less;

• being a group member leads to different treatment by others - e.g. via discrimination at many levels (in the case of gender, this may start at birth or even before. In the case of Africans in Apartheid South Africa, there was cradle to grave discrimination with political as well as economic dimensions. Privileges for particular groups also enhance the importance of group membership; and

• Members of the group feel that being part of the group constitutes a significant aspect of their identity, and thereby group achievements contribute directly to members' well-being.

Horizontal inequalities are multidimensional – with political, economic, and social elements (as indeed are vertical inequalities, but they are rarely measured in a multidimensional way). Horizontal inequality can stem from gender inequality for example; people of equal endowments may not be equally rewarded on the basis of quantity and quality of work done but on the basis of sexes. Also when there is discrimination in access to and control of factors of production on the basis of gender relations, political afflation and economic status there is horizontal inequality. Contentions have therefore been reached that horizontal inequalities affect individual well-being and social stability in a serious way and one that is different from the consequences of vertical inequality (Stewarts 2002).

2.3.2.2: Temporal and Spatial Inequality

Temporal inequality refers to uneven distribution of income and other welfare attributes across time space. Decomposition of inequality indices by population subgroup have been much used to account for trends in the distribution of household welfare attributes. Given a partition of the population into different subgroups such as age, household size or employment status, inequality in a given year can be written as a function of subgroup population shares, subgroup mean income and non-income variables and sub group inequalities. The change in inequality between two years can then be related to changes in sub group population shares, means and inequalities (Jenkins and Van Kerm 2004).

Spatial inequality refers to uneven distribution of income or other welfare variables across different spatial locations. It is an important feature of many developing countries that seems to increase with economic growth and development (Kim 2008). It is fundamentally determined by the location decisions of firms and households. Measuring spatial inequality usually involves calculating interpersonal inequality when each income or other welfare variable recipient receives the mean of the welfare variable of his or her location. It is used in particular to investigate the importance of initial conditions with respect to different aspects of economic endowments, socio-

economic structure and level of activity specialization as well as the current level of integration with the wider economy in explaining spatial inequality (Duta and Nagarajan 2005).

2.4: Multidimensional Inequality

Inequality among a group of people has often been measured in terms of income (e.g. Atkinson (1970), Sen (1973). This is caused by the common misconception in literature that income inequality is closely related to other forms of inequality and can thus be used as a proxy for the level and changes in overall inequality in any given society. It has been recognized (Sahn and Younger 2007; Haddad et al. 2003; Appleton and Song 1999) that there is a low correlation between income and many other measures of living standards, particularly health. This is the case when the correlations are done for household within a country, as well as when cross-country correlations are examined (Haddad et al. 2003; Appleton and Song 1999) For instance, while income distribution may be related to employment structures, access to minimum wage, social security provision and so forth, educational choices may depend on different factors such as the public provision of schools, legislation regarding child labour and opportunities available in labour markets (Jensen and Skyt Nielsen, 1997; Justino *et al*, 2004). Social scientists and economists (Sen (1987 and 1992) have argued that income is not a sufficient proxy for welfare as this is just one perspective and inequality can be linked to inequality in skills, education, opportunities, happiness, health, life expectancy, assets and social mobility. The effects of inequality in non-income factors in earnings can be summarized variously (Heshmati, 2004) and should be supplemented by other welfare attributes such as health and education, but unfortunately, inequality in the context of more than one variable has seldom been studied and indeed the literature on multidimensional inequality comparisons is rather sparse.

Srinivasan (2000), recognized that poverty and inequality are multifaceted phenomenon that goes beyond inadequate income and was reflected in the prevailing low life expectancy, high rates of infant, child, and maternal mortality and general morbidity, high rates of illiteracy (particularly of women) and low rates of school enrolment and completion, and extensive malnutrition (particularly high rates of stunting and wastage among children). They also included absence of participatory

democracy as one important facet of poverty and cause of inequality. Poverty and inequalities are thus two of the important disturbing factors on the way to development in developing countries. Consequently, discussions of how best to alleviate poverty often centres on the relative merits of policies that boost growth and those that promote redistribution (Erwan and Jason 2008).

Economists are concerned specifically with the economics of monetary dimension related to individual or household income and consumer behaviour. This is caused by the common misconception in the literature that income inequality is closely related to other forms of inequality and can thus be used as a proxy for the level and changes in overall inequality in any given society. Despite the fact that most studies of inequality tend to concentrate on the analysis of income inequality, inequalities arise due to other economic, social and political factors (Justino and Acharya, 2003). Infact, it has been recognized (Sahn and Younger 2007; Haddad et al. 2003; Appleton and Song 1999) that there is a low correlation between income and many other measures of living standards, particularly health. This is the case when the correlations are done for household within a country, as well as when cross-country correlations are examined (Haddad et al. 2003; Appleton and Song 1999) For instance, while income distribution may be related to employment structures, access to minimum wage, social security provision and so forth, educational choices may depend on different factors such as the public provision of schools, legislation regarding child labour and opportunities available in labour markets (Jensen and Skyt Nielsen, 1997; Justino *et al*, 2004).

The emphasis on basic needs and human development among economists has brought into focus the inadequacy of income as the sole indicator of well-being (Tsui, 1995 and UNDP Nigeria, 1990). In addition, once it is accepted that well-being depends on characteristics other than income, conventional analyses of income inequality will exhibit unsatisfactory properties.

Some of the most important ones include the following:

- Disparities in employment conditions (between, for instance, skilled and non-skilled workers),
- Differences in the access to land and other physical assets,

- discrepancies in the use of and access to health, education and other social services, and variations in the rights of access to political power (reflected, for instance, in the membership of labour unions and the exercise of voting rights) and access to legal institutions.

The analysis of different individual attributes is indeed crucial to understand and evaluate inequality among persons. Therefore, a recent research trend is focused on criteria for ranking multivariate distributions of individual attributes.

Well-being and its inequality are inherently multidimensional concepts (Tobin, 1970; Sen, 1992) and there is a wide spread agreement that inequality is a multidimensional issue, including a number of monetary and non-monetary deprivations. The basic assumption of multidimensional approach to well-being and poverty analysis is that there are relevant dimensions of well-being that the economic resources are not able to capture (Betti et al 2005). The multidimensional approach was developed because of the need to measure wellbeing more directly through its many dimensions, rather than indirectly through a single indicator that serves as a proxy for actual poverty, such as consumption or income.

The theoretical literature on multidimensional welfare has thrived in the last years and has had significant applications in the literature on standards of living. The United Nations Human Development Index (UNDP Nigeria, 1990) is the most widely used, combining indicators of Purchasing Power Parity (PPP) Gross Domestic Product per capita, life expectancy at birth, adult literacy and school enrolment ratios into an overall index of standards of living across developed and developing countries.

There are several factors identified in the literature to be responsible for inequality in many countries. These include urban-rural disparity, education attainment level of household members, age distribution, gender and regional differences among others (Akita et al, 1999). Multidimensional measures of inequality allow taking this multidimensionality explicitly into account. One of the important added values of such an approach - compared to the standard uni-dimensional ones is its sensitivity to the dependence between the dimensions. Intuitively, we say that a multidimensional distribution is more dependent than another one, when its dimensions tend to more large" or" small" together. Therefore there is the need to extend the measurement to

several attributes that characterize the individuals. Then, given different multidimensional distributions, each of which assigns to each person a corresponding set of attributes, the concern of inequality measurement is essentially to rank these distributions in an order of inequality and, as far as possible, to define what it means to establish that one multidimensional distribution is more unequal than another one.

The formal analysis of multidimensional inequality was pioneered by Kolm (1977). One of his main contributions was to provide a number of multivariate generalizations of the Pigou-Dalton principle of transfer. Atkinson and Bourguignon (1982) followed Kolm's perspective by developing dominance criteria to determine the conditions under which one multivariate distribution was more unequal than another.

Empirical applications of multidimensional inequality and distribution analysis in the multidimensional context, particularly at the household level, are few despite the wealth of existing research on micro-level distribution analysis (Savaglio Ernesto, 2002). Measuring empirically the distribution of non-monetary dimensions of welfare at the individual or household level entails significant challenges (Justino et al, 2004). First, the construction of most conventional indices of inequality is based on the assumption that individuals can be ranked according to their specific endowments of relevant attribute. Ranking individuals along income, consumption or earnings levels is a straightforward exercise as each level can be perfectly matched to a monetary value. However, ranking individuals along educational, health or political outcomes is a more complex exercise since it implies subjective judgments and, hence, interpersonal comparisons of welfare. It also requires quantifiable information on non-monetary attributes, which is often not available at the individual or household level.

Secondly, identifying relevant dimensions of welfare can involve numerous difficulties. Even if we agree on including say three attributes (for instance, income, education and health), it is not clear what the concepts or ideals of those attributes mean. Individuals are born under different circumstances, which will determine their health status over their lifetime and their academic achievements. Each individual will have different heights, different propensity to be over or underweight, different metabolism and immune systems, as well as different mental abilities and talents. It is

thus not possible to expect society to aim to equalize all these differences and it may be more sensible to define education and health inequalities as those that arise from circumstances or policies that cannot be affected by individual tastes and preferences (Roemer, 1996). Consensus over the choice of appropriate variables to represent those circumstances may not always be possible.

Third related problem is whether to analyze each dimension of welfare separately or to aggregate the various dimensions into summary indices. If aggregation is considered to be the right route, decisions must be made on how to aggregate attributes in adequate measures that encompass both monetary and non-monetary dimensions of inequality, which weights to use, how to measure the extent of risk aversion in society and what are the levels of correlation or degree of substitution between the various welfare attributes. These are not trivial decisions and choosing particular indicators of welfare and measures may determine research outcomes. Given different multidimensional distributions, each of which assigns to each person a corresponding set of attributes, the concern of inequality measurement is essentially to rank these distributions in an order of inequality and as far as possible, to define what it means to establish that one multidimensional distribution is more unequal than another one.

In Inequality Re-examined, Sen (1992) argues that unequal distributions of health and education also have important impacts on human well-being: "The extent of real inequality of opportunities that people face cannot be readily deduced from the magnitude of inequality of incomes, since what we can or cannot do, can or cannot achieve, does not depend just on our incomes but also on the variety of physical and social characteristics that affect our lives and make us what we are." To some extent, the distributions of health and education outcomes reflect private expenditures, and hence the distribution of income. Publicly provided goods and services may be unequally distributed as well, because access to them is politically driven and affected by discrimination on the basis of race, ethnicity, religion, or gender. Because inequalities in the distribution of health and education have negative effects on human well-being, and are not simply a function of income inequality, they too should enter into measures of social welfare.

2.4.1: Educational Inequality and Human Capital Development.

Education is both a human right in itself and indispensable means of realizing other human rights. This is because education enhances human capability to engage in skilled and highly remunerative activities through human capital development. According to EFA (2009), education is basic human right and is also crucial for improving child and maternal health, individual incomes, environmental sustainability, economic growth, and for driving progress towards all the Millennium Development Goals (MDGs).

The centrality and importance of education as a fundamental 'human right' has been well documented in the literature. According to Ezeomah (1983; 1982) and Aleyidiemo (1985) making education a fundamental 'human right' provides a viable springboard for transforming social and economic policy (Iro, 2006). Schultz (1962) helps us to understand the role that education plays in economic growth. He agrees that education increases productivity because educated workers are more efficient than uneducated workers. Psacharopoulos (1984) shows that in Africa, education contributes over 15% to economic growth compared to less than 10% in Europe and North America. The rates of return to education tend to flatten or even decline as countries become more developed; the greater the extent of schooling, the higher the level of income and the faster the rise in earnings (Nnadozie, 2003).

In fact, Becker (1981) argued that education remains the most effective way by which young people of poor backgrounds can rise in the economic hierarchy because human capital remains the main asset of 90% of the population. This also accounts for why income inequality is greater in countries where inequality in education is also high.

From the foregoing, it is clear that any nation looking for a lasting economic success must raise the literacy level of its citizens and governments around the globe have given high priority to expanding public education, in large part because of abundant evidence linking improved schooling to social and economic development (Baker and Holsinger 1996). At the macro level, widespread access to education is associated with increased labour force productivity, improvements in life expectancy and health in general, and reductions in fertility (Raghupathy 1996, Axinn and Barber 2001).

The educational provision in Nigeria, as written in its National Policy on Education (FRN, 2004) first published in 1977, has articulated five main national goals: a free

and democratic society, just and equalitarian society, united, strong, and self-reliant nation, a great and dynamic economy, a land full of bright opportunities for all citizens.

Therefore, Nigeria's philosophies of education are based on the following:

The development of the individual into a sound and effective citizen

The full integration of the individual into the community

The provision of equal access to educational opportunities for all citizens of the country at the primary, secondary, and tertiary levels, both inside and outside the formal school system. To this effect, the government established various institutions like the National Mass Education Commission in 1999, State Agencies of Adult Education, and the National Commission for Nomadic Education created a wider opportunities for the teaming population of Nigerians.

Although education is widely acknowledged as a critical tool for human capital development, the national literacy rate is low while there are acute shortages of infrastructure and facilities at all levels. The state of education in Nigeria remains poor with the country ranking 118th in educational attainment with a female to male ratio of 0.80 for literacy, 0.85 for primary school enrolment, 0.86 for secondary school enrolment and 0.55 for enrolment (UNDP Nigeria, 2009). As an empowerment right, education is the primary vehicle by which economically and socially marginalized adults and children can lift themselves out of poverty and obtain the means to participate fully in their communities. Education has a vital role in empowering women, street working children from exploitative and hazardous labour and sexual exploitation, promoting human rights and democracy, protecting the environment, and controlling population growth (UNESCO, 2003). Education is believed to be the most powerful and dynamic instrument for social, economic, political, scientific and technological development of nations (Fadipe, 2000; Aghenta, 2001) and every segment of Nigerian society must therefore have access to education. The belief in the efficacy of education as a powerful instrument of development has led many nations to commit much of their wealth to the establishment of educational institutions at various levels. Here in Nigeria, governments, organizations, communities and individuals have been involved in this effort.

Equality of educational opportunities entails a lot of things. It means giving the same type of educational treatment to everybody without any form of discrimination; regardless of any disability or barriers the individual may have (Uruakpa and Okeke 1989). Similarly, Coleman (1967) states that equality of educational opportunities in United States of America has the following bearings:

Providing a free education up to the junior higher school level, which constitutes the principal entry point to the labour force?

Providing a common curriculum for all children regardless of background;

Providing that children from diverse backgrounds attend the same school;

Providing equality within a given locality, since local taxes provided the sources of support for schools. The above principles imply that equality of educational opportunity provides for free education, common and broad curriculum for all children in various schools, same schools for all children irrespective of background (poor or rich) and same quality and quality of teaches, same learning facility, time, etc for all.

Educational facilities are still far from adequate. And so, distance remains one significant barrier to enrolment in schools and hence to geographical access to schooling as school children have to traverse long distances to get to school. This entails trekking long distances, since trekking is the dominant mode of transportation in the rural areas. Illiteracy in Nigeria still remains as high as 68%. Additionally, UNESCO reports that the number of illiterates over the age of fifteen is 25 million. These shocking figures are a mere shadow of the tragic reality of illiteracy in Nigeria. The geographical distribution, government, economy and value placed on education are all catalysts for the high illiteracy rate in Nigeria. Nigeria's geographical distribution of educational facilities are "lopsided" In rural areas, illiteracy is much greater than in urban areas. The three main reasons are: lack of education facilities in the country side; limited access to education for rural young people; and survival demands which make families keep their children out of school. (UNESCO, 2003) In connection with this idea, are the problems of orthography and national mass literacy level in the country.

In examining the economic restraints facilitating a high illiteracy rate in Nigeria, it is obvious that these factors are the most influential. Firstly, there is a definite economic

disadvantage posed on rural life. Because most rural adults are engaged in traditional agriculture there is therefore, little time or even incentive to pursue functional literacy. Secondly, in comparing the economic returns from investments of farmers and urban workers, farmers yield much less of an income than the urban dwellers and thus, their chances of obtaining formal education with which to compete in the non-agricultural labour market are slim. (UNESCO, 2003)

2.4.2: Political Participation and Decision Making in Nigeria

Governance, as the articulation of the relationship between state and citizen, has increasingly taken up by development cooperation agencies as fundamental to the fight against poverty and inequality and the promotion of sustainable development (Baden, 2000). This is because governance shapes political decisions over distribution of resources and the allocation of public power. A good governance system is defined by its relationship to some key prerequisites, including Accountability, Transparency, Participation, and Predictability. Participation is a very important component of the elements of governance. Good governance is founded on citizens' ability to claim entitlements in three broad areas: the right to participate in public decision-making; the inclusion of people's needs and interests in policy; and the allocation of resources (Natufe 2006). It is imperative that citizens participate at all levels of their government's decision making process. For effective participation in public policy, it is essential for citizens to organize themselves into credible interest groups (professional associations, students' unions, labour unions, non-governmental organizations) that constantly review government policies, articulate the positions of the general population, and engage elected officials in public debates regarding the rationale and impact of their policies and programmes on the population.

High levels of inequality may create barriers that prevent the poor from equal political participation as the rich and, consequently, from voicing their demands in equal weight to the rich perpetrates high rates of social and political unrest, including political instability — which, in turn, tends to hinder economic growth. Gacitúa and Sojo (2000) argued that democracy failures (in particular, clientism and corruption) have resulted in the exclusion of large sections of the poor population from involvement in political life. They have also resulted in the "over"- representation of the non-poor and in the favouring of alliances between the non-poor and the poor on

terms that are disempowering to the latter. Thus, the non-poor accumulate political advantages both through their domination of the state apparatus, legal system, and the parties and through their informal social power, as landowners, bankers, employers, media voices, academics, and the controllers of pervasive patron-client relations. Democratization, decentralization, division and diffusion of powers, subsidiary, and accountability can all be advanced in ways that gradually increase the responsiveness of the political system to the interests and aspirations of the poor majority.

Political inequality may comprise such phenomena as legal discrimination and limitation of citizenship rights, but the latter refers more precisely to the fact that, while in legal and formal terms political equality is a widespread fact, the effective use of the political right to take part in politics is stratified in a way that closely corresponds to lines of social stratification such as gender, income or education. Different aspects related to the social position of individuals are elements present in any standard model to explain political participation. The fact that those from advantaged backgrounds participate to a larger extent in politics is indeed one of the most consistent findings of empirical research (Dalton 2002; Milbrath and Goel 1977; Norris 2002; Rosenstone and Hansen 1993; Verba and Nie 1972; Verba, Nie and Kim 1978; Verba, Schlozman and Brady 1995; Wolfinger and Rosenstone 1980). Literatures have also argued that some of the classical patterns of inequality in political participation are changing. This has been examined for demonstrations (Norris, Walgrave and Van Aelst 2005; Van Aelst and Walgrave 2001), emerging repertories of political action (Stolle and Hooghe 2005) or turnout (Caul, 2005).

Nigeria ranks 106th out of 128 countries in political empowerment with female to male ratio of 0.08 for women in parliament and 0.11 for women in ministerial position UNDP, Nigeria (2009). Despite the fact that women constitute about 49% of the total population, it is believed that they are marginalized and discriminated against in the political process. Marginalisation of Nigerian women is more pronounced in the democratisation processes as it is further reflected in the number of women that are elected into political positions (Table 3). Women in Nigeria constitute more than two-thirds of the country's 70% adult non-literate population while they hold less than 5% of the important decision-making positions. The National Assembly in Nigeria has an appallingly low average of 0.05% of women in both houses (Nyako, 2010)

Oyediran and Odusola (2005) identified the following barriers to women's political participation. Poverty among women who are disadvantaged by the 'commercialization' of politics; low levels of education; lack of awareness of women's role in politics; misinterpretation and misapplication of religious tenets; discriminatory cultural and traditional practices; absence of appropriate legal framework; women's citizenship issues; family related issues; negative perception of women politicians; and lack of confidence and courage, party barriers, social-economic, violence as factors responsible for poor women's participation in politics. The Federal Ministry of Women affairs also identified the following as barriers to involvement of women in politics. These includes: Entrenched harmful cultural and religious attitudes and practices, Patriarchal political system/Male preference in politics, Misconceptions about women in politics and public life, Disadvantaged economic status of women, Religious leaders still provide powerful constraints, Lack of human and financial resources for training and advocacy for political careers and Community efforts to empower women in politics are still inadequate.

Some strategies to address these barriers were identified. Among these are:

1. Constitutional and electoral reforms to entrench the principle of quotas in politics and governance;
2. Institution of mentoring by female role models in governance to encourage women to participate in politics and aspire to attain leadership positions;
3. Capacity building for male and female Parliamentarians to enhance networking beyond partisan lines in order to promote positive legislation around gender issues.
4. Networking with veteran politicians and civil society groups outside the Parliament to create awareness in public about the importance of women's political participation.
5. Instituting awards and other recognition to reward individuals who support women's political participation.
6. Mainstreaming women's concerns within the Parliamentary standing Committees rather than their marginalization and isolation in the Women Affairs Committee.
7. Creation of women's caucus within Parliament to enable to work together on gender issues across party lines.
8. Institution of Trust fund and enhanced access to credit facilities and empowerment schemes to leverage resources for women in order to reduce poverty among women.
9. Building and nurturing of their constituency base.

10. Deliberate education towards achieving attitudinal change regarding women's leadership aspirations.

In comparison with the more frequent concept of political inequality, the terms participatory inequality (Schlozman, Verba and Brady 1999) or inequality in political participation are more specific and limited. Political inequality may comprise such phenomena as legal discrimination and limitation of citizenship rights, but the latter refers more precisely to the fact that, while in legal and formal terms political equality is a widespread fact, the effective use of the political right to take part in politics is stratified in a way that closely corresponds to lines of social stratification such as gender, income, or education. In addition, the concept of participatory distortion (Verba, Schlozman and Brady 1995), which focuses on the representatives of the activists, has a similar sense.

Systematic inequalities in political participation might in turn bias the political process in favour of the better situated creating a vicious circle where political and social inequalities reinforce each other (Verba 2004). This is why the fact that the least advantaged take part less in politics also has normative implications. While formal political equality is considered one of the main characteristics of a democratic system, this democratic ideal may be systematically infringed in substantial terms (Phillips 1999; Young 2002). While inequality in political participation is a classical question in political science, there are reasons to claim that it is necessary to examine carefully actual patterns in advanced societies. Indeed, it is a recurrent argument in literature that we are in a period of change –economic, social and political. The main features and causes cited for these changes are the shift into service and knowledge oriented economies characterized by their global scope and the growing importance of new technologies (Castells 1996), the de-traditionalization of life styles and the changing role of women (Beck and Beck-Gernsheim 2002), the restructuring of the welfare state, making the labour market more flexible (Sennett 1998) or the growing importance of international migrations (Bauman 2004; Sassen 1999). All ethnic groups in Nigeria continue to raise one complaint or the other, reflecting the incomplete nature of the nation-building reforms therefore believing that they are marginalized (Table 4).

Table 3**:** Distribution of Women in Some Elective/appointive positions 1999 and 2007

Office type	**No available**	**1999**		**2003**		**2007**	
		Male	**Female**	**Male**	**Female**	**Male**	**Female**
President	1	1	-	1	-	1	-
V. President	1	1	-	1	-	1	-
Senate	109	106	3	106	3	105	4
House of Rep	360	348	12	339	21	340	20
Senate president	1	1	-	1	-	1	-
Governors	36	36	-	36	-	36	-
Deputy Governors	36	35	1	34	2	32	4
State house assembly	1002	990	12	979	23	981	21
Speakers state house	36	35	1	34	2	35	1
Cabinet minister	49	45	4	46	3	39	10

Source: Federal Ministry of Women Affairs (2007)

Table 4: Zonal Composition of Various Government Cabinets, 1983 to 2007

Zone	1985, (Babangida)	1986, (Babangida)	1990, (Bagangida)	1993, (Abacha)	2004 (Obasanjo)	2007 (Yaradua)
North West	6 (27.3%)	5 (22.7%)	6(33.3%)	5(22.7%)	7(21.2%)	10 (25%)
North East	2(9.1%)	2(9.1%)	3(16.7%)	3(13.6%)	5(15.1%)	8 (20%)
North Central	4(18.2%)	5(22.7%)	2(11.1%)	4(18.2%)	6(18.2%)	9(22.5%)
South west	5(22.7%)	5(22.7%)	3(16.7%)	2(9.1%)	4(12.1)	7 (17.5)
South East	2(9.1%)	2(9.1%)	3(16.7%)	2(9.1%)	4(12.1%)	7(17.5%)
South South	3(13.6%)	3(13.6%)	1(5.5%)	4(18.2%)	6(18.2%)	9(22.5%)
Total	22	22	18	22	33	40

Source: adapted from Nigerian Army Education Corp & School, 1994, 330-349; list of Obasanjo's ministers in 2004, List of Yaradua Ministers in 2007.

2.4.3: State of Access to Health Care Service Delivery in Nigeria

International organizations such as The World Health Organization and United Nations Development Program have viewed health as the most important goal for human development and the fundamental indicator of social development (Feng and Yangyang 2006). Health is not only instrumental in enabling people to earn a living, and to enjoy the fruits of their labors, but is an important element of well-being in it own right, in fact the health status of a nation is an important indicator of well-being of its citizenry and this is reflected in the Third Development Plan (1975—80) for Nigeria which focused on the inequality in the distribution of medical facilities and health manpower in the country (Iyun 1988). Investment in health care service delivery is expected to bring about improvement in such key health sector indicators as geographical access to health care service facilities by the populace, improve their utilization rate of these facilities as well as impact positively, by way of reducing the burden of household expenditure on health care delivery.

The foregoing notwithstanding, available data, taken alongside the observed situation, suggest strongly that health care service delivery in the country has been poor and has largely been characterized by inefficiency, low and deteriorating quality and wastages. Indeed, the World Bank/FOS/NPC (undated) argues in this regard that although Nigeria has made sufficient progress in increasing access to health services, the social indicators show that it is still one of the world's poorest countries when assessed on standard health sectors parameters. It argues that compared with other developing countries, Nigeria's social indicators are low.

The set-up of the healthcare system includes the followings;

a) The hospitals which are either government or privately owned and the specialists hospital that owned by both government and private and teaching hospitals.

b) Clinics, mostly privately owned.

c) Local Government health centres.

d) Maternity homes and trado-medical health centres.

The three levels of government share responsibility for health care. The federal government is mainly in charge of health policy and the delivery of tertiary care; the state governments are in charge of secondary care; and the LGAs are in charge of primary health care (PHC). There are also numerous parastatal organizations with

different responsibilities in the health system intervening across the different levels of government. A diverse private sector plays an important role in the Nigerian health system. The private sector, both for-profit and not-for-profit, is present in both the distribution of pharmaceuticals and in the direct delivery of care. There are numerous pharmacies (c.3000) and patent medicine vendors (PMV: c. 30,000), as well as illegal hawkers (FMOH and World Bank, 2006). There is also a wide array of private health providers both "modern" and "traditional". About a third of all PHC facilities and three-fourths of the hospitals are privately run (FMOH and World Bank, 2006). Additionally, there are many traditional health care providers. The Nigerian health system has not yet recovered from deterioration during the last dictatorship. This deterioration especially affected public Primary Health Care delivery. When the responsibility to manage Primary Health Care was given to the LGAs there were fewer than 160 LGAs, today there are 774. This had spread the LGAs' already limited capacity very thin.

This set up covers almost all the necessities of healthcare delivery system. Although a beautiful set-up, the Government owned institutions however suffers the ills of: inadequate funding, staffing, maladministration, lack of personnel motivation, brain drain, obsolete and malfunctioning vital equipments, unstable water and electricity supply, non-availability of essential drugs and dressings, poor sanitation etc. The system is also highly over-commercialized thus depriving the people of needed medical care. There is almost no consideration for emergency cases in Government owned hospitals. The law of payment before treatment does a lot of havoc on the people and many die before the needed cash can be raised.

Table 5: SOCIAL HEALTH INDICATORS FOR NIGERIA

	1999	2003	2008
1. Under-five mortality rate	168/1000	201/1000	194/1000
2. Under five mortality rate (Urban)	129/1000	-	
3. Under five mortality rate (Rural)	192/1000	-	
4. Infant mortality rate	90/1000	100/1000	75/1000
5. Stunting prevalence	30.0%	38.0%	41.0%
6. Accessible to safe water	54.2%	42.0%	56.0%
7. Contraceptive prevalence	8.6%	13.0%	15.0%
8. Maternal mortality rate	704/100,000	-	545/100,000
9. Maternal mortality rate (Urban)	351/100,000	-	
10. Maternal mortality rate (Rural)	828/100,000	-	
11. Total Fertility rate	5.2	5.7	5.7

Source: Combination of NDHS, MICS 1999, NDHS 2003,(NpopC), HDI 2009.
Under five-mortality rate increased to 201/1000 in 2003 from 168/100

Efforts to improve health in developing countries face many challenges as reflected in the Nigeria's social indicators as presented in table 5. This further includes high incidence of infectious and communicable diseases, growing burdens of chronic and non-communicable diseases, weak health systems, and inadequate human and material resources. There are also un-quantified and poorly understood socio-economic inequalities in access to health services within and between various groups. Little is known of the factors that determine these inequalities and the mechanisms through which they operate in various sub-groups. Infant, child, and maternal mortality as well as malnutrition also remain high in the country. In developing countries including Nigeria, almost 60% of all births take place with no health professional in attendance. In one-third of all countries, 20% of the population or more lacks even the most basic literacy (NBS 2005). More than one in every seven children dies before reaching his first birthday and more than one in every four before his fifth (NDHS 2003, World Bank, 2006). It is estimated that up to 37,000 women die each year from maternity related causes (WHO, UNICEF, and UNFPA, 2001).

Health status is correlated with income, both for individuals within nations, and across nations in aggregate and there is a widespread evidence that health system performance in low and middle income countries is inequitable but the correlation is far from perfect so that looking at health leads to different assessments of well-being than come from looking only at income. Therefore, just as measuring the dispersion of income is of interest, so too are statements about inequality in health status (Pradhan et al 2003). Gakidou et al (2000) ''define health inequality to be variations in health status across individuals in a population. Thus, one of the most widely-cited definitions of health inequity is that it "refers to differences in health which are considered unfair and unjust. Health disparities are a major public health and social justice concern as even in the most affluent of countries, less well off members of populations suffer from a disproportionate amount of morbidity, and live shorter lives, than those who are better off Frohlich *et al.* (2006)

Broadly speaking, there are three types of inequality in health:
Inequality in access to health care facilities
Inequalities in health/health outcomes
Inequalities in the determinants of health (for example, education, wage or housing)

2.5: Growth and Inequality

Large evidence has shown that countries with high levels of inequality achieve significantly lower economic growth (Datt and Ravallion, 1992 and Kanbur and Lustig, 1999). In addition, high levels of inequality will imperil social cohesion as they may lead to increases in crime and other forms of social and political conflict. In addition, inequality results in discontent, violence and corruption have affected millions of people and have resulted in lost opportunities in terms of economic growth and human development. All types of conflict entail significant private and social costs. Violent conflicts, including civil wars, have been responsible for many deaths and injuries and the loss of livelihoods, due to the destruction of markets and private and public property and infrastructure, loss of employment and increase in food prices due to the scarcity of goods [(Stewart, *et al* 2001, Fearon and Laitin (2003)].These, in turn, create insecurity and distrust amongst economic agents, which poses a further risk to economic growth and social development.

It is argued that inequality adversely affects growth through a number of channels. First, inequality may generate social conflicts over distributional issues that diminish the security of property rights, thereby lowering investment an economic growth. Second, the need to redress inequality in the face of social conflicts may encourage higher taxes. These higher taxes lower the rate of return on private assets and thereby affect accumulation. Third, inequality in the presence of capital market imperfections may affect investment in human and physical capital adversely and therefore may reduce output and growth. Such imperfections would mean that people cannot easily borrow to finance education for future returns and would have to rely on their own resources. The initial distribution determines who is able to finance education from their own resources, and this affects the rate of growth through its effect on the quality of the labour force. And fourth, inequality through its effect on investment in human capital may increase fertility and population growth rate and slow economic growth." Although economic growth is important for the success of any economy, it becomes less effective for poverty reduction in the face of massive inequality. Given the high level of inequality in Nigeria, growth may not be enough without giving attention to easing inequality and eliminating barriers that constrain poor people to benefit from a growing economy and to contribute to that growth (Iwayemi et al, 2000).

High levels of inequality therefore, impact negatively on economic growth and, consequently, affect other economic and social variables through several economic mechanisms therefore; high levels of inequality are likely to be correlated with forms of social, economic and political exclusion and with both the structure and level of poverty in any given society. Its impact can be direct, when it affects how households and individuals access economic (markets, employment, etc), social (education, health, etc) and political (voting, political organisations, etc) institutions. Or it can have an indirect impact by affecting the rate of economic growth in a given economy and, consequently, the income and consumption levels of the various population groups. Inequality threatens growth and poverty reduction targets and that Nigeria has a relatively high inequality—among the highest in the world—is generally well known. Increased inequality is therefore an undesirable consequence for the growth process because it may imply that certain population groups are left behind and do not enjoy the benefits of growth. Therefore, as part of macroeconomic objectives, government often give equitable distribution of wealth a priority. Furthermore, persistent inequalities waste financial and human resources erode social cohesion and, consequently, pose serious constraints to the process of social and economic development (Justino 2003).

Growth is a fundamental requisite to development but the growth pattern of the Nigerian economy has been quite sluggish over the last two decades. This fact is however connected to the highly increasing level of poverty, which is further exacerbated by the pandemic problem of inequality (Heshmanti 2004).

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[their] own resources, and this affects the rate of growth through its effect on the quality of the labour force. And fourth, inequality through its effect on investment in human capital may increase fertility and population growth rate and slow economic growth."

Not all the types of inequality are adverse as there is some scope for personal choice in the processes that lead to inequalities. We need thus to distinguish between *functional inequalities* - inequalities that are likely to arise in a market economy as a result of rewards to risk-taking, enterprise, skill acquisition and saving and *dysfunctional inequalities* - inequalities that arise from lack of opportunities, social and political exclusion of certain population groups and other forms of discrimination, from a colonial legacy or from political connections and inherited wealth

This probably informs why in Nigeria growth had continued to dominate the main thrust of government's development objectives. Therefore, economic growth has often been given priority as an anti-poverty measure, but the negative link between growth and inequality has been largely ignored by policymakers. Rising inequality threatens growth and the poverty reduction targets which therefore calls for more distributional favourable pro- poor growth policies.

2.6: Inequality Measurement and its Decomposition

2.6.1: Measurement of Inequality

The measurement and analysis of inequality are crucial for cognitive purposes (to know what the situation is); for analytical purposes and for policymaking purposes (to design interventions best adapted to the issues); (Coudel et al 2002). Furthermore, the inequality decomposition within a country is arguably more important because it is more closely related to the geographic targeting of education, health and other development programs, anti-poverty programs or combination of both.

There are many ways of measuring inequality, all of which have some intuitive or mathematical appeal. Measurement of inequality has often relied on measures such as the Gini index (or the Gini inequality ratio The Gini index and its associated Lorenz curve, attributed to Lorenz (1905), have seen extremely widespread applications by various researchers. In recent decades, there have been numerous alternative measures

proposed, including the class of generalized entropy measures. Whereas the alternative measures of inequality may possess certain useful characteristics, such as the straightforward decomposability of the generalized entropy measures (Cowell 2000), the Gini index, which can be viewed as a special case of the general expression for inequality indexes (Firebaugh 1999), has remained the most popular, in large measure due to its ease of interpretation.

There are several conditions that an inequality measure has to satisfy. Following Shorrocks (1980) and others, the chosen measure for decomposition should have five basic properties. Cowell (1995) shows that any measure I(y) that satisfies all of these axioms is a member of the Generalized Entropy (GE) class of inequality measures and finally, it should be able to be tested for the significance of changes in the index over time i.e. Statistical testability (Cavendish, 1999)
They are: (1) Pigou-Dalton transfer principle; (2) mean independence; (3) population homogeneity; (4) symmetry/ Anonymity; (5) decomposability.

The Pigou-Dalton Transfer Principle (Dalton, 1920, Pigou, 1912). This axiom requires the inequality measure to rise (or at least not fall) in response to a mean-preserving spread: an income transfer from a poorer person to a richer person should register as a rise (or at least not as a fall) in inequality and an income transfer from a richer to a poorer person should register as a fall (or at least not as an increase) in inequality (see Atkinson, 1970, 1983, Cowell, 1985, Sen, 1973). Consider the vector y' which is a transformation of the vector y obtained by a transfer from yj to yi , where yi>yj , and yi+ yj >yj- yi, then the transfer principle is satisfied iff I(y')>I(y). Most measures in the literature, including the Generalized Entropy class, the Atkinson class and the Gini coefficient, satisfy this principle, with the main exception of the logarithmic variance and the variance of logarithms (Cowell, 1995).

Mean Independence. It means that if all incomes/welfare attributes were doubled, the measure would not change. This requires the inequality measure to be invariant to uniform proportional changes: if each individual's income changes by the same proportion (as it happens say when changing currency unit) then inequality should not change. Hence for any scalar $\lambda > 0$, $I(y)=I(\lambda y)$. Again most standard measures pass this test except the variance since $var(\lambda y)= \lambda^2 var(y)$. A stronger version of this axiom

may also be applied to uniform absolute changes in income and combinations of the form $\lambda 1y + \lambda^2 1$ (Cowell, 1995).

Principle of Population (Dalton, 1920): The population principle requires inequality measures to be invariant to replications of the population: merging two identical distributions should not alter inequality. For any scalar $\lambda>0$, $I(y)=I(y[\lambda)$, where $y[\lambda]$ is a concatenation of the vector y, λ times.

Anonymity: This axiom – sometimes also referred to as symmetry - requires that the inequality measure be independent of any characteristic of individuals other than their income (or the welfare indicator whose distribution is being measured). Hence for any permutation y' of y, $I(y)=I(y')$ i.e if two households or individuals swap incomes, there should be no change in the measure of inequality.

Decomposability: This requires overall inequality to be related consistently to constituent parts of the distribution, such as population sub-groups. For example, if inequality is seen to rise amongst each sub-group of the population then we would expect inequality overall to also increase. The property of decomposability allows inequality to be partitioned either over sub-population or sources.

2.6.2: Decomposition of Inequality

Inequality decomposition is a standard technique for examining the contribution to inequality of particular characteristics and can be used to assess income and non-income recipient characteristics and income and non-income package influences on household welfare status.

Decomposability is desirable for both arithmetic and analytic reasons. Economists and policy analysts may wish to assess the contribution to overall inequality of inequality within and between different sub-groups of the population in agricultural and industrial sectors, or urban and rural sectors. Decompositions of inequality measures can shed light on both its structure and dynamics. Different methods have been developed to decompose inequality (Pyatt 1976; Bourguignon 1979; Shorrocks 1980, 1982 and 1984; Fields 2000; Morduch and Sicular 2002; Wan 2002). Economists and analysts use these techniques when they want to assess the contribution to overall

inequality by decomposing inequality by sub-groups, income sources and causal factors and by other socio-economic characteristics.

The origin of the modern inequality decomposition literature is to be found in Shorrocks (1980, 1982 and 1984). Inequality can be decomposed on the basis of subgroups, causal factors, and regression base method. Shorrocks 1984 decomposed inequality on the basis of causal factors by income sources such as earnings, investment income and transfer payments; and also by population subgroups like single persons, married couples, and families with children; or by sub-aggregates of observations which share common characteristics like age, household size, region, occupation, or some other attributes. He showed that a broad class of inequality measures can be decomposed into components reflecting only the size, mean and inequality value of each population subgroup or income source.

Two types of decomposition are of interest, the static which looks at the decomposition of the level of inequality in any one year and the dynamic which looks at the decomposition of the change in inequality or poverty over a period of time. For the static decomposition, three kinds of decomposition techniques are usually encountered in literature: decomposition by sub-groups; decomposition by income sources or expenditure components and decomposition by regression analysis. Decomposition by subgroups and income sources are known as the conventional methods. Bourguignon (1979) and Shorrocks (1980) investigated the decomposition of inequality indices over population subgroups. Morduch and Sicular (2002), Oyekale et al (2006) and Awoyemi (2004) applied the regression based model to decompose inequality.

A measure is said to be “aggregative” if it can be expressed only in terms of the numbers, mean access to welfare attributes and inequalities within disjoint population subgroups. Therefore, for any index that is aggregative the inequality recorded, can be regarded as a measure of inequality between subgroup were inequality within each subgroup is zero. There is no guarantee, however, that the difference between this within inequality value and the over all inequality can be given any clear interpretation as a measure of inequality within the subgroups. In the case in which it

can, that is in which the difference is equal to the weighted sum of the internal inequalities, the index is said to be additively decomposable.

Some measures, such as the Generalised Entropy class of measures, are easily decomposed and into intuitively appealingly components of within-group inequality and between-group inequality: I total = I within + I between. Other measures, such as the Atkinson set of inequality measures, can be decomposed but the two components of within- and between-group inequality do not sum to total inequality. The Gini coefficient is only decomposable if the partitions are non-overlapping, that is the sub-groups of the population do not overlap in the vector of incomes. Other measures such as the Atkinson set of inequality measure can be decomposed but the two components of within and between group inequality do not sum up to total inequality. The Gini index is only decomposed into within and between if the partitions are non-overlapping. An inequality measure can be regarded as source decomposable if total inequality can be broken down into a weighted sum of inequality by various household characteristics, space or income sources. The decomposition techniques described above are very suitable for assessing the contribution of factors (household specific attributes or income sources) to inequality.

The decomposition by regression analysis is the most recent. For years, economists have attempted to develop the regression-based approach to inequality decomposition. Pioneers in this area include Oaxaca (1973) and Blinder (1973). Juhn, et al (1993) extended the earlier work to permit decomposition of between-group difference in the full distribution rather than in the mean of income only.

Decomposition by Population Sub-Group

The point of this decomposition is to separate total inequality in the distribution into a component of inequality between the chosen groups (Ib), and the remaining within-group inequality (Iw). Two types of decomposition are of interest: firstly the decomposition of the level of inequality in any one year, i.e a static decomposition, and secondly a decomposition of the change in inequality over a period of time, i.e. a dynamic decomposition.

The static decomposition: When total inequality, I, is decomposed by population subgroups, the Generalised Entropy class can be expressed as the sum of within-group

inequality, I_w, and between group inequality, I_b. Within-group inequality I_w is defined as:

$$I_w = \sum_{j=1}^{k} W_j \, GE(\alpha)_j$$

$$W_j = V_j^{\alpha} f^{j\,1-\alpha}$$

Where *fj* is the population share and *vj* the income share of each partition *j*, *j*=1,2,..k. In practical terms the inequality of income within each sub-group is calculated and then these are summed, using weights of population share, relative incomes or a combination of these two, depending on the particular measure used. Between-group inequality, Ib, is measured by assigning the mean income of each partition *j*, *j y* , to each member of the partition and calculating:

$$I_b = \frac{1}{\alpha^2 - \alpha}\left[\sum_{j=1}^{k} f_j \left(\frac{\overline{y_j}}{\overline{y}}\right)^{\alpha} - 1\right]$$

Defined as above, can be related to overall inequality in the simplest possible way:

Ib + Iw = I.

They then suggest an intuitive summary measure, *Rb* , of the amount of inequality explained by differences between groups with a particular characteristic or set of characteristics, *Rb = Ib / I.*

Hence we can conclude that x% of total inequality is "explained" by between group inequalities, and (100-x)% is accounted for by inequalities within groups. By increasing the number of partitions we can account for the effect of a wider range of structural factors

The dynamic decomposition: Accounting for changes in the level of inequality by means of a partition of the distribution into sub-groups must entail at least two components of the change: one caused by a change in inequality between the groups and one by a change in inequality within the groups. The second one is the "pure inequality" effect, but the first one can be further disaggregated into an effect due to changes in relative mean incomes between the subgroups - an "income effect" - and one due to changes in the size of the subgroups – an "allocation effect".

2.6.3: Multidimensional Measures of Inequality

The domain of inequality measurement has been pioneered by the Atkinson-Kolm-Sen approaches. The classical literature on inequality measurement depicts the disparity of an attribute, in general income, in a given population. It has been showed by Kolm (1977), Atkinson and Bourguignon (1982) and many others that this kind of approach is very unsatisfactory, because people differ in many aspects besides income. Then, we should extend our measurement to several variables, in order to take into account the other attributes (e.g. health, education, talents, capabilities, etc.), that characterize the individuals.

Multidimensional inequality therefore considers the case in which attributes other than income (e.g. health, education, talent, capabilities, etc.) characterize a population of individual's welfare's state.

Although ranking individuals along income or consumption levels is a straightforward exercise, ranking individuals along educational, health and other non-monetary attributes is a more complex exercise since it often implies making subjective judgements. There are three main approaches to deal with the measurement of multidimensional welfare [Maasoumi (1986), Duclos, Sahn and Younger (2001)]. The first is the combination of the various indicators of well-being into one uni-dimensional index, whose distribution can then be analysed. The Human Development Index is one of such indicators. This approach relies, however, on the use of arbitrarily defined weights for each dimension of well-being. The use of indices of inequality, particularly in the multidimensional case, has been subject of intense debate. Composite indices are often criticized for leading to loss of significant information when several vectors of well-being are combined into one scalar measure of inequality, and for the level of arbitrariness involved in the choice of key parameters.

However, similarly to the one-dimensional case, indices of multidimensional inequality have the advantage of providing complete orderings, which can be an attractive feature in policy analysis, offer practical use and allow researchers to easily synthesize information on welfare, which is often very complex when more than two or three attributes are considered. Several indices of multidimensional inequality have been developed in the literature. For instance, Kolm (1977) suggested a generalization

of the Atkisnon-Kolm-Sen inequality index, which measures the aggregate amount of each attribute that would be 'destroyed' by the equalization of each attribute in society (Bourguignon, 1999), whereas Tsui (1995) proposes a measure that takes into account the amount of each attribute that should be taken away from each individual so that we obtain an allocation of attributes that is indifferent to the original distribution. Weymark (2004) provides a comprehensive survey of the state-of-the-art of this normative approach to the measurement of multidimensional inequality.

The second approach consists in the comparison of individual distributions of various dimensions of well-being. This method underlines most of the recent analyses of non-monetary poverty (Saith (2001), Ruggeri, Laderchi, Saith and Stewart (2003)), as well as recent studies on education and health inequalities (Checchi (2000), Thomas, Wang and Fan (2000), Gakidou, Murray and Frenk (2000), Wagstaff (2000)). Although this method has provided important insights into the understanding of non-monetary poverty and inequality, it does not, however, take into account possible correlations between the various dimensions of welfare.

The third method considers pair-wise joint distribution of *n* indicators of wellbeing, where one of the welfare attributes is a discrete variable. Total population is then divided into groups according to the values of the discrete welfare attribute and the distribution of continuous *n-1* attributes is compared within and between the various population groups. This approach does not only capture the differences between the various distributions but also possible correlations between the various attributes.

This approach has been successfully used to analyse multidimensional poverty by Duclos, Sahn and Younger (2001) and was extended to the analysis of multidimensional inequality in Justino (2004) and this study therefore intends to follow Justino 2004 method by applying the second and third frameworks empirically to the 2006 Nigeria Core Welfare Indicator dataset

Despite significant differences in their underlying normative approach, most multidimensional inequality indices are built in a two-stage procedure. In the first stage, a utility or welfare function is used to aggregate welfare attributes for each

individual, while in the second stage individual utility or welfare are summed across all individuals.

2.7: Tools of Redistribution: Taxation and Government Policy

Whilst high rates of economic growth are not likely to wholly exclude the poor, welfare outcomes cannot be separated from issues of redistribution. Fiscal policies are available to address the distributive effects of economic action. The limitations of this are obvious in developing countries, where fiscal instruments are underdeveloped; reliance on such approach in ensuring equity has little chance of meeting social objectives (Greely, 1994).

2.7.1: Taxation

One major economic tool in fiscal policy is taxation. In practice, the three main objectives of taxation are to raise revenue to fund government operations, to enhance redistribution of welfare attributes and to discourage certain demerit activities (Karingi and Wanjala, 2005). Tax is therefore a fiscal policy tool for stabilization of an economy. Taxation is also the main mechanism for transferring resources from the private to the public sector. The tax system affects the standard of living in different ways for different groups of the population. This is why the effects of direct and indirect taxes on the standard of living is an important subject in macroeconomics (Myles, 1995). A good tax system should be equitable i.e. enhance both horizontal and vertical equity. A tax system is horizontally equitable when it imposes equal tax burdens on individuals or group (for instance occupation, academic qualification, gender e.t.c.) or businesses with similar endowments, capacity and circumstances. For instance a tax system is inequitable when it affects one group (e.g. non-farm income earners, wage earners, female) than another (e.g. farmers, investors, male). However, when equal tax burdens are imposed on people or group of different capabilities and welfare circumstances, such tax is vertically inequitable.

2.7.2: Government Expenditure

The ability of a country to grow and reduce poverty and inequality lies on the distributional impact of the targeted fiscal policy initiatives (Wanjala, 2006). This is enhanced through government expenditures. Government expenditure could be on provision of public goods or on transfer payment. A public good is a good for which

one person's consumption does not reduce the quantity available for consumption by others. The main objective behind government spending in order to raise growth rate is to improve the marginal productivity of the private sectors capital and labour. Accordingly, public expenditure that includes the provision of basic social and economic infrastructures, physical infrastructure, communication as well as information systems are typical examples of public goods, which enter directly into private production. This is because public goods facilitate private investment and promotes growth. Deliberate government investment in rural infrastructures, human capital (both in quantity and quality) are primal to increased agricultural output and productivity which enhance growth, stabilization and redistribution (Sturm, 2001 and Kiringai, 2006).

Public expenditure includes the capital and recurrent expenditure. Recurrent expenditure on maintenance and operations is driven by availability of existing facilities (the outcome of previous expenditure). Where households demand too little education (for instance rural areas), it is the responsibility of the government to encourage provision of free education in order to ensure minimum level of education, communication and social interaction. Capital expenditure is the share of the budget that is set apart for public goods. Regions with existing infrastructures get higher budget share for maintenance and operations. However, regions with low level of existing infrastructures should get a higher share of development or capital expenditure.

Government spending on transfer payment is primarily concerned with equity and wealth redistribution. Transfer payment includes social security and state pensions. By spending more money on the social security programmes (for the unemployed, the aged and the poor), the aim is to ensure that distribution of income and welfare that a totally free market economy would otherwise have produced is at least truncated since there is a minimum standard of living below which no citizen should fall. The money spent on the poor and the vulnerable primarily comes from tax. The tax and the transfer system take money from the rich and give it to the poor. The poor receives not merely the direct financial transfer in the form of transfer but also the consumption of public goods that have been paid for by income taxes from the rich.

2.8: Review of Empirical Studies on Inequality

There have been numerous studies on poverty in Nigeria, but few on inequality. A small but growing literature has emerged. Kolm (1977) and Atkinson and Bourguignon (1982) laid the foundation for the study of multidimensional inequality in the spirit of social welfare pioneered by Atkinson. Gary 1997, reports that Sub-Saharan Africa has the second-highest income inequality in the world, after Latin America and attributes increase in poverty to economic growth and changing dispersion. He further asserts that for any given growth rate, the more disperse the distribution is becoming the smaller is the reduction in household welfare.

Milanovic (2002a) distinguishes between three types of global income inequality: (I) inequality between countries in terms of GDP per capita; (II) inequality between countries in terms of GDP per capita weighted by population size; and (III) inequality among world citizens, irrespective of the country in which they live. Studies using data from the 1960s onwards tend to report increasing type I inequality (Jackman, 1982; Barro and Sala-i-Martin, 1992; Sheehey, 1996; Jones, 1997; Firebaugh, 1999). Studies of type II inequality provide mixed evidence for recent decades: Ram (1989) and Korzeniewicz and Moran (1997) claim that inequality increased; Berry *et a*l. (1983), Peacock *et a*l. (1988), and Firebaugh (1999) suggest overall stability; while Melchior *et a*l. (2000) and Sala-i-Martin (2002) report declining inequality. While weighting clearly matters, Schultz (1998) and Firebaugh (1999) notes that the way that GDP is measured also affects the results. Relatively few studies have been published to date on type III inequality, but both Bourguignon and Morrisson (2002) and Milanovic (2002b) suggest that world income inequality increased during the periods 1960–1992 and 1988–1993, respectively. There are several factors identified in the literature to be responsible for inequality in many countries. These include urban-rural disparity, education attainment level of household members, age distribution, gender and regional differences among others (Akita et al, 1999).

Justino *et al* (2004) employed two approaches to the measurement of multidimensional inequality. The first approach is based on the analysis of the independent distribution of monetary and non-monetary welfare attributes while the second approach is based on pair-wise joint distributions of those attributes. The focus of the study was on inequalities in income, education, health and political

participation outcomes. The extent of vertical horizontal monetary and non-monetary inequalities was also calculated. The study also examined the determinant of both types of inequality using ordered probit regression analysis and analyzed their impact on household welfare. The explanatory variables and added to the various models include household size, location, region, racial group of the head of the household, age and gender of the household head, type of family, whether the person has always lived in the state, the main occupation and position of the head of the household, education level of the head of the household, household income per capita, labour union participation, stillborn rates, property ownership, access to water, type of toilet facility available in the building of the households and asset base of the household

Alayande (2003) analyzing the patterns of inequality in Nigeria employed the Modurh and Sicular regression based approach to decompose inequality by income sources using Gini index. The result showed that geography or space is an important factor explaining inequality in Nigeria. The result also showed that the sector of residence alone accounted for the largest source in inequality in Nigeria. The study showed that post secondary education has a significant reduction effect on income inequality. However, such factors as age, gender among others have minimal effects on income inequality in Nigeria. He recommended that any poverty alleviation and distribution programme should focus on geographical spread of such programme in order to achieve meaningful results.

Olaniyan and Awoyemi (2006), examined a decomposition analysis of inequality in the distribution of household expenditure in rural Nigeria. They employed the use of generalized entropy measures and the Gini coefficient. The Gini coefficient result revealed a high value of 0.54 for the country. The results of the analysis further indicate that factors such as age, gender, and educational level of the household head are important factors in explaining inequality profile in the country.

Ki et al. (2004) adopted a non-monetary approach to the analysis of poverty and inequality in Senegal with the aid of multidimensional indicators. The final variables included education, access to primary school (within 30 minutes), access to secondary school, access to potable water, access to health services, nutrition variables, type of habitation, energy, communication (TV, radio, public transport). A composite

measure of poverty (fussy set) calculated from these variables showed that poverty was much higher in the rural areas (91.3%) than in urban areas (19.8%). With reference to inequality, Gini coefficients and Entropy indices were calculated. Overall, inequality was higher using the monetary index than the non-monetary index, with the Lorenz curve for the non-monetary index lying above that for the monetary measure. For both indices, the study found that inequality was higher in the rural than in the urban areas.

Zhang and Wan (2005) used Shapley decomposition method for poverty decomposition, which combines the data generating procedure of Shorrocks and Wan (2004) with the Shapley value framework of Shorrocks (1999). They decomposed variations of urban poverty across the Chinese provinces into three components which are contributions by differences in average nominal income, inequality and poverty line. The result revealed that average income is the key determinant of poverty incidence but also attached importance to the influence of distribution. The regional pattern of the decomposition suggested provincial groupings based not entirely on geo-graphical location.

Baye (2005) used Shapley Value for assigning entitlements in distributive and analysis and assesses the within and between sector contribution to changes in aggregate poverty in Cameroon. The result indicated that between 1984 and 1996 poverty remained a rural phenomenon in Cameroon. It became more widespread, deeper and severer in both rural and urban areas, but more so in urban than rural areas. While the within sector effects disproportionately accounted for increase in poverty within the period, the between-sector contributions in both rural and urban areas played a mitigating role on the worse effects in poverty.

Mustapha (2006) provides an extensive discourse of the ethnic structure, inequality and governance of the public sector in Nigeria. According to him, Nigeria is a country characterized by intense ethnic polarization and conflict. He submits that the historical foundations of inequalities in Nigeria started manifesting in the sphere of education where there were widening regional differences. Consequently, this has a knock-on effect on the regional formation of human capital, and general economic development. Using different yardsticks, it was evident that the southern part of

Nigeria is ahead of the Northern part in the areas of education, manpower availability and accessibility to social services. There is also a higher concentration of the poor in the northern states compared with their southern counterparts. In terms of politics and with specific reference to cabinet ministers, Mustapha submits that the northern states have had fair stab, dominating in virtually all the regimes from 1960 to date. Of the 33 ministers identified by the study in 2004, 19 or 57.5 percent are from the northern states. The consolidated statistics for federal civil service in 2000 reveals that the south has more people both at lower, and senior and administrative directorate cadres. In his conclusion, the author opines that the efforts at reforming the inter-ethnic relations in Nigeria since 1966 have had only a limited success. He identified the main obstacle to building inter-ethnic accommodation to include: an excessively centralized state; politically motivated distortions caused during the long years of military tyranny after 1983 and mounting poverty. Accordingly, he suggests a reform of federal system, which returns substantial economic and political initiatives to the states and zones to help channel political energies into less destructive ways. Further, there is a need to work out some rational guidelines for the implementation of the Federal character principle given the ease with which the principle can be subjected to political calculations. The author finally suggests the need to stem the rising tide of poverty in the country.

This study deviates from previous studies on inequality first, the literature review above helped in an understanding of the theoretical and conceptual framework of inequality, the various methods of measuring and decomposing inequality helped to inform the variables of interest that were used in determining the factors that influence the level of inequality in Nigeria and the expected relationship between the dependent and independent variables.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1: Scope of Study

Nigeria is located in the Sub-Sahara African (SSA) nations and situated in the western part of Africa on the Gulf of Guinea and lies between $4^{o}161$ and $13^{o}531$ North latitude and between $2^{o}40'$ and $14^{o}41'$East longitude. It is bordered on the West by the Republic of Benin, on the North by the Republic of Niger and on the East by the Republic of Cameroon. To the South, the country is bordered by approximately 800 km of the Atlantic Ocean, stretching from Badagry in the West to the Rio del Rey in the East. It occupies a total land area of 910,800km² (World Bank Atlas 2001:36-37). This represents 3.9% of Sub-Saharan Africa's 23,353,846 km². Area and 0.8% of the entire world land area of 110,113,000 sq. km making it the world's 32nd largest country. The vegetation ranges from mangrove forest on the Coast to desert in the far North.

Nigeria is the most populous country in Africa and the ninth most populous Country in the world providing habitation for 1.9% of the world's population as at 2005, forecast to rise to 2.2% in 2015, and attain the sixth most populous country rank by 2050. The National Population Commission (NPC) put the population of Nigeria at about 88.5 million in 1991. About 140 million people lived in Nigeria in 2006 with population growth declining to 3.2 percent (FRN, 2007). The 2006 census estimates further claims that 42.3% of the population is between 0 and 14 years of age, while 54.6% of the population is 15 to 65 years of age. The birth rate is significantly higher than the death rate, at 40.4 and 16.9 per 1000 people respectively. The life expectancy at birth in the country is 47.7 years and around 30 % of children below the age of 5 are thought to be malnourished, with percentages reaching critical levels in several states. The under-five mortality rate remains one of the highest in the world at around 194 per 1 000 while infant mortality is 75 per 1,000 births. Levels of immunization are among the lowest in Africa. Net enrolment in primary education is estimated at about 68 % and secondary enrolment is also low at about 27 % and the adult literacy rate (Percentage of ages 15 years and above) is 72% (UNDP, 2009)

The population is still predominantly rural, accounting for approximately 53% of the population dwellers and majority of them are into agriculture. Agriculture which provides employment for over 60% of the rural populace has suffered from years of

mismanagement, inconsistent and poorly conceived government policies, and the lack of basic infrastructure. Still, the sector accounts for over 41% of GDP (CBN 2005). Agriculture provides a big chunk of non-oil growth, which in 2006 reached 9%. Nigeria is no longer a major exporter of cocoa, groundnuts (peanuts), rubber, or palm oil. Cocoa production, mostly from obsolete varieties and over-aged trees, is stagnant at around 180,000 tons annually; 25 years ago it was 300,000 tons. An even more dramatic decline in groundnut and palm oil production also has taken place. Once the biggest poultry producer in Africa, corporate poultry output has been slashed from 40 million birds annually to about 18 million. Import constraints limit the availability of many agricultural and food processing inputs for poultry and other sectors. Fisheries are poorly managed. Most critical for the country's future, Nigeria's land tenure system does not encourage long-term investment in technology or modern production methods and does not inspire the availability of rural credit.

The variety of customs, languages, and traditions among Nigeria's 250 ethnic groups gives the country a rich diversity. The dominant ethnic group in the northern two-thirds of the country is the Hausa-Fulani, most of whom are Muslim. Other major ethnic groups of the north are the Nupe, Tiv, and Kanuri. The Yoruba people are predominant in the southwest. Nigeria has a total land area of 923,768 km² out of which about 910, 770km² are solid land area. It shares a 4047 km (2515 mile) border with Republic of Benin (773 km) to the West, the Niger (1497 km) to the North, Chad Republic (87 km) and the Republic of Cameroon (1690 km) to the East and has a coastline of at least 853 km. Furthermore, the Atlantic Ocean forms a coastline of about 960km^2 to the south.

Administratively, the country has 36 states plus the Federal Capital Territory (FCT) – Abuja, which are further sub-divided into 774 Local Government Areas (LGA's). The Federal Government comprises an executive arm, a bicameral legislative arm and the judiciary. Each State has its own executive arm and house of assembly, while each Local Government has a chairman and councillors. Nigeria has a varied landscape. From the Obudu Hills in the Southeast through the beaches in the South, the Rainforest, the Lagos estuary and Savannah in the middle and Southwest of the country and the Sahel and the encroaching Sahara in the extreme north.

FIGURE 2: MAP OF NIGERIA

3.2: Sampling Procedure and Sample Size

The study used data obtained by the Nigeria National Bureau of Statistics (NBS) during the 2006 National Core Welfare Indicator Questionnaire (CWIQ) Survey. A two-stage cluster sample design was adopted by the NBS in selecting respondents from each of the Local Government Areas (LGAs). The first stage involved the selection of the Enumeration Areas (EAs), while Housing Units (HUs) constituted the second stage. The National Population Commission EAs as demarcated during the 1991 Population Census served as the sampling frame for the selection of first stage sampled housing units. In each LGA, a systematic selection of 10 EAs was made. Prior to the second stage selection, complete listing of housing units (and of Households within the Housing Units) was carried out in each of the selected first stage units. These lists provided the sampling frames for the second stage selection.

Ten HUs were then systematically selected per EA and all households in the selected HUs were interviewed. The projected sample size was 100 HUs at the LGA level. The sample size using other defined reporting domains (FC, Senatorial, State, and Geo-political zone) varied, depending on the number of the LGAs that are made the reporting domain. Overall, 77,400 households were drawn at the national level. Sampling weights were constructed for each sample, thus making the data representative of the entire population in Nigeria. The detailed EA of the households samples are contained in Appendix 2.

This study then stratified the data into rural and urban areas of the country. The whole data for the rural areas of the country which comprised of 59,567 households of which 56,219 households had complete information served as the sample size. The data were also dichotomized into farming and non-farming households of which 38,216 were engaged in farming activities while 18,003 were engaged in non-farming activities.

3.3: Data Requirements

In order to determine the non-income inequality profile in Nigeria, the following data were extracted from the data set:

Socio-economic Variables: Socio-economic characteristics of the respondents such as gender of the household head, age of the household head, marital status, years of formal education, location, household size among others.

Health/Sanitation variables: these includes data on type of primary health care providers consulted by the respondents, distance to the nearest health care service providers, problems encountered during consultation of these health service providers, methods of preventing malaria, immunization, source of water and methods of treating the water, type of toilet facilities available, method of waste disposal.

Housing and housing condition variables: including the type of accommodation the household lives in, ownership structure, source of lightening, flooring material, roofing material, and wall material

Household Asset Base: this include asset available to the households such as television set, radio, computer system, telephone, sewing machine, fridge, generator, mode of transportation among others.

Other data extracted includes number of household members who are involved in participation in politics and decision making at the National, State, local, community and household level, access to and source(s) of credit facilities

3.4: Analytical Techniques

3.4.1: Measurement of Inequality

There are many inequality measures in the literature such as Lorenz curve, Gini index and the generalized entropy, but this study utilized the generalized entropy and the Gini indices as the measures of inequality among non-income welfare attributes of the respondents. While the Generalized entropy indices satisfy all the suitable properties of a distribution index as identified in our literature review, the Gini index fails in one property of being able to be written as the sum of between- and within-group inequality components. Despite this shortcoming the study also utilized Gini index since it is sensitive to changes in the middle welfare attribute range.

3.4.2: Gini Index

In order quantify and present inequality profile of non-income welfare attributes for households in rural Nigeria, extent of vertical inequality and the level of interrelationship between non-income inequality and welfare attributes, Gini index and Generalized entropy were employed. The Gini index implicitly assumes that all "share deficits" across population "*p*" are equally important. It thus, computes the average distance between cumulated population shares and cumulated welfare attributes shares. Gini index is therefore the ratio of the difference between the perfect

equality line and the Lorenz curve. This measure of inequality conforms to the Pigou-Dalton principle, principle of population and anonymity or symmetry.

The Gini coefficient was computed for education, political and health inequality. The equation for the Gini coefficients of the non-income welfare attributes are given below.

For, education inequality,

$$I_{Gini}(e) = \sum_{i=1}^{n} ai\ (E)E_i \quad \ldots\ldots (1)$$

$$\text{Ai (E)} = \frac{2}{n^2\ \mu_e}\left[i_e - \frac{n+1}{2}\right] \quad \ldots\ldots (2)$$

For Political inequality,

$$I_{Gini}(p) = \sum_{i=1}^{n} ai\ (P)P_i \quad \ldots\ldots (3)$$

$$\text{Ai (P)} = \frac{2}{n^2\ \mu_p}\left[i_p - \frac{n+1}{2}\right] \quad \ldots\ldots (4)$$

For health inequality,

$$I_{Gini}(h) = \sum_{i=1}^{n} ai\ (H)H_i \quad \ldots\ldots (5)$$

$$\text{Ai (H)} = \frac{2}{n^2\ \mu_h}\left[i_h - \frac{n+1}{2}\right] \quad \ldots\ldots (6)$$

Where n is the population or the number of observations, μ_e , μ_h and μ_p is the mean of the per adult equivalent of household educational attainment, the mean of the ratio of household members that participates in politics and decision making either at the national, state, local, community or household level and the mean of households access to health care service delivery. E_i, P_i and H_i are per adult equivalent of household educational attainment of household i, ratio of households members that participate in politics and household decision making either at the national, state, local, community or household level and level of access to health care service delivery by household i and i_e ,i_h and i_p are the corresponding rank of the per adult equivalent of household educational attainment, level of participation in politics and decision making and access to health care facility.

The level of household's education attainment, ratio of household members that participate in politics and decision making and level of households access to health care service delivery were categorized into low, medium (average) and high following the Study of Mahmud *et al* 2005 on Geographical Aspect of Poverty and Health in Tanzania.

Households with less than 0.33 were categorized as having low level of access to the non-income welfare attributes.

Households with 0.34-0.66 were categorized as having average/medium access to the non-income welfare attributes

Households having access to the non-income welfare attributes that is greater than 0.66 were categorized as high

The household educational attainment was computed by finding the ratio of per adult equivalent years of formal education that was obtained by members of the households to the expected adult equivalent years of formal education for each member in the household. Level of participation of households in politics and decision making was determined by the ratio of members of the households that are involved either in politics or decision making at any of the following levels: national, state, local, community and household level while households access to health care service was derived by computing an index through the use of Principal Component Analysis.

3.4.3: Principal Component Analysis

Principal Component Analysis (PCA), a multivariate statistical technique was used to reduce the number of variables in the data set into a smaller number of 'dimensions'. PCA assists in statistically identifying and weighing the most important indicators in order to calculate an aggregate index for a specific sample household attributes either socio-economic, demography, health among others. Basically, the principal component technique slices information contained in a set of indicators into several components. Each component is constructed as a unique index based on the values of all the indicators. The main idea is to formulate a new variable, z_1, which is the linear combination of the original indicators so that it accounts for the maximum of the total variance in the original indicators (Basilevsky, 1994). The linear combination that explains the maximum amount of variation is called the first principal component.

In other words, once data on k indicators are arranged in k columns to form a n x k matrix X, the method of principal components can be used to extract a small number of variables that accounts for most or all variations in X.

The first principal component is then described by the index variable z_1. This index aggregates the information contained in each of the variables.

In mathematical terms, from an initial set of n correlated variables which ranges from X_1 to X_n,

PCA creates uncorrelated indices or components, where each component is a linear weighted combination of the initial variables.

Mathematically, it is expressed as

$$PC_1 = a_{11}X_1 + a_{12}X_2 + \_\ \_\ \_ + a_{1n}X_n \qquad (7)$$

Where a_{11} to a_{1n} represents the weight for the first principal component and the n^{th} variable. The weights for each principal component are given by the eigen vectors of the correlation matrix

The indicators of the access to health care service delivery and the weights attached to these indicators/components are given below

Type of health care service delivery consulted

(4 = Government, 3 = Private, 2 = Traditional, 1 = Self medication, 0 = none)

Distance to the nearest Health care service delivery centre

(4= less than 15mins, 3= 15-29mins, 2= 30-44mins, 1= 45mins-1hr)

Problems encountered at the time of visit

4= No problem, 3 = Long waiting hours and facilities not clean, 2= No drugs, 1= Too expensive, 0 = No trained professionals/ treatment unsuccessful

Reason for not consulting medical service delivery

4= No need, 3= Too expensive, 2= others, 1= Too far,

3.4.4: Generalized Entropy

The Generalized entropy was also used in addition to Gini index to analyze the inequality profile among rural households in Nigeria. The use of the GE class of measure allows the examination of the stability of the welfare rankings for different weightings (Justino, 2004), hence an advantage over gini index. The value of GE ranges from 0 to 1, with zero representing an equal distribution (all outcomes identical) and higher values represent higher levels of inequality.

The parameter α in the GE class represents the weight given to distances between the selected welfare attributes at different parts of the distribution, and can take any real value. For lower values of α, GE is more sensitive to changes in the lower tail of the distribution, and for higher values of α GE is more sensitive to changes that affect the upper tail. The commonest values of α used are 0, 1 and 2: hence a value of α =0 gives more weight to distances between welfare attributes in the lower tail, α =1 applies equal weights across the distribution, while a value of α =2 gives proportionately more weight to gaps in the upper tail.

Members of the Generalized Entropy class of measures have the general formula as follows. The General equation for the generalized entropy is given as follows

$$GE_{(\alpha)} = \frac{1}{\alpha - \alpha^2}\left[\frac{1}{n}\sum_{i=1}^{n}\left(\frac{y}{\bar{y}}\right)^{\alpha} - 1\right] \quad \text{.......... (8)}$$

Following Litchfield 1999, the generalized entropy for education, political and health inequality respectively will be derived using the equations below.

Ge(0) = Mean log deviation .... (9)

GE (1) = Theil Entropy index .... (10)

GE (2) = Coefficient of variation .... (11)

Where y_i is the per adult equivalent educational attainment of households, ratio of household members participates in politics and decision making either at the national, state, local, community or household level and , level of access to health care service delivery. $\bar{Y}$ is the arithmetic mean of per adult equivalent educational attainment of household, ratio of household members that participates in politics and decision making either at the national, state, local, community or at the household's level and access to health care service, n is the number of units or individuals in the sample for the per adult equivalent educational attainment of household, level of participation in politics and decision making and access to health care facility of household i. The parameter α is the GE class of measures range from 0 to ∞ with 0 representing an equal distribution and higher values representing high level of inequality. The parameter α represents the weight given to distances between educations; political distributions and access to health care facility and can take any real value

3.4.5: Marginal Contribution of Within and Between Inequalities to Total Non-Income

In order to decompose and estimate the contribution of within and between non-income inequalities to the total non-income inequalities (education, political and health), the Shapley decomposition model was used. The study followed Duclos and Araar, (2006). The Shapley Value decomposition rule has been used to obtain exact decomposition of the Gini coefficient into between-group and within-group components that sum to the total inequality with no residual (Araar, 2006). The application of Shapley decomposition value involves two steps. The first step is to decompose total inequality into between-group and within-group contributions. The second step is to express global within-group contribution as a weighted sum of the within-group contributions by the different subgroups. The main goal is to explain the total amount of inequality in a distribution by the extent of inequality found among socio-economic groups and other factors that contribute to inequality ("intra" or "within" group inequality) and across them ("inter" or "between" group inequality).

In the first step, it is supposed that the two Shapley contributions that account for the overall Gini coefficient are within-group and between group inequalities. The basic rules followed to compute the marginal contributions of each of these factors are:
Firstly, the within-group inequality was eliminated and the between-group inequality was calculated. This was done by using the vector of per adult equivalent educational attainment of household, participation in politics and decision making and access to health care delivery in which each observation is assigned the average educational status, level of participation in politics and decision making activities and access to health care delivery $\mu(k)$ of the observation's group k;

Secondly, to eliminate between-group inequality and to calculate within-group inequality, the vector of per adult equivalent educational attainment of household, level of access to health care service delivery and political inequality was used where each observation has its per adult equivalent educational attainment of household, access to health care facilities and level of participation in politics and decision making multiplied by the ratio $\mu(k)/\mu$ of its group k.

Precisely, an inequality index *I* depend on the per adult equivalent educational attainment of household, participation in politics and decision making of individuals and access to health care service delivery, in $k = 1,..., K$ groups, each group with $n(k)$ individuals. Let e(k), p(k) and h(k) be the n(k)-vector of per adult equivalent educational attainment of household, participatory ratio in politics and decision making and access to health care delivery and activities of group *k*. The total inequality *I* is expressed as a sum of between- and within- group inequality

$I(e(1), \ldots, e(K)) = I_{between} + I_{within}$ 12

$I(P(1), \ldots, p(K)) = I_{between} + I_{within}$ 13

$I(h(1), \ldots, h(K)) = I_{between} + I_{within}$ 14

To compute the contribution of between-group inequality, the fall of inequality observed is computed when the mean per adult equivalent educational attainment of household, level of participation in political and decision making and access to health care delivery process of the groups are equalized. This can be done either before or after within-group inequality has been removed. Hence, the Shapley contribution of between-group inequality for education, political inequalities and health are given as

$I_{between}$ for education inequality =

$$0.5\{e(1),\ldots,e(K)) - I(\mu/\mu(1).e(1,\ldots,\mu/\mu(k).e(K)) + I(\mu(1).1(1),..,\mu(K).1(K)) - 0\} \ldots 15$$

$I_{between}$ for Political inequality =

$$0.5\{l(1),\ldots,p(K)) - I(\mu/\mu(1).p(1,\ldots,\mu/\mu(k).p(K)) + I(\mu(1).1(1),..,\mu(K).1(K)) - 0\} \ldots 16$$

$I_{between}$ for health inequality =

$$0.5\{h(1),\ldots,h(K)) - I(\mu/\mu(1).h(1,\ldots,\mu/\mu(k).h(K)) + I(\mu(1).1(1),..,\mu(K).1(K)) - 0\} \ldots 17$$

Where l(k) is a unit vector of size n_k. The within-group contribution is then given as

I within for education inequality =

$$0.5\{I(e(1),\ldots,e(K)) - I(\mu/\mu(1).(1,\ldots,\mu/\mu(k).e(K)) + I(\mu(1).1(1),..,\mu(K).1(K)) - 0\} \ldots 18$$

I within for political inequality =

$$0.5\{p(1),\ldots,p(K)) - I(\mu/\mu(1).p(1,\ldots,\mu/\mu(k).p(K)) + I(\mu(1).1(1),..,\mu(K).1(K)) - 0\} \ldots 19$$

I within for health inequality =

$$0.5\{h(1),\ldots,h(K)) - I(\mu/\mu(1).h(1,\ldots,\mu/\mu(k).h(K)) + I(\mu(1).1(1),..,\mu(K).1(K)) - 0\} \ldots 20$$

The second step consists in decomposing total within-group inequality as a sum of within-group inequality across groups. This was done replacing per adult equivalent

educational attainment of households, ratio of household members that participates in politics decision making and access to health care facility of those in a group *k* by $\mu(k)$ in order to eliminate group *k's* contribution to total within-group inequality. The fall in inequality induced by this equalization of per adult equivalent educational attainment of household, level of participation in politics and decision making and access to health care facilities is the contribution of group *k* to total within-group inequality. We compute this for each group. Given that this computation depends on the sequence ordering of the groups, we compute the average contribution of a group *k* over all possible orderings of groups. This gives the Shapley value of group *k's* contribution to total within-group inequality of education, political and health inequalities

3.4.6: Determinants of non-income inequality

In order to identify the factors that determines or influences household access to non-income welfare variables (such as education, political participation and health care facilities) among rural households, PCA and Ordered Probit Regression analysis was used since the factors that determine the distribution or access to non-income variables have an ordinal categorical nature. The Principal component analysis was used to form the index while the Ordered Probit Regression was be used to determine the factors that influence household's access to non-income welfare variables.

The ordered probit regression model is given as

$Y = f(X_i)$ .....(21)

Where W= f (E, P and H)Y is the ordinal dependent variable and it is a function of education, political and health inequality status of the households. The dependent variables of main interest are the level of education, political and health inequalities; the household inequality is defined as the standardized distance from the mean of each household's endowment of the welfare attributes (education, political and health). The Z score for each of the welfare attributes was computed by arranging the welfare attributes in their ordinal categorical nature, and grouped into 3 categories (upper, average/medium and lower terciles). Ordered probit model was employed for the analysis to show the probabilities of any given household being in an upper terciles of education attainment, political participation and access to health care service delivery.

$E^* = \beta' X_i$ ……..……. 22

$P^* = \beta' X_i$ ……..…… 23

$H^* = \beta' X_i$ ……..…….....24

Where E, P and H are the dependent variables; which are households educational attainment, level of political participation of the households in politics and decision making and access to health care service delivery. Household educational attainment is measured in terms of per capita household adult educational attainment, households political status is measured by the ratio of ratio of household members that participates in politics and decision making while household health status are measured in terms of level of access to health care service delivery

β is a vector of unknown coefficients and X_i is the vector of characteristics of the i^{th} individual and are the independent variables.

Three ordered probit regression analyses were ran to determine the factors that cause education inequality, health inequality and political inequality. Considering the ordinal probit model for factors that cause non- income inequalities, the dependent variable for the study are educational inequality index, health inequality index and political inequality index while the independent variables are defined as follows:

X_1 = Age of household head (Actual age in years)

X_2 = Gender of household head (1= male 0 = Female)

X_3= Household size (Actual number)

X_4 = Marital status (1= Married, 0 = otherwise)

X_5= House ownership and condition index

X_6 = Household wealth/ Asset base index

X_7 = Sanitation/Health status index

X_8 = South West (= 1, 0 = otherwise)*

X_9 = South East (= 1, 0 = otherwise)

X_{10} = South South (= 1, 0 = otherwise)

X_{11} = North East (= 1, 0 = otherwise)

X_{12} = North West (= 1, 0 = otherwise)

X_{13} = North central (= 1, 0 = otherwise)

* This indicates that the South West Zone was chosen as the base. This is because empirical studies (Oyekale *et al* 2006) have shown that the zone is one of the zones with the lowest incidence of poverty and inequality.

Indices were constructed to determine the house ownership and housing condition, household asset/wealth base and household sanitation condition. The house ownership and housing condition, asset/wealth variable index and sanitation index was derived through the use of PCA. Weights are attached to the each of the variable components/indicators of the house ownership and housing condition, wealth/asset base and sanitation/health arbitrarily but on the economic/useful life of the variables, on the basis of the most hygienically safe health/ sanitation indicators and durability of the components of the variables from the most economical, most durable and most effective and the most hygienically best to the least.

The indicators that were used for computing the house ownership and housing condition index, household asset base/wealth and sanitation/health index where derived as explained below.

House ownership and condition index

The indicators that were used in determining the housing condition and ownership index and the weights attached to each of the indicators are given below

Ownership of building: (1= own, 0 = otherwise)

Flooring materials: (4 = Tiles, 3= Concrete, 2= Planks, 1 = Mud earth/straw, 0 = bare)

Roofing materials :(4=Roofingsheet,3=cement,2=Asbestos,1=Mud,0= thatched roof)

Wall materials: (4= Cement, 3= Stone 2= Mud/burnt brick 1= Wood, 0= Iron sheet)

Household wealth/ Asset base index

The household wealth/asset base index was constructed by representing the individual's possession and access to some given attributes of household's asset base

Ownership of productive asset (Computer, Sewing machine, Generator, Land, Fridge)

(Each coded as 1= Yes and 0 = No)

Ownership of Communication/information asset (Video, T.V, Telephone, radio)

(Each coded as 1= Yes and 0 = No)

Household items (Gas cooker, Stove, Mattress, Electric fan, Electric iron, Furniture,)

(Each coded as 1= Yes and 0 = No)

Access to credit (3= formal and informal, 2= only formal, 1=only informal, 0 = none)

Means of transport (4= vehicle, 3= Motorcycle/bicycle, 2= Boat, 1=animal, 0 = none)

Source of lighting: (1= Depends on other source of energy apart from PHCN, 0 = Depends only on electricity)

Sanitation/Health index

The indicators that were used in measuring the sanitation/health index and the weights attached to each of the indicators are given below

Type of toilet:(4=Flush into septic, 3= Flush into sewage, 2= Pit, 1= Pail, 0= none)

Source of water (4 = Pipe borne, 3= Bore hole, 2 = Well, 1 = River/Lake/Rain)

Method of treating water before drinking

(4 = Use of chemicals, 3= Boiling, 2= filtering/sedimentation, 1 = others, 0 = none)

Method of waste disposal: (5= Private, 4 = Government, 3 = Dispose off within the compound, 2 = authorized heap, 1= unauthorized heap/river)

Immunization: (1= Completed, 0= otherwise)

Methods of preventing malaria (4= Drugs, net, insecticide and good drainage, 3 = Net, insecticide and good drainage, 2= Good drainage and herbs, 1= either drugs, net, insecticide or herbs, 0 = none)

Type of fluid offered to children who have diaharrea (4= ORT, 3= ORS, 2 = home salt and Sugar, 1= Water only, 0 = none).

3.5: Limitation of the Study

The major limitation of this study is that the study made use of secondary data and therefore inability to include some other variables of interest such as cost incurred on health status of household members, reason(s) for the chosen health care service providers, household income, amount spent on educational advancement of household members and distance to source of water.

CHAPTER FOUR

HOUSEHOLD SOCIO-ECONOMIC CHARACTERISTICS AND LEVEL OF ACCESS TO NON-INCOME WELFARE ATTRIBUTES AMONG RURAL HOUSEHOLDS IN NIGERIA

This chapter presents the result of collated data, showing in physical terms the distribution of per adult equivalent household educational attainment, ratio of members that participate in politics and decision-making and level of access to health care facilities across the states and Geo-political Zones as well as farming and non-farming households dichotomy. The collated data are presented and averaged to illustrate the values of the different socio-economic factors that influence non-income inequality. The result are then discussed as supported by literature, thus forming the basis for statistical analyses presented in chapters five and six.

4.1: Distribution of Non-Income Welfare Attributes among Rural Households in Nigeria

4.1.1. Distribution of Households by Level of Educational Attainment

The results of the distribution of household's level of educational attainment for the rural areas of the country as well as farming and non-farming households dichotomized are presented in Table 6. The result shows that in the rural areas of the country as a whole, 71.6% of the rural households have low (0 - 0.33) educational attainment. The result of the distribution of rural household's educational attainment for both farming and non-farming households stratification shows that more of the farming households have low level of educational attainment (74.1%) than the non-farming households (69.1%)

Across the six Geo-political Zones in the country for the rural households as a whole, the North-West Zone has the highest percentage (89.9%) of rural households with low educational attainment and the least percentage (2.8%) of rural households with high educational attainment. The South-South Zone has the least percentage (54.6%) of rural households with low educational attainment and also the highest percentage of rural households with high educational attainment (9.9%). For farming and non-farming household dichotomization, the result also shows that the North West Zone has the majority of the farming households (93.6%) and non-farming households (86.2%) with low (0 - 0.33) per adult equivalent household educational attainment (0-

0.33). Table 6 further shows that the South-South Zone has the least percentage (54.6%) of households with low educational attainment and the South-West Zone has the highest percentage (9.2%) of farming households with high per adult equivalent household educational attainment index (i.e. greater than 0.67) for the farming households. For the non-farming households, the South-South Zone has the least percentage (50.8%) of households with low educational attainment and highest percentage (12.2%) of non-farming households with high per adult equivalent household educational attainment index (that is greater than 0.67).

In summary, the Northern region generally has low level of educational attainment with the North West Zone having the highest population of households with low educational attainment. The Southern region of the country has enhanced access to formal education. The result conforms with the study of Mustapha (2006) on Ethnic structure, Inequality and Governance of the public sector which reveals that only 19.7% of candidates from the Northern part of the country gained admission into Universities in 2001 and further reveals that the Northern part of the country has the least number (33.1%) of the total post primary institutions in the country. In addition, Nigerian Human Development Report, 2009 also indicates that the adult literacy level in many Northern State falls below the national average with Lagos and Yobe State having the highest and least percentage respectively. This implies that there is the need to sensitize households in the North on the importance of education in human capacity development. In addition, Government needs to increase the level of investment in education in the Northern region especially in the North-West Zone as this will help to improve skill acquisition and technical Know-how. This would help to develop capability which would help them to compete better with their counterparts elsewhere for economic activities that can enhance their standard of living.

In addition, the result of the distribution of households based on the level of household educational attainment shows that the level of educational attainment is higher among non-farming households than farming households in the rural areas of the country. This therefore implies that government and other stakeholders involved in providing literacy for households in the country need to show more commitment to educating farming households in the country in order to build up their human capital base as this will help to improve their efficiency.

Table 6: Distribution of Households by their Educational Attainment

RURAL HOUSEHOLDS (POOLED DATA)			
Geo-political Zones	**Low(0-0.33)**	**Average(0.34- 0.67)**	**High(>0.67)**
North West	89.9	7.3	2.8
North Central	71.5	20.6	7.9
North East	85.1	11.2	3.7
South East	63.9	29.7	6.4
South West	64.8	26.2	9.0
South South	54.6	35.5	9.9
Total	71.6	21.8	6.6
FARMING HOUSEHOLDS			
North West	93.6	4.9	1.5
North Central	76.1	19.2	4.7
North East	86.0	10.9	3.1
South East	66.7	27.9	5.4
South West	64.0	26.8	9.2
South South	58.3	34.0	7.7
Total	74.1	20.6	5.3
NON- FARMING HOUSEHOLDS			
North West	86.2	9.6	4.2
North Central	66.9	21.9	10.2
North East	84.1	11.5	3.4
South East	61.0	31.5	7.5
South West	65.5	25.6	9.9
South South	50.8	37.0	12.2
Total	69.1	22.9	8.0

Source: Author's computation from the 2006 CWIQ data

4.1.2: Distribution of Respondents by Ratio of Members Participating in Politics and Decision-Making.

Table 7 presents the ratio of household members that participates in politics and decision-making in the rural areas of the country as a whole and for farming and non-farming household's dichotomy. The result shows that the level of participation in politics and decision-making in the country is generally low with majority (90.8%) of the rural households having low participatory ratio in politics and decision-making either at home, community, local, state or at the national level. The reason for low participation in politics and decision-making is consistent with the findings of Nyako (2010) who identifies party barriers, cultural, social-economic, religious, violence among others as factors responsible for the poor participation of people in politics.

The result indicates that the North-Central Zone has the least percentage (86.2%) of households with low level of participation in politics and decision-making and the South-South Zone has the highest percentage (95.9%) of households with low level of participation in politics and decision making for the rural areas in general. This therefore implies that household members in all the Geo-political Zones irrespective of where they are located are not actively involved in politics and in decision making.

Across farming and non-farming households in the rural areas of the country, the North Central Zone also has the least percentage (90.3% and 83.2% respectively) of households with low level of participation in politics and decision making while the South-South Zone also has the highest percentage (96.4% and 95.3%) of farming and non-farming households with low participatory ratio in politics and decision making. The low level of participation in politics and farming households might be due to the fact that farming households have high incidence of poverty (NBS 2004) and therefore low asset and capital base. This further agrees with the study of Oyediran and Odusola (2005) which shows that poor households have low participatory in politics and decision making and are therefore excluded from politics.

Furthermore, the result also shows that involvement and level of participation in politics and decision making is highest in the Northern regions especially in the North Central Zone and among non-farming households in the country. Though the commitment to politics and decision making in the Northern region of the country

would be expected to encourage commitment to provision of social services such as education and health but the result showed that there is a negative relationship between political commitment and commitment to educational and health development in the region.

In addition, the over-representation of the non-farming households in politics and decision making might have negative implication on the agricultural sector of the country. This is because studies have shown that the agricultural sector is the most vulnerable sector since it has the highest percentage of households who are poor and need be targeted to participate in the political process to ensure development of programmes that would boost their productivity and development process. Also, it would ensure the development of programmes that would also be helpful for the development of the agricultural sector.

Table 7: Ratio of Participation in Politics and Decision-making among Rural Households

RURAL HOUSEHOLDS			
Geo-political zones	**0 – 0.33 (Low)**	**0.34 – 0.67 (Average)**	**> 0.67 (High)**
North West	89.2	8.8	2.0
North Central	86.8	10.2	3.0
North East	88.9	11.1	0.04
South East	91.2	9.4	-
South West	92.9	7.1	-
South South	95.9	4.2	-
Total	90.8	8.5	0.7
FARMING HOUSEHOLDS			
North West	92.1	7.9	-
North Central	90.3	9.6	0.1
North East	91.3	8.7	-
South East	91.9	9.1	-
South West	92.8	7.2	-
South South	96.4	3.6	-
Total	93.7	6.3	0.0
NON-FARMING HOUSEHOLDS			
North West	86.2	9.6	4.2
North Central	83.2	11.6	5.2
North East	86.5	13.4	0.1
South East	90.4	9.6	-
South West	93.0	7.0	-
South South	95.3	4.7	-
Total	89.4	8.7	1.9

Source: Author's computation from the 2006 CWIQ data

4.1.3: Distribution of Respondents by Level of Access to Health Care Facilities

The results of the level of access to health care facilities by households in the rural areas of the country are presented in Table 8. The result shows that majority (68.7%) of the households in the rural areas of the country generally have low access (0.-0.33) to health care facilities with the North West Zone having the highest percentage (90.1%) of rural households with low level of access to health care service delivery and the least percentage (1.9%) of rural households with high level of access to health care service delivery. Rural households in the South West Zone have the least percentage (49.1%) of households with low level of access to health care service delivery and the highest percentage (9.5%) of households with high level of access to health care service delivery.

Rural household stratification into farming and non-farming household indicates that the North West Zone has the highest percentage (89.8%) of households with low level of access to health care service delivery and the least percentage (1.6%) of households with high level of access to health care service delivery for farming households in the rural areas of the country. Table 8 further shows that the South West Zone has the least percentage (48.5%) of farming households with low level of access to health care service delivery and the highest percentage of households with high level of access to health care service delivery. The North East Zone has the highest percentage (82.9%) of households with low level of access to health care service delivery and the least percentage (3.5%) of households with high access to health care service delivery for non-farming households in Nigeria. In addition, the South West Zone also has the least percentage (45.2%) of non-farming households with low level of access to health care service delivery and the highest percentage (11.3%) of non-farming households with high level of access to health care service delivery.

It therefore implies that although access to health care services is generally low in the country with non-farming households in the rural areas of the country having enhanced access to health care facilities when compared with farming households in the rural areas of the country. The reason for this is because of the poor state of infrastructural development in the rural areas of the country coupled with the fact that most of their roads are not quite accessible which discourages most of the medical personnel posted to the rural areas to stay. This has led to the slow development of medical services in the rural areas of the country.

Among, households in the rural areas of the country generally and among the farming households in particular, the North-West Zone as the zone with the highest percentage (90.1% and 89.8% respectively) of households with low level of access to health care service delivery while households in the South-West Zone have the highest percentage (47.1% and 48.5% respectively) of households with high level of access to health care service delivery. This therefore implies that there is the need for more investment in the health sector of the country especially in the northern region and most especially in the North-West Zone of the country where the level of access to health care service delivery is poor. There is therefore the need for provision of drugs, medical personnel's and establishment of more medical centres.

Furthermore, farming households have higher percentage (67.9%) of households with low level of access to health care service delivery and smaller percentage (5.7%) of households with high level of access to health care service delivery when compared with non-farming households having 63.7% and 7.5% with low and high level of access to health care service delivery. This is likely to impede the efficiency and productivity of farming households (Alabi 2009a)

Table 8: Distribution of Rural Households by Level of Access to Health Care Service Delivery

RURAL HOUSEHOLDS (POOLED)			
Geo-political zones	**0 – 0.33 (Low)**	**0.34 – 0.67 (Average)**	**> 0.67 (High)**
North West	90.1	8.8	1.9
North Central	72.2	20.1	6.3
North East	85.8	12.3	2.7
South East	60.1	34.6	5.5
South West	47.1	41.4	9.5
South South	55.0	5.4	9.4
Total	68.7	25.4	5.9
FARMING HOUSEHOLDS			
North West	89.8	8.6	1.6
North Central	69.9	23.9	6.2
North East	85.1	12.1	2.8
South East	59.3	35.4	5.3
South West	48.5	42.2	9.3
South South	54.6	36.2	9.2
Total	67.9	26.2	5.7
NON-FARMING HOUSEHOLDS			
North West	81.2	14.0	4.8
North Central	63.9	27.2	8.9
North East	82.9	13.6	3.5
South East	56.1	36.9	7.0
South West	45.2	43.5	11.3
South South	52.8	37.7	9.5
Total	63.7	28.8	7.5

Source: Author's computation from the 2006 CWIQ data

4.2: Decomposition of Households by Socio-economic Characteristics and Level of Access to Non-Income Welfare Attributes

This section presents the result of the decomposition of rural households in Nigeria by various socio-economic characteristics and the level of access to non-income welfare attributes based on the socio-economic characteristics are also discussed.

4.2.1: Distribution of Household Head by Gender and Level of Access to Non-Income Welfare Attributes

Table 9 presents the percentage distribution of rural household heads by gender across the six Geo-political Zones in Nigeria and also for farming and non-farming household's stratification. The percentage of male headed households (85.7%) in the rural areas of the country is greater than that of the female headed households (14.3%). Table 9 indicates that the North East Zone has the highest (98.3%) percentage of rural households whose households are being headed by males. For farming and non-farming household's dichotomization, the North West Zone has the highest percentage of male headed households (98.9% and 98.3% respectively).

Based on the level of per adult equivalent household educational attainment, the result shows that the male headed households have higher percentage (11.5%) of rural households with high level of educational attainment and smaller percentage of households (70.1%) with low level of per adult equivalent household educational attainment when compared with the female headed households that have higher percentage (72.9%) of households with low level of per adult equivalent household educational attainment and smaller percentage (7.4%) of level of per adult equivalent households with high level of educational attainment.

Across the Geo-political Zones in the rural areas of the country, the result shows that the male headed households in the North West Zone have the highest percentage (85.0%) of households with low level of per adult equivalent household educational attainment and the least percentage (3.6%) of households with high per adult equivalent household educational attainment. Table 9 also shows that the South West Zone has the least percentage (55.3%) of rural households with low level of per adult equivalent household educational attainment and the highest percentage (19.7%) of high per adult equivalent household educational attainment. Among the female

headed households, the North West Zone also has the highest percentage (89.9%) of households with low per adult equivalent household educational attainment and the least percentage (2.9%) of rural households with high per adult equivalent household educational attainment. In addition, the South-South Zone has the least percentage (56.6%) of households with low per adult equivalent household educational attainment while the South West Zone has the highest percentage (12.9%) of households with high per adult equivalent household educational attainment.

For farming households stratification, the North-West Zone has the highest percentages (87.9% and 91.8%) of male headed and female headed households with low per capita educational equivalent respectively and the least percentage (3.6% and 2.9%) of male and female headed households with high per capita adult educational equivalent. The South-West Zone has the least percentage (58.8%) of male headed households with low per capita educational equivalent and the highest percentage (16.4%) of female households with high per capita adult educational equivalent. South-South Zone has the least percentage (56.9%) of female headed households with low per capita adult educational equivalent while the South-West Zone has the highest percentage of female households with the high per capita adult educational equivalent (12.2%).

The North West Zone also has the highest percentage of male headed (86.3%) and female headed non-farming households (89.1%) with low per capita adult educational equivalent and the least percentage of male (3.5%) and female headed (4.1%) non-farming households with high per capita adult educational equivalent Non-farming households that are headed by males in the South-West Zone have the least percentage (56.9%) of households with low per capita adult educational equivalent and the highest (19.2%) percentage of households with high per capita adult educational equivalent. The South-South Zone has the least percentage of female headed households (56.4%) with the low per capita adult educational equivalent for the non-farming households. In addition, the South West Zone has the highest percentage (13.9%) of non-farming households with high per capita adult educational equivalent that are female headed.

The result therefore indicates that the female headed households have lower educational attainment when compared with the male headed households in most of

the six Geo-political Zones in the country. There is therefore, the need to invest more on educating the females and creating awareness on the importance of educating the female child. This will help to build up their human capital base and level of technical know-how. The result further reveals that non-farming households have enhanced educational attainment than farming households. This might be due to the fact that most farming households are known to be vulnerable to poverty thus limiting their level of investment in education.

Table 10 presents the result of the ratio of household members that participate in politics and decision-making. The result indicates that the male gender group seems to be more active in politics and in decision-making for the rural households with majority of the male headed having lower percentage of households with low (<0.33) participatory ratio in politics and decision-making (91.2%) when compared with the female headed households (91.8%).

The result further indicates that the male gender group also has lower percentage of households with low participatory ratio in politics and decision making for farming (92.6%) and non-farming household (91.5%) dichotomization than female headed. The result therefore implies that male headed households seem to be more active in politics and in decision making for rural households irrespective of whether they are farming or non-farming activities.

Across the Geo-political Zones, the South South Zone has the highest percentage of households with low level of participation in politics and decision making for both the male and female households with 92.8 and 94.8 percent respectively while the North Central Zone has the least percentage of households with low participatory ratio in politics and decision making for both male headed and female headed households with 89.3 and 90.5 percent respectively for the rural households as a whole.

The result further shows that the South-South Zone has the highest male (94.2%) and female (95%) headed households for the farming households and also for the non-farming households with the male headed households having 95.3% and 95.6% having low level of participation in politics and decision-making. The North-Central Zone has the least percentage of male (90.4%) and female headed (91.2%) for farming

households. The North-Central Zone also has the least percentage of male (89%) and female headed (90.7%) households with low level of participation in politics and decision making among the non-farming households.

The result indicates that the non-farming households are more active in politics and decision-making when compared with the farming households. They are therefore able to influence some policies to their own advantage that will help in improving their welfare than the farming households. The result also implies that the female gender groups are marginalized from participation in politics and decision-making at various levels ranging from the household to the federal and they generally have limited decision-making authority. This is further confirmed by the result of recent statistics that shows that only 6% of ministerial and sub-ministerial officials in Nigeria are women (Population Reference Bureau, 2008).

The result of the decomposition of access to health care service delivery by gender is presented in Table 11. The result shows that female headed households have enhanced access (9.6%) to health care service delivery when compared with the male headed households (8.5%). The result further shows that the female headed households also have higher percentage (6.8% and 14.4%) of households with high access to health care service delivery for both farming and non-farming households (6.0% and 7.3%) than their male counterpart.

The result also indicates that the North West Zone has the highest percentage (85.5%) of male headed households with low level of access to health care service delivery and the least percentage (3.1%) of rural households with high access to health care service delivery across the geo-political zones. The South-West Zone has the least percentage (46.1%) of households with low access to health care service delivery and the highest percentage (13.7%) of households with high access to health care service delivery. For the female headed households, the North-East Zone has the highest percentage (81.8%) of households with low level of access to health care service delivery and the least percentage of households with high access to health care service delivery. The South-West Zone has the least percentage (49.0%) of households with low access to health care service delivery and the highest percentage (11.9%) of households with high access to health care service delivery

The result of farming and non-farming household dichotomisation further shows that the North West Zone has the highest percentage (90%) of male headed households with low level of access to health care service delivery and the least percentage (1.5%) of households with low level of access to health care service delivery while the North East Zone has the highest percentage (88.9%) of female headed households with low level of access to health care service delivery and the least percentage (3.0%) of households with high access to health care service delivery for the farming households. For non-farming households, the North West Zone also has the highest percentage of male (82.2%) and female (75.8%) headed households with low level of access to health care service delivery while the North West Zone and the North East Zone have the least percentage of households with high access to health care service delivery for both male headed households (4.3%) and female headed households (9.5%). The South West Zone has the least percentage of male (46.7%) and female headed (50.1%) households for households whose household heads are into farming activities and also the least percentage of male (44.6%) and female headed (48.1%) households for households whose heads are into non-farming activities.

In summary, the result shows that the non- faming households have better access to health care service delivery when compared with households that are into farming since they have higher percentages of households in all the six Geo-political Zones that have high access to health care service delivery which shows that farming households are more vulnerable. Furthermore, female households in the Northern region have better access to heath care service delivery than their male counterparts. This might be due to the awareness that is being created and incentives that is provided for women and children in accessing health care service delivery by both local and state governments and Non-Governmental Organizations in the Northern region of the country coupled with government and non-governmental intervention programmes such as Safe Motherhood Programmes, Expanded Programme on Immunization and Nigeria's Aids Responsive Funds.

Table 9: Household Educational Attainment Decomposition by Gender

Rural Households (Pooled)						
	Male			Female		
Geo-political zones	Low	Average	High	Low	Average	High
North West	85.0	11.4	3.6	89.9	7.2	2.9
North Central	75.4	15.8	8.8	76.4	16.7	6.9
North East	84.4	10.5	5.1	83.7	12.1	4.2
South East	61.9	23.7	14.4	67.0	25.1	7.9
South West	55.3	25.0	19.7	60.9	26.2	12.9
South South	58.4	24.2	17.4	56.6	30.8	12.6
Total	70.1	18.4	11.5	72.4	19.7	7.9
FARMING HOUSEHOLDS						
North West	87.9	8.9	3.2	91.8	4.8	3.4
North Central	75.1	17.5	7.4	76.1	19.2	4.7
North East	86.2	9.5	4.3	85.4	10.9	3.7
South East	63.7	28.5	7.8	65.5	28.2	6.3
South West	58.8	24.8	16.4	61.7	26.1	12.2
South South	59.9	24.5	15.6	56.9	32.0	11.1
Total	71.9	19.0	9.1	72.9	20.2	6.9
NON-FARMING HOUSEHOLDS						
North West	86.3	10.2	3.5	89.1	6.8	4.1
North Central	73.7	18.2	8.1	74.3	16.0	9.7
North East	85.3	9.3	5.4	83.8	11.4	4.8
South East	61.9	27.1	11.0	70.9	21.3	7.8
South West	56.9	23.9	19.2	60.0	26.1	13.9
South South	57.2	25.3	17.5	56.4	30.0	13.6
Total	70.2	19.0	10.8	72.4	18.6	9.0

Source: Author's computation from the 2006 CWIQ data

Table 10: Household Level Participation in Politics and Decision-Making by Gender

RURAL HOUSEHOLDS (POOLED)						
	Male			Female		
Geo-political zones	**Low**	**Average**	**High**	**Low**	**Average**	**High**
North West	90.5	9.5	-	91.5	8.5	-
North Central	89.3	10.6	0.1	90.5	9.5	-
North East	90.9	9.1	-	92.5	7.5	-
South East	91.8	8.2	-	90.3	9.7	-
South West	91.6	8.4	-	91.3	8.7	-
South South	92.8	7.2	-	94.8	5.2	-
TOTAL	91.2	8.8	0.0	91.8	8.2	0.0
FARMING HOUSEHOLDS						
North West	91.8	9.2	-	93.8	7.2	-
North Central	90.4	9.6	-	91.2	8.8	-
North East	93.3	6.7	-	94.1	5.9	-
South East	91.2	8.8	-	92.3	7.7	-
South West	93.5	6.5	-	95.0	5.0	-
South South	95.3	4.7	-	95.6	4.4	-
TOTAL	92.6	7.4	0.0	93.7	6.3	0.0
NON-FARMING HOUSEHOLDS						
North West	90.9	9.1	-	91.8	8.2	-
North Central	89.0	10.9	0.1	90.7	9.2	0.1
North East	89.3	10.7	-	91.3	8.7	-
South East	90.3	9.7	-	93.3	6.7	-
South West	94.0	6.0	-	94.8	5.2	-
South South	95.3	4.7	-	95.4	4.6	-
TOTAL	91.5	9.5	0.0	92.9	7.1	

Source: Author's computation from the 2006 CWIQ data

Table 11: Decomposition of Level of Access to Health Care Service Delivery by Gender

RURAL HOUSEHOLDS (POOLED)						
	Male			Female		
Zone	Low	Average	High	Low	Average	High
NW	85.5	11.4	3.1	76.7	12.8	10.5
NC	67.8	25.0	7.2	58.5	30.7	10.8
NE	83.8	13.0	3.2	81.8	14.0	4.2
SE	55.3	33.2	11.5	60.4	30.4	9.2
SW	46.1	40.2	13.7	49.0	39.1	11.9
SS	52.3	35.5	12.2	57.7	31.3	11.0
TOTAL	65.1	26.4	8.5	64.0	26.4	9.6
FARMING HOUSEHOLDS						
NW	90.0	8.5	1.5	78.9	14.5	6.6
NC	73.2	20.7	6.1	65.7	26.3	8.0
NE	86.3	10.3	3.4	85.9	11.1	3.0
SE	57.3	37.0	5.7	65.8	29.3	4.9
SW	46.7	43.1	10.2	50.1	40.7	9.2
SS	54.2	36.9	8.9	59.5	33.7	6.8
TOTAL	67.9	26.1	6.0	67.7	25.9	6.4
NON-FARMINNG HOUSEHOLDS						
NW	82.2	13.5	4.3	75.8	12.1	12.1
NC	65.4	26.2	8.4	65.4	21.9	12.7
NE	81.1	14.1	4.8	69.9	20.6	9.5
SE	54.3	38.5	7.2	63.3	20.4	16.3
SW	44.6	44.0	11.4	48.1	31.9	20.0
SS	51.3	41.0	7.7	56.0	25.7	18.3
TOTAL	63.2	29.5	7.3	63.1	22.1	14.8

Source: Author's computation from the 2006 CWIQ data

4.2.2: Distribution of Households Level of Access to Non-income Attributes along their household Size

The result for decomposition of rural households by their household size is presented in Appendix 4. The result shows that the mean household size for rural households of the country is 5 irrespective of whether they are farming or non-farming households. Across the Geo-political Zones, the North-East Zone has the highest household size consisting of about 6 members per household while the South-West Zone also has the least household size with about 4 members. The North-West zone has the highest mean household size for both farming and non-farming households while the South-West Zone also the least mean household size in the rural areas of the country. Table 12 also shows that rural households in Nigeria, with 6-10 members in the South-South Zone, have the least percentage (44.5%) of households with low educational attainment and the highest percentage (12.3%) of households with high educational attainment while households with less than six members in the North-West Zone have the highest percentage (89.7%) of households low educational attainment and the least percentage (3.4%) of households with high level of educational attainment.

Decomposition of household size in terms of access to non-income welfare attributes for farming and non-farming households further shows that farming households in the North West Zone that consists of 6-10 members have the highest percentage (95.8%) of households with low educational attainment while households with less than 6 members in the South-South Zone has the least percentage (43.7%) of households with low per adult household educational attainment. For non-farming households in the rural areas of the country, households with more than 10 members in the North-West Zone of rural area of the country have the highest percentage (84.2%) of households with low household educational attainment and households in the rural areas of the South-South Zone of country that have less than 6 members have the least percentage (30%) of households with low household educational attainment.

Households in the North-Central Zone with less than 5 members have the least percentage (90.1%) of households with low participatory ratio in political participation while households with more than 10 members in the South-South Zone have the highest percentage (98.8%) of households with low participatory ratio in politics and decision making. The result further reveals that farming households with

more than 10 members have all their households with low political participation in the rural areas of South-East Zone and South-West zones while non-farming households in the South-South Zone have all their members having low level of participation in politics and decision making. Farming households in the North-Central Zone with less than 6 members have least percentage (91.3%) of households with low participatory ratio in politics and decision making and non-farming households in the North-Central Zone with less than 6 members have the least percentage (86.5%) of households with low participatory ratio in politics and decision-making.

This result therefore implies that non-farming households are more active in politics and decision-making than farming households. It further shows that households with large members are not as actively involved in politics and decision-making when compared with households with less than 6 members. It further shows that households in the northern region of the country are more active in politics and decision-making.

Households with more than 10 members in the North-West Zone have the highest percentage (89.8%) of households with low level of access to health care service delivery and the least percentage (1.3%) of households with high access to health care service delivery while households in the South-West Zone with 6-10 members have the least percentage (45.7%) of households with low access to health care service delivery and the highest percentage (9.7%) of households with high access to health care service delivery. Furthermore, households with more than 10 members in the North East Zone have the highest percentage of farming (89.2%) and non-farming (80.5%) households who have low access to health care service delivery. The South-East Zone has the least percentage (47.1%) of households with low level of access to health care service delivery for farming households among those with 6-10 members, while for the non-farming households; households with less than 6 members have the least percentage (42.3%) of households with low access to health care facilities.

From the result discussed above, it can be inferred that non-farming households have enhanced access to health care service delivery than farming households. In addition, households in the northern region of the country have more of their members with low access to health care service delivery compared with households in the southern region of the country.

Table 12: Decomposition Household Educational Attainment by Household Size

RURAL HOUSEHOLDS (POOLED)									
	≤ 5			6 – 10			> 10		
Zone	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	89.7	6.9	3.4	89.0	8.4	2.6	71.8	22.5	5.7
NC	72.2	19.2	8.6	73.2	24.0	2.8	76.2	19.3	4.5
NE	85.1	10.8	4.1	85.1	12.8	2.1	83.8	12.3	3.9
SE	69.5	24.6	5.9	51.3	40.6	8.1	54.7	41.3	4.0
SW	69.1	21.6	9.3	55.5	33.8	10.7	58.7	31.0	10.3
SS	58.2	32.0	9.8	44.5	43.2	12.3	52.2	36.9	10.9
Total	73.9	19.2	6.9	66.5	27.1	6.4	66.2	27.2	6.6
FARMING HOUSEHOLDS									
	≤ 5			6 – 10			> 10		
Zone	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	94.5	3.9	1.6	95.8	2.4	1.8	83.4	13.3	3.3
NC	75.4	21.0	3.6	76.2	18.3	5.5	82.4	15.8	1.8
NE	85.4	10.0	4.6	86.0	12.5	1.5	89.2	8.1	2.7
SE	56.8	36.6	6.6	61.9	33.3	4.8	83.1	12.0	4.9
SW	68.0	23.1	8.9	53.5	36.8	9.7	60.0	30.0	10.0
SS	43.7	37.5	18.8	48.4	42.6	9.0	62.9	30.0	7.1
Total	70.6	22.0	7.4	70.3	24.3	5.4	76.8	18.2	5.0
NON-FARMING HOUSEHOLDS									
	≤ 5			6 – 10			> 10		
Zone	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	81.1	13.5	5.4	81.0	14.3	4.7	79.5	16.4	4.1
NC	84.5	5.1	10.4	63.6	30.0	6.4	60.8	34.6	4.6
NE	80.0	14.6	5.4	81.1	14.8	4.1	80.5	16.4	3.1
SE	61.1	31.9	7.0	44.5	46.9	8.6	45.5	51.5	3.0
SW	42.3	42.5	15.2	42.8	47.3	9.9	46.8	53.2	-
SS	63.6	30.1	6.3	45.7	45.7	8.6	46.5	50.5	3.0
Total	68.8	23.0	8.2	59.8	33.2	7.0	59.9	37.1	3.0

Source: Author's computation from the 2006 CWIQ data

Table 13: Decomposition of Household's Participatory Ratio in Politics and Decision Making by Household Size

RURAL HOUSEHOLDS (POOLED)									
	≤ 5			6 – 10			> 10		
Zone	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	91.9	8.1	-	93.0	7.0	-	96.6	3.4	-
NC	90.8	9.1	0.1	91.9	8.1	-	95.5	4.5	-
NE	91.8	8.2	-	92.3	7.7	-	97.1	2.9	-
SE	92.1	7.9	-	93.6	6.4	-	97.7	2.3	-
SW	91.5	8.5	-	96.7	3.3	-	98.1	1.9	-
SS	91.4	8.6	-	97.3	2.7	-	98.8	1.2	-
Total	91.6	8.4	0.0	94.1	5.9	0.0	97.3	2.7	0.0
FARMING HOUSEHOLDS									
	≤ 5			6 – 10			> 10		
Zone	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	92.8	7.2	-	98.0	2.0	-	95.0	5.0	-
NC	91.3	8.7	-	96.7	3.3	-	98.2	1.8	-
NE	93.4	6.6	-	98.3	1.7	-	96.0	4.0	-
SE	91.5	8.5	-	92.9	7.1	-	98.0	2.0	-
SW	93.7	6.3	-	97.5	2.5	-	97.5	2.5	-
SS	94.4	5.6	-	97.0	3.0	-	100	-	-
Total	92.9	7.1	0.0	96.7	3.3	0.0	97.4	2.6	0.0
NON-FARMING HOUSEHOLDS									
	≤ 5			6 – 10			> 10		
Zone	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	88.6	11.4	-	98.0	2.0	-	99.2	0.8	-
NC	86.5	13.4	0.1	97.4	2.6	-	98.2	1.8	0.2
NE	89.0	11.0	-	98.3	1.7	-	99.6	0.4	-
SE	89.1	10.9	-	94.3	5.7	-	100	-	-
SW	91.2	8.8	-	97.9	2.1	-	100	-	-
SS	93.5	6.5	-	96.2	3.8	-	99.7	0.3	-
Total	89.7	10.3	0.0	97.0	3.0	0.0	99.5	0.5	0.0

Source: Author's computation from the 2006 CWIQ data

Table 14: Decomposition of Household's Access to Health Care Service Delivery by Household Size

RURAL HOUSEHOLDS (POOLED)									
	≤ 5			6 – 10			> 10		
Zone	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	89.2	8.8	2.0	88.5	9.0	2.5	76.5	21.9	1.6
NC	78.1	14.8	7.1	70.8	24.3	4.9	71.0	24.1	4.9
NE	85.6	10.6	3.8	85.4	13.1	1.5	89.8	8.9	1.3
SE	65.1	29.0	5.9	47.5	45.6	6.9	50.7	40.3	9.0
SW	46.6	42.6	10.8	45.7	44.6	9.7	49.5	40.5	10.0
SS	56.1	36.6	7.3	51.0	39.7	9.3	51.9	37.1	11.0
Total	70.1	23.7	6.2	64.8	29.4	5.8	64.9	28.8	6.3
FARMING HOUSEHOLDS									
	≤ 5			6 – 10			> 10		
Zone	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	89.5	8.8	1.7	88.5	9.0	2.5	76.5	21.9	1.6
NC	78.1	12.4	9.5	70.8	24.3	4.9	71.0	24.1	4.9
NE	85.6	10.6	3.8	85.4	13.1	1.5	89.2	8.1	2.7
SE	63.9	25.8	10.3	47.1	47.7	5.2	52.4	47.6	-
SW	62.2	26.2	11.6	51.6	38.9	9.5	60.0	40.0	-
SS	66.1	26.0	7.9	51.2	39.5	9.3	87.5	12.5	-
Total	74.2	18.3	7.5	65.8	28.7	5.5	72.8	25.7	1.5
NON-FARMING HOUSEHOLDS									
	≤ 5			6 – 10			> 10		
Zone	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	81.1	13.5	5.4	81.0	14.3	4.7	79.5	16.4	4.1
NC	84.5	5.1	10.4	63.6	30.0	6.4	60.8	34.6	4.6
NE	80.6	14.0	5.4	81.1	14.8	4.1	80.5	16.4	3.1
SE	61.1	31.9	7.0	44.5	46.9	8.6	45.5	49.5	5.0
SW	42.3	42.5	15.2	42.8	47.3	9.9	46.8	53.2	-
SS	63.6	30.1	6.3	45.7	45.7	8.6	46.5	52.5	1.0
Total	68.9	22.8	8.3	59.8	33.2	7.0	59.9	37.1	3.0

Source: Author's computation from the 2006 CWIQ data

4.2.3: Distribution of Household by Age of Household Heads

The average age of household heads across the six Geo-political Zones in the rural areas of Nigeria as a whole and farming and non-farming households dichotomized are presented in Appendix 5. The result shows that the overall mean age of rural household heads in Nigeria is 47 years. The South East Zone has the highest mean age for the rural areas in general and irrespective of whether they are farming or non-farming households with mean ages of 55, 56 and 57 years respectively. The North West Zone has the least mean age of 44 years for the rural areas of the country while the North East Zone also has the least mean age of 44 years for both farming and non-farming households. This implies that the rural household heads are in their active age although, almost outgrowing it which will have negative implications on their level of ability to adoption innovation. In addition, life expectancy is higher among households in the Southern region of the country than households in the Northern regions of the country.

Tables 15 to 17 presents the result of decomposition of level of access of households to non-income welfare attributes by age of household heads. The result reveals that household heads in the rural area of the North West Zone of the country that are older than 60 years of age have the highest percentage (93.0%) of households with low level of per adult educational attainment and households with the least percentage of households with high percentage (1.4%) of low level of per adult educational attainment. Households whose household heads are younger than 31 years of age in the South-South Zone have least percentage (52.8%) of households with low level of per adult educational attainment while the South-West Zone has the highest percentage (15.7%) of households with high level of per adult equivalent educational attainment.

The result further indicates that farming and non-farming households in the rural areas of the North West Zone whose household heads are older than 60 years of age have the highest percentage of households with low per adult educational attainment with 95.8% and 83.9% respectively. In addition, farming households in the North-West Zone and Non-farming households in the North-East Zone whose household heads are older than 60 years of age also have the least percentage of households

Furthermore, farming households in the South-West Zone whose household heads are not older than 30 years of age have the least percentage (51.2%) of households with low level of per adult educational attainment and the highest percentage (15.9%) of households with high level of educational attainment. Among non-farming households in the rural areas of the country, household heads that are younger than 31 years in the rural areas of the South-South Zone have the least percentage (30%) of households with low per adult educational attainment and household heads in the South-East zone whose heads are not older than 30 years have the highest percentage (16.7%) of households with high level of educational attainment.

The result therefore indicates that households that are not older than 30 years of age have better educational attainment when compared with other age groups having most of the households with low level of per adult educational attainment. The result further implies that households that are in the Northern region of the country have more households with low level of per adult educational attainment when compared with households in the Southern region of the country. In addition, farming households have lower level of household's educational attainment since most of the farming households have higher percentages of households with low educational attainment while the non-farming farming households have more households with higher level of household educational attainment when compared with farming households in all 6 Geo-political Zones.

The result further shows that household heads that are older than 60 years of age in the South-South Zone have the highest percentage (98.2%) of households with low participatory ratio in politics and decision making. Household heads in the rural areas of the North Central Zone that are younger than 31 years of age have the least percentage (88.6%) of households with low participatory ratio in politics and decision making. Furthermore, farming households whose household heads are between 31 and 60 years of age in the South West Zone and household heads that are older than 60 years of age in the North Central Zone have the highest (97.9%) and least percentages (88.4%) of household's participatory ratio in politics and decision-making respectively. The North Central Zone also has the least percentage (88.8%) of non-farming households with low participatory ratio in politics and decision-making among households whose head is between 31 and 60 years. Households whose

household heads are younger than 31 years of age in the South-South Zone have the highest percentage (98.6%) of non-farming households with low participatory ratio in politics and decision-making.

From the foregoing, it can therefore be implied that household heads that are not older than 30 years of age and are in the Northern region of the country are more actively involved in politics and decision making when compared with households that are in the Southern region of the country that are older than 60 years of age that have more households with low participatory ratio in politics and decision making. Also, farming households in the rural areas of the country generally, have low participatory ratio in politics and decision making than non-farming households since most of the farming households in all the six Geo-political Zones have more of its members with low ratio of participation in politics and decision making than non-farming households.

In terms of access to health care service delivery, household heads that are older than 60 years of age in the North East Zone have the highest percentage (90.6%) of households with low level of access to health care service delivery and the least percentage (0.6%) of households with high level of access to health care service delivery while household heads that are not older than 30 years of age in the South West Zone are the age group with members having the least percentage (43.5%) of households with low access to health care service delivery and the highest percentage (12.9%) of households with high access to health care service delivery in the rural areas of the country.

When further disaggregated into farming and non-farming households, households whose heads are older than 60 years of age in the North-West Zone have the highest percentage of farming households (92.7%) that have low access to health care service delivery. While the North-East Zone has the least percentage (0.1%) of farming households that have high access to health care service delivery. Households in the North-West Zone that are into non-farming activities have the highest percentage (88.5%) of households with low access to health care service delivery and households in the North-East have the least percentage (0.1%) of non-farming households with high access to health care service delivery. Household heads in the South-East Zone that are into farming activities and are not older than 30 years of age have the least

percentage (43.7%) of households with low access to health care service delivery and households in the South West Zone that are not older than 30 years of age have the highest percentage of households with high access to health care service delivery. Non-farming households in the South East Zone whose household heads are also not older than 30 years of age have the least percentage (43.4%) of households with low access to health care service delivery and households with the highest percentage (13.3%) of households with high access to health care service delivery.

The results from the above findings therefore infer that households that are in the Northern region have more households with low access to health care service delivery when compared with households in the Southern region of the country. In addition, households that are being headed by young household heads (younger than 31 years of age) have more households with high level of access to health care service delivery in all the six Geo-political Zones. Also, households that are into farming activities in all the six Geo-political Zones in the rural areas of the country have higher percentage of households with low access to health care service delivery when compared with non-farming households who have higher percentage of households with high access to health care service delivery.

Table 15: Household Educational Attainment decomposition by Age of Household Heads

RURAL HOUSEHOLDS									
Zone	**0 – 30**			**31 – 60**			**> 60**		
	Low	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	89.3	7.9	2.8	89.2	7.6	3.2	93.0	5.5	1.4
NC	65.0	25.0	10.0	70.3	21.3	8.0	83.0	15.0	2.0
NE	83.2	12.9	3.9	85.5	12.4	2.1	90.5	8.8	0.8
SE	51.2	34.9	13.9	58.7	34.2	7.1	75.0	20.4	4.6
SW	54.4	29.9	15.7	60.5	28.9	10.6	78.3	16.6	5.1
SS	52.8	35.0	12.2	51.3	37.5	11.2	63.5	29.8	6.7
Total	66.0	24.3	9.7	69.3	23.7	7.0	80.6	16.0	3.4
FARMING HOUSEHOLDS									
Zone	**0 – 30**			**31 – 60**			**> 60**		
	Low	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	93.9	4.8	1.3	92.7	5.6	1.7	95.8	3.6	0.6
NC	69.1	23.6	7.3	75.8	19.7	4.5	84.7	14.1	1.2
NE	84.7	12.4	2.9	85.1	11.9	3.0	91.6	7.5	0.9
SE	52.8	36.1	11.1	61.0	32.8	6.2	76.7	19.9	3.4
SW	51.2	32.9	15.9	58.9	31.1	10.0	79.1	16.1	4.8
SS	69.1	23.6	7.3	75.8	19.7	4.5	84.7	14.1	1.2
Total	70.1	22.3	7.6	74.9	20.1	5.0	85.4	12.6	2.0
NON-FARMING HOUSEHOLDS									
Zone	**0 – 30**			**31 – 60**			**> 60**		
	Low	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	80.1	14.2	5.7	83.2	12.9	3.9	84.2	10.9	4.9
NC	65.2	27.2	7.6	67.8	20.3	11.9	71.0	22.3	6.7
NE	82.4	13.1	4.5	83.5	12.6	3.9	90.0	9.4	0.6
SE	48.0	35.3	16.7	49.5	41.1	9.4	51.5	45.5	3.0
SW	52.0	36.6	11.4	57.9	38.8	3.3	74.5	20.9	4.6
SS	30.0	60.0	10.0	55.1	33.4	11.5	52.7	43.6	3.7
Total	59.6	31.1	9.3	66.2	26.5	7.3	70.7	25.4	3.9

Source: Author's computation from the 2006 CWIQ data

Table 16: Decomposition of Household's Participatory Ratio in Politics and Decision making by Age of Household Heads

RURAL HOUSEHOLDS									
Zone	**0 – 30**			**31 – 60**			**> 60**		
	Low	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	93.7	6.3	-	96.1	3.9	-	96.3	3.7	-
NC	88.6	11.4	-	94.7	5.3	-	93.5	6.5	-
NE	92.0	8.0	-	95.3	4.7	-	97.0	3.0	-
SE	92.5	7.5	-	96.4	3.6	-	97.2	2.8	-
SW	93.8	6.2	-	97.9	2.1	-	96.7	3.3	-
SS	94.0	6.0	-	98.1	1.9	-	98.2	1.8	-
Total	92.4	7.6	0.0	96.4	3.6	0.0	96.5	3.5	0.0
FARMING HOUSEHOLDS									
Zone	**0 – 30**			**31 – 60**			**> 60**		
	Low	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	95.4	4.6	-	97.8	2.2	-	96.7	3.3	-
NC	88.4	11.6	-	94.9	5.1	-	93.6	6.4	-
NE	90.3	9.7	-	96.7	3.3	-	96.8	3.2	-
SE	89.2	10.8	-	90.9	9.1	-	91.2	8.8	-
SW	94.0	6.0	-	97.9	2.1	-	91.3	8.7	-
SS	92.9	7.1	-	94.7	5.3	-	94.5	5.5	-
Total	91.7	8.3	0.0	95.5	4.5	0.0	94.0	6.0	0.0
N0N-FARMING HOUSEHOLDS									
Zone	**0 – 30**			**31 – 60**			**> 60**		
	Low	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	92.2	7.8	-	96.6	3.4	-	96.0	4.0	-
NC	88.8	11.1	0.1	94.8	5.2	-	94.0	6.0	-
NE	93.1	6.9	0.0	97.3	2.7	-	96.1	3.9	-
SE	89.7	10.3	-	99.0	1.0	-	90.3	8.8	-
SW	93.6	5.4	-	94.3	5.7	-	90.5	9.5	-
SS	94.7	5.2	0.1	95.4	4.6	-	95.6	4.4	-
Total	92.0	8.0	0.0	96.2	3.8	0.0	93.8	6.2	0.0

Source: Author's computation from the 2006 CWIQ data

Table 17: Decomposition of Household's Access to Health Care Service Delivery by Age of Household Heads

RURAL HOUSEHOLDS									
Zone	**0 – 30**			**31 – 60**			**> 60**		
	Low	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	82.4	13.9	3.7	85.1	11.4	3.5	89.8	8.6	1.6
NC	71.7	17.1	11.2	66.3	26.5	7.2	74.6	21.0	4.4
NE	79.9	16.0	4.1	83.9	12.7	3.4	90.6	8.8	0.6
SE	43.7	50.0	6.3	54.8	38.6	6.6	70.0	26.4	3.6
SW	43.5	43.6	12.9	66.4	22.7	10.9	50.6	41.3	8.1
SS	50.2	39.6	10.2	52.3	38.6	9.1	60.6	32.0	7.4
Total	61.9	30.0	8.1	68.1	25.1	6.8	72.7	23.0	4.3
FARMING HOUSEHOLDS									
Zone	**0 – 30**			**31 – 60**			**> 60**		
	Low	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	88.5	9.5	2.0	89.7	8.7	1.6	92.7	6.7	0.6
NC	64.7	24.8	10.5	85.7	8.7	5.6	74.8	21.2	4.0
NE	81.0	15.9	3.1	91.3	5.5	3.2	91.9	8.0	0.1
SE	43.7	50.0	6.3	54.8	38.6	6.6	70.0	26.4	3.6
SW	49.2	38.5	12.3	50.1	41.3	8.6	48.1	43.8	8.1
SS	53.0	37.7	9.3	56.0	36.7	7.3	60.6	32.3	7.1
Total	63.4	29.4	7.2	71.2	23.3	5.5	73.0	23.1	3.9
N0N-FARMING HOUSEHOLDS									
Zone	**0 – 30**			**31 – 60**			**> 60**		
	Low	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
NW	78.6	16.0	5.4	81.3	13.6	5.1	88.5	9.0	2.5
NC	59.3	27.6	13.1	62.5	28.9	8.6	74.7	20.5	4.8
NE	77.5	17.4	5.1	81.0	13.9	5.1	87.4	10.3	2.3
SE	43.4	43.3	13.3	49.7	42.9	7.4	67.8	26.7	5.5
SW	45.9	40.9	13.2	43.0	45.1	11.9	49.8	41.4	8.8
SS	63.6	30.1	6.3	45.7	45.7	8.6	46.5	28.6	5.9
Total	61.4	29.2	9.4	60.5	31.7	7.8	69.2	22.8	5.0

Source: Author's computation from the 2006 CWIQ data

4.2.4: Household Head Distribution by Marital Status

The result of the distribution of rural household heads by their marital status is presented in appendices 6-8. In the rural areas of the country, monogamy is practised by the largest proportion of the population in the country. Across the six Geo-political Zones, it is widely practised in North-West Zone and least practiced in the South West Zone with 65.5 and 52.3% respectively. Polygamy is mostly practised in the rural areas of the country generally by 33.8% of the households in North-East Zone irrespective of whether they are farming or non-farming households with 34 and 32.5 percent respectively. It is least practised in the South-East Zone with 6% for households in rural Nigeria generally. The South-East Zone also has the least percentage of farming and non-farming households practising polygamy with 6.5 and 5.2 percent respectively.

Table 18 presents the result of household education attainment by the marital status of household heads for households in the rural areas of the country at large. The result shows that household heads in the North East Zone who are polygamists have the highest percentage (91.8%) of households with low educational attainment and also have the least percentage (1%) of households with high educational attainment. About fifty percent of households in the South East Zone whose household heads are single have low per capita adult household educational attainment while households in the South West Zone whose household heads are also single have the highest percentage (22.4%) of household heads with high per capita adult household educational attainment.

With respect to farming and non-farming households, households in the North East Zone of the country that are headed by polygamists have the highest percentage (91.9%) of households that have low per adult household educational attainment and the least percentage of households with high per capita adult household educational attainment, the households whose household heads are single in the South West Zone have the least percentage (51.6%) of households with low per adult household educational attainment for farming households and the highest percentage of households with high per adult household educational attainment. The North West Zone has the highest percentage (91.4%) of households that have low level of household educational attainment and households with the least percentage of

households with high per adult household educational attainment while the South-South Zone has the least percentage (46.1%) of households with low level of household educational attainment for the non-farming households.

The result further shows that the level of household educational attainment is least among households whose household heads are practising polygamy in the rural areas of the country when compared with other marital status group and it is highest among households whose household heads are single. This might be due to the fact that polygamous homes tend to have larger household size which will increase household expenditure and invariably reduce the amount that they can invest on education.

In terms of disaggregating household marital status by their level of participation in politics and decision making, households in the rural areas of the country households whose household heads are single in the North Central zone have the least percentage (72.3%) of households that have low participatory ratio in politics and decision making. While households whose household heads are polygamists in the South-South Zone have the highest percentage (99.1%) of households with low ratio of members that participates in politics and decision making.

When stratified into farming and non-farming households, farming households in the rural areas of the country that are headed by polygamists in the South-South Zone have the highest percentage (98.2%) of households with low ratio of members that participates in politics and decision making while households whose household heads are single in the North Central Zone have the least percentage (74.8%) of households that have low participatory ratio in politics and decision making. Households whose household heads are single in the North Central Zone also have the least percentage (69.7%) of households with low participatory ratio in politics and decision-making for the non-farming households while households whose households head are polygamists have the highest percentage (97%) of households having low participatory ratio in politics and decision-making.

In terms of decomposition of rural households in Nigeria's level of access to health care service delivery by their marital status, the result shows that households whose household heads are polygamists and are in the North East Zone of the country have

the highest percentage (91.3%) of households with low access to health care service delivery. The result shows that North East Zone has households whose household heads are divorced/widow having the highest percentage (87.3%) of households with low level of access to health care service delivery and households whose head are single in the South West Zone has the least percentage (40.2%) of households with low level of access to health care service delivery for the farming households. For the non-farming households, households that are polygamous in the North East Zone have the largest percentage (87.7%) of households with low access to health care service delivery and households in the South West Zone whose household heads are single also have the least percentage (37.3%) of households with low level of access to health care service delivery.

From the above it can therefore be inferred that households who are headed by polygamists are the group that have the least access to health care service delivery when compared with other marital status group.

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Table 18: Household Educational Attainment Decomposition by Marital Status for Rural Household

Zone	Single			Monogamous			Polygamous			Informal			Divorced / Widow		
	Low	Average	High	Low	Average	High	Low	Average	High	Low	Average	High	Low	Average	High
NW	66.1	19.6	14.3	87.6	6.2	6.2	89.5	5.0	5.5	80.0	10.0	10.0	86.8	8.1	5.1
NC	52.0	27.7	20.3	72.6	20.4	7.0	80.2	16.8	3.0	42.9	53.1	4.0	74.1	20.0	5.9
NE	56.9	27.5	15.6	82.0	12.8	5.2	91.8	7.2	1.0	75.0	20.0	5.0	83.8	12.3	3.9
SE	50.0	30.4	19.6	58.4	34.4	7.2	73.7	23.4	2.9	60.0	33.3	6.7	73.8	22.2	4.0
SW	51.6	26.0	22.4	61.5	29.6	8.9	69.6	24.4	6.0	63.8	31.2	5.0	69.3	22.9	7.8
SS	51.2	30.5	18.3	52.1	37.2	10.7	51.3	39.6	9.1	56.2	37.5	6.3	66.1	31.1	2.8
Total	54.6	27.0	18.4	69.0	23.5	7.5	76.0	19.4	4.6	63.0	30.8	6.2	75.7	19.4	4.9

Source: Author's computation from the 2006 CWIQ data

Table 19: Household Educational Attainment Decomposition by Marital Status for Farming Household and Non-Farming Households

Farming Household															
	Single			Monogamous			Polygamous			Informal			Divorced / Widow		
Zone	Low	Ave	High	Low	Ave	High	Low	Average	High	Low	Average	High	Low	Average	High
NW	64.9	21.6	13.5	85.2	12.1	2.7	89.4	10.0	0.6	-	-	-	90.8	6.9	2.3
NC	55.5	29.1	15.4	77.6	18.4	4.0	83.6	15.1	1.3	66.7	33.3	0.0	-	-	-
NE	59.8	27.8	12.4	86.6	10.9	2.5	91.9	6.9	1.2	-	-	-	88.7	8.1	3.2
SE	52.6	27.0	20.4	63.0	30.5	6.5	76.3	21.9	1.8	60.0	33.3	6.7	86.6	10.3	3.1
SW	51.6	26.0	22.4	61.5	29.6	8.9	69.6	24.4	6.0	68.8	31.2	0.0	69.3	22.9	7.8
SS	56.3	33.3	10.4	57.3	34.4	8.3	64.3	29.2	6.5	65.2	31.8	3.0	65.6	28.6	5.8
Total	56.8	27.4	15.8	71.8	22.7	5.5	79.2	17.9	2.9	65.2	32.4	2.4	80.2	15.4	4.4
NON-FARMING HOUSEHOLDS															
	Single			Monogamous			Polygamous			Informal			Divorced / Widow		
Zone	Low	Ave	High	Low	Ave	High	Low	Average	High	Low	Average	High	Low	Average	High
NW	59.7	28.9	11.4	84.7	10.8	4.5	91.4	6.7	1.9	90.0	10.0	0	85.0	8.6	6.4
NC	46.8	36.3	16.9	67.2	22.5	10.3	77.4	17.8	4.8	48.4	51.6	0	73.6	21.5	4.9
NE	55.6	27.3	17.1	83.3	13.4	3.3	83.3	7.4	9.3	66.7	33.3	0	83.8	10.5	5.7
SE	52.4	30.2	17.4	58.9	34.0	7.1	65.4	25.6	9.0	55.0	28.3	16.7	71.1	23.0	5.9
SW	50.6	27.2	22.2	62.5	27.2	10.3	64.7	23.6	11.7	58.7	37.9	3.4	75.9	16.6	7.5
SS	46.1	33.9	20.0	48.2	39.3	12.5	51.4	35.9	12.7	53.1	39.5	7.4	67.6	23.8	8.6
Total	51.9	30.6	17.5	67.5	24.5	8.0	72.3	19.5	8.2	62.0	33.4	4.6	76.2	17.3	6.5

Source: Author's computation from the 2006 CWIQ data

Table 20: Decomposition of Participatory ratio in Politics and Decision Making by marital status for Rural Households

Zone	Single			Monogamous			Polygamous			Informal			Divorced / Widow		
	Low	Average	High	Low	Average	High	Low	Average	High	Low	Average	High	Low	Average	High
NW	77.8	22.2	0.0	96.5	3.5	0.0	98.3	1.7	0.0	80.0	20.0	0.0	82.9	17.1	0.0
NC	72.3	27.7	0.0	93.8	6.2	0.0	97.5	2.5	0.0	85.1	14.9	0.0	85.4	14.6	0.0
NE	77.9	22.1	0.0	97.3	2.7	0.0	98.7	1.3	0.0	75.0	25.0	0.0	82.6	17.4	0.0
SE	86.6	13.4	0.0	97.4	2.6	0.0	98.8	1.2	0.0	91.7	8.3	0.0	88.9	11.1	0.0
SW	89.1	10.9	0.0	98.4	1.6	0.0	99.0	1.0	0.0	90.0	0.0	0.0	85.4	14.6	0.0
SS	92.0	8.0	0.0	98.5	1.5	0.0	99.1	0.9	0.0	96.9	3.1	0.0	93.8	6.2	0.0
Total	82.6	17.4	0.0	97.0	3.0	0.0	98.6	1.4	0.0	86.5	13.5	0.0	86.5	13.5	0.0

Source: Author's computation from the 2006 CWIQ data

Table 21: Ratio of Household Members that Participates in Politics and Decision Making by Marital Status for Farming and Non-Farming Households

Farming Households																
	Single			Monogamous			Polygamous			Informal			Divorced / Widow			
Zone	Low	Ave	High	Low	Average	High	Low	Average	High	Low	Average	High	Low	Average	High	
NW	80.8	19.2	-	83.8	16.2	-	94.6	5.4	-	-	-	-	97.2	2.8	-	
NC	69.7	30.3	-	86.0	14.0	-	93.2	6.8	-	-	-	-	98.2	1.8	-	
NE	71.7	28.3	-	86.8	13.2	-	93.9	6.1	-	-	-	-	83.3	16.7	-	
SE	84.4	15.6	-	91.8	8.2	-	95.5	4.5	-	93.3	6.7	-	89.0	11.0	-	
SW	88.3	11.7	-	95.2	4.8	-	97.4	2.6	-	98.0	2.0	-	88.3	11.7	-	
SS	89.3	10.7	-	94.9	5.1	-	98.2	2.8	-	97.5	2.5	-	92.0	7.2	-	
Total	80.7	9.3	0.0	89.8	10.2	0.0	95.5	4.5	0.0	96.3	3.7	0.0	91.3	8.7		
Non-Farming Households																
	Single			Monogamous			Polygamous			Informal			Divorced / Widow			
Zone	Low	Ave	High	Low	Average	High	Low	Average	High	Low	Average	High	Low	Average	High	
NW	75.5	24.5	-	86.0	14.0	-	88.0	12.0	-	-	-	-	84.1	15.9	-	
NC	74.8	25.2	-	85.6	14.3	0.1	86.8	13.2	-	81.8	18.2	-	87.5	12.3	0.2	
NE	81.1	18.5	0.4	87.6	12.4	-	88.6	11.4	-	98.0	2.0	-	81.8	18.2	-	
SE	88.0	12.0	-	91.1	8.9	-	93.0	7.0	-	92.0	8.0	-	88.9	11.1	-	
SW	89.6	10.4	-	95.5	4.5	-	96.4	3.6	-	95.5	5.0	-	85.4	14.6	-	
SS	93.6	6.3	0.1	95.6	4.4	-	97.0	3.0	-	96.3	3.7	-	94.5	5.5	-	
Total	83.8	16.2	0.0	90.2	9.8	0.0	91.6	8.4	0.0	92.6	7.4	0.0	87.0	13.0	0.0	

Source: Author's computation from the 2006 CWIQ data

Table 22: Decomposition of Level of Access to Health Care Service Delivery by Marital Status for Rural Households

Zone	Single			Monogamous			Polygamous			Informal			Divorced / Widow		
	Low	Ave	High	Low	Average	High	Low	Average	High	Low	Average	High	Low	Average	High
NW	56.3	28.8	14.9	84.1	12.2	3.7	84.9	9.1	1.5	100	-	-	80.9	13.8	5.3
NC	45.2	40.2	14.6	68.1	24.8	7.1	74.3	21.9	3.8	71.4	14.3	14.3	65.9	27.3	6.8
NE	55.6	29.9	14.5	83.5	13.5	3.0	91.3	8.0	0.7	75.0	25.0	-	83.2	12.4	4.4
SE	51.7	30.7	17.6	56.0	36.7	7.3	66.8	31.3	1.9	41.7	50.0	8.3	65.3	29.4	5.3
SW	40.2	36.9	22.9	45.6	42.9	11.5	47.9	42.3	9.8	60.0	35.6	4.4	50.4	41.7	7.9
SS	48.0	34.7	17.3	52.9	37.9	9.2	52.1	38.6	9.3	53.5	39.5	7.0	58.5	34.2	7.3
TOTAL	49.5	33.5	17.0	65.0	28.0	7.0	69.6	25.2	4.5	67.0	24.5	8.5	67.4	26.4	6.2

Source: Author's computation from the 2006 CWIQ data

Table 23: Decomposition of Level of Access to Health Care Service Delivery by Marital Status for Farming and Non-farming households

Farming households															
	Single			Monogamous			Polygamous			Informal			Divorced / Widow		
Zone	Low	Average	High	Low	Average	High	Low	Average	High	Low	Average	High	Low	Average	High
NW	59.4	28.4	12.2	89.2	8.9	1.9	92.1	7.3	0.6	-	-	-	86.2	10.0	3.8
NC	42.3	38.3	19.4	71.0	23.3	5.7	75.3	21.0	3.7	86.0	14.0	-	68.6	26.8	4.6
NE	56.1	30.5	13.4	84.8	12.5	2.7	91.6	7.3	1.1	-	-	-	87.3	9.5	3.2
SE	47.4	44.2	8.4	56.2	37.8	6.0	68.5	29.2	2.3	50.0	50.0	-	66.5	29.9	3.6
SW	40.2	46.8	13.0	48.2	42.4	9.4	51.1	38.0	10.9	75.0	25.0	-	51.7	41.4	6.9
SS	52.1	38.2	9.7	54.1	37.3	8.6	56.3	35.7	8.0	59.1	37.9	3.9	53.4	40.0	6.6
Total	49.6	37.7	12.7	67.3	27.0	5.7	72.5	23.1	4.4	67.5	33.7	1.9	69.0	26.2	4.8
Non-Farming households															
	Single			Monogamous			Polygamous			Informal			Divorced / Widow		
Zone	Low	Average	High	Low	Average	High	Low	Average	High	Low	Average	High	Low	Average	High
NW	54.6	23.5	21.9	79.2	15.2	5.6	86.8	10.9	2.3	60.0	40.0	-	77.9	15.5	6.6
NC	40.4	38.6	21.2	63.3	28.1	8.6	62.7	26.5	10.8	-	-	-	72.7	9.1	18.2
NE	54.2	23.4	22.4	79.6	15.2	5.2	87.7	15.2	5.2	-	-	-	77.9	15.9	6.2
SE	43.4	41.3	15.3	52.9	40.0	7.1	48.8	49.7	-	83.3	16.7	-	87.4	6.8	5.8
SW	37.3	39.8	22.9	45.3	43.0	11.7	44.5	46.4	9.1	51.7	41.4	6.9	49.8	41.8	8.4
SS	43.8	40.9	15.3	52.9	40.0	7.1	64.8	33.7	1.5	50.0	33.3	16.7	65.2	29.1	5.7
Total	45.6	34.6	19.8	62.2	30.3	7.5	65.8	30.4	5.8	61.3	32.9	11.8	71.8	19.7	8.5

Source: Author's computation from the 2006 CWIQ data

CHAPTER FIVE

NON-INCOME INEQUALITY WELFARE ATTRIBUTES AND ITS DECOMPOSITION AMONG HOUSEHOLDS IN NIGERIA

This section presents education, political participation and health inequality profile among rural households in Nigeria, which was further dichotomised into farming and non-farming households. The inequality profile of the three welfare attributes were further decomposed along various socio-economic characteristics such as age of the household head, household size, gender, marital status and the results presented in this section. In addition the marginal contribution of within and between inequalities to total educational, political participation and health inequalities are also presented in this section.

5.1: Non-Income Inequality Profile among Rural Households in Nigeria.

5.1.1: Educational Inequality Profile

The results of the Gini Coefficients across the Geo-political Zones are presented in tables 24 to 26. The results revealed that educational inequality is high in all the six Geo-political Zones for the rural areas of the country as a whole and when further disaggregated into farming and non-farming households. It is also highest when compared with the other non-income welfare attributes (political participation and health inequalities), which therefore calls for concern by all stakeholders. There is therefore, the need for Government, Private and Non-Governmental Organizations to invest in this sector.The result of the Gini index for household educational attainment in the rural area of the country is 0.5684. When further dichotomized into farming and non-farming households, the result shows that households whose household heads are engaged in farming activity have educational inequality index of 0.6227 while households whose household heads are engaged in non-farming activities have educational inequality index of 0.5795.

The result also indicates that across the Geo-political Zones for the rural areas in the country, North West Zone has the highest educational inequality with Gini index of 0.7773 while the South-South Zone has the least educational inequality with an index of 0.4036. The result further shows that the North West Zone has the highest educational inequality across the Geo-political Zones for both farming and non-

farming households in the rural areas of the country with Gini indices of 0.8259 and 0.7323.

Table 24 further shows that across the Geo-political Zones for farming and non-farming household's dichotomization, the South-West Zone has the least educational inequality for both farming and non-farming households in the rural areas of the countriy with Gini indices of 0.3998 and 0.3967. The result further shows that educational inequality index is higher for farming households than non-farming households in the entire Geo-political Zones in the rural areas of the country. This implies that educational inequality is higher among farming than non-farming households with the North-West Zone having the highest unequal access to educational attainment.

The result of the Generalized entropy indicates that educational inequality among households with low educational attainment (Ge_0) are 0.1635, 0.1648 and 0.1683 for rural households, farming households and non-farming households respectively. Across the Geo-political Zones, the result further reveals that educational inequality at the lower tail is highest in the North-East Zone with indices of 0.1676, 0.1748 and 0.1752 for the rural households as well as for farming and non-farming household's stratification. Educational inequality among households with low educational attainment is least in the South-East Zone for rural, farming and non-farming households with indices of 0.1557, 0.1559 and 0.1552. Levels of dispersion among households with high level of educational attainment are 0.6164, 0.7998 and 0.6851 for rural households as well as for farming and non-farming households dichotomized. Educational inequality among households with high access (Ge_2) to formal education is highest in the North-Central Zone with indices of 0.7772, 0.9340 and 0.9283 for rural, farming, and non-farming households respectively. South-South Zone has the lowest level of dispersion at the upper tail for rural, farming and non-farming households with indices of 0.1964, 0.2750 and 0.2464 respectively. The result of the educational inequality profile conforms to the outcome of the study of Alabi (2009b) on "Redistribution of Education and Distributive Effects of Education Spending in Nigeria". The result shows that the South West Zone dominates primary and secondary school enrolment in Nigeria, with the least school enrolment from North West part of Nigeria. Analysis of school enrolment on the basis of location further reveals that most of the school-age children in urban areas are enrolled.

Table 24: Educational Inequality Profile of Households in Rural Nigeria

RURAL HOUSEHOLDS				
Geo-political Zones	**Gini**	**Ge_0**	**Ge_1**	**Ge_2**
North West	0.6450	0.1660	0.4305	0.7772
North Central	0.6368	0.1637	0.3849	0.7400
North East	0.4725	0.1676	0.2611	0.4495
South East	0.3996	0.1557	0.2334	0.2678
South West	0.4126	0.1639	0.2263	0.2818
South South	0.3565	0.1630	0.2233	0.1964
Total	0.5684	0.1635	0.4093	0.6164
FARMING HOUSEHOLDS				
Geo-political Zones	**Gini**	**Ge_0**	**Ge_1**	**Ge_2**
North West	0.9259	0.1720	0.4319	0.9340
North Central	0.5664	0.1634	0.4243	0.5724
North East	0.7412	0.1748	0.4039	0.9131
South East	0.4267	0.1559	0.2509	0.3013
South West	0.5198	0.1688	0.2942	0.4476
South South	0.4132	0.1712	0.2379	0.2750
Total	0.6227	0.1648	0.4115	0.7998
NON-FARMING HOUSEHOLDS				
Geo-political Zones	**Gini**	**Ge_0**	**Ge_1**	**Ge_2**
North West	0.7323	0.1665	04115	0.9283
North Central	0.5475	0.1714	0.4049	0.5079
North East	0.7302	0.1752	0.4035	0.9209
South East	0.4216	0.1552	0.2484	0.2879
South West	0.5267	0.1642	0.2442	0.4625
South South	0.3954	0.1667	0.2136	0.2464
Total	0.5795	0.1683	0.4067	0.6861

Source: Author's computation from the 2006 CWIQ data

5.1.2: Political Inequality Profile

The Political inequality has the least value of Gini index across the rural areas of the country when compared with the other non-income welfare attributes. This might be due to the violent nature of the political institution in the country. Also, there seems to be "over"- representation of the non-poor in politics of the country and it favours alliances between the non-poor and the poor on terms that are disempowering to the latter. Thus, the non-poor accumulate political advantages both through their domination of the state apparatus, the legal system, and the parties and through their informal social power, as landowners, bankers, employers, media voices, academics, and the controllers of pervasive patron-client relations (Verba 2005).

Table 25 reveals that the disparity in the ratio of participation in politics and decision making shows that political inequality index in the rural area of the country is 0.2316. When stratified into farming and non-farming households, farming households also tend to have higher political inequality with Gini index of 0.2249 when compared with households that are into non-farming activities with political inequality index of 0.2142.The result also indicates that across the Geo-political Zone in the rural areas of the country, political inequality is highest in the South-East Zone with Gini index of 0.2463 and least in the North-Central Zone with Gini index of 0.2097. Across the Geo-political Zones for farming and non-farming households, South-East Zone has the highest political inequality for both farming and non-farming households with indices of 0.2387 and 0.2228. Political inequality is least in the North-Central Zone for both farming and non-farming households with indices of 0.2033 and 0.2084.

The result of the study is consistent with empirical research that the Northerners are more involved in political participation in the country (Yahaya, 1994). Otherwise, the result can be interpreted that the Northerners are the ones that are actively involved in politics and decision making in the country which might drive development and level of access to other non-income welfare attributes. However, there is a negative interaction between the political will and education and health infrastructural development in the Northern region. The result further implies that household who are engaged in farming activities are marginalized from the political system hence they are not involved in the process of policy formulation and implementation process that can bring about development for them and their households. The outcome of the

Generalized entropy index for households with low participatory ratio in the country are 0.1681, 0.2119 and 0.1987 for rural households, farming households and non-farming households respectively. Inequality among households with low participatory ratio in politics and decision making is highest in the North West Zone for rural households, farming households and non-farming households with indices of 0.2185, 0.2188 and 0.2165. It is least in the South West Zone for the rural areas with indices of 0.1007, 0.1439 and 0.1076 respectively for rural households, farming households and non-farming households.

Among households with high participatory ratio in politics and decision making (Ge_2), inequality level is 0.1972, 0.1999 and 0.1963 for rural households as well as farming households and non-farming household's stratification. The result further shows that in terms of dispersion at the upper tail (Ge_2), political inequality is lowest in the North-Central Zone with an index of 0.1785 for households in the rural areas of the country while the South-East Zone has the highest political inequality with an index of 0.2079 for the rural areas of the country.

Table 25: Political Inequality Profile among Rural Households in Rural Nigeria

Geo-political Zones	Gini	Ge_0	Ge_1	Ge_2
North West	0.2226	0.2185	0.1957	0.1866
North Central	0.2097	0.2103	0.1946	0.1785
North East	0.2100	0.1950	0.1954	0.1806
South East	0.2463	0.1221	0.2173	0.2079
South West	0.2384	0.1007	0.2128	0.1951
South South	0.2324	0.1033	0.2099	0.1933
Total	0.2316	0.1681	0.1960	0.1972
FARMING HOUSEHOLDS				
North West	0.2060	0.2188	0.1963	0.1756
North Central	0.2033	0.1952	0.1970	0.1758
North East	0.2115	0.2104	0.2045	0.1790
South East	0.2387	0.2170	0.2203	0.2018
South West	0.2183	0.1439	0.2095	0.1939
South South	0.2103	0.1444	0.2159	0.1921
Total	0.2279	0.2119	0.1998	0.1999
NON-FARMING HOUSEHOLDS				
North West	0.2105	0.2165	0.1912	0.1938
North Central	0.2187	0.1714	0.1849	0.1877
North East	0.2084	0.1552	0.1935	0.1781
South East	0.2228	0.1875	0.2136	0.2133
South West	0.2166	0.1940	0.2094	0.1930
South South	0.2133	0.1076	0.2134	0.1939
Total	0.2142	0.1987	0.1954	0.1963

Source: Author's computation from the 2006 CWIQ data

5.1.2: Health Inequality Profile

Inequality in access to health care facilities among households in the rural areas of the country as well as for farming and non-farming household stratification is as presented in Table 26. The result shows that health inequality index in the rural area of the country is 0.3350. When stratified into farming and non-farming households, the result shows that health inequality is higher among farming households with Gini index of 0.3654 when compared with non-farming households that has health inequality index of 0.3590. Across the Geo-political Zones, the result indicates that health inequality is highest in the North-East Zone when compared with other Zones in the rural areas of the country with Gini index of 0.4038 and least in the South-West Zone for the rural households in the country with Gini index of 0.3076. When stratified into farming and non-farming households, households in the North-East Zone have the highest health inequality index for both farming and non-farming households when compared with other Geo-political Zones in the rural areas of the countries with indices of 0.4388 and 0.4335.

Health inequality is least in the South-West Zone for both farming and non-farming households in the rural areas of the country with Gini index of 0.3116 and 0.3045 respectively. The result therefore indicates that health inequality is higher among farming households when compared with non-farming households in the rural areas of the country. The reason for this is not far-fetched because farming households have been identified to have the highest incidence of poverty. Thus, they found it difficult to access health care services. This is likely to have a negative effect on the productivity and efficiency of farming households.

The result of health inequality further indicates that health inequality is prevalent in the Northern region of the country. The outcome of the analysis is in line with the study of Ityavyar (1998) on "Health service inequalities in Nigeria." The outcome revealed that Geographical inequalities have been the result of uneven development due to the concentration of missionaries in Southern Nigeria for about half a century before extending to Northern Nigeria, and class interests (Ityavyar 1998). In addition, 44% of the Nigerian population in northern Nigeria have 27% of the hospitals while in the Southern States 44% of the population have 72.3% of hospital beds. Therefore, meeting the targets of the millennium development goals in terms of improving

maternal health care, reducing child mortality and curbing the prevalence of other diseases would be a major challenge because it would be difficult to achieve in this region.

Health inequality among households with low access to health care service delivery for rural households as well as for farming and non-farming household's stratification are 0.1971, 0.2035 and 0.1984. The result of the Generalized entropy further shows that across the Geo-political Zones, health inequality is least among households with low access to health care service delivery (lower tail) in the South-West Zone with indices of 0.1810, 1904 and 0.1914 for rural households, farming households and non-farming households. Health inequality is highest at the lower tail in the North-East Zone with an index of 0.2215 0.3471 and 0.2147 respectively for rural households, farming households and non-farming households. The levels of dispersion among rural households that have high access to health care service delivery and across farming and non-farming household dichotomization are 0.4133, 0.4128 and 0.4115.

Furthermore, the result shows that inequality among households with high level of access to health care facilities for rural households, farming households and non-farming households are 0.4128, 0.4133 and 0.4115. Across the Geo-political Zones, health inequality among households with high access to health care service delivery is least in the South-East Zone for rural households as well as for farming and non-farming household dichotomization with indices of 0.3091, 0.3167 and 0.2991. It is highest in the North-East Zone with an index of 0.4566, 0.7594 and 0.4305 for rural households as a whole, farming households and non-farming households respectively.

The result of the generalized entropy therefore implies that inequality whether education, political or health inequality tends to be higher among households that have high educational attainment, high level of participation in politics and decision making and high access to health care service delivery i.e. at the upper tail.

Table 26: Health Inequality Profile of Households in Rural Nigeria

RURAL HOUSEHOLDS				
Geo-political Zones	Gini	Ge_0	Ge_1	Ge_2
North West	0.3925	0.2070	0.3325	0.4393
North Central	0.3887	0.1921	0.3224	0.3989
North East	0.4038	0.2215	0.3417	0.4566
South East	0.3775	0.1914	0.2986	0.3819
South West	0.3017	0.1810	0.2863	0.3091
South South	0.3255	0.1898	0.2895	0.3321
Total	0.3350	0.1971	0.3202	0.4128
FARMING HOUSEHOLDS				
North West	0.4256	0.2844	0.3266	0.4247
North Central	0.4103	0.1924	0.3237	0.3395
North East	0.4388	0.3471	0.3495	0.7594
South East	0.3199	0.1796	0.3124	0.3254
South West	0.3116	0.1904	0.3033	0.3167
South South	0.3190	0.1914	0.3164	0.3189
Total	0.3674	0.2035	0.3269	0.4233
NON-FARMING HOUSEHOLDS				
North West	0.4200	0.2112	0.3081	0.4286
North Central	0.4024	0.1874	0.3076	0.4228
North East	0.4335	0.2147	0.3193	0.4305
South East	0.3149	0.1925	0.2995	0.4082
South West	0.3045	0.1885	0.2846	0.2991
South South	0.3178	0.1919	0.2934	0.3956
Total	0.3590	0.1984	0.3002	0.4115

Source: Author's computation from the 2006 CWIQ data

5.2: Pair Wise Inequality Distribution of Non-Income Welfare Attributes

This section presents the extent of pair-wise inequality measured by the Gini coefficient and the results are presented in tables 27 to 29. The result shows that the educational inequality index decreases across political terciles and increases across health terciles for all the Geo-political Zones for the rural households in general and when further dichotomized into farming and non-farming households. The result suggests that political inequality is high among households with high educational attainment and decreases gradually has household educational attainment increases while health inequality increases as household educational attainment increases, decreases in the middle of the distribution and increases towards the end of the distribution among households in the rural areas in general and irrespective of whether they are into farming and non-farming activities.

The result of the pair wise inequality distribution is further confirmed by the Spearman Rank correlation coefficient calculated in Table 30. The results reveal that generally there is a significant but negative relationship between households educational inequality and political inequality and also low correlation between household educational level and participation in politics and decision making among households in the rural areas of the country and when further dichotomized into farming and non-farming households. The result further shows that there is a significant and positive relationship between household educational attainment and level of household access to health care services. The result also shows that there is a high level of correlation between education and health inequality among the rural households and when also stratified into farming and non-farming households.

Table 27: Inequality Measure Across Per Adult Equivalent Household Educational Attainment across Terciles in Nigeria

Rural Households

	Tercile 1	Tercile 2	Tercile 3
Access to health Care Service Delivery	0.4102	0.3010	0.2644
Ratio of members that participate in politics and decision making	0.2810	0.2120	0.1442

Farming Households

	Tercile 1	Tercile 2	Tercile 3
Access to health Care Service Delivery	0.3992	0.3262	0.2617
Ratio of members that participate in politics and decision making	0.2714	0.2514	0.2198

Non-Farming Households

	Tercile 1	Tercile 2	Tercile 3
Access to health Care Service Delivery	0.3849	0.3216	0.2891
Ratio of members that participate in politics and decision making	0.2674	0.2579	0.1893

Source: Author's computation from the 2006 CWIQ data

Table 28: : Inequality Measure across Ratio of Members that Participates in Politics and Decision Making Terciles in Nigeria

Rural Households

	Tercile 1	**Tercile 2**	**Tercile 3**
Access to health Care Service Delivery	0.2993	0.2814	0.2313
Per Adult Equivalent Household Educational Attainment	0.3213	0.2956	0.2567

Farming Households

	Tercile 1	**Tercile 2**	**Tercile 3**
Access to health Care Service Delivery	0.2891	0.2544	0.2118
Per Adult Equivalent Household Educational Attainment	0.3037	0.2758	0.2157

Non-Farming Households

	Tercile 1	**Tercile 2**	**Tercile 3**
Access to health Care Service Delivery	0.2891	0.2544	0.2118
Per Adult Equivalent Household Educational Attainment	0.3037	0.2758	0.2157

Source: Author's computation from the 2006 CWIQ data

Table 29: **Inequality Measure across Access to Health Care Service Delivery Terciles in Nigeria**

Rural Households

	Tercile 1	**Tercile 2**	**Tercile 3**
Per Adult Equivalent Household Educational attainment	0.2991	0.3291	0.3652
Ratio of Members that Participate in Politics and Decision Making	0.2119	0.2119	0.2322

Farming Households	**Tercile 1**	**Tercile 2**	**Tercile 3**
Per Adult Equivalent Household Educational attainment	0.2871	0.3123	0.3524
Ratio of Members that Participate in Politics and Decision Making	0.1986	0.2086	0.2132

Non-Farming Households

	Tercile 1	**Tercile 2**	**Tercile 3**
Per Adult Equivalent Household Educational attainment	0.2867	0.3112	0.3511
Ratio of Members that Participate in Politics and Decision Making	0.1686	0.1886	0.2716

Source: Author's computation from the 2006 CWIQ data

Table 30: Spear Rank Correlation Analysis of Non-income Welfare Attributes among Households in Rural Nigeria

RURAL HOUSEHOLDS			
	Education	Politics	Health
Education	1.000	-0.075**	0.641**
Politics	-0.075**	1.000	0.304**
Health	0.641**	0.304**	1.000
FARMING HOUSEHOLDS			
	Education	Politics	Health
Education	1.000	-0.041**	0.644**
Politics	-0.041**	1.000	0.121**
Health	0.644**	0.121**	1.000
NON-FARMING HOUSEHOLDS			
	Education	Politics	Health
Education	1.000	-0.016**	0.056**
Politics	-0.016**	1.000	0.010**
Health	0.056**	0.010**	1.000

** indicates significance at 0.01

5.3 Decomposition of Non-Income Welfare Attributes Inequality Index

5.3.1 Decomposition of Educational Inequality Index

The results of the decomposition of Gini index for educational inequality by socio-economic characteristics (such as gender, household size, age and marital status) are presented in tables 31 to 35. The result reveals that among households in the rural areas of the country, educational inequality is higher among the females than the male gender group with an index of 0.5250 and 0.6093 respectively. Dichotomization of educational inequality into farming and non-farming households shows that educational inequality is also higher among the female headed households with indices of 0.6582 and 0.6017 while the male headed households have educational inequality index of 0.6340 and 0.5878 for farming and non-farming households.

The result further reveals that across the rural households in the six Geo-political Zones, educational inequality is highest in the North-West Zone for the male headed households with an index of 0.7782. North-East Zone has the highest educational inequality among the female headed households in the rural areas of the country with an index of 0.7511. Educational inequality is least in the South-South Zone for both male headed and female headed households with indices of 0.3908 and 0.4432 respectively.

Stratification into farming and non-farming households indicates that educational inequality is highest in the North West Zone for farming households that are being headed by male with an index of 0.8260 and it is least in the South-South Zone with Gini index of 0.4006. Farming households that are female headed in the North-West Zone also have the highest educational inequality with an index of 0.8786. It is least in the South-South Zone for the female headed households with an index of 0.4520. For the non-farming households in the rural areas of the country, educational inequality is highest in the North-West Zone whether the non-farming households are being headed by male or female with indices of 0.7318 and 0.7324 respectively. It is least in the South-East Zone for non-farming households for both male headed households and female headed households with an index of 0.3934 and 0.5055

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Decomposition of educational inequality by household size shows that educational inequality is highest among households with more than ten members with Gini index of 0.6113, 0.6406 and 0.5859 for rural households as a whole and when further stratified into farming and non-farming households respectively. Households with less than six members have the least educational inequality among households in the rural areas of the country with

Gini index of 0.5323. The result further shows that households with less than six members also have the least educational inequality for farming and non-farming with Gini indices of 0.5291 and 0.5283.

Across the Geo-political Zones for the rural areas of the country, the decomposition of educational inequality by household size indicates that households in the North-West Zone which consists of more than ten members have the highest educational inequality index of 0.8194. Households in the South-South Zone that consists of less than six members have the least educational inequality index of 0.2753.

The result of the educational inequality decomposition by household size further shows that educational inequality is highest among households with more than ten members in the North-West zone for the rural areas of the country and for both farming and non-farming households dichotomized with indices of 0.8194, 0.8706 and 0.7670. It is least in the South-South Zone among households with more than 10 members for both farming households and non-farming households that reside in the rural area of the country with an index of 0.0129 and 0.0162 respectively.

The reason for this is due to the fact that high household size would increase the household per capita expenditure because the household members would compete for the limited resources that are available for the households. This would therefore lead to a reduction in the amount that household can invest in the education of the household members thereby reducing their level of household educational attainment.

According to Karunaratne (2000), there is the hypothesis that household income usually increases gradually with age of the household head until a certain age. After reaching a peak, it starts to decline. The outcome of the study tends to conform to the above. Rural households that are being headed by household heads who are older than 60 years of age have the highest educational inequality with an index of 0.6368. On the other hand, households that are being headed by household heads that are between 31 and 60 years of age have the least educational inequality index of 0.5831. Farming and non-farming household stratification also shows that households whose household heads are older than 60 years of age have the highest educational inequality with indices of 0.6663 and 0.6283 while household whose household heads are between 31 and 60 years of age have the least educational inequality with indices of 0.6112 and 0.5585

Households that are being headed by household heads that are older than 60 years of age in the North-West Zone have the highest educational inequality for the rural areas and when further stratified into farming and non-farming households with indices of 0.8172, 0.8478 and 0.7879. Educational inequality is least among households whose household heads are not older than 30 years in the South-East Zone for the rural households as well as for farming and non-farming households dichotomization with indices of 0.3604, 0.3763 and 0.3455.

The result of the decomposition of educational inequality by the marital status of household head indicates high level of educational inequality among household heads that are polygamists in the rural area of the country with an index of 0.6639. The result further indicates that the North-East Zone has the highest level of educational inequality among households whose household heads are widows or divorced with an index of 0.7849. Household heads in the South-East Zone whose household heads are single have the least educational inequality with an index of 0.3650.

In addition the result of the decomposition of educational inequality by marital status further indicates high level of educational inequality among households whose household heads are either widowed or separated in the North-West Zone for both farming and non-farming households with an index of 0.8436 for the farming households and 0.7495 for the non-farming households in the rural areas of the country. It is least in the South-West Zone among households whose household heads are practising monogamy with an index of 0.3446 for farming households while households in the South-East Zone whose household heads are also practising monogamous marriage structure have the least educational inequality with an index of 0.3085

Table 31: Decomposition of Educational Inequality Indices by Gender

Geo-political Zones	Male		Female	
	Gini	Population size	Gini	Population size
North West	0.7782	0.9646	0.7393	0.0354
North Central	0.5622	0.8389	0.5322	0.1611
North East	0.7343	0.9344	0.7511	0.0656
South East	0.3991	0.5975	0.5003	0.4025
South West	0.5039	0.6741	0.6077	0.3259
South South	0.3908	0.6138	0.4432	0.3862
Total	0.5250	0.7869	0.6093	0.2131
FARMING HOUSEHOLDS				
Geo-political Zones	**Gini**	**Population size**	**Gini**	**Population size**
North West	0.8260	0.9778	0.8760	0.0222
North Central	0.5665	0.8733	0.5755	0.1267
North East	0.7394	0.9300	0.7880	0.0700
South East	0.4041	0.5956	0.4911	0.4044
South West	0.4990	0.6613	0.5989	0.3387
South South	0.4006	0.6089	0.4520	0.3911
Total	0.6340	0.8021	0.6582	0.1979
NON-FARMING HOUSEHOLDS				
Geo-political Zones	**Gini**	**Population size**	**Gini**	**Populations size**
North West	0.7318	0.9529	0.7324	0.0471
North Central	0.5509	0.8042	0.5665	0.1958
North East	0.7304	0.9373	0.7319	0.0627
South East	0.3934	0.5991	0.5055	0.4009
South West	0.5064	0.6808	0.6125	0.3192
South South	0.4364	0.6169	0.5067	0.3831
Total	0.5878	0.7751	0.6017	0.2249

Source: Author's computation from the 2006 CWIQ data

Table 32: Decomposition of Educational Inequality Indices by Household Size

RURAL HOUSEHOLDS						
	<6		6 – 10		>10	
Geo-political Zones	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.5984	0.3301	0.7140	0.6014	0.8194	0.0686
North Central	0.4878	0.3690	0.4729	0.5589	0.5853	0.0721
North East	0.5951	0.3465	0.6660	0.5943	0.7698	0.0592
South East	0.3129	0.4439	0.3153	0.5227	0.4028	0.0333
South West	0.3701	0.5530	0.3758	0.4264	0.5063	0.0206
South South	0.2753	0.4344	0.3215	0.5507	0.4096	0.0149
Total	0.5323	0.3866	0.5483	0.5619	0.6113	0.0515
FARMING HOUSEHOLDS						
Geo-political Zones	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.5875	0.3120	0.6739	0.6025	0.8706	0.0855
North Central	0.4954	0.3730	0.4718	0.5609	0.5966	0.0661
North East	0.6116	0.3599	0.6656	0.5882	0.7793	0.0519
South East	0.2964	0.4420	0.3249	0.5178	0.4065	0.0403
South West	0.4108	0.5519	0.3715	0.4288	0.4896	0.0193
South South	0.2926	0.4360	0.3257	0.5511	0.4276	0.0129
Total	0.5291	0.3920	0.5628	0.5620	0.6406	0.0460
NON-FARMING HOUSEHOLDS						
Geo-political Zones	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.5875	0.3120	0.6739	0.6025	0.7670	0.0855
North Central	0.4727	0.3647	0.4680	0.5568	0.5664	0.0762
North East	0.5780	0.3373	0.6657	0.5984	0.7626	0.0643
South East	0.3345	0.4457	0.3037	0.5273	0.3979	0.0269
South West	0.3286	0.5536	0.3778	0.4251	0.5148	0.0224
South South	0.2612	0.4333	0.3163	0.5504	0.3967	0.0170
Total	0.5283	0.3820	0.5302	0.5610	0.5859	0.0570

Source: Author's computation from the 2006 CWIQ data

Table 33: Decomposition of Educational Inequality Indices by Age of Household Heads

RURAL HOUSEHOLDS (POOLED)						
	0 – 30		31 - 60		>60	
Geo-political Zones	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.7948	0.1095	0.7663	0.6726	0.8172	0.2179
North Central	0.5643	0.1200	0.5398	0.6053	0.6116	0.2747
North East	0.7446	0.1379	0.7304	0.6478	0.7447	0.2142
South East	0.3604	0.0242	0.3726	0.5038	0.5328	0.4720
South West	0.4792	0.0711	0.4816	0.5043	0.6311	0.4247
South South	0.3923	0.0836	0.3857	0.6120	0.4779	0.3044
Total	0.6310	0.0941	0.5831	0.6035	0.6368	0.3024
FARMING HOUSEHOLDS						
	0 – 30		31 - 60		>60	
Geo-political Zones	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.8643	0.1080	0.8106	0.6762	0.8678	0.2158
North Central	0.5750	0.1258	0.5505	0.6103	0.5863	0.2640
North East	0.7471	0.1361	0.7411	0.6598	0.7428	0.2041
South East	0.3763	0.0233	0.3839	0.5236	0.5166	0.4532
South West	0.4705	0.0684	0.4762	0.5056	0.6272	0.4260
South South	0.4097	0.0787	0.4034	0.6007	0.4595	0.3207
Total	0.6651	0.0940	0.6612	0.6110	0.6663	0.2950
NON-FARMING HOUSEHOLDS						
Geo-political zones	**0 – 30**		**31 – 60**		**>60**	
	Gini	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.7324	0.1108	0.7221	0.6694	0.7879	0.2198
North Central	0.5485	0.1141	0.5199	0.6001	0.6331	0.2858
North East	0.7421	0.1392	0.7224	0.6395	0.7456	0.2212
South East	0.3455	0.0250	0.3561	0.4868	0.5446	0.4882
South West	0.4829	0.0725	0.4843	0.5036	0.6329	0.4239
South South	0.3791	0.0868	0.3728	0.6192	0.4899	0.2940
Total	0.6032	0.0940	0.5585	0.5980	0.6283	0.3080

Source: Author's computation from the 2006 CWIQ data

Table 34: Decomposition of Educational Inequality Indices by Marital Status among rural household in Nigeria

Zones	Single		Monogamous		Polygamous		Informal		Divorced / Widow	
	Gini	Pop size	Gini	Pop size	Gini	Pop size	Gini	Pop size	Gini	Pop size
North West	0.5922	0.0079	0.7814	0.5227	0.7614	0.4174	-	-	0.7841	0.0521
North Central	0.4115	0.0333	0.5631	0.5267	0.5439	0.2390	0.3880	0.0023	0.5818	0.1987
North East	0.5593	0.0216	0.7357	0.5566	0.7223	0.3000	0.3384	0.0007	0.7849	0.1211
South East	0.3650	0.0198	0.3898	0.4467	0.4201	0.0625	0.3947	0.0024	0.5109	0.4686
South West	0.4794	0.0209	0.4928	0.4013	0.4751	0.1593	0.4161	0.0121	0.6341	0.3983
South South	0.4120	0.0409	0.3860	0.4310	0.3829	0.0940	0.3845	0.0392	0.4500	0.3931
Total	0.4538	0.0244	0.5946	0.4878	0.6639	0.2311	0.3964	0.0094	0.5599	0.2473

Source: Author's computation from the 2006 CWIQ data

Table 35: Decomposition of Educational Inequality Indices by Marital Status among Farming and Non-farming Households

Farming Households										
	Single		Monogamous		Polygamous		Informal		Widow/Divorce	
Zones	Gini	Pop size	Gini	Pop size	Gini	Pop size	Gini	Pop size	Gini	Pop size
North West	0.6588	0.0046	0.8328	0.5277	0.7999	0.4275	-	-	0.8436	0.0402
North Central	0.4130	0.0311	0.5691	0.5346	0.5378	0.2414	0.3772	0.0010	0.6022	0.1919
North East	0.5495	0.0212	0.7439	0.5620	0.7224	0.2909	-	-	0.8042	0.1261
South East	0.3770	0.0163	0.3946	0.4369	0.4163	0.0694	0.4576	0.0025	0.5002	0.4749
South West	0.5044	0.0299	0.4874	0.3922	0.4754	0.1549	0.3446	0.0124	0.6131	0.4106
South South	0.4260	0.0390	0.4006	0.4343	0.3786	0.0965	0.3736	0.0262	0.4535	0.4040
Total	0.3890	0.2200	0.6210	0.4940	0.6837	0.2400	0.4631	0.0600	0.5607	0.2390
Non-Farming Households										
	Single		Monogamous		Polygamous		Informal		Widow/Divorce	
Zones	Gini	Pop size	Gini	Pop size	Gini	Pop size	Gini	Pop size	Gini	Pop size
North West	0.5663	0.0109	0.7320	0.5181	0.7214	0.4079	-	-	0.7495	0.0627
North Central	0.4059	0.0357	0.5490	0.5184	0.5447	0.2364	0.3744	0.0037	0.5613	0.2058
North East	0.5641	0.0218	0.7296	0.5529	0.7216	0.3067	0.1179	0.0010	0.7693	0.1176
South East	0.3553	0.0229	0.3845	0.4555	0.4221	0.0564	0.3085	0.0223	0.5186	0.4630
South West	0.4661	0.0285	0.4953	0.4060	0.4747	0.1616	0.4450	0.0118	0.6453	0.3918
South South	0.3989	0.0418	0.3747	0.4289	0.3837	0.0924	0.3853	0.0474	0.4468	0.3896
Total	0.3955	0.2640	0.5716	0.4830	0.6428	0.2240	0.4460	0.0120	0.5585	0.2590

Source: Author's computation from the 2006 CWIQ data

5.3.2: Political Inequality Decomposition

Tables 36 to 40 present the result of the decomposition of Gini Coefficient of political inequality by various socio-economic characteristics. The result shows that political inequality is higher among the female headed households in the rural areas of the country and when further stratified into farming and non-farming households in the rural areas of the country with an index of 0.2252, 0.2134 and 0.2267 respectively.

Across the Geo-political Zones, the result indicates that the South-East Zone has the highest political inequality among the female headed households in the rural areas of the country as a whole as well as disaggregating into farming and non-farming households with indices of 0.2527, 0.2338 and 0.2120 respectively. It is least among the male headed households in the North-Central Zone with an index of 0.2080 for the rural areas of the country and 0.2016 for farming households. Furthermore, it is least in the North-East Zone among the male headed households for the non-farming households in the rural areas of the country with Gini index of 0.2078.

The outcome of the result shows that political participation inequality is highest among the female headed in almost all the geo-political zones when compared with the male headed households in the rural areas of the country at large and irrespective of whether they are into farming and non-farming activities. The high level of political participation inequality among the female headed households shows that the female gender groups are not well represented in the formulation of policies that can bring about development for them.

The result of decomposition of the Gini index of political inequality indicates a high level of inequality among households that have large household size (greater than 10) in the rural areas of the country at large and when disaggregated into farming and non-farming households with an index of 0.2489, 0.2571 and 0.2496 respectively. Political inequality is least among households that consist of less than six members for the rural households as a whole and when further stratified into farming and non-farming households. The political inequality indices are 0.1983, 0.2406 and 0.2023 and they consist of 38.7, 39.2% and 38.2% of the population sizes of rural households and farming and non-farming households dichotomized.

The result further shows that across the Geo-political Zones, households in the North-East Zone with less than six members have the least incidence of political inequality with an index of 0.1824 and they make up about 35% of the population size while households with more than ten members in the South-South Zone have the highest political inequality and they consist of 1% of the population size. The result of the decomposition of the Gini index of the political inequality indicates a high level of political inequality among households that have large household size (that is greater than 10) who make up 4% of the population size with an index of 0.3048 in the South-East Zone for the farming households. Households in the South-South Zone who are into non-farming activities and have more than 10 members have the highest political inequality with an index of 0.3428 for the non-farming households in the rural areas of the country and they make up 1% of the population size. Households with less than 6 members in the North-Central Zone have the least incidence of political inequality for farming households in the rural areas of the country with an index of 0.1759 and they make up 37% population size while the non-farming households in the North East Zone with less than six have the least level of dispersion in participating in politics and decision making with an index of 0.1780 and they consist of 34% of the population size.

Decomposition of political participation inequality by age of household head reveals that political inequality is highest among households whose household head are older than 60 years of age in the rural areas of the country as a whole with an index of 0.2884 and it is least among households whose household heads are not older than 30 years of age with an index of 0.1887. The result for farming and non-farming household stratification shows that inequality is highest among households whose household heads are older than 60 years with indices of 0.2236 and 0.3062. Political inequality is least among households whose household heads are not older than 30 years with indices of 0.1851 and 0.1875.

Across the Geo-political Zones, the result further indicated that the South-East Zone has the highest political participation inequality with an index of 0.3079 among households whose household heads are older than 60 years of age and they consist of 47% of the population size. Furthermore, households whose heads are not older than 30 years and are in the rural areas of the North Central Zone have the least inequality with an index of 0.1779 and they make up 12% of the population size. The result of the stratification of the decomposition of political inequality by age of household heads into farming and non-farming households shows that political inequality is highest among households whose household heads are older

than 60 years in the rural areas of the South-East Zone of the country with an index of 0.2922 and 0.3201 respectively for farming and non-farming households and they make up 45% and 49% of the population size. Households whose household heads are not older than 30 years in the rural areas of the North-Central Zone have the least level of dispersion of household members that participates in politics and decision-making for the farming households with an index of 0.1746 while the rural areas of the North-East zone has the least level of dispersion of household members that participate in politics and decision-making among the non-farming households with an index of 0.1734.

The result of the decomposition of political inequality by marital status of household head shows that political inequality is highest among rural households whose marriage structure is monogamy with Gini index of 0.2205. Political inequality is least among rural households whose household heads are polygamists and they consist of about 24% of the population with Gini index of 0.2142. Farming and non-farming households' dichotomization shows that political inequality is highest among households whose household heads are widows/ separated with indices of 0.2339 and 0.2380. It is least among households whose household heads are single for both farming and non-farming households with indices of 0.3021 and 0.3124 respectively.

Tables 39 and 40 further indicates that across the Geo-political zones, households in the rural areas of the country as a whole whose household heads are either widows/separated have the highest incidence of political participation inequality with Gini index of 0.2880 and they make up about 47% of the population size. Rural households in the North East Zone whose household heads are monogamists have the least level of political inequality with Gini index of 0.1969 and they make up about 56% of the total population size. The result of the decomposition of political participation inequality by marital status for farming and non-farming households dichotomy further indicates high level of political inequality among households whose household heads are either widowed or separated in the South-East Zone of the country for both the farming and non-farming households with Gini indices of 0.4749 and 0.4630. Dispersion in political participation and decision-making is least in the North-Central Zone among rural household's heads whose marriage structure is monogamy with Gini index of 0.1934 for the farming households. Among non-farming households, political participation inequality is least among households whose household heads are monogamists in the North East with Gini index of 0.1966

Table 36: Decomposition of Political Inequality Indices by Gender

Rural Households				
	Male		Female	
Geo-political zone	Gini	Population size	Gini	Population size
North West	0.2193	0.9646	0.1926	0.0354
North Central	0.2095	0.8389	0.2080	0.1611
North East	0.2089	0.9344	0.2174	0.0656
South East	0.2527	0.5975	0.2175	0.4025
South West	0.2184	0.6741	0.2098	0.3259
South South	0.2183	0.6138	0.1889	0.3862
Total	0.2209	0.7869	0.2052	0.2131
Farming Households				
	Male		Female	
Geo-political zone	Gini	Population size	Gini	Population size
North West	0.2059	0.9778	0.2259	0.0222
North Central	0.2016	0.8733	0.2230	0.1267
North East	0.2104	0.9300	0.2224	0.0700
South East	0.2297	0.5956	0.2338	0.4044
South West	0.2203	0.6613	0.2286	0.3387
South South	0.2150	0.6089	0.1911	0.3911
Total	0.2134	0.8020	0.2087	0.1980
Non-Farming Households				
	Male		Female	
Geo-political zone	Gini	Population size	Gini	Population size
North West	0.2096	0.9529	0.1769	0.0471
North Central	0.2179	0.8042	0.2112	0.1958
North East	0.2078	0.9373.	0.2116	0.0627
South East	0.2637	0.5991	0.2120	0.4009
South West	0.2174	0.6808	0.2104	0.3192
South South	0.2200	0.6169	0.1871	0.3831
Total	0.2267	0.7750	0.2028	0.2250

Table 37: Decomposition of Political Inequality Indices by Household size

	<6		6 – 10		>10	
	Gini	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.1976	0.3301	0.2234	0.6014	0.2065	0.0686
North Central	0.1825	0.3690	0.2061	0.5589	0.2631	0.0721
North East	0.1824	0.3465	0.2211	0.5943	0.2772	0.0592
South East	0.2212	0.4439	0.2385	0.5227	0.2737	0.0333
South West	0.2043	0.5530	0.2317	0.4264	0.2630	0.0206
South South	0.1936	0.4344	0.2419	0.5507	0.3187	0.0149
Total	0.1983	0.3866	0.2263	0.5619	0.2489	0.0515
Farming Households						
	1 – 5		**6 – 10**		**> 10**	
Zones	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.1877	0.3507	0.2151	0 .6000	0.1989	0.0492
North Central	0.1759	0.3730	0.2017	0.5609	0.2413	0.0661
North East	0.1884	0.3599	0.2234	0.5882	0.2968	0.0519
South East	0.2159	0.4420	0.2293	0.5178	0.3048	0.0403
South West	0.1975	0.5519	0.2330	0.4288	0.2217	0.0193
South South	0.1900	0.4360	0.2361	0.5511	0.2528	0.0129
Total	0.6406	0.3920	0.5628	0.5620	0.5371	0.0460
Non-Farming Households						
	1 – 5		**6 – 10**		**> 10**	
Zone	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.2070	0.3120	0.2305	0.6025	0.2099	0.0855
North Central	0.1890	0.3647	0.2106	0.5568	0.2808	0.0785
North East	0.1780	0.3373	0.2194	0.5984	0.2652	0.0643
South East	0.2258	0.4457	0.2463	0.5273	0.2250	0.0269
South West	0.2078	0.5536	0.2308	0.4251	0.2745	0.0213
South South	0.1956	0.4333	0.2448	0.5504	0.3428	0.0162
Total	0.2023	0.3820	0.2312	0.5610	0.2496	0.0560

Table 38: Decomposition of Political Inequality Indices by Age of Household Heads

Zones	0 – 30		31 - 60		>60	
	Gini	Pop size	Gini	Pop size	Gini	Pop size
North West	0.2044	0.1095	0.2130	0.6726	0.2924	0.2179
North Central	0.1779	0.1200	0.1981	0.6053	0.3283	0.2747
North East	0.1844	0.1379	0.2046	0.6478	0.2961	0.2142
South East	0.2022	0.0242	0.2256	0.5038	0.3079	0.4720
South West	0.1462	0.0711	0.2172	0.5043	0.2641	0.4247
South South	0.1623	0.0836	0.2167	0.6120	0.2603	0.3044
Total	0.1864	0.0941	0.2137	0.6035	0.2940	0.3024
Farming Households						
Zones	≤ 30 Gini	Pop Size	31 – 60 Gini	Pop size	> 60 years Gini	Pop size
North West	0.1873	0.1080	0.2037	0.6762	0.2001	0.2158
North Central	0.1746	0.1258	0.1935	0.6102	0.2043	0.2640
North East	0.1990	0.1361	0.2075	0.6598	0.2632	0.2041
South East	0.1903	0.0233	0.2224	0.5236	0.2922	0.4532
South West	0.2012	0.0684	0.2147	0.5056	0.2767	0.4260
South South	0.1964	0.0787	0.2143	0.7006	0.2489	0.3207
Total	0.6651	0.0940	0.6112	0.6110	0.6236	0.2950
Non - Farming Households						
Zones	≤ 30 Gini	Pop Size	31 – 60 Gini	Pop size	> 60 years Gini	Pop size
North West	0.2089	0.1108	0.2214	0.6694	0.3108	0.2198
North Central	0.1813	0.1141	0.2029	0.6001	0.3010	0.2858
North East	0.1734	0.1393	0.2025	0.6395	0.3168	0.2212
South East	0.2111	0.0250	0.2283	0.4868	03201	0.4882
South West	0.2186	0.0725	0.2185	0.5036	0.2572	0.4239
South South	0.1907	0.0868	0.2178	0.6192	0.2676	0.2940
Total	0.1875	0.0940	0.2174	0.5980	0.3062	0.3080

Table 39: Decomposition of Political Inequality Indices by Marital Status among Rural Households

Zones	Single		Monogamous		Polygamous		Informal		Divorced / Widow	
	Gini	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
NW	0.2231	0.0079	0.2177	0.5227	0.2138	0.4178	0.0000	0.0000	0.2063	0.0521
NC	0.2133	0.0333	0.2041	0.5267	0.1997	0.2390	0.2196	0.0023	0.2273	0.1987
NE	0.2248	0.0216	0.1969	0.5566	0.2178	0.3000	0.2500	0.0007	0.2275	0.1211
SE	0.2355	0.0198	0.2553	0.4467	0.2269	0.0625	0.2880	0.0024	0.2225	0.4686
SW	0.2271	0.0290	0.2228	0.4013	0.2334	0.1593	0.1930	0.0121	0.2067	0.3983
SS	0.2275	0.0407	0.2225	0.4310	0.2029	0.0940	0.1233	0.0392	0.2154	0.3951
Total	0.2066	0.0244	0.2197	0.4878	0.2141	0.2311	0.1492	0.0094	0.2207	0.2473

Table 40: Decomposition of Political Inequality Indices by Marital Status for Farming and Non-farming Households

Farming Households										
Zone	**Single**		**Monogamous**		**Polygamous**		**Informal**		**Widow/Separated**	
	Gini	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.2127	0.0109	0.2057	0.5185	0.2927	0.4080	-	-	0.3976	0.0627
North Central	0.2126	0.0311	0.1934	0.5346	0.1920	0.2414	0.3333	0.0001	0.2266	0.1919
North East	0.2162	0.0212	0.1973	0.5619	0.2234	0.2903	-	-	0.2347	0.1266
South East	0.2495	0.0163	0.2387	0.4369	0.2290	0.0694	0.2879	0.0025	0.2288	0.4749
South West	0.2404	0.0001	0.2234	0.0332	0.2389	0.0052	0.2621	0.0000	0.2064	0.0371
South South	0.2198	0.0390	0.2164	0.4343	0.1966	0.0965	0.0914	0.0262	0.2163	0.4040
Total	0.2089	0.0218	0.2096	0.4936	0.2088	0.2400	0.1590	0.0600	0.2239	0.2390
Non-Farming Households										
zone	**Single**		**Monogamous**		**Polygamous**		**Informal**		**Widow/Separated**	
	Gini	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.2411	0.0109	0.2315	0.5184	0.2235	0.4080	-	-	0.2005	0.0627
North Central	0.2130	0.0357	0.2153	0.5184	0.2077	0.2364	0.1689	0.0037	0.2268	0.2058
North East	0.2439	0.3373	0.1966	0.5529	0.2139	0.3067	0.1333	0.0010	0.2222	0.1176
South East	0.2260	0.0229	0.2692	0.4554	0.2242	0.0564	0.2536	0.0023	0.2168	0.4630
South West	0.2108	0.0286	0.2224	0.4061	0.2295	0.1616	0.1442	0.0119	0.2668	0.3918
South South	0.2158	0.0418	0.2261	0.4289	0.2068	0.0924	0.1335	0.0474	0.2140	0.3896
Total	0.1451	0.0260	0.2275	0.4830	0.2191	0.2240	0.2040	0.0120	0.2180	0.2840

5.3.3 Health Inequality Decomposition

The results of decomposition of health inequality by various socio-economic and demographic characteristics are presented in tables 41 to 45. The result shows that health inequality is higher among households that are headed by females for the rural households in the country and when stratified into farming and non-farming households with indices of 0.3740, 0.3616 and 0.3583 respectively.

Across the Geo-political Zones, the result of the health inequality decomposition indicates that health inequality is higher among the female headed households in the rural areas of the North-East Zone for the rural households in the country and when further dichotomized into farming and non-farming households with indices of 0.4329, 0.4364 and 0.4297. For the rural households as a whole, health inequality is least among the male headed households in the South-East Zone with an index of 0.3001. It is least among the male headed households in the rural areas of the South-West Zone for both farming and non-farming households with an index of 0.2191 and 0.2174 respectively.

Decomposition of health inequality profile by household size indicates a high level of inequality among households that consists of 6 -10 members for the rural areas of the country as a whole with health inequality index of 0.3808. It is least among households with less than 6 members with health inequality index of 0.3038. The result of health inequality decomposition by household size when dichotomized into farming and non-farming households indicates a high level of health inequality among households that consist of 6-10 members for both farming and non-farming households with indices of 0.3691 and 0.3599. It is least among farming and non-farming households with less than 6 members with health inequality index of 0.3063 and 0.2997 respectively.

The result further shows that across the Geo-political Zones, health inequality is highest in the North-East Zone among rural households with 6-10 members with an index of 0.4369. It is least in the South-West Zone among rural households with less than 6 members with an health inequality index of 0.1839. When dichotomized into farming and non-farming households, health inequality is highest among farming households with 6-10 members in the rural areas of the North-West Zone with an index of 0.4394 and it is least among households in the rural areas of the South-West Zone for farming households that consist of about 5 members with an index of 0.1995. For non-farming households in the rural areas of the

North-East Zone, households whose household size consists of more than 10 members have the highest level of health inequality with an index of 0.3817 while non-farming households whose household size is not more than 5 have the least health inequality level in the South-West Zone with an index of 0.2078.

Health inequality decomposition by age reveals that it is highest among rural households whose household heads are between 31 and 60 years of age as well as when dichotomized into farming and non-farming households with indices of 0.3715, 0.3640 and 0.3576 respectively. Households whose household heads are not older than 30 years of age have the least health inequality for the rural households as a whole with an index of 0.3463. Farming and non-farming household stratification shows that health inequality is least among farming households whose household heads are older than 60 years with an index of 0.3305. Non-farming households whose household heads are not older than 30 years of age have the least health inequality with an index of 0.3072. Furthermore, the result shows that across the Geo-political Zones, the North-East Zone has the highest health inequality index of 0.4292 among rural households whose household heads are between 31 and 60 years and it is least in the South West Zone among households whose household heads are not older than 30 years of age with an index of 0.2086.

Decomposition of health inequality by age for farming and non-farming households further shows that health inequality is highest among farming households whose household heads are between 31 and 60 years of age in the North-East Zone with an index of 0.4295. It is least among farming households whose household heads are not older than 30 years of age in the South-East Zone with an index of 0.2086. Health inequality is highest among non-farming households that their household heads are older than 60 years of age with an index of 0.4294 in the North-East Zone. The rural area of the South West Zone has the least health inequality among non-farming households whose household heads are not older than 30 years of age with an index of 0.1858.

Health inequality decomposition by marital status of household heads shows that it is highest among rural households whose household heads are widows/separated and when stratified into farming and non-farming households with health inequality indices of 0.3482, 0.4389 and 0.3464 respectively. It is least among households whose heads are single in the rural

areas of the country as well as when stratified into farming and non-farming households dichotomization with indices of 0.3220, 0.3021 and 0.3124.

Across the Geo-political Zones, health inequality is highest in the North-East Zone among rural households whose household heads are widows/separated with an index of 0.4324 Rural households in the South-West Zone whose household heads are single have the least percentage of health inequality with an index of 0.2754. The result of the decomposition of the health inequality profile by marital status of household heads for stratification into farming and non-farming households further shows that health inequality is highest among farming households whose household heads are widows/separated in the rural area of the North-East Zone of the country with an index of 0.4351. Health inequality is least among households whose household heads are in the South-West Zone with an index of 0.2767. The result further indicates that the North-East Zone has the highest health inequality among non-farming households whose household heads are widows/divorced with an index of 0.3530. Households whose household heads are Single in the South West Zone have the least health inequality index of 0.2508 among non-farming households.

Table 41: Vertical Health Inequality Decomposition by Gender

Rural Households (Pooled)				
	Male		Female	
Zones	Gini	Population size	Gini	Population size
North West	0.3056	0.9650	0.4255	0.0350
North Central	0.4013	0.8398	0.4190	0.1611
North East	0.4096	0.9344	0.4329	0.0656
South East	0.2817	0.5975	0.3001	0.4025
South West	0.3136	0.6741	0.3116	0.3259
South South	0.3048	0.6138	0.3364	0.3862
Total	0.3668	0.7869	0.3740	0.2131
Farming Households				
	Male		Female	
Zone	Gini	Population size	Gini	Population size
North West	0.3792	0.9778	0.4282	0.0222
North Central	0.4368	0.8733	0.4032	0.1267
North East	0.4390	0.9303	0.4364	0.0697
South East	0.2307	0.5956	0.2924	0.4044
South West	0.2191	0.6613	0.2921	0.3387
South South	0.2231	0.6089	0.3418	0.3911
Total	0.3586	0.8020	0.3616	0.1980
Non – Farming Households				
	Male		Female	
Zone	Gini	Population size	Gini	Population size
North West	0.3215	0.9529	0.4202	0.0471
North Central	0.3583	0.8042	0.4002	0.1958
North East	0.3605	0.9373	0.4297	0.0627
South East	0.2821	0.5991	0.3060	0.4009
South West	0.2174	0.6808	0.2184	0.3192
South South	0.3414	0.6169	0.3528	0.3831
Total	0.3409	0.7750	0.3583	0.2250

Table 42: Vertical Health Inequality Decomposition by Household size

Rural Households (Pooled)						
	<6		6 – 10		>10	
Zones	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.2900	0.3300	0.4359	0.6010	0.2973	0.0690
North Central	0.3358	0.3690	0.4114	0.5589	0.3734	0.0721
North East	0.3726	0.3465	0.4369	0.5943	0.3939	0.0592
South East	0.2113	0.4439	0.3288	0.5227	0.2746	0.0331
South West	0.1839	0.5530	0.3363	0.4264	0.2847	0.0206
South South	0.2625	0.4344	0.3401	0.5507	0.2851	0.0149
Total	0.3038	0.3866	0.3808	0.5619	0.3059	0.0515
Farming Households						
Zones	**1 – 5**		**6 – 10**		**> 10**	
	Gini	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.2917	0.3507	0.4252	0.6000	0.3233	0.0492
North Central	0.3402	0.3730	0.4062	0.5609	0.3783	0.0661
North East	0.3785	0.3599	0.4394	0.5882	0.3898	0.0519
South East	0.2746	0.4420	0.2531	0.5178	0.2727	0.0403
South West	0.2213	0.5519	0.3365	0.4288	0.2891	0.0193
South South	0.2608	0.4360	0.3076	0.5511	0.3360	0.0129
Total	0.3063	0.3920	0.3691	0.5630	0.3367	0.0450
Non – Farming Households						
	1 – 5		**6 – 10**		**> 10**	
Zones	**Gini**	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.2845	0.3120	0.3181	0.6025	0.3381	0.0855
North Central	0.3275	0.3697	0.3157	0.5568	0.3267	0.0785
North East	0.3469	0.3373	0.3266	0.5984	0.3817	0.0643
South East	0.2003	0.4457	0.2761	0.5273	0.2431	0.0269
South West	0.1995	0.5536	0.2078	0.4351	0.2308	0.0213
South South	0.2539	0.4333	0.3181	0.5504	0.3574	0.162
Total	0.2997	0.3830	0.3599	0.5610	0.3349	0.0560

Table 43: Vertical Health Inequality Decomposition by Age

Rural Households						
Geo-political Zones	**0 – 30**		**31 - 60**		**>60**	
	Gini	**Pop size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.3072	0.1090	0.4164	0.6730	0.2998	0.2180
North Central	0.3022	0.1200	0.4150	0.6053	0.3539	0.2747
North East	0.3157	0.1380	0.4292	0.5480	0.3629	0.2140
South East	0.2640	0.0242	0.2684	0.5038	0.3172	0.4720
South West	0.2876	0.0711	0.2847	0.5043	0.3024	0.4247
South South	0.3302	0.0936	0.3147	0.6119	0.3070	0.3044
Total	0.3463	0.0941	0.3715	0.6035	0.3578	0.3024
Farming Households						
Geo-political Zones	**≤ 30**		**31 – 60**		**> 60 years**	
	Gini	**Pop Size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.3130	0.1080	0.4091	0.6792	0.3203	0.2158
North Central	0.3032	0.1258	0.4106	0.6102	0.3433	0.2640
North East	0.3205	0.1361	0.4295	0.6598	0.3295	0.2510
South East	0.2111	0.0233	0.2224	0.5236	0.2922	04532
South West	0.2086	0.0684	0.3507	0.5056	0.2967	0.4260
South South	0.2321	0.0787	0.3193	0.6007	0.3252	0.3207
Total	0.3434	0.9400	0.3640	0.6110	0.3305	0.2950
Non - Farming Households						
Geo-political Zones	**≤ 30**		**31 – 60**		**> 60 years**	
	Gini	**Pop Size**	**Gini**	**Pop size**	**Gini**	**Pop size**
North West	0.3054	0.1108	0.3201	0.6694	0.4225	0.2198
North Central	0.3085	0.1141	0.3038	0.6001	0.3477	0.2858
North East	0.3078	0.1392	0.3303	0.0395	0.4294	0.2212
South East	0.1903	0.0250	0.3301	0.4868	0.2283	0.4882
South West	0.1858	0.0725	0.2517	0.5036	0.2185	0.4239
South South	0.2593	0.0868	0.2536	0.6192	0.3115	0.2940
Total	0.3072	0.0940	0.3576	0.5980	0.3146	0.3080

Table 44: Vertical Health Inequality Decomposition by Marital Status among Rural Households

Geo-political Zones	Single		Monogamous		Polygamous		Informal		Divorced / Widow	
	Gini	Pop size	Gini	Pop size	Gini	Pop size	Gini	Pop size	Gini	Pop size
North West	0.3466	0.0079	0.3130	0.5227	0.3725	0.4174			0.4302	0.0521
North Central	0.3250	0.0333	0.3418	0.5267	0.3312	0.2390	0.3574	0.0023	0.4201	0.1987
North East	0.3596	0.0216	0.3916	0.5566	0.3949	0.3000	0.3991	0.0007	0.4324	0.1211
South East	0.2870	0.0198	0.2815	0.4467	0.2904	0.0625	0.2836	0.0024	0.2979	0.4686
South West	0.2754	0.0209	0.3829	0.4013	0.2930	0.1593	0.2986	0.0121	0.3037	0.3983
South South	0.3123	0.0409	0.3349	0.4310	0.3091	0.0940	0.3089	0.0392	0.3609	0.3931
Total	0.3220	0.0244	0.3070	0.4878	0.3223	0.2311	0.3286	0.0094	0.3482	0.2473

Table 45: Health Inequality Decomposition by Marital Status for Farming Households and Non - Farming Households

Farming Households										
	Single		Monogamous		Polygamous		Informal		Widow/Separated	
Geo-political Zones	Gini	Pop size	Gini	Pop size	Gini	Population size	Gini	Pop size	Gini	Population size
North West	0.3174	0.0046	0.3295	0.5277	0.3675	0.4275	-	-	0.4276	0.0402
North Central	0.3273	0.0311	0.3599	0.5346	0.3306	0.2414	0.3413	0.0010	0.4280	0.1919
North East	0.3236	0.0212	0.3873	0.5619	0.3376	0.2903	-	-	0.4351	0.1266
South East	0.2794	0.0163	0.2810	0.4369	0.2970	0.0694	0.2760	0.0025	0.3027	0.4749
South West	0.2767	0.0299	0.3094	0.3922	0.2926	0.1549	0.2961	0.0124	0.2068	0.4106
South South	0.3023	0.0390	0.3097	0.4343	0.3186	0.0965	0.2901	0.0262	0.3747	0.4040
Total	0.3021	0.0220	0.3303	0.4940	0.3228	0.2400	0.3222	0.0060	0.4389	0.2390
Non - Farming Households										
Geo-political Zones	Single		Monogamous		Polygamous		Informal		Widow/Separated	
	Gini	Pop size	Gini	Pop size	Gini	Pop size	Gini	Pop size	Gini	Pop size
North West	0.3527	0.0109	0.3257	0.5185	0.3227	0.4080	-	-	0.3203	0.1919
North Central	0.3186	0.0357	0.3407	0.5184	0.3340	0.2364	0.3510	0.0037	0.3442	0.2058
North East	0.3032	0.0218	0.3294	0.5529	0.3244	0.3067	0.1578	0.0100	0.3530	0.1176
South East	0.2960	0.0229	0.2816	0.4554	0.2581	0.0564	0.2591	0.0023	0.2922	0.4630
South West	0.2508	0.0286	0.2624	0.4289	0.2295	0.1616	0.1542	0.0119	0.2798	0.3918
South South	0.3079	0.0418	0.3078	0.4288	0.3132	0.0924	0.3132	0.0474	0.3084	0.3896
Total	0.3124	0.0260	0.3800	0.4830	0.3210	0.2240	0.3213	0.0120	0.3464	0.2540

5.4: Within and Between Group Non-Income Inequality Welfare attributes Decomposition

The marginal contribution of within and between inequality to total educational, political and health inequalities by various socio-economic characteristics such as gender, household size, age and marital status were estimated using Shapley decomposition technique. The results of the within and between group inequality decomposition of the total inequality for the rural households as a whole as well as for farming and non-farming households dichotomization are presented and discussed below.

5.4.1: Marginal Contribution of Within and Between Educational Inequalities to Total Educational Inequality

The result of the decomposition of educational inequality into within and between group contributions to total educational inequality shows that the cause of educational inequality is more as a result of disparity in the level of welfare attributes within the various household characteristics rather than dynamics between the different socio-economic and demographic groups. Figure 3 indicates that for rural areas of the country within group inequality among the gender of household head accounts for 96.8% of the total educational inequality with the male group contributing 78.7% of the total educational inequality as presented in Figure 5. Across the Geo-political Zones in the rural areas of the country, within group inequality contributes between 69.9% and 99.8% of the total educational inequality with the male gender group accounting for 52.3% to 94.8% of the total educational inequality across the Geo-political Zones.

When stratified into farming and non-farming households, Figure 3 further shows that 96% of the total educational inequality among farming households can be attributed to differences within the two gender groups with the male gender group contributing 79.8% of the total educational inequality. Households that are engaged in non-farming activities have differences within the gender groups accounting for 97.5% of the total dynamics in household's educational attainment with the male headed households contributing 77.7% of the total disparity in household's educational attainment. Across the Geo-political Zones, within group inequality contributes 94.3% to 99.1% of the total educational inequality with the male gender group accounting for 51.7% to 93.7% of the total educational inequality.

Figure 3 also indicates that differences within different household size groups contribute 98.2% of total educational inequality for the rural households as a whole. Households that consist of between 6 and 10 members contribute the highest percentage to the total dynamics in educational attainment of rural households as a whole. It accounts for 53% of the total educational inequality. Households with more than 10 members contribute the least percentage of about 4.5% to the total educational inequality for the rural areas as a whole as indicated in Figure 6. Across the Geo-political Zones, within group inequality contributes between 92.8% and 98.1% of the total educational inequality. Households in the rural areas with 6-10 members contributes the highest percentage to the total educational inequality in the North-West, North-Central, North-East and South-South Zones accounting for 47.3% to 55.3% of the total disparity in households educational attainment. While households with less than six members contributes the highest percentage to total educational inequality in the South-East and South-South Zone accounting for 45.8% and 58.4% of their total educational inequality respectively. Households with more than ten members contribute the least percentage to total educational inequality accounting for 1.1% to 6.5% of the total disparity in the level of educational attainment across the zones in the rural areas of the country.

The result of the decomposition of the marginal contribution of within and between group inequality to total inequality by household size further shows that for both farming and non-farming household's dichotomization, total educational inequality can be attributed to differences within household size compositions accounting for 97.9% and 98.3% of the total educational inequality for farming and non-farming households respectively. Households with 6 to 10 members contribute the highest percentage of 52.7% and 53.2% of the total educational inequality for farming and non-farming households respectively. While households with more than ten members contribute the least percentage to the total educational inequality and it accounts for only 3.9% and 5% of the total dynamics in household's educational attainment.

Across the six Geo-political Zones, households that are into farming activities that consists of about 6 to 10 members contributes the highest percentage to the total disparity in the level of households educational attainments in the Northern region. It accounts for 49% to 57.8% of the total educational disparity in the region. Households that consist of not more than 5 members contribute the highest percentage to the total disparity in the level of educational

attainments in the Southern region consisting of 45.9% to 57.9% in the region. Farming households in the rural areas of the country with more than 10 members in the six Geo-political Zones in the country contributes the least percentage ranging from 1% to 5.9% of the total disparity in the level of household's educational attainments. Non-farming households in the rural households with about 6-10 members contribute the highest percentage of the total disparity in their level of educational attainments in the North-West, North-East and South-South Zones ranging from 47.8% to 56.5%. Households with less than 6 members in the North-Central, South-West and South-East Zones account for the highest level of dispersion in the total educational attainment in these Zones. It contributes between 46% and 80.9% of the total educational inequality. Non-farming households with more than 10 members contribute the least percentage to the total educational inequality in all the six Geo-political Zones ranging from 1.1% to 18.2%.

Decomposition of total educational inequality among households in the rural areas into within and between group marginal contribution by age shows that educational inequality is more as a result of dynamics within the various age groups and it accounts for 95.8% of the total educational inequality. Figure 7 shows that households whose household heads are between 31 and 60 years of age contributes about 57.9% of the total educational inequality in the rural areas of the country as a whole while households whose household heads are younger than 31 years of age contribute the least percentage of only 10.2% to the total educational inequality. Across the Geo-political Zones, differences within the age group contribute the highest percentage to the total educational inequality in all the Zones ranging from 89.1% to 96.1%. Households in the rural areas whose household heads are between 31-60 years of age contributes the highest percentage of between 42.3% and 65.1% of the total educational inequality in all the Zones in the rural areas of the country with the exception of the South East Zone. Households whose household heads are older than 60 years of age in the South East Zone contributes the highest percentage (48.7%) of the disparity among households educational attainment. Furthermore, households whose household heads are not older than 30 years of age contributes the least percentage (between 1.8% and 14.5%) to the total educational inequality across all the six Geo-political Zones in the rural areas of the country.

The result of the decomposition of age into within and between group inequality for farming and non-farming households stratification shows that within group inequality accounts for

97.5% and 94.6% of the total dispersion in households' educational attainment. The result of the intra-group decomposition of age-group of household head for farming and non-farming households shows that farming and non-farming households whose head are between 31-60 years of age accounts for the highest disparity in households educational status contributing 59.8% and 56.3% of the total educational inequality for farming and non-farming households respectively. Farming and non-farming households whose household heads are not older than 30 years of age contributes the least percentage of 10.5% and 9.9% of the total educational inequality for farming and non-farming households respectively. Across the six Geo-political Zones, households that are into farming activities have differences within the age group of household heads contributing between 90.5% and 96.3% to the total educational inequality. Farming households in the North-West, North-Central, North-East and South-South Zones have household heads that are between 31 and 60 years of age contributing the highest percentage of the total educational inequality accounting for 56.4% to 65.5%. While households in the South-East and South-West Zone have farming household heads that are older than 60 years of age accounting for 46% and 57.9% of total educational inequality respectively. Furthermore, farming household head that are not more than 30 years of age contributes the least percentage ranging from 2% to 13.8% of the total educational inequality.

Across the Geo-political Zones for non-farming households, households whose household head are between 31-60 years of age contribute the highest percentage of 54.1% to 64.7% of the total educational inequality in the North-West, North-Central, North-East and South-South Zones. While non-farming households whose household heads are older than 60 years of age contributes the highest percentage of 51.1% and 58.7% of the total level of disparity in household's educational attainment in the South-East and South-West Zones. In addition, non-farming households in the rural areas of the country whose head are less than 31 years of age contribute the least percentage to total educational inequality in all the six Geo-political Zones in the rural areas of the country ranging from 1.4% to 14.6%.

Decomposition of marginal contribution of within and between inequalities to total educational inequality by marital status indicates that about 91.7% of the total educational inequalities for the rural households as a whole is attributed to differences within the diverse marital status groups. The result further shows in figure 8 that polygamous homes in the rural areas as a whole contribute the highest percentage (47.1%) of the total educational inequality

while households whose household head are single contributes the least percentage (0.5%) to the total educational inequality. Across the Geo-political Zones in the rural areas of country, households whose household head are polygamist in the Northern region contributes the highest percentage to total educational inequality accounting for about 51.5% to 54.6% of the total educational inequality while rural households in the Southern region whose head are divorced or widows contribute the highest percentage to the total educational inequality ranging between 39.3% to 48.1% of the total disparity in the level of household educational attainment. Rural households in the country whose household heads are single contributes the least percentage ranging from 0.2% to 0.8% in the North-Central, South-East and South-West. In addition, there is no marginal difference in the level of household's education attainment among households whose head are single in the North-East, North-West Zones while households whose head are widows/divorced contributes the least percentage (3.4%) to total educational inequality in the South-South Zone.

The result of the decomposition of marginal contribution of within group educational inequality by marital status into when stratified into farming and non-farming households indicates that disparity within the various marital status groups is the cause of dynamics in the educational attainment of household head. The result as also presented in Figure 3 shows that within group dynamics contributes the 90.5% and 92.4% of the dispersion in household educational attainment for both farming and non-farming households respectively. The result further shows that households that are being headed by polygamist contribute the highest percentage of 47.4% and 46.6% to the total educational inequality. Furthermore, households whose heads are single contribute the least percentage of the total educational inequality accounting for just 0.3% and 0.7% of the total educational inequality.

Across the Geo-political zones in the rural area of the country, household's that are into farming activities have differences within the diverse marital status group contributing between 91.4% and 99.5% of the total educational inequality. In addition, household whose head are polygamist contribute between 40.7% and 55.3% of the total educational inequality among farming households across the 6 Geo-political Zones in the rural areas of the country. In addition farming households whose heads are single contributes the least percentage to the total disparity ranging from 0.4% to 2.2% of the total educational inequality in the rural areas of the North-West, South-East, South-West, and South-South Zones. While there is no

marginal difference among households whose heads are single in the North-Central and North-East Zones. The result further shows that across the Geo-political Zones for households that are into non-farming activities in the rural areas of the country, polygamous homes contributes between 50.6% and 54% of the total educational inequality for households in the Northern regions. While educational inequality among non-farming households in the rural areas of the Southern region can be attributed to differences in the level of educational attainment of non-farming households whose household heads are divorced/widow accounting for 38.6% to 48.4% of the total educational inequality**.** For the non-farming households, households whose household head are single contribute between 0.9% and 4% of the dynamics in the household's educational attainment in the North-Central, South-East, South-West and South-South Zone. The result further shows that there is no marginal difference in the level of educational inequality among non-farming household heads in the North-West and North-East Zones that are single.

Studies on decomposition of total inequality into marginal contribution of within-group (Intra-group) and between-group (Inter group) inequalities have suggested that within-group inequality is often the most important aspect of inequality in several developing countries (e.g. Anand, 1983 for the case of Malaysia; Bates, 1981 and Easterly and Levine, 1997 for the case of Ethiopia; Litchfield, 2001 for the case of Brazil; Kanbur, 1998 and Stewart, 2000). The findings of their studies also corroborate these results that dynamics within groups accounts for the level of disparity in household's educational attainment. In addition, the result of the marginal contribution of within and between group decomposition of educational inequality to total inequality conforms to the outcome of the survey by Baye 2007 on Exact Configuration of Poverty, Inequality and Polarization Trends in the Distribution of Well-being in Cameroon. The result of their survey shows that the within-group components principally accounted for majority of the level of dispersion among households in both the rural and urban areas of Cameroon.

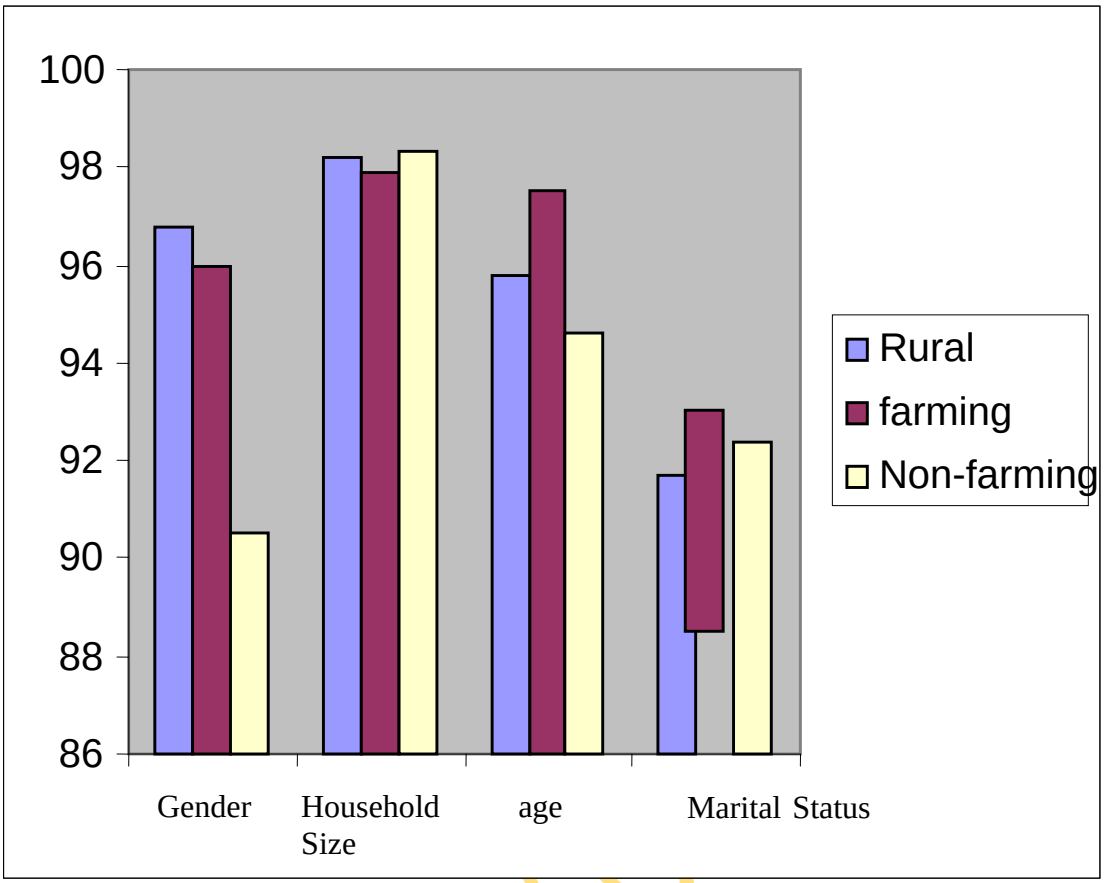

Figure 3: Within Group Contribution to total Educational Inequality by Socio- economic Characteristics

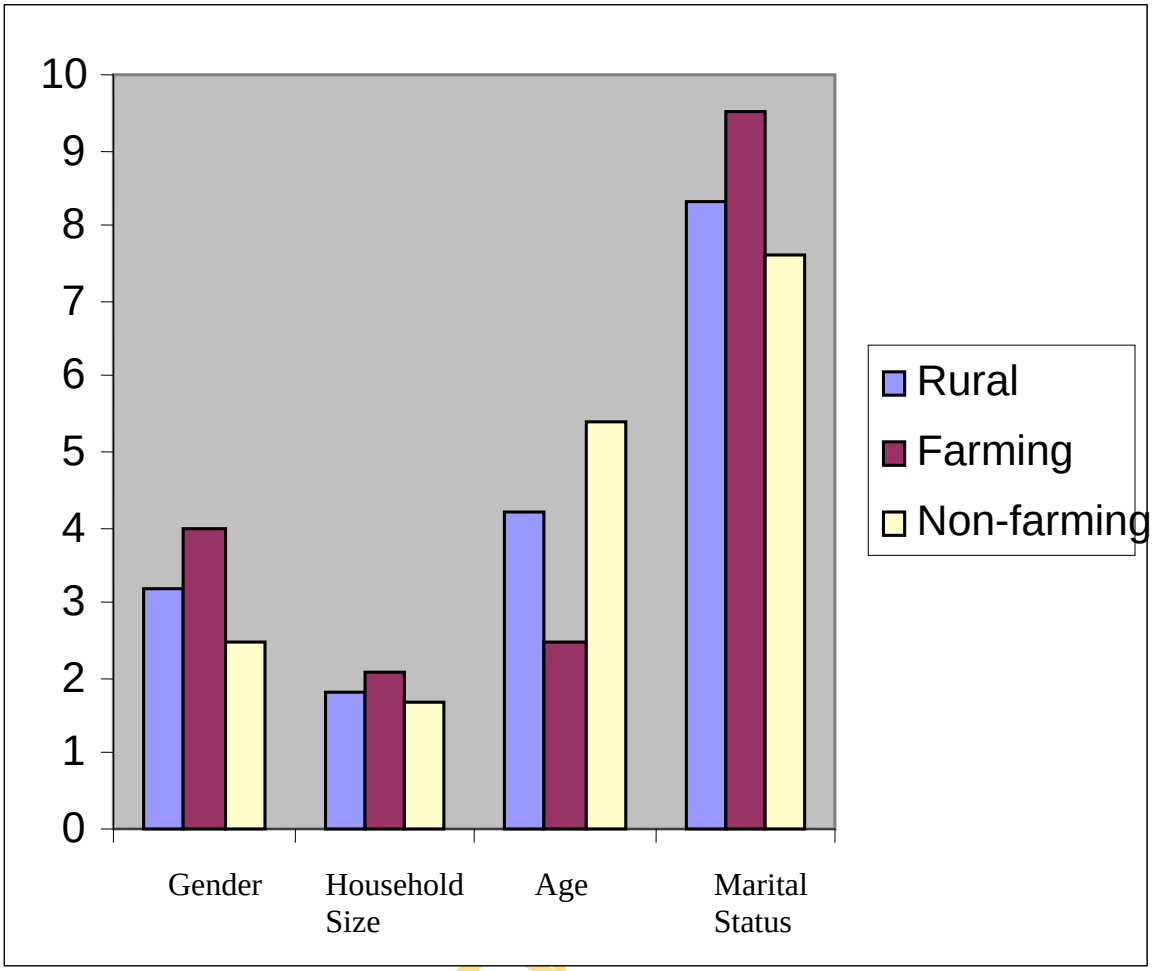

Figure 4: Between Group Contribution to Total Educational Inequality by Socio-economic Characteristics

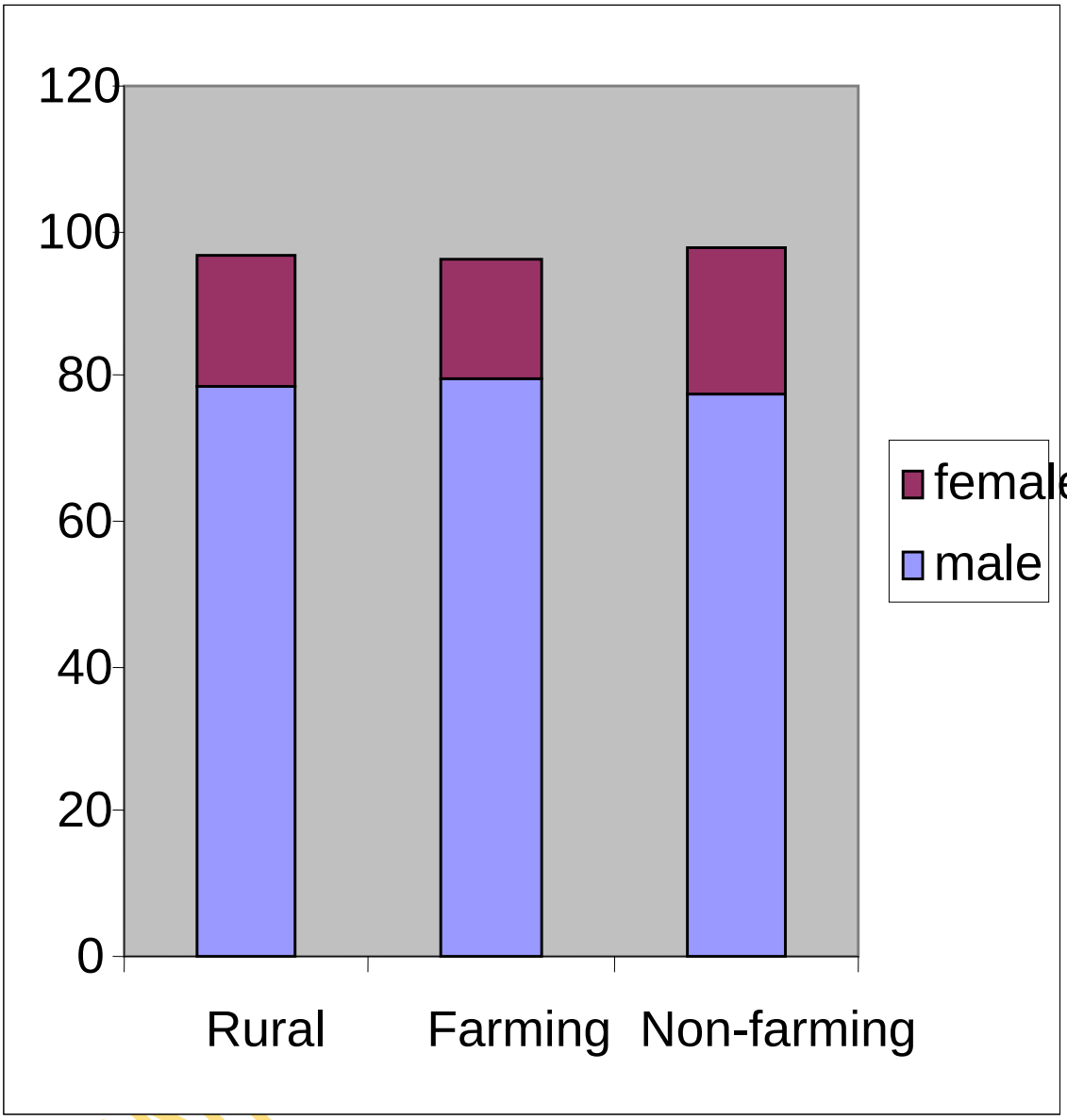

Figure 5: Within Educational Inequality Intra Group Decomposition by Gender

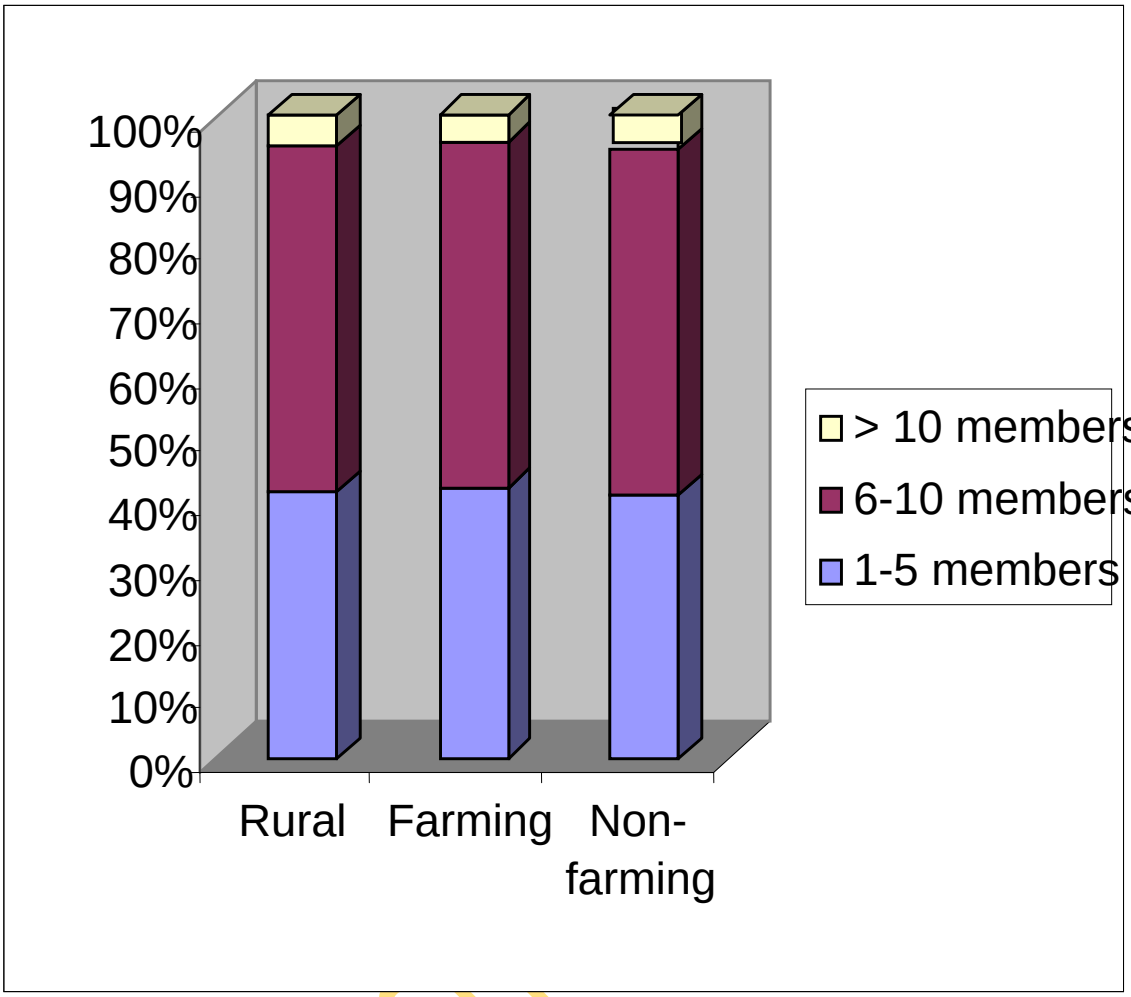

Figure 6: Within Educational Inequality Intra Group Decomposition by Household Size

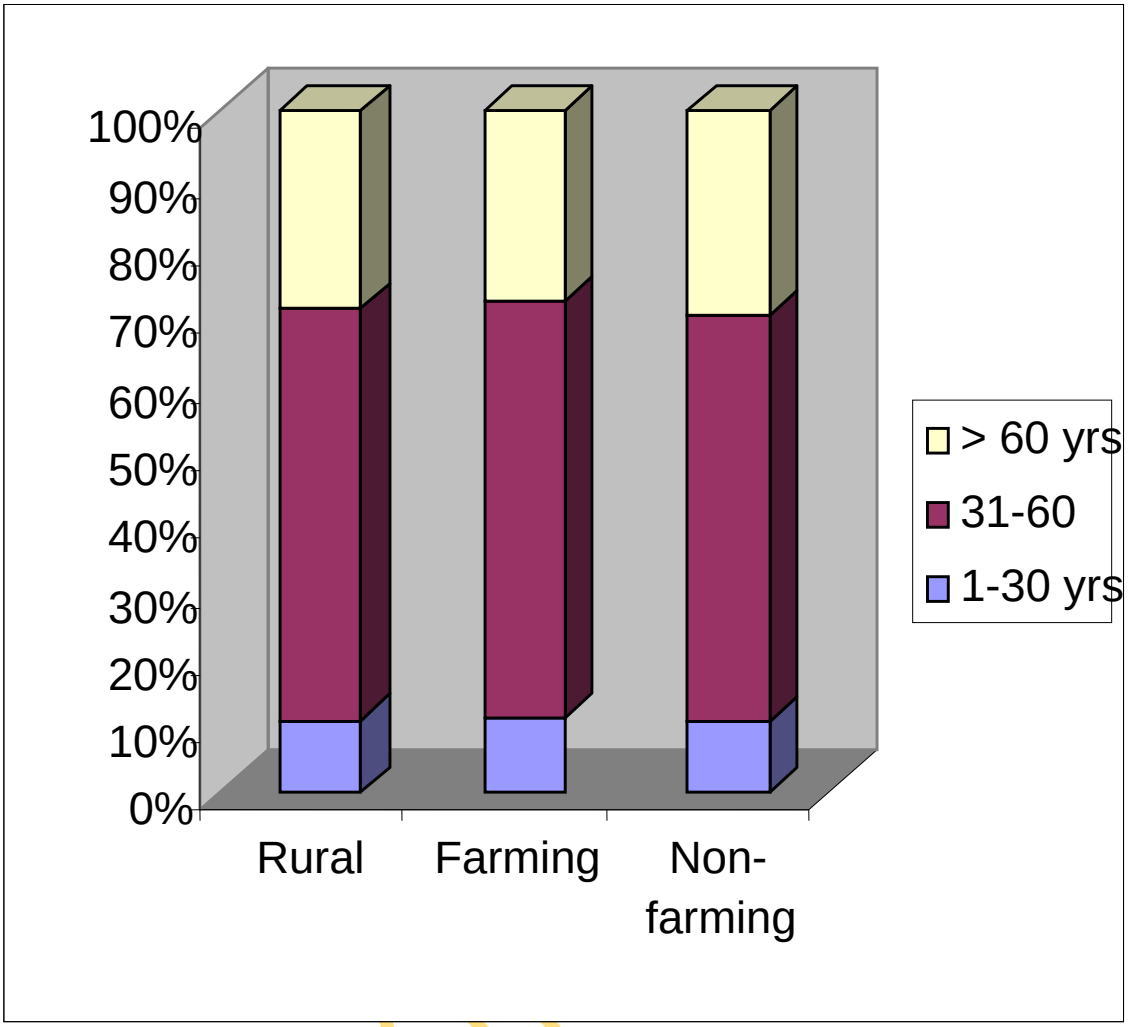

Figure 7: Within Educational Inequality Intra Group Decomposition by Age of Household Head

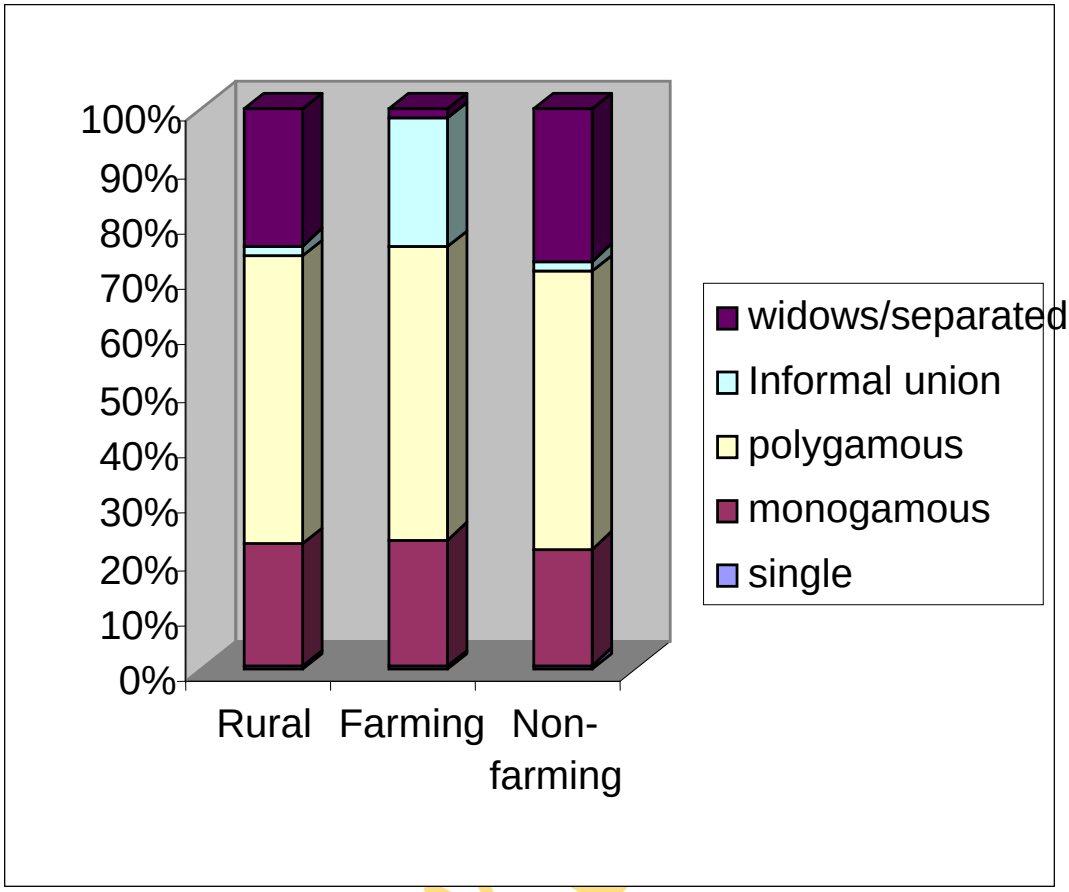

Figure 8: Within Educational Inequality Intra Group Decomposition by Marital Status of Household Heads

5.4.2: Marginal Contribution of Within and Between Political Inequalities to Total Inequality

The result of the decomposition into within and between group contributions to total political inequality as presented in figures 9 and 10 shows that the cause of inequality is more as a result of disparity within the various household characteristics rather than disparities between the different socio-economic and demographic group dynamics. Figure 11 indicates that inequality within the two gender accounts for 98.2% of the total political inequalities for households in the rural areas of the country as a whole with the male group contributing 79.9% of the total political inequality in the rural areas. Across the geo-political zones in the rural areas of the country within group inequality contributes between 95% and 99.3% of the total political inequality with the male gender group accounting for 65% to 93.1% of the total political inequality across the Zones.

When stratified into farming and non-farming households, the result shows that 97.7% of the total political inequality among farming households can be attributed to differences within the two gender groups with the male headed households contributing 80.3% of the total political inequality. Non-farming households also have differences within the gender groups accounting for 98.6% of the total political inequality with the male headed households contributing 79.7% of the total disparity in the household's total participatory ratio in politics and decision making. Across the Geo-political Zones for the farming households, within group inequality contributes 96% to 99.9% of the total political inequality with the male gender group accounting for 63.9% to 97.6% of the total political inequality for the farming households. Households that are into non-farming activities have differences within the gender groups accounting for 98.6% of the total political inequality with the male headed households contributing 79.7% of the total disparity in household's total educational attainment as shown in Figure 11. Across the Geo-political Zones for the non-farming households, within group inequality contributes 94.3% to 99.1% of the total political inequality with the male gender group accounting for 65.6% to 96.5% of the total political inequality for the non-farming households.

Decomposition of political inequality into within and between group marginal contributions by household size also indicates that disparity within the different household size composition is the cause of political inequality for rural households as a whole and when stratified into farming and non-farming households. The result shows that 94.8% of total

political inequality can be attributed to differences within household size groups for the rural households as a whole and household that consists of about 6 to 10 member's accounts for 56.2% of the total political inequality as presented in Figure 12. Households with more than 10 members contribute the least percentage (4.9%) to the total dynamics in the ratio of household members that participates in politics and decision-making for rural households in the country as a whole. Across the Geo-political Zones, within group inequality contributes 92% to 96.3% of the total political inequality. Households in the rural areas at large with 6-10 members contributes the highest percentage to the total political inequality in the North-West, North-Central, North-East, South-West and South-South Zones accounting for 53.3% to 60% of the total disparity in the ratio of household members that participates in politics and decision making. While household with less than six members contributes the highest percentage to total political inequality in the South-East Zone accounting for 49.9% of their total political inequality. Households with more than ten members contribute the least percentage to the total political inequality accounting for 2.2% to 7.6% of the total disparity in the ratio of household members that participates in politics and decision-making across the zones in the rural areas of the country.

Figure 9 further shows that for both farming and non-farming household's dichotomization, total political inequality can be attributed to difference within household size compositions accounting for 94.4% and 95% of the total political inequality. Households with 6 to 10 members contribute the highest percentage of 55.9% and 56.5% of the total political inequality for farming and non-farming households as also shown in Figure 12. While households consisting of more than ten members contribute the least percentage to the total political inequality and it accounts for 4.4% and 5.3% of the dynamics in political participation and decision-making for farming and non-farming households.

Across the six Geo-political Zones, households that are engaged in farming activities consisting of about 6 to 10 members contributes the highest percentage to the total disparity in the ratio of household members that participates in politics and decision-making in the North-West, North-Central, North-East, South-East and South-South Zones. It accounts for 50.7% to 60.4% of the total political disparity across the Zone. Households that consist of not more than 5 members contribute the highest percentage to the total disparity in the level of households participatory ratio in politics and decision-making in the South-West Zone consisting of 48.6% of political inequality in the Zone. Farming households in the rural areas

of the country with more than 10 members in the six Geo-political Zones in the country contributes the least percentage ranging from 1.4% to 6.7% of the total disparity in the ratio of household members that participates in politics and decision-making. For households that are engaged in non-farming activities, non-farming households with about 6-10 members contribute the highest percentage of the total disparity in the ratio of household members that participates in politics and decision-making in the North-West, North-East, South-East and South-South Zones ranging from 58.3% to 59.7%. Households with less than 6 members in the North-Central and South-West Zones account for the highest level of dispersion in the total educational attainment in these Zones. It contributes between 41% and 50.6% of the total political inequality. Non-farming households with more than 10 members contribute the least percentage to the total political inequality in all the six Geo-political Zones ranging from 1.9% to 6.8%.

Political inequality among households in the rural areas of the country when decomposed by age shows that political inequality is more as a result of dynamics within the various age groups and it accounts for 95.8% of the total political inequality as presented in Figure 11. In addition, households whose household heads are between 31and 60 years of age contributes 53.1% of the total political inequality in the rural areas of the country as a whole as indicated in Figure 13. In addition, households whose household heads are not older than 30 years of age contributes the least percentage (7%) to the total political inequality. Across the Geo-political Zones, differences within the age group contribute the highest percentage to the total educational inequality in all the Zones ranging from 92.5% to 99.6%. Households in the rural areas whose household heads are between 31 and 60 years of age contributes the highest percentage of between 48.9% and 61% of the total political inequality in the rural areas of North-West, North-Central, North-East and South-South Zones. Households in the rural areas of the South-East Zone and South-West Zones whose household heads are older than 60 years of age contributes the highest percentage of 52.1% and 49.1% of the disparity among households participatory ratio in politics and decision-making. Furthermore, households whose household heads are not older than 30 years of age contributes the least percentage of between 1.7% and 10.8% of the total political inequality in the rural areas of the country and across all the six Geo-political Zones.

When stratified into farming and non-farming household's within group inequality among the diverse age group accounts for 95.9% and 95.7% of the total political inequality for

farming and non-farming households as presented in Figure 9. Figure 13 shows that farming and non-farming households whose household heads are between 31 and 60 years of age accounts for the highest disparity in participatory ratio of households in politics and decision-making contributing 54.6% and 52.1% of the total political inequality for farming and non-farming households respectively. Farming and non-farming households whose household heads are not older than 31 years of age contribute the least percentage of 7.2% and 6.8% of the total political inequality among farming and non-farming households. Across the six Geo-political Zones, households that are into farming activities have differences within the age group of household heads contributing between 93% and 98.4% to the total political inequality. Farming households in the North-West, North-Central, North-East and South-South Zones have household heads that are between 31 and 60 years of age contributing the highest percentage of the total political inequality accounting for 50.7% to 63.1%. While households in the South-East and South-West Zone have farming household heads that are more than 60 years of age accounting for 49.9% and 46.5% of total political inequality respectively. Furthermore, farming household's whose household heads that are not more than 30 years of age contributes the least percentage ranging from 1.6% to 11.8% of the total political inequality.

Across the geo-political Zones for non-farming households, non-farming households whose head are between 31 and 60 years of age contribute the highest percentage ranging from 47.2% to 59.3% of the total political inequality in the North West, North Central, North East and South South Zones. While non-farming households whose household heads are older than sixty years of age contributes the highest percentage of 53.9% and 48.1% of the total level of disparity in household's participatory ratio in politics and decision making in the South-East and South-West Zones. In addition, non-farming households in the rural areas of the country whose household heads are younger than 31 years of age contribute the least percentage to total political inequality in all the six Geo-political Zones in the rural areas of the country ranging from 1.8% to 10%.

Decomposition of political inequality by marital status into the within and between group contribution shows that 97.4% of the total political inequalities is attributed to differences within the different marital status groups. Figure 14 shows that polygamous homes in the rural areas as a whole contribute the highest percentage of 48.9% of the total political inequality while households whose household head are single contributes the least percentage

0.6% to the total political inequality. Across the Geo-political Zones in the rural areas of the country, households whose household head are polygamist in the North-West, North-Central, North-East, South-West and South-South Zones contributes the highest percentage to the total political inequality accounting for about 48.9% to 54.5% of the total political inequality while rural households in the South East Zone whose head are divorced or widows contribute the highest percentage to the total political inequality accounts for 45.1% of the total disparity in the ratio of household members that participates in politics and decision-making. Rural households in the North-Central, South-East, South-West and South-South Zones in the country whose household heads are single contributes the least percentage ranging from 0.2% to 3.4%. In addition, there is no marginal difference in the in the within group decomposition ratio of household members by marital status that participates in politics and decision-making among households whose head are widows/divorced in the North-West and North East Zones

The result of the decomposition of marital status into marginal contribution of within and between group compositions when stratified into farming and non-farming households indicates that disparity within the various marital status groups contributes the highest percentage of 96% and 98.4% to the total disparity in the ratio of household members that participates in politics and decision-making for both farming and non-farming households respectively. The result further shows that households that are being headed by polygamist contribute the highest percentage of 47.9% and 49.6% to the total political inequality. Furthermore, farming and non-farming households whose heads are single contribute the least percentage of the total political inequality accounting for just 0.4% and 0.7% of the total political inequality.

Across the Geo-political Zones in the rural areas of the country, household's that are engaged in farming activities have differences within the diverse marital status group contributing between 93.3% and 98.2% of the total political inequality. In addition, household whose head are polygamist contribute between 38% and 51.1% of the total political inequality among farming households across the 6 geo-political zones in the rural areas of the country. In addition farming households whose heads are single contributes the least percentage to the total disparity ranging from 0.1% to 1.4% of the total political inequality in the rural areas of the North-Central, South-East, South-West, and South-South Zones. While there is no marginal difference among households whose heads are single in the North-West and North-East Zones. The result further shows that across the Geo-political Zones, households that are

into non-farming activities in the rural areas of the country, polygamous homes contributes the highest percentage to the total disparity in the participatory ratio of politics and decision making of non-farming households across the six Geo-political Zones contributing between 39.5% and 51.8% of the total political inequality. Non-farming households whose head are single contribute between 0.2% and 7.9% in the North-Central, South-East, South-West and South-South Zone. The result further shows that there is no marginal difference in the ratio of household members that participates in politics and decision-making for household heads that are single in the North-West and North-East Zones.

Decompositions of inequality into within-group (Intra-group) and between-group (Inter group) inequalities have suggested that within-group inequality is often the most important aspect of inequality in several developing countries (e.g. Anand, 1983 for the case of Malaysia; Bates, 1981 and Easterly and Levine, 1997 for the case of Ethiopia; Litchfield, 2001 for the case of Brazil; Kanbur, 1998 and Stewart, 2000 for review).The result of the Shapley inequality decomposition conforms to the outcome of the survey by Baye 2007 on Exact Configuration of Poverty, Inequality and Polarization Trends in the Distribution of Well-being in Cameroon. The result of their survey shows that the within-group components principally accounted for majority of the level of dispersion among households in both the rural and urban areas of Cameroon.

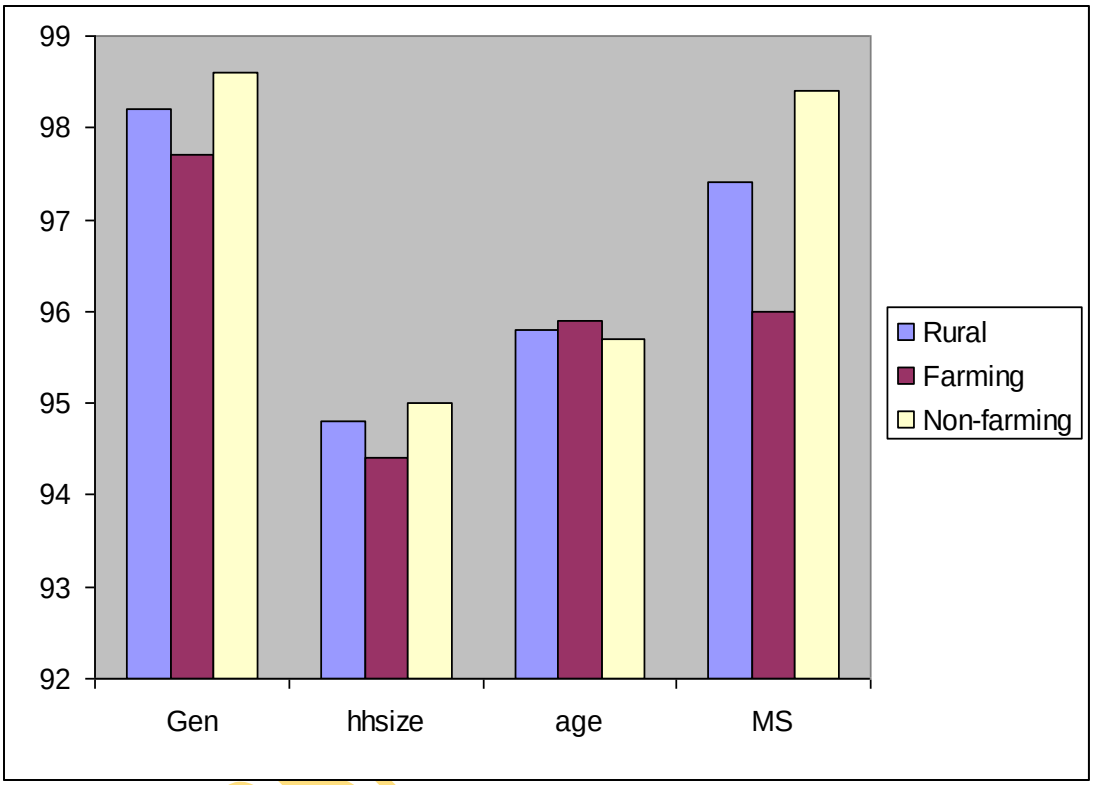

Figure 9: Political Inequality within Group Decomposition by Socio-economic Characteristics

N.B
Gen: Gender
hhsize: Household size
Age: Age
Ms= Marital Status

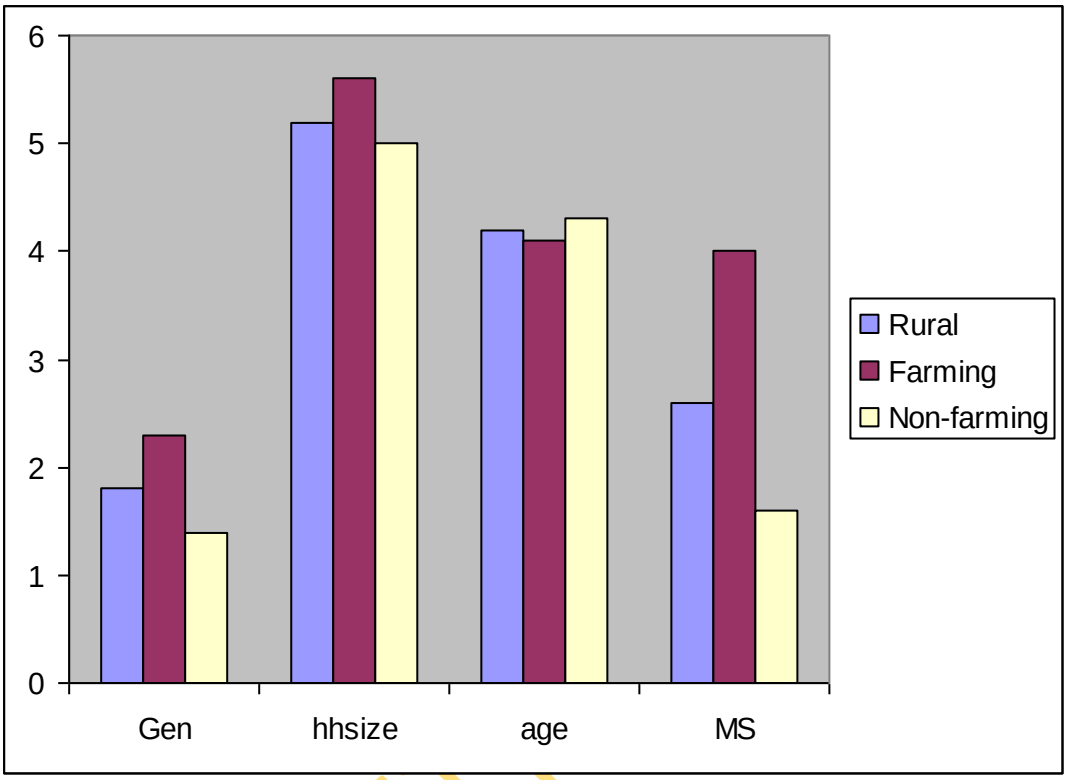

Figure 10: Political Inequality Between Group Decomposition by Socio-economic Characteristics

N.B
Gen: Gender
hhsize: Household size
Age: Age
Ms= Marital Status

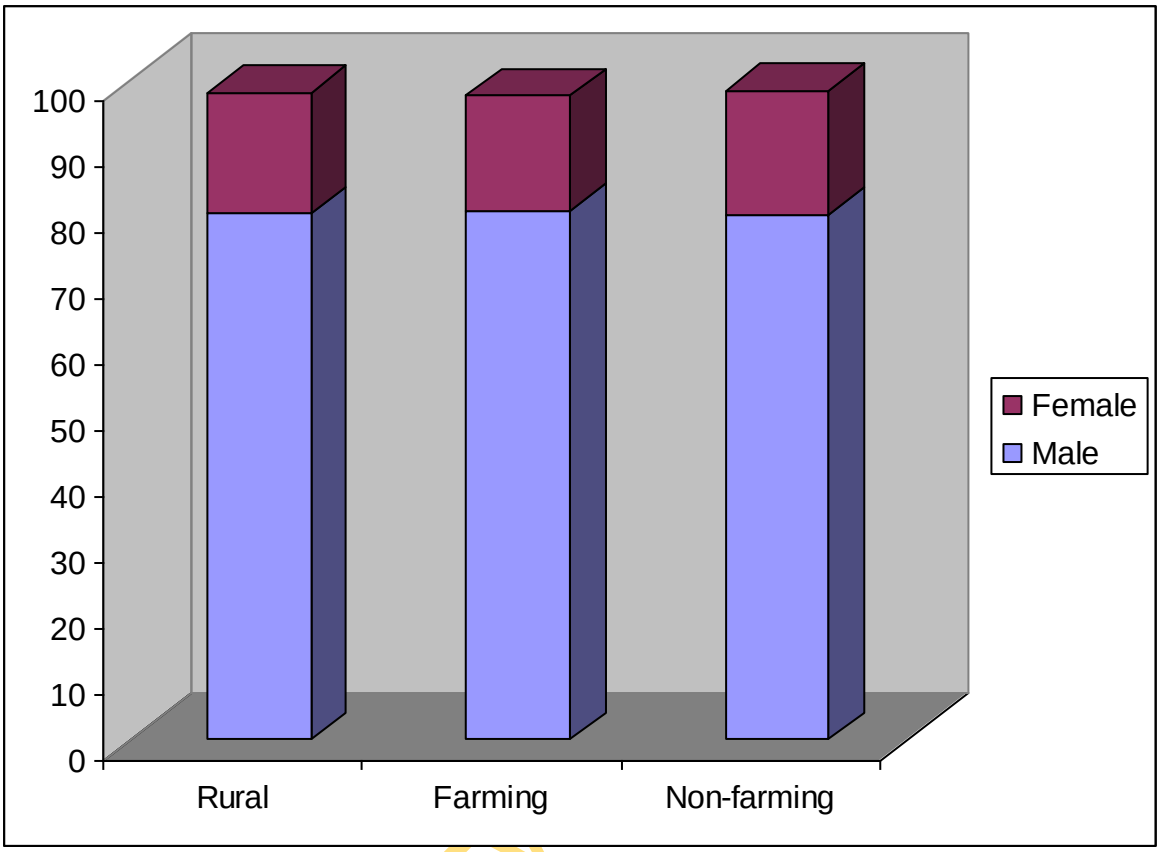

Figure 11: Within Political Inequality Intra Group Decomposition by Gender

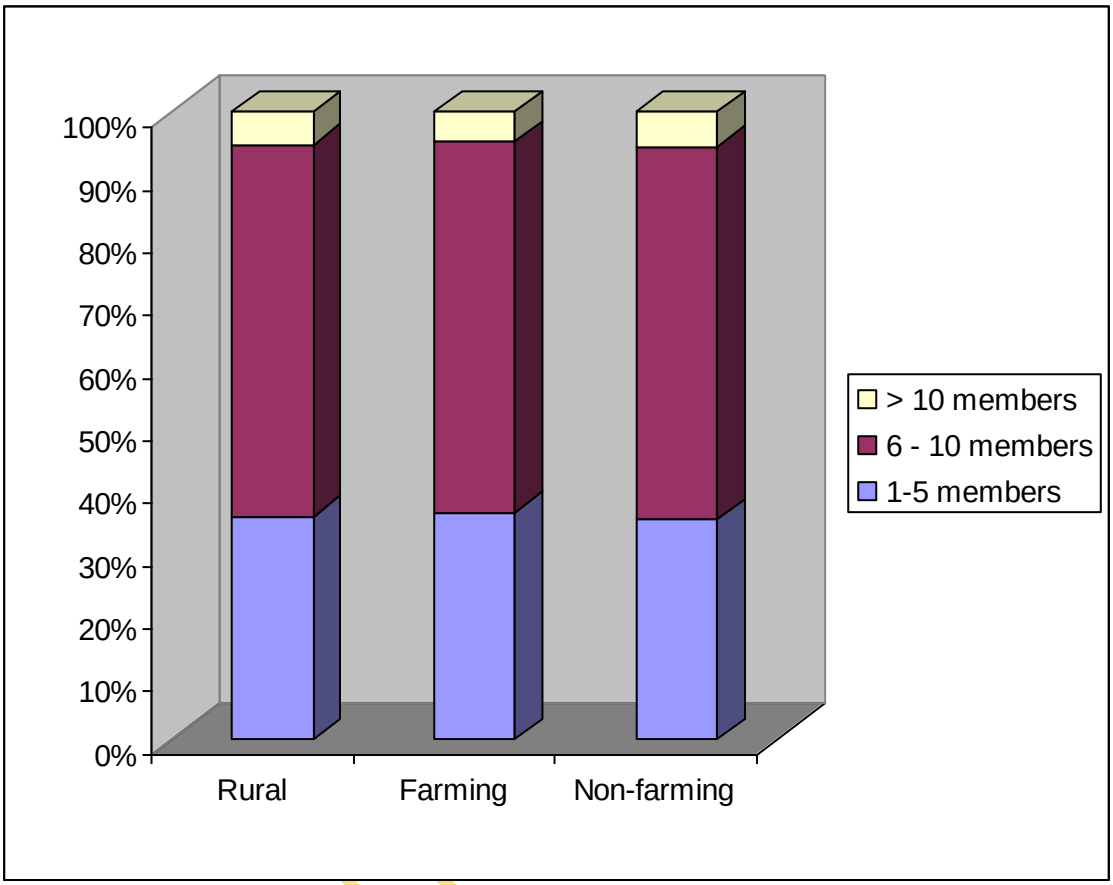

Figure 12: Within Political Inequality Intra Group Decomposition by Household Size

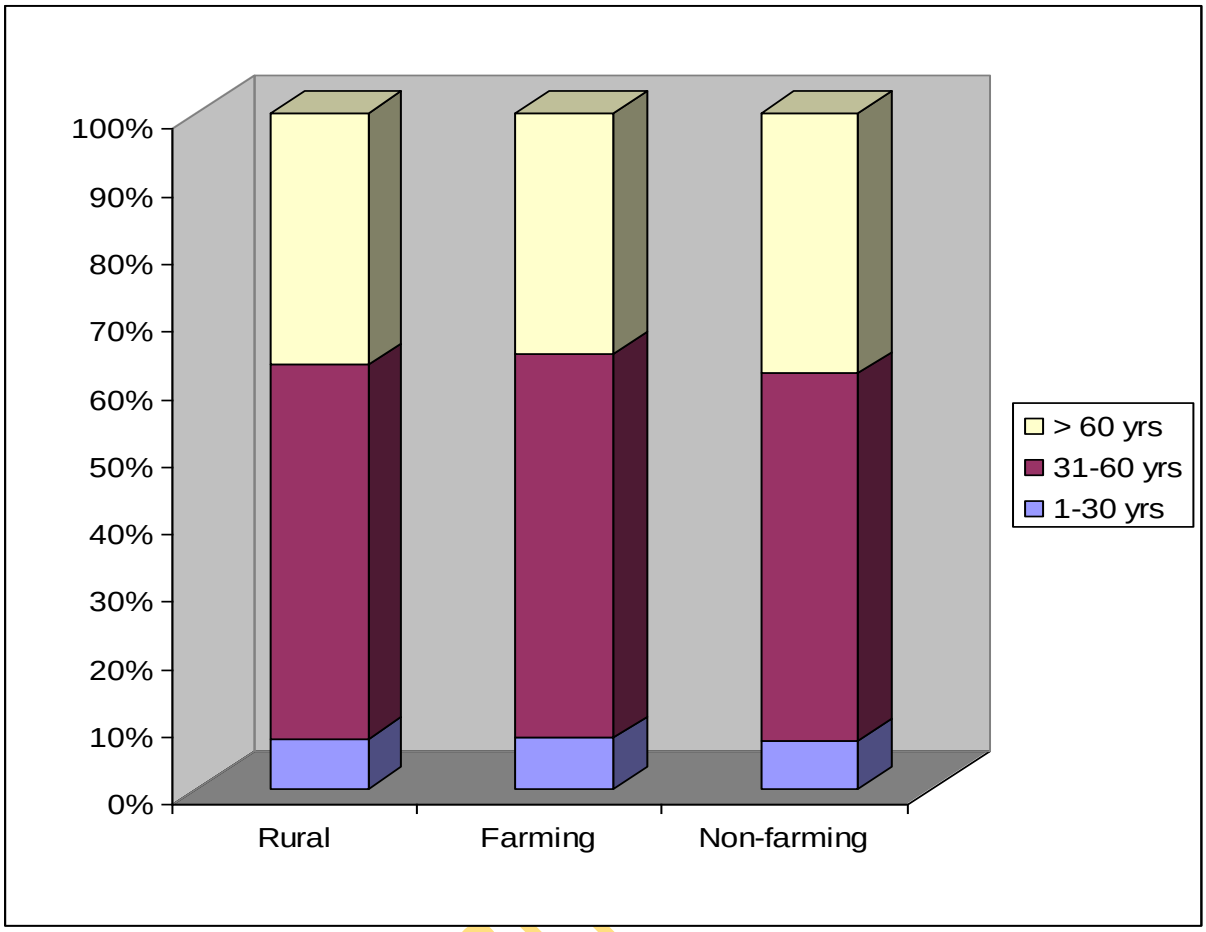

Figure 13: Within Political Inequality Intra Group Decomposition by Age of Household Head

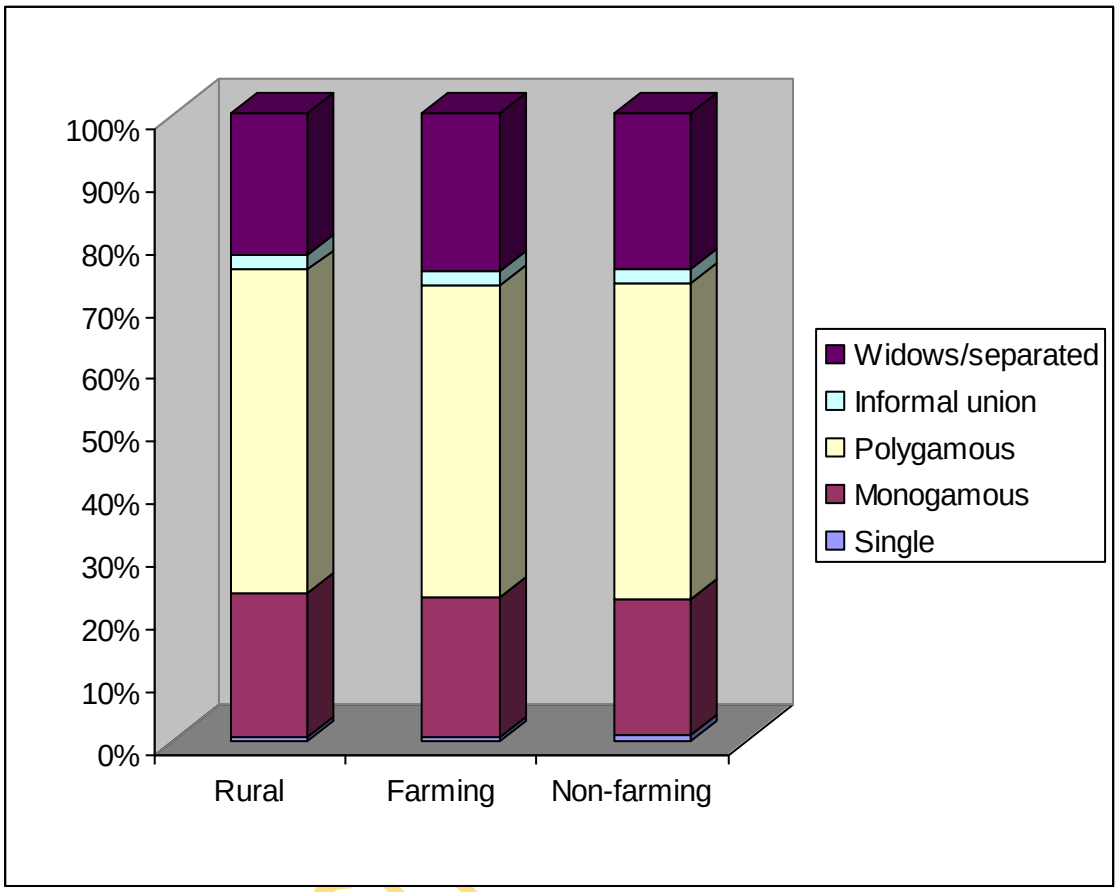

Figure 14: Within Political Inequality Intra Group Decomposition by Marital Status of Household Head

5.4.3: Marginal Within and Between Group Contributions to Total Health Inequality

The result of the decomposition of health inequality into within and between group marginal contributions shows that the cause of health inequality is also more as a result of disparity in the level of welfare attributes within the various households socio- economic characteristics rather than disparities between the different socio-economic groups for households in the rural areas of the country and when further dichotomized into farming and non-farming households.

Figure 15 shows that within health inequality decomposition by gender of household heads accounts for 97.6% of the total health inequality for households in the rural areas of the country as a whole with the male headed households contributing 78.3% of the total health inequality as presented in Figure 17. When stratified into farming and non-farming households, disparity in accessing health care service within male and female headed households accounts for 96.7% and 98.4% of the total dynamics in the level of access to health care service delivery among farming and non-farming households respectively with the male headed households accounting for 78.4% and 78.2% of the total dispersion in access to health care service delivery. Across the six Geo-political Zones, within group inequality accounts for the highest level of disparity in the level of household's access to health care service delivery ranging from 93.4% to 98.2%. In addition, the male headed households contribute the highest percentage ranging from 56.2% to 93.4% of the total health inequality across the Zones in the rural areas as a whole.

Figure 15 also presents the result of the within group contribution of household size to total health inequality for households in the rural areas of the country as a whole. The result indicates that 98.2% of the dynamics in access to health care services can be attributed to difference within household size compositions. Households that consist of about 6 to 10 members as shown in Figure 18 indicates that they contribute 53.8% of the total health inequality for households in the rural areas as a whole. In addition, households that consist of more than ten members contribute the least percentage (4%) to the total health inequality of households in the rural areas as a whole. The result also revealed that health inequality within the various household size compositions across the six Geo-political Zones also contributes the highest level of disparity in access to health care service delivery ranging from 91% to 98.6%. Households whose household size composition are between 6 and 10 contributes the

highest level of disparity among households in the rural areas of North-West, North-Central, North-East, South-East and South-South Zone ranging from 48.1% to 60% while households in the rural area of the South-West Zone consisting of less than six members contributes the highest percentage of 66.3% to total health inequality. Furthermore, households with more than ten members contribute the least percentage to the total health inequality in all six Geo-political Zones in the country ranging from 0.6% to 6.2% of the total health inequality.

The result of decomposition of marginal contribution of the within and between health inequality to total inequality by household size for farming and non-farming households stratification in the rural areas indicates that 97.9% and 95.6% of the total health inequality can be accounted for differences within the different household size group composition. Households with 6-10 members contribute the highest percentage of 58.1% and 49.5% of the total health inequality for farming and non-farming households respectively. While households with more than ten members contribute the least percentage to the total health inequality and it accounts for 3.7% and 4.2% of the dynamics in household's access to health care service delivery as also presented in Figure 18.

Across the six Geo-political Zones, households that are engaged in farming activities consisting of about 6 to 10 members contributes the highest percentage to the total disparity in the level of households access to health care service delivery in all the Zones accounting for 49.2% to 60% of the total disparity in access to health care service delivery. Farming households in the rural areas of the country with more than 10 members in the six Geo-political Zones in the country contributes the least percentage ranging from 0.9% to 4.5% of the total disparity in the level of household's access to health care service delivery. For households that are engaged in non-farming activities, households with about 6-10 members contribute the highest percentage of the total disparity in their level of access to health care service delivery in the North-West, North-Central, North-East South-East and South-South Zones ranging from 47% to 60.5%. Households with less than 6 members in the South-West Zone account for the highest level of dispersion in the total access to health care service delivery for non-farming households in the rural area of the Zone contributing 67.9% of the total health inequality. Non-farming households with more than 10 members contribute the least percentage to the total health inequality in all the six Geo-political Zones ranging from 0.5% to 7.8%.

Marginal contributions of dynamics within age groups of household heads to total health inequality are also presented in Figure 15. The result shows that variations in the age group of household head accounts for 96.8% of the total health inequality among households in the rural areas as a whole. In addition, households whose household heads are between 31 and 60 years of age contributes about 60.5% of the total health inequality in the rural areas of the country at large. In addition, households whose household heads are younger than 31 years of age contribute the least percentage of about 8.6% to the total health inequality as shown in figure 19. Across the Geo-political Zones, differences within the age group of households in the rural areas of the country contribute the highest percentage to the total health inequality in all the Zones ranging from 88.4% to 98.8%. Households in the rural areas whose household heads are between 31 and 60 years of age contributes the highest percentage of between 54.4% and 66% of the total health inequality in almost all the Zones in the rural areas of the country with the exception of the South-East Zone. Households whose household heads are older than 60 years of age in the South-East Zone contributes the highest level of disparity in access to health care service delivery. It accounts for 45.7% of the total disparity in access to health care service delivery. Furthermore, households whose household heads are not older than 30 years of age contributes the least percentage of between 2% and 14.5% to the total health inequality in the rural areas of the country and across all the six Geo-political Zones.

The result of the farming and non-farming household's stratification shows that within group inequality accounts for 97.4% and 96.4% of the total dynamics in household's access to health care service delivery among farming and non-farming households respectively. Figure 19 further shows that farming and non-farming households whose head are between 31-60 years of age accounts for the highest disparity in households access to health care service delivery contributing 62.4% and 59% of the total health inequality for farming and non-farming households respectively. Households whose household heads are younger than 31 years of age contribute the least percentage of 9% and 8.3% of the total health inequality among farming and non-farming households. Across the six Geo-political Zones, households that are into farming activities have differences within the age group of household heads contributing between 92.1% and 96.7% to the total health inequality. Farming households in the rural areas of the six Geo-political Zones have household heads that are between 31 and 60 years of age contributing the highest percentage of the total health inequality accounting for 46.4% to 67.4% of the total health inequality. Furthermore, farming household head that

are 30 years of age and below contributes the least percentage ranging from 1.9% to 10.7% of the total health inequality.

Across the Geo-political Zones for the non-farming households, non-farming households whose household heads are between 31 and 60 years of age contribute the highest percentage of 51.6% to 64.7% of the total health inequality in the North-West, North-Central, North-East, South-West and South-South Zones. While non-farming households whose household heads are older than sixty years of age contributes the highest percentage of 47.5% of the total level of disparity in household's access to health care service delivery in the South East Zone. In addition, non-farming households in the rural areas of the country whose head are younger than 31 years of age contribute the least percentage to total health inequality in all the six Geo-political Zones in the rural areas of the country ranging from 2.1% to 14.7%.

The marginal contribution of within health inequality to total heath inequality by marital status of household heads for the rural households as a whole is as indicated in Figure 15. The result shows that in the rural area of the country as a whole, about 92% of the total health inequality is attributed to dynamics within the various marital groups. The result in Figure 20 further shows that polygamous homes in the rural areas as a whole contribute the highest percentage (49.9%) to the total health inequality while households whose household head are single contributes the least percentage (0.7%) to the total level of dispersion in access to health care service delivery among rural households as a whole. Across the geo-political zones in the rural areas of country, households whose household head are polygamist in the North-West, North-Central, North-East, South-West and South-South Zones contributes the highest percentage to total health inequality accounting for about 41.3% to 54.5% of the total health inequality while rural households in the South-East Zone whose head are divorced or widows contribute the highest percentage to the total health inequality accounting for 45.1% of the total disparity in the level of household access to health care service delivery. Rural households in the country whose household heads are single contributes the least percentage in the total health inequality ranging from 0.2% to 3.4% in the North-Central, South-East, South-West and South-South Zones. In addition, there is no marginal difference in the level of household's access to health care service delivery among households whose head are single in the North-East and North-West Zones

The result of the within group inequality to total health inequality when stratified into farming and non-farming households indicates that disparity within the various marital status groups contributes the highest percentage of 91% and 92.8% for both farming and non-farming households to the total health inequality. The result further shows in Figure 25 that households that are being headed by polygamist contribute the highest percentage of 49.9% and 48.9% to the total health inequality for farming and non-farming households respectively. Furthermore, households whose heads are single contribute the least percentage of the total educational inequality accounting for between 0.5% and 1% of the total health inequality.

Across the Geo-political Zones in the rural area of the country, household's that are into farming activities have differences within the diverse marital status group contributing between 90.3% and 97.4% of the total health inequality. In addition, household whose household heads are polygamist contribute between 42.7% and 56.7% of the total health inequality among farming households across the 6 geo-political zones in the rural areas of the country. In addition farming households whose household heads are single contributes the least percentage to the total disparity ranging from 0.1% to 2.1% of the total health inequality in the rural areas of the North-Central, South-East, South-West, and South-South Zones. While there is no marginal difference in access to health care facilities among households whose heads are single in the North-West and North-East Zones. The result further shows that across the Geo-political Zones for households that are engaged in non-farming activities in the rural areas of the country, polygamous homes contributes between 35.7% and 52.9% of the total health inequality for non-farming households in all the rural areas of the six Geo-political Zones. For the non-farming households, households whose head are single contribute between 0.4% and 4.1% in the North Central, South West and South-South Zone. The result further shows that there is no marginal difference in the level of health inequality among non-farming household heads in the North West, North East and South East Zones that their household heads are single.

The result of the marginal contribution of within and between health inequalities to the total health inequality also conforms to the outcome of Baye 2005 that also indicated that inequality is attributed to differences within groups than as a result of differences between groups and that inequality within groups is the most important aspect of inequality (Baye 2005)

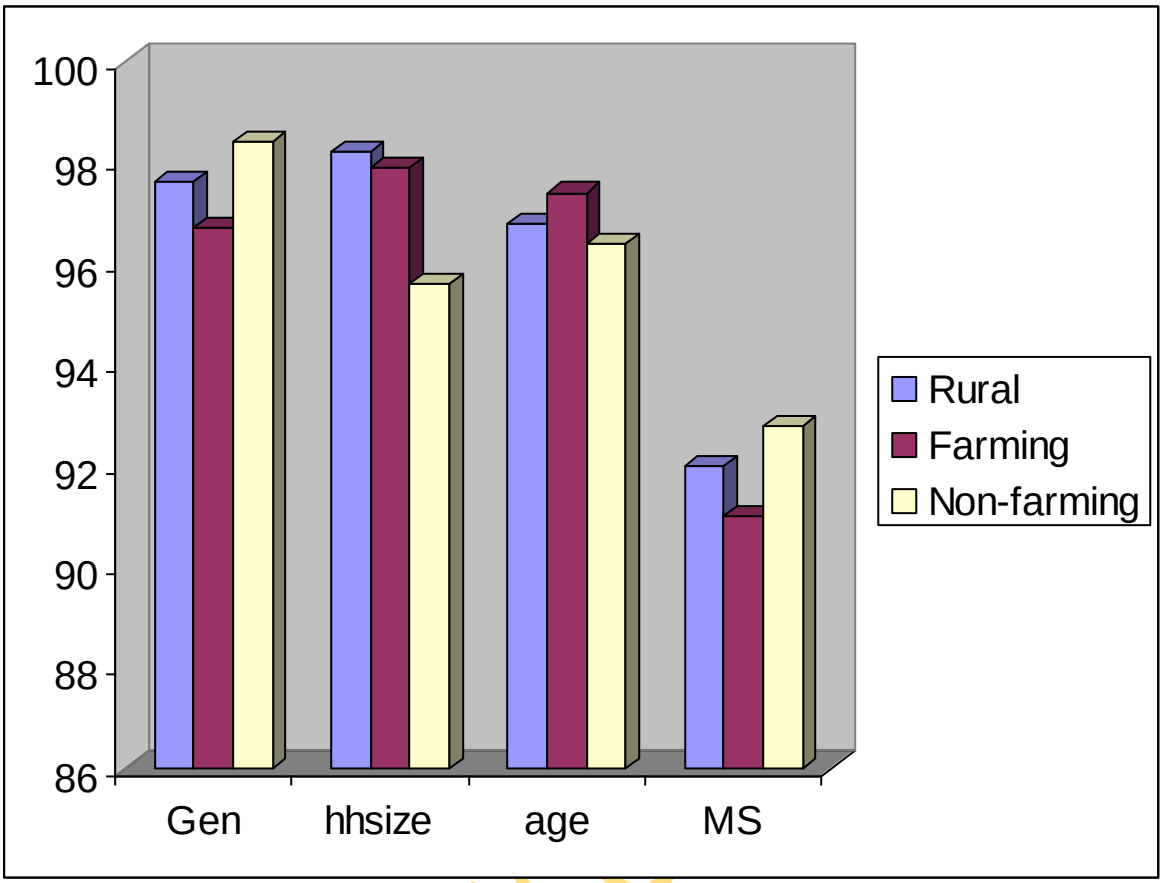

Figure 15: Health Inequality within Group Decomposition by Socio-economic Characteristics

N.B
Gen: Gender
hhsize: Household size
Age: Age
Ms= Marital Status

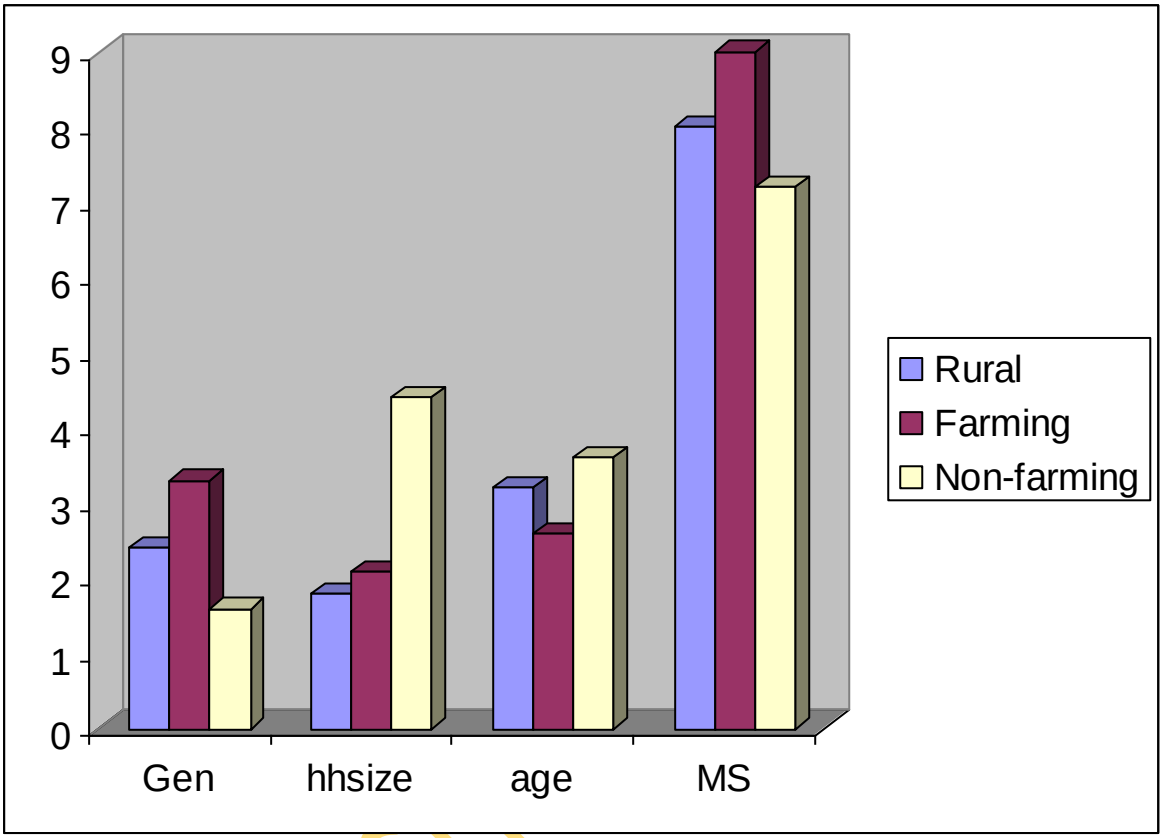

Figure 16: Health Inequality Between Group Decomposition by Socio-economic Characteristics

N.B
Gen: Gender
hhsize: Household size
Age: Age
Ms= Marital Status

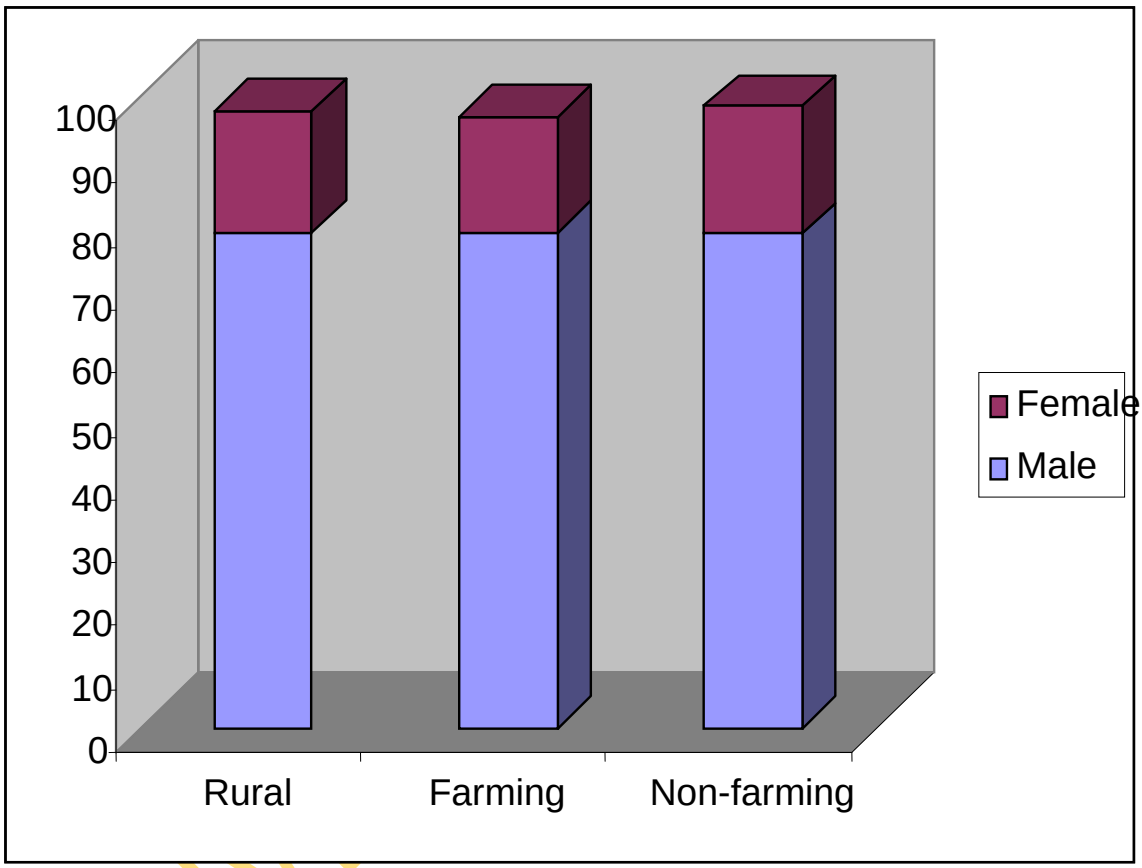

Figure 17: Within Health Inequality Intra Group Decomposition by Gender of Household Head

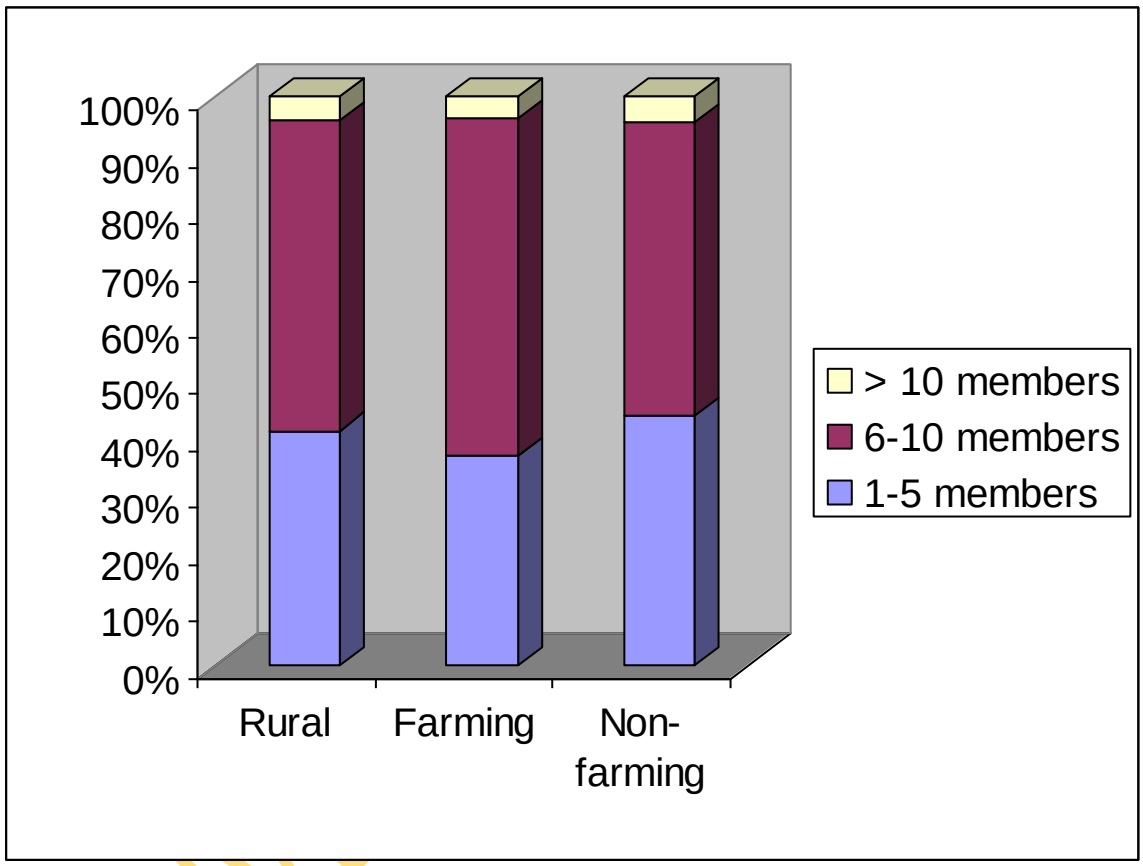

Figure 18: Within Health Inequality Intra Group Decomposition by Household Size

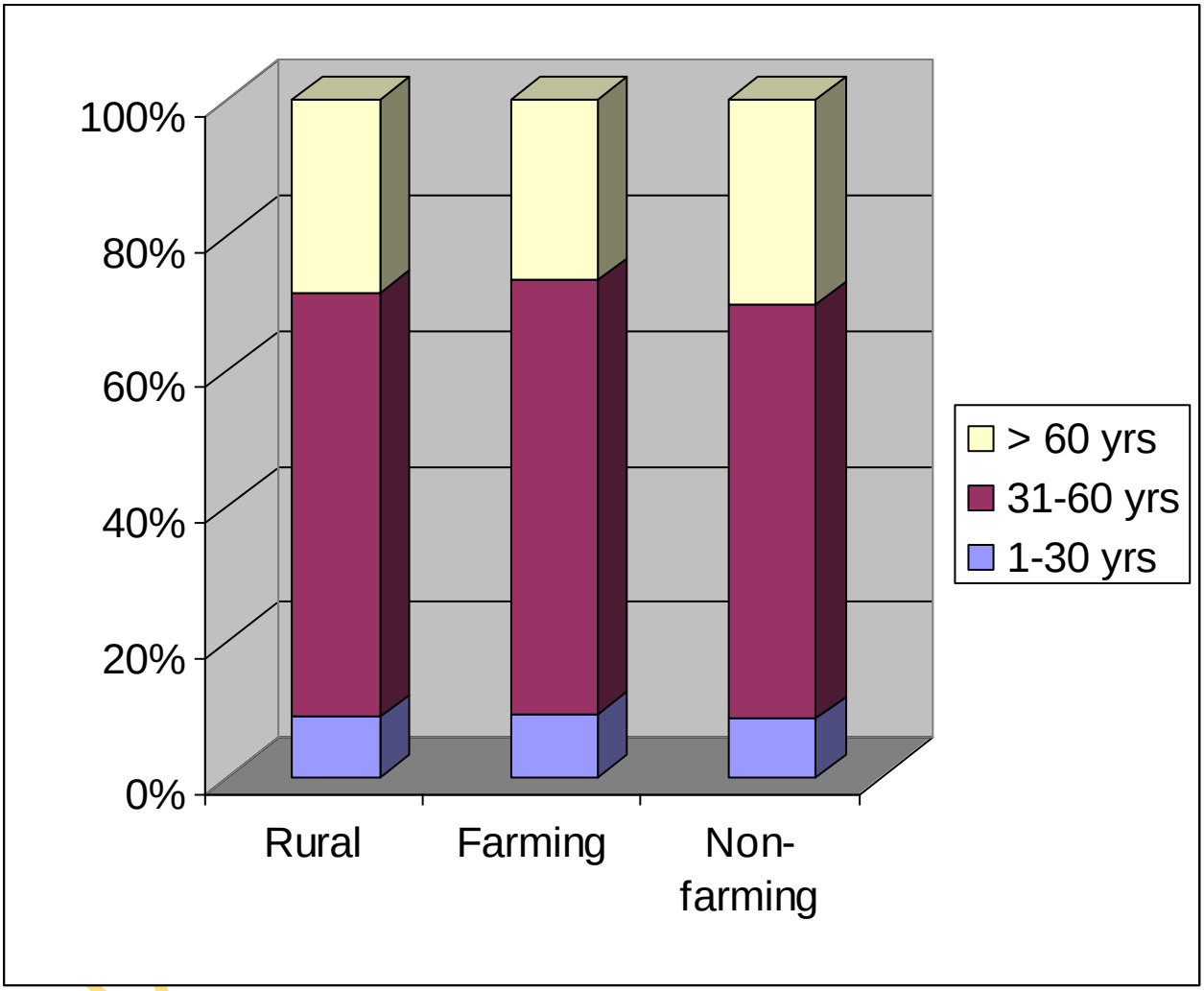

Figure 19: Within Health Inequality Intra Group Decomposition by Age of Household Head

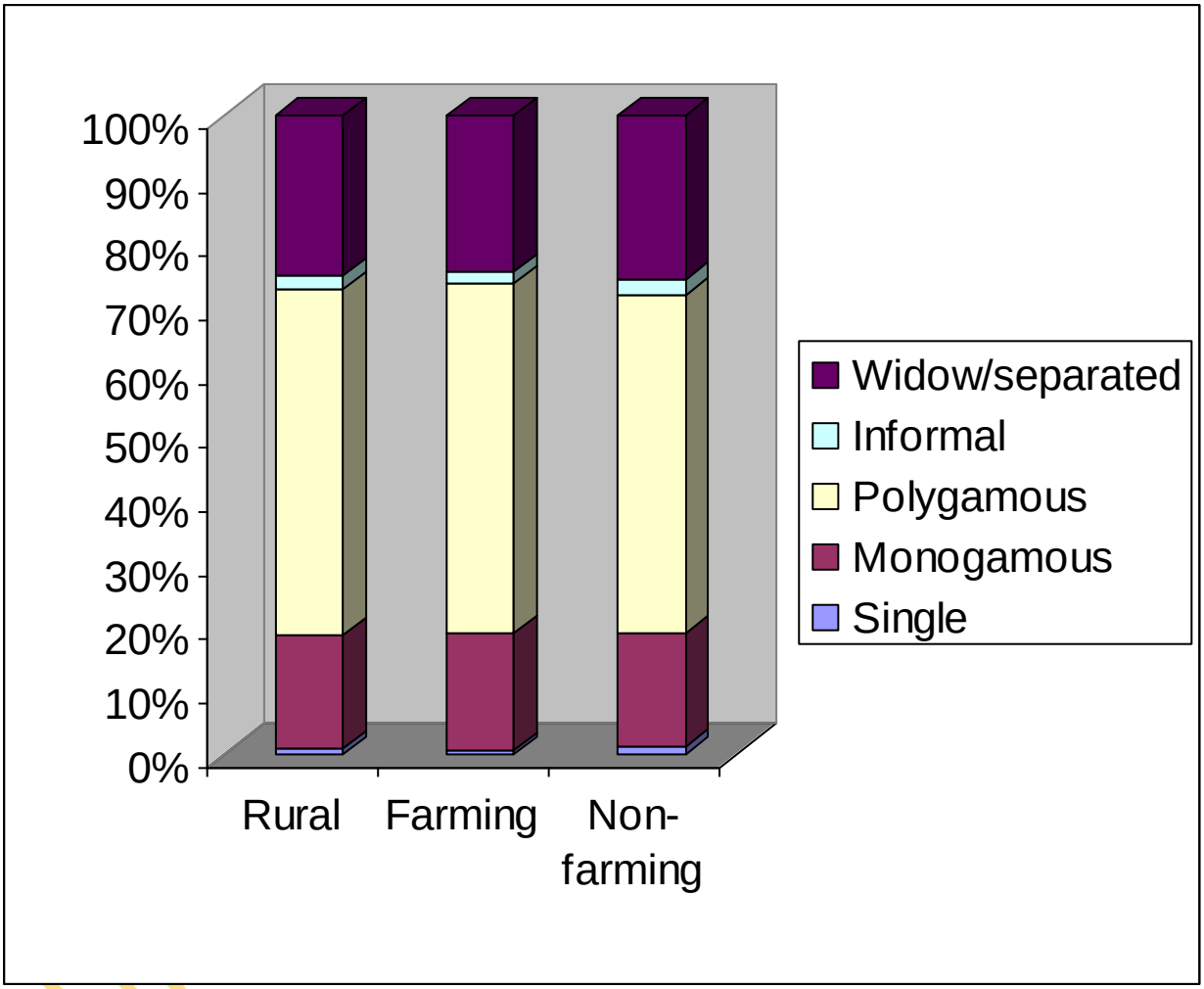

Figure 20: Within Health Inequality Intra Group Decomposition by Marital Status of Household Head

CHAPTER SIX

DETERMINANTS OF NON-INCOME INEQUALITY AMONG RURAL HOUSEHOLDS IN NIGERIA

This section identifies the factors influencing access to non-income welfare attributes (education, political and heath) among households in the rural areas of the country and farming and non-farming households dichotomized. In estimating the determinants of household non-income welfare status, regression model made of thirteen regressors was run. The explanatory variables are gender, household size, age, marital status, household sanitation index, household asset base index, housing ownership and housing condition as well as the six geo-political Zones. Marginal effects were also estimated for the continuous variables only because they may not be meaningful for binary variables

6.1: Determinants of Educational Inequality in Nigeria

The results of the determinant of educational inequality for the rural households in the country as well as for farming and non-farming household's dichotomization are summarized in tables 46 to 51. The results of the diagnostic statistics which are the Chi-square and Log likelihood function were significant at 1% level and this indicates that the model has a good fit for the data.

The result of the marginal effect of the ordered probit regression analysis indicates the factors that determine the probability that households in the rural areas of the country would have low level of educational attainment. The result indicates that the probability of rural households having low educational attainment would increase by 0.0074, 0.0027, 0.2702, 0.1839 and 0.0879 if there is a percentage change in household size, age of household heads and residence in North West, North East and North Central. A percentage increase in household heads being male, household head being married, households sanitation index, household asset base index as well as house ownership and housing condition index and residence in the South East and South South zone would decrease the probability of households having low educational attainment by 0.0347, 0.0596, 0.0159, 0.0086, 0.0934, 0.0213 and 0.0355 respectively for households in the rural areas as a whole.

Table 47 present the factors that determine the probability of farming and non-farming households having low educational attainment. The result shows that for farming households, 1% increase in household size, age of household heads, household head being single and

residence in the North West, North East and North Central zone would increase the probability of the farming households having low households educational attainment by 0.0127, 0.0028, 0.5458, 0.2947, 0.1959 and 0.1186 respectively. A percentage increase in household sanitation index, household asset base index, house ownership and condition index and residence in the South East and South South Zone would decrease the probability of farming households having low household educational attainment by 0.0132, 0.0081, 00818 0.0322 and 0.0091 respectively.

Factors that determine the probability that non-farming households would have low educational attainment are household size, marital status, age, household sanitation, asset base and house ownership and housing condition and residence in North West, North East, North Central, South East and South South Zone. The result further shows that the probability that non-farming households would have low educational attainment would increase by 0.0118, 0.1754, 0.0033, 0.2481, 0.2121 and 0.0389 if there is 1% increase in household size, marital status, age of the household heads and residence in North West, North East and North Central zone. A percentage increase in household sanitation, asset base and house ownership and housing condition would decrease the probability of non-farming households having low household educational attainment by 0.0225 0.0060, 0.0224, 0.0427 and 0.1099 .

Household size, gender, age, marital status, household sanitation index, household asset base index and residence in North West, North East, North Central, South East and South South Zone are the factors that determine the probability that rural households would average level of educational attainment. The result of the marginal effect in table 48 further shows that 1% change in household head being married, household sanitation index, household asset base index, house ownership and housing condition index and residence in the South East and South South zone would increase the probability of households in the rural areas of the country to have an average level of educational attainment by 0.0110, 0.0060, 0.0649, 0.0150 and 0.0242. A percentage change household size, age of household heads and residence in North West, North East, North Central, South East and South South Zone would decrease the probability of households in the rural areas to have average educational attainment by 0.0051, 0.0019, 0.1997, 0.1399 and 0.0637 respectively.

For households that are engaged in farming activities, 1% increase in household being married, household sanitation index, household asset base, house ownership and housing

condition index and residence in the South East and South South zone will increase the probability of farming households to have average level of access to education by 0.1303, 0.0103, 0.0063, 0.0638 0.0254 and 0.0071 respectively. On the other hand, 1% change in household size, age of household heads and would decrease the probability of farming households to have average level of educational attainment by 0.0099, 0.0022 and 0.2358, 0.1617 and 0.0954.

For households that are engaged in non-farming activities, 1% increase in household being married, household sanitation index, household asset base, house ownership and housing condition index and residence in the South East and South South zone will increase the probability of farming households to have average level of access to education by 0.1026, 0.0150, 0.0040, 0.0742, 0.0279 and 0.0696. On the other hand, 1% change in household size, age of household heads and residence in the North West, North East and North Central would decrease the probability of farming households to have average level of educational attainment by 0.0079, 0.0022, 0.1779, 0.1544 and 0.0265

The probability of households having high level of educational attainment indicates that the probability of households having high educational attainment would increase by 0.0112, 0.0017, 0.0044, 0.0027, 0.0291, 0.0065 and 0.0115 respectively if household heads are males, household heads are married, household sanitation index, household asset base index, house ownership and condition index and residence in the South East and South South zone are increased by 1%. Household size, age of household heads and residence in North West, North East and North Central would decrease the probability of households having high level of educational attainment in the rural areas of country by 0.0023, 0.0009 0.0775, 0.0480 and 0.0251 respectively if they are increased by 1% for households in the rural areas of the country as a whole.

Households in the rural areas of the country that are engaged in farming activities would have the probability of having high level of educational attainment increased by 0.5538, 0.0029, 0.0019, 0.0180, 0.0068 and 0.0020 respectively if there is 1% increase in the indices of household heads that are married, household sanitation, asset base, house ownership and housing condition and residence in South East and South South zone. A percentage increase in household size, age of household heads and residence in North West, North East and North

Central would decrease the probability of the farming households to have high level of educational attainment by 0.0028, 0.0006, 0.0589, 0.0342 and 0.0232 respectively.

For Non-farming households, the probability of having high access to education would increase by 0.0728, 0.0074, 0.0020 and 0.0366 if there is 1% increase in the indices of household heads that are married, household sanitation index, household asset base, house ownership and housing condition and residence in South Easr and South South Zone respectively. While 1% increase in household size, age of household heads and residence in North West, North East and North Central would decrease the probability of non-farming households to have high level of educational attainment by 0.0039, 0.0011, 0.0703, 0.0577 and 0.0123 respectively.

The outcome of the result corroborate the findings of the study of Justino *et al* 2004 on "Multidimensional inequality: an empirical application to Brazil" where household size, gender of household heads, and age of household heads were the significant factors in determining the probability of households having high educational attainment which were also significant in determining the probability of rural households having high educational attainment irrespective of whether they are farming or non-farming households.

Table 46: Determinants of Low Educational Attainment among Rural Households in Nigeria (Marginal Effect)

Variables	Coefficient	Standard Error	P>/Z/
Household size	0.0074	0.0006	0.000***
Gender	-0.0347	0.0063	0.000***
Age	0.0027	0.0001	0.000***
Marital Status	- 0.0596	0.0042	0.000***
Sanitation	-0.0159	0.0010	0.000***
Asset base	-0.0086	0.0010	0.000***
Housing	-0.0934	0.0017	0.000***
North West	0.2702	0.0035	0.000***
North East	0.1839	0.0035	0.000***
North Central	0.0879	0.0047	0.000***
South East	-0.0213	0.0058	0.000***
South South	-0.0355	0.0059	0.000***
Diagnostic Statistics	LR chi2(13) = 10333.86 Prob > chi2 = 0.0000 Log likelihood = -38625.765 Pseudo R2 = 0.1180		

Table 47: Determinants of Low Educational Attainment among Farming and Non-farming Households in Rural Nigeria (Marginal Effect)

	Farming households			Non-farming households		
Variables	Coefficient	Std. Error	**P > /Z/**	Coefficient	Std. Error	**P > /Z/**
Household size	-0.0127	0.0010	0.000***	-0.0118	0.0010	0.000***
Gender	0.0126	0.0083	0.130	-0.0000	0.0078	0.998***
Age	0.0028	0.0002	0.000***	0.0033	0.0002	0.000***
Marital Status	-0.1857	0.0142	0.000***	-0.1754	0.0117	0.000***
Sanitation	-0.0132	0.0026	0.002***	-0.0022	0.0025	0.002***
Asset base	0.0081	0.0026	0.000***	0.0060	0.0025	0.015**
Housing condition	-0.0188	0.0027	0.000***	-0.1108	0.0027	0.000***
North West	0.2947	0.0061	0.000***	0.2481	0.0068	0.000***
North East	0.1959	0.0059	0.000***	0.2121	0.0070	0.000***
North Central	0.1186	0.0078	0.000***	0.0389	0.0091	0.000***
South East	-0.0322	0.0097	0.000***	-0.0427	0.0103	0.000***
South South	-0.0091	0.0102	0.0017***	-0.1099	0.0095	0.000***
Diagnostic Statistics	LR chi2(12) = 4506.16 Prob > chi2 = 0.0000 Log likelihood = -14941.623 Pseudo R2 = 0.1310			LR chi2(12) = 5938.2 Prob > chi2 = 0.0000 Log likelihood = -22862.034 Pseudo R2 = 0.1149		

Table 48: Determinants of Average Educational Attainment among Rural Households in Nigeria (Marginal Effect)

Variables	Coefficient	Standard Error	P>/Z/
Household size	-0.0051	0.0004	0.000***
Gender	-0.0236	0.0042	0.000***
Age	-0.0019	0.0001	0.000***
Marital Status	0.0423	0.0031	0.000***
Sanitation	0.0110	0.0011	0.000***
Asset base	0.0060	0.0011	0.000***
Housing	0.0649	0.0013	0.000***
North West	-0.1997	0.0029	0.000***
North East	-0.1399	0.0030	0.000***
North Central	- 0.0637	0.0036	0.000***
South East	0.0150	0.0041	0.000***
South South	0.0242	0.0039	0.000***
Diagnostic Statistics	LR chi2(13) = 10333.86 Prob > chi2 = 0.0000 Log likelihood = -38625.765 Pseudo R2 = 0.1180		

Table 49: Determinants of Average Educational Attainment among Rural Households in Nigeria (Marginal Effect)

	Farming households			Non-farming households		
Variables	Coefficient	Std. Error	**P > / Z /**	Coefficient	Std. Error	**P > / Z /**
Household size	-0.0099	0.0008	0.000***	-0.0079	0.0006	0.000***
Gender	-0.0098	0.0064	0.128	-0.0000	0.0052	0.998
Age	-0.0022	0.0002	0.000***	-0.0022	0.0001	0.000***
Marital Status	0.1303	0.0089	0.000***	0.1026	0.0059	0.000***
Sanitation	0.0103	0.0020	0.000***	0.0150	0.0017	0.002***
Asset base	0.0063	0.0020	0.002***	0.0040	0.0017	0.015**
Housing condition	0.0638	0.0023	0.000***	0.0742	0.0020	0.000***
North West	-0.2358	0.0051	0.000***	-0.1779	0.0053	0.000***
North East	-0.1617	0.0052	0.000***	-0.1544	0.0056	0.000***
North Central	-0.0954	0.0065	0.000***	-0.0265	0.0063	0.000***
South East	0.0254	0.0077	0.001***	0.0279	0.0066	0.000***
South South	0.0071	0.0079	0.037**	0.0696	0.0057	0.000***
Diagnostic Statistics	LR chi2(12) = 4506.16 Prob > chi2 = 0.0000 Log likelihood = -14941.623 Pseudo R2 = 0.1310			LR chi2(12) = 5938.2 Prob > chi2 = 0.0000 Log likelihood = -22862.034 Pseudo R2 = 0.1149		

Table 50: Determinants of High Educational Attainment among Households in Rural Nigeria (Marginal Effect)

Variables	Coefficient	Standard Error	P>/Z/
Household size	- 0.0023	0.0005	0.000***
Gender	0.0112	0.0039	0.000***
Age	-0.0009	0.0010	0.000***
Marital Status	0.0017	0.0041	0.000***
Sanitation	0.0044	0.0014	0.000***
Asset base	0.0027	0.0013	0.232
Housing	0.0291	0.0016	0.000***
North West	-0.0775	0.0058	0.000***
North East	-0.0480	0.0076	0.000***
North Central	-0.0251	0.0049	0.349
South East	0.0065	0.0060	0.000***
South South	0.0115	0.0038	0.082**
Diagnostic Statistics	LR chi2(13) = 10333.86 Prob > chi2 = 0.0000 Log likelihood = -38625.765 Pseudo R2 = 0.1180		

Table 51: Determinants of High Educational Attainment among Households in Rural Nigeria (Marginal Effect)

	Farming households			Non-farming households		
Variables	Coefficient	Std. Error	**P > /Z/**	Coefficient	Std. Error	**P > /Z/**
Household size	0.0028	0.0002	0.000***	0.0039	0.0003	0.000***
Gender	0.0028	0.0019	0.137	0.0006	0.0026	0.998
Age	0.0006	0.0000	0.000***	0.0011	0.0001	0.000***
Marital Status	0.5538	0.0056	0.000***	0.0728	0.0060	0.000***
Sanitation	0.0029	0.0006	0.000***	0.0074	0.0008	0.002***
Asset base	0.0019	0.0006	0.002***	0.0020	0.0008	0.015**
Housing condition	0.0180	0.0007	0.000***	0.0366	0.0010	0.000***
North West	0.0589	0.0020	0.000***	0.0703	0.0021	0.000***
North East	0.0342	0.0013	0.000***	0.0577	0.0019	0.000***
North Central	0.0232	0.0015	0.000***	0.0123	0.0028	0.000***
South East	0.0068	0.0020	0.001***	0.0148	0.0038	0.000***
South South	0.0020	0.0023	0.077*	0.0403	0.0039	0.000***
Diagonistic Statistics	LR chi2(12) = 4506.16 Prob > chi2 = 0.0000 Log likelihood = -14941.623 Pseudo R2 = 0.1310			LR chi2(12) = 5938.2 Prob > chi2 = 0.0000 Log likelihood = -22862.034 Pseudo R2 = 0.1149		

6.2: Determinants of Level of Participation in Politics and Decision-Making

The factors that determine the level of participation in politics and decision-making in the rural areas of the country as a whole as well as for farming and non-farming household's stratification are shown in tables 52 to 57. The results of the diagnostic statistics which are the Chi-square and Log likelihood function were significant at 1% level and this indicates that the model has a good fit for the data.

The result of the marginal effect indicates that the probability of rural having low level of participation in politics and decisions making would increase by 0.0108, 0.0173, 0.0269, 0.0003 and 0.0411 if household size, household head are males, age, household head being married and residence in the South East Zone are increased by 1% respectively. A percentage increase in age of household head, household sanitation index, household asset base index, house ownership and housing condition index and residence in North West and North Central Zone would decrease the probability of rural households to have low level of participation in politics and decision making by 0.0003, 0.0047, 0.0017 and 0.0037, 0.0067, 0.0038, 0.0183 respectively.

For households in the rural areas of the country that are engaged in farming activities, the probability that they would have low level of participation in politics and decision making would decrease by 0.0104, 0.0082, 0.0046, 0.0023, 0.0031, 0.0201 and 0.0106 if there is 1% increase in their household size, household head being male, household sanitation index, household asset base index, house ownership and housing condition index and residence in North West and North Central Zone. A percentage change in households residing in South East will increase the probability of farming households to have low participatory ratio in politics and decision-making. For non-farming households, the probability that they would have low participatory ratio in politics and decision making would increase by 0.3535 and 0.0136 if there is a percentage increase in the number of households that are residing in South East and South South zone. A percentage increase in household size, household sanitation index, household asset base, house ownership and housing condition and residence in North East and North Central zone would decrease the probability of non-farming households having low participatory ratio in politics and decision-making by 0.0093, 0.0073, 0.0023, 0.0055, 0.0043 and 0.0053 respectively.

The probability that rural households would have average participatory ratio in politics and decision-making would increase by 0.0109, 0.0030, 0.0060, 0.0047, 0.0017, 0.0037, 0.0067 and 0.0183 if household size, households head being males, household sanitation index, household asset base index, house ownership and housing condition and residence in the North West and North Central zones are increased by 1% respectively. A percentage increase in the age of household heads and residence in the South East zone would reduce the probability of rural households to have average participation in politics and decision-making by 0.0030 and 0.0410.

For farming and non-farming households dichotomization, a percentage increase in household size, household head being males, household sanitation index, household asset base index, house ownership and housing condition index and residence in North West and North Central among farming households would increase the probability of participating in politics and decision-making at an average level by 0.0103, 0.0082, 0.0046, 0.0022, 0.0030, 0.0200 and 0.0106 respectively. A percentage increase in households residing in the South East Zone will decrease the probability of farming households from having average participatory ratio in politics and decision-making by 0.0347. Households head that are engaged in non-farming activities would have their probability of having average participatory ratio in politics and decision-making increased by 0.0093, 0.0073, 0.0022, 0.0055, 0.0138 and 0.0148 if there is 1% increase in household size, sanitation index, household asset base index, house ownership and housing condition index and residence in the North East and North Central Zone respectively. A percentage increase in the number of households residing in the South East and South South Zone will decrease the probability of non-farming households having average participatory ratio by 0.0351 and 0.0135.

A percentage change in household head being male, household head being married, asset base index as well as house-ownership and condition index and residence in the North West and North Central zone increased the probability of households having high level of participation in politics and decision-making in the rural areas of the country by 0.0001, 0.0009, 0.0009, 0.0008, 0.0001 and 0.0001 respectively. One percent increase in household size, age and residence in the South East zone reduced it by 0.0001, 0.001 and 0.001 respectively. The result of the marginal effect for farming and non-farming households stratification shows that a percentage change in household sanitation index, household asset base index and house ownership and housing condition would increase the probability of

farming households having high level of participation in politics and decision-making by 0.0026, 0.0013 and 0.0017 respectively while a percentage change in household size would decrease the probability of farming households having high ratio of participation in politics and decision-making by 0.0059. For the non-farming households a percentage change in household size, household sanitation index and house ownership and housing condition index would increase the probability of non-farming households to have high participatory ratio in politics and decision-making by 0.0049, 0.0039, 0.0012 and 0.0029 respectively.

The outcome of this study is consistent with findings of empirical research (Dalton 2002; Norris 2002) on determinant of political participation which shows that different aspects related to the social position of individuals, such as gender and household size are elements present in any standard model to explain political participation. The findings also conform to the study of Yahaya (1994) that some ethnic groups in Nigeria continue to raise one complaint or the other that the political sector is dominated by the Northern's reflecting the incomplete nature of the nation-building reforms.

Table 52: Determinants of Low Participatory Ratio in Politics and Decision-making among Rural Households in Nigeria (Marginal Effect)

Variables	Coefficient	Standard Error	P>/Z/
Household size	0.0108	0.0003	0.000
Gender	0.0173	0.0020	0.000
Age	-0.0003	0.0001	0.000
Marital Status	0.0269	0.0027	0.000
Sanitation	-0.0047	0.0008	0.000
Asset base	-0.0017	0.0008	0.028
Housing	0.0037	0.0008	0.000
North West	0.0067	0.0027	0.013
North East	0.0038	0.0030	0.195
North Central	-0.0183	0.0035	0.000
South East	-0.0411	0.0045	0.000
South South	-0.0033	0.0030	0.284
Diagnostic Statistics			

Table 53: Determinants of Low Participatory Ratio in Politics and Decision-making among Farming and Non-farming Households in Nigeria (Marginal Effect)

	Farming households			Non-farming households		
Variables	Coefficient	Std. Error	**P > / Z /**	Coefficient	Std. Error	**P > / Z /**
Household size	0.0104	0.0006	0.000	0.0093	0.0005	0.000
Gender	0.0082	0.0038	0.031	0.0029	0.0036	0.418
Age	0.0001	0.0001	0.158	0.0001	0.0001	0.228
Marital Status	0.0586	0.0090	0.000	0.0368	0.0067	0.000
Sanitation	0.0046	0.0013	0.000	0.0073	0.0012	0.000
Asset base	0.0023	0.0013	0.093	0.0023	0.0012	0.067
Housing condition	0.0031	0.0014	0.026	0.0055	0.0013	0.000
North West	0.0201	0.0049	0.000	0.0053	0.0044	0.226
North East	0.0062	0.0056	0.267	0.0138	0.0043	0.001
North Central	0.0106	0.0060	0.076	0.0149	0.0053	0.005
South East	0.0347	0.0077	0.000	0.3535	0.0064	0.000
South South	0.0338	0.0055	0.492	0.0136	0.0041	0.001
Diagnostic Statistics						

Table 54: Determinants of Average Level of Participation in Politics and Decision-making among Rural Households in Nigeria (Marginal Effect)

Variables	Coefficient	Standard Error	P>/Z/
Household size	0.0109	0.0003	0.000
Gender	0.0009	0.0020	0.000
Age	-0.0030	0.0001	0.000
Marital Status	-0.0269	0.0026	0.000
Sanitation	0.0047	0.0008	0.000
Asset base	0.0009	0.0008	0.028
Housing	0.0007	0.0008	0.000
North West	0.0067	0.0027	0.013
North East	0.0038	0.0030	0.195
North Central	0.0183	0.0035	0.000
South East	-0.0410	0.0044	0.000
South South	0.0033	0.0030	0.284
Diagnostic Statistics			

Table 55: Determinants of Average Participation in Politics and Decision-making among Rural Households in Nigeria (Marginal Effect)

	Farming households			Non-farming households		
Variables	Coefficient	Std. Error	**P >/Z/**	Coefficient	Std. Error	**P > / Z /**
Household size	0.0103	0.0006	0.000	0.0093	0.0005	0.000
Gender	0.0082	0.0038	0.031	0.0029	0.0036	0.418
Age	0.0001	0.0001	0.158	0.0001	0.0001	0.228
Marital Status	0.0581	0.0089	0.000	0.3651	0.0066	0.000
Sanitation	0.0046	0.0013	0.000	0.0073	0.0012	0.000
Asset base	0.0022	0.0013	0.093	0.0022	0.0012	0.067
Housing condition	0.0030	0.0014	0.026	0.0055	0.0013	0.000
North West	0.0200	0.0049	0.000	0.0053	0.0044	0.226
North East	0.0062	0.0056	0.267	0.0138	0.0043	0.001
North Central	0.0106	0.0060	0.076	0.0148	0.0053	0.005
South East	0.0347	0.0077	0.000	0.0351	0.0063	0.000
South South	0.0338	0.0055	0.492	0.0135	0.0041	0.001
Diagnostic Statistics						

Table 56: Determinants of High Level of Participation in Politics and Decision-making among Rural Households (Marginal Effect)

Variables	Coefficient	Standard Error	P>/Z/
Household size	0.0009	0.0000	0.002
Gender	-0.0008	0.0000	0.003
Age	-0.0007	0.0000	0.005
Marital Status	0.0102	0.0000	0.002
Sanitation	0.0005	0.0000	0.005
Asset base	0.0005	0.0000	0.072
Housing	0.0001	0.0000	0.009
North West	0.0021	0.0000	0.047
North East	0.0012	0.0000	0.219
North Central	0.0067	0.0000	0.008
South East	- 0.0184	0.0001	0.003
South South	-0.0011	0.0000	0.321
Diagnostic Statistics			

Table 57: Determinants of High Level of Participation in Politics and Decision-making among Farming and Non-farming Households in Rural Nigeria (Marginal Effect)

	Farming households			Non-farming households		
Variables	Coefficient	Std. Error	**P >/Z /**	Coefficient	Std. Error	**P >/Z/**
Household size	-0.0059	0.0000	0.000	0.0049	0.0000	0.003
Gender	0.0044	0.0000	0.031	0.0015	0.0000	0.426
Age	0.0001	0.0000	0.158	0.0005	0.0000	0.264
Marital Status	0.0051	0.0000	0.000	0.0256	0.0001	0.011
Sanitation	0.0026	0.0000	0.000	0.0039	0.0000	0.008
Asset base	0.0013	0.0000	0.093	0.0012	0.0000	0.099
Housing condition	0.0017	0.0000	0.026	0.0029	0.0000	0.014
North West	-0.0105	0.0000	0.000	-0.0028	0.0000	0.254
North East	-0.0034	0.0000	0.267	-0.0068	0.0000	0.025
North Central	0.0064	0.0000	0.076	0.0087	0.0000	0.050
South East	0.0248	0.0001	0.000	0.0237	0.0001	0.011
South South	-0.0021	0.0000	0.492	-0.0067	0.0000	0.023
Diagnostic Statistics						

6.3: Determinants of Access to Health Care Service Delivery

The factors that determine the probability of rural households as a whole having high level of access to health care service delivery is presented in tables 58 to 63. The results of the diagnostic statistics which are the Chi-square and Log likelihood function were significant at 1% level and this indicates that the model has a good fit for the data.

The result of the marginal effect of the ordered probit regression for the probability of rural households having low level of access to health care service delivery shows that a percentage increase in household size, age of household heads and residing in the North West, North East and North Central Zones would increase the probability of rural households having low access to health care service delivery system by 0.0014, 0.0023, 0.3331, 0.2765 and 0.1640. A percentage increase in household heads being male, married household heads, household sanitation index, household asset base, house ownership and housing condition index and residing in the South East and South South Zone would decrease the probability of households in the rural areas of the country to have low access to health care service delivery by 0.0180, 0.0368, 0.0077, 0.0084, 0.0799, 0.0924 and 0.0175.

Stratification of rural households into farming and non-farming households indicates that the probability of farming households having low level of access to health care service delivery will increase by 0.0018, 0.2616, 0.1553 and 0.0506 if there is a percentage increase in age of household head and households residing in the North West, North East and North Central Zones. A percentage increase in household head being a male, household sanitation index, household asset base index, house ownership and housing condition index and residing in South East and South South zones will decrease the probability of farming households in the rural areas of the country to have low access to health care service delivery by 0.0020, 0.0309, 0.0039 and 0.0739, 0.0952 and 0.0886 respectively. Households that are engaged in non-farming activities would probably have low access to health care service delivery increased by 0.0043, 0.0021, 0.3215, 0.3194 and 0.1706 if there is a percentage increase in household size, age of the household heads and residence in the North West, North East and North Central Zones. A percentage increase in household head being married, household sanitation index, household asset base index, house ownership and housing condition index and residence in the South East and South South Zones would decrease the probability of non-farming households in the rural areas of the country from having low access to health care service delivery by 0.0106, 0.0057 and 0.0863, 0.1028 and 0.0822 respectively.

The result further shows in table 60 that the probability of rural households in the country having average access to health care facilities would increase by 0.0010, 0.0129, 0.0056, 0.0061, 0.0578, 0.0175 and 0.0543 if there is a percentage increase in their household size, household head being male, household sanitation index, household asset base, house ownership and housing condition index and residence of household heads in South East and South South zone. A percentage increase in households head being married, age of household heads and residence in North West, North East and North Central zone will decrease the probability of rural households having average level of access to health care facilities by 0.0269, 0.0016, 0.2163, 0.1854 and 0.0778 respectively.

When further disaggregated into farming and non-farming households, the result indicates that a percentage increase in household sanitation index, household asset base house ownership and housing condition and residence in the Souh East and South South Zone will increase the probability of farming households to have average access to health care service delivery by 0.0147, 0.0018, 0.0350, 0.0500 and 0.0461 respectively. In addition, a percentage increase in age of household heads and residence in North West, North East and North Central zone would decrease the probability of farming households to have average level of access to health care service delivery by 0.0008 0.1475, 0.1410 and 0.0255. A percentage increase in household sanitation index, household asset base, house ownership and housing condition and residence in the South East and South South Zones would increase the probability of non-farming households to have average access to health care service delivery by 0.0074, 0.0040, 0.0600, 0.0748 and 0.0588 while a percentage increase in household size, age of household heads, household asset base, house ownership and housing condition and residence in North West, North East and North Central zone would decrease the probability of non-farming households having average access to health care service delivery 0.0030, 0.0001, 0.0018, 0.1266, 0.0748 and 0.0588 respectively.

The probability of rural households having high access to health care facilities would increase by 0.0051, 0.0099, 0.0021, 0.0222, 0.0064 and 0.0239 respectively if there is a percentage increase in household heads that male, household heads that are married, household sanitation index, household asset base index, house ownership and housing condition index and residence in the South East and South South Zone while a percentage increase in household size, age of household heads and residence in North West, North East and North Central

zones would decrease the probability of rural households from having high access to health care facilities in the rural areas of the country by 0.0040, 0.0006, 0.0690, 0.0514 and 0.0257.

Furthermore, the result of the marginal effect when dichotomized into farming and non-farming households shows that a percentage change in household head getting married, household sanitation index, house ownership and housing conditions index and residence in the South East and South South Zone would increase the probability of farming households in the rural areas of the country to have high access to health care facilities by 0.0180, 0.0162, 0.0020, 0.0387, 0.0013 and 0.0620 respectively. Age of household head and residence in North West, North East and North Central zones would decrease the probability of farming households in the rural areas of the country to have high access to health care facilities by 0.0009, 0.0814, 0.0685 and 0.0237 respectively. Households whose household heads are engaged in non-farming activities would have their probability of having high access to health care service delivery increased by 0.0507, 0.0033, 0.0018, 0.0265, 0.0279 and 0.0233 if there is a percentage increase in household heads that are married, sanitation index, house ownership and housing condition and residence in the South East and South South Zone of non-farming households while a percentage increase in household size, age and residence in North West, North East and North Central zones would decrease the probability of non-farming households from having high access to health care facilities by 0.0013, 0.0006 0.0818, 0.0745 and 0.0439 respectively.

Study on determinants of health and health inequalities by London Health Commission in 2007 also identified housing, sanitation and employment as the key determinant of health in London. These factors were also identified as factors that significantly determine health inequality in Nigeria by this study.

Table 58: Determinants of Low Access to Health Care Service Delivery for Rural Households in Nigeria (Marginal Effect)

Variables	Coefficient	Standard Error	P>/Z/
Household size	0.0014	0.0007	0.043
Gender	0.0180	0.0066	0.006
Age	0.0023	0.0001	0.000
Marital Status	-0.0368	0.0049	0.000
Sanitation	-0.0077	0.0018	0.066
Asset base	-0.0084	0.0018	0.000
Housing	- 0.0799	0.0019	0.000
North West	0.3331	0.0039	0.000
North East	0.2765	0.0036	0.000
North Central	0.1640	0.0047	0.000
South East	-0.0924	0.0056	0.000
South South	-0.0715	0.0055	0.000
Diagnostic Statistics	LR chi2(13) = 8792.63		
	Prob > chi2 = 0.0000		
	Log likelihood = -41794.97		
	Pseudo R2 = 0.0952		

Table 59: Determinants of Low Access to Health Care Service Delivery among Farming and Non-farming households Households in Rural Nigeria (Marginal Effect)

	Farming households			Non-farming households		
Variables	Coefficient	Std. Error	**P >/Z /**	Coefficient	Std. Error	**P >/Z/**
Household size	0.0014	0.0013	0.284	0.0043	0.0010	0.000
Gender	0.0020	0.0113	0.998	0.0015	0.0079	0.845
Age	0.0017	0.0002	0.000	0.0021	0.0002	0.000
Marital Status	-0.0350	0.0094	0.000	-0.1364	0.0116	0.000
Sanitation	-0.0309	0.0035	0.000	-0.0106	0.0026	0.000
Asset base	-0.0038	0.0034	0.260	-0.0057	0.0025	0.024
Housing condition	-0.0739	0.0037	0.000	-0.0863	0.0026	0.000
North West	0.2616	0.0089	0.000	0.3215	0.0061	0.000
North East	0.1553	0.0141	0.000	0.3194	0.0056	0.000
North Central	0.0506	0.0117	0.000	0.1706	0.0075	0.000
South East	-0.0952	0.0109	0.000	-0.1028	0.0086	0.000
South South	-0.0886	0.0110	0.000	-0.0822	0.0081	0.000
Diagnostic Statistics				LR chi2(12) = 4641.21 Prob > chi2 = 0.0000 Log likelihood = -23700.679 Pseudo R2 = 0.0892		

Table 60: Determinants of Average Access to Health Care Service Delivery among Rural Households in Nigeria (Marginal Effect)

Variables	Coefficient	Standard Error	P>/Z/
Household size	0.0010	0.0007	0.043
Gender	-0.0129	0.0066	0.006
Age	-0.0016	0.0001	0.000
Marital Status	-0.0269	0.0049	0.000
Sanitation	0.0056	0.0018	0.066
Asset base	-0.0061	0.0018	0.000
Housing	0.0578	0.0019	0.000
North West	-0.2163	0.0041	0.000
North East	-0.1854	0.0040	0.000
North Central	0.0778	0.0051	0.000
South East	0.0175	0.0062	0.000
South South	-0.0543	0.0066	0.000
Diagnostic Statistics	LR chi2(12) = 4641.21 Prob > chi2 = 0.0000 Log likelihood = -23700.679 Pseudo R2 = 0.0892		

Table 61: Determinants ofAverage Access to Health Care Service Delivery among farming and non-farming households in Rural Nigeria

	Farming households			Non-farming households		
Variables	Coefficient	Std. Error	**P >/Z /**	Coefficient	Std. Error	**P >/Z/**
Household size	0.0006	0.0006	0.284	0.0030	0.0007	0.000
Gender	0.0001	0.0054	0.998	0.0011	0.0055	0.845
Age	0.0008	0.0001	0.000	0.0014	0.0001	0.000
Marital Status	-0.0170	0.0047	0.000	0.0058	0.0066	0.000
Sanitation	-0.0147	0.0017	0.000	0.0074	0.0018	0.000
Asset base	0.0018	0.0016	0.260	0.0040	0.0018	0.024
Housing condition	-0.0350	0.0019	0.000	0.0598	0.0020	0.000
North West	0.1475	0.0060	0.000	0.2397	0.0050	0.000
North East	0.1410	0.0084	0.000	0.2449	0.0048	0.000
North Central	0.0255	0.0062	0.000	0.1266	0.0060	0.000
South East	-0.0500	0.0062	0.000	0.0748	0.0066	0.000
South South	-0.0461	0.0063	0.000	0.0588	0.0060	0.000
Diagnostic Statistics				LR chi2(12) = 4641.21 Prob > chi2 = 0.0000 Log likelihood = -23700.679 Pseudo R2 = 0.0892		

Table 62: Determinants of High level of Access to Health Care Service Delivery among Rural Households in Nigeria (Marginal Effect)

Variables	Coefficient	Standard Error	P>/Z/
Household size	-0.0040	0.0002	0.043
Gender	-0.0051	0.0019	0.006
Age	-0.0006	0.0000	0.000
Marital Status	-0.0099	0.0013	0.000
Sanitation	0.0021	0.0005	0.066
Asset base	0.0023	0.0005	0.000
Housing	0.0222	0.0006	0.000
North West	-0.0690	0.0013	0.000
North East	-0.0514	0.0010	0.000
North Central	-0.0257	0.0012	0.000
South East	0.0064	0.0016	0.000
South South	0.0239	0.0022	0.000
Diagnostic Statistics	LR chi2(12) = 4641.21 Prob > chi2 = 0.0000 Log likelihood = -23700.679 Pseudo R2 = 0.0892		

Table 65: Determinants of high level of Access to Health Care Service Delivery among farming and non-farming households (Marginal effect)

	Farming households			Non-farming households		
Variables	Coefficient	Std. Error	**P >/Z /**	Coefficient	Std. Error	**P >/Z/**
Household size	-0.0007	0.0007	0.284	-0.0013	0.0003	0.000
Gender	0.0001	0.0059	0.998	0.0005	0.0024	0.845
Age	-0.0009	0.0001	0.000	-0.0006	0.0001	0.000
Marital Status	-0.0180	0.0047	0.000	-0.0507	0.0052	0.000
Sanitation	0.0162	0.0018	0.000	0.0033	0.0008	0.000
Asset base	0.0020	0.0018	0.260	0.0018	0.0008	0.024
Housing condition	0.0387	0.0020	0.000	0.0265	0.0009	0.000
North West	-0.0814	0.0045	0.000	-0.0818	0.0020	0.000
North East	-0.0685	0.0052	0.000	-0.0745	0.0017	0.000
North Central	0.0237	0.0077	0.000	-0.0439	0.0018	0.000
South East	0.0013	0.0066	0.000	0.0279	0.0021	0.000
South South	0.0620	0.0059	0.000	0.0233	0.0022	0.000
Diagnostic Statistics				LR chi2(12) = 4641.21 Prob > chi2 = 0.0000 Log likelihood = -23700.679 Pseudo R2 = 0.0892		

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATION

7.1: Summary of Major Findings

This study examined the level of inequality among non-income welfare attributes which are education, political participation and health care among households in the rural areas of Nigeria which were further dichotomized into farming and non-farming households and the level of interrelationship between the levels of access to this income welfare attributes. The study further decomposed the educational, political participation and health inequalities along various socio-economic characteristics such as gender of household head, household size, age of household head and marital status of household head. In addition the Shapley decomposition technique was used to determine the level of marginal contribution of within and between group inequalities to total educational, political participation and access to health care inequalities. The factors that determine educational, health and political inequality were analyzed using the ordered probit regression analysis.

The major findings of the study are as follows:

1. The majority of households in the rural areas of Nigeria, have low level of household's per adult equivalent educational attainment (71.6%), low ratio of members that participates in politics and decision making (90.8%) and low level of access to health care service delivery (68.7%).

2. Households who are into farming activities have more household heads with low per capita household educational attainment and low level of access to health care service delivery when compared with households that are into non-farming activities.

3. The Gini index for educational inequality among households in the rural areas of the country is 0.5684 with the North West Zone having the highest educational inequality index of 0.6450 while the South South zone has the least educational inequality with an index of 0.3565. The result further shows that households that are into farming activities have higher educational inequality with an index of 0.6227 when compared with non-farming households that have an educational index of 0.5795.

4. The Gini index for political participation inequality among households in the rural areas is 0.2315. It is highest in the South East Zone with an index of 0.2463 and least it is in the North Central Zone with an index 0.2097. The result further showed political inequality is higher among households that are into farming activities with an index of 0.2279 when compared with households who are into non-farming activities with political inequality index of 0.2142.

5. The result of the health inequality index among households in the rural areas is 0.3350. It is highest in the North East Zone with an index of 0.4038 while households in the South West Zone have the least level of health inequality with an index of 0.3017. In addition, households that are into farming activities have higher level of disparity in access to health care service delivery with an index of 0.3116 when compared with households who are into non-farming activities that have health inequality index of 0.3045.

6. Inequality among rural households with low educational attainment (lower tail) is 0.1635 while dispersion among households with high educational attainment is 0.6164

7. Level of dynamics among rural households with low participatory ratio in politics and decision making is 0.1681 and 0.1972 among households with high participatory ratio in politics and decision making.

8. Health inequality among rural households with low access to health care service delivery is 0.1971 and for 0.4128 among rural households with high access to health care service delivery

9. The result of the generalized entropy revealed that educational inequality is least at the lower tail (GE_1) in the South South Zone of the country with an index of 0.1630. Rural households in the North East have the highest level of dispersion among households with low educational attainment with an index of 0.1676. In addition, the South South zone has the least level of dispersion at the upper tail with an index of 0.1964 while the North West Zone has the highest level of dispersion at the upper tail with an index of 0.7772 for the rural areas of the country.

10. The result of the generalized entropy showed that political participation inequality is least at the lower tail in the South West Zone of the country with an index of 0.1007 and the North West Zone has the highest political inequality at the lower tail with an index of 0.2185. The result of the level of dispersion at the upper tail shows that the North Central zone has the least political inequality with an index of 0.1785 and the South East zone has the highest inequality among rural households with high participatory ratio in politics and decision making with an index of 0.2079.

11. The result of the Generalized Entropy revealed that health inequality is least at the lower tail in the South West Zone of the country with an index of 0.1810 while the North East Zone has the highest level of dispersion at the lower tail with an index of 0.2215. The South East Zone has the least level of dispersion at the upper tail with an index of 0.1319 while the South South zone has the highest level of dispersion at the upper tail with an index of 0.4821 for the rural areas of the country.

12. The result of the vertical inequality decomposition shows that educational inequality is highest among households in the rural areas whose household heads are less than 31 years of age, have small household size (that is less than six), and among households whose household heads are practicing polygamy irrespective of whether they are into farming activities or non-farming activities. The result further shows that educational inequality index among the various socio-economic groups are higher among farming households than non-farming households in the country.

13. Educational inequality is least among households that are female headed, that have large household size (greater than 10), are between 31-60 years of age, and among household heads that are their household heads aresingle. In addition, households that are into non-farming activities have lower values of educational inequality index across the various socio-economic groups when compared with households who are into farming activities.

14. The decomposition of political inequality by household socio-economic characteristics shows that households whose household heads are males, have small household size (≤5), with household heads whose age are younger than

31 years and are single, have the lowest level of political participation inequality in the rural areas. Furthermore, farming households have higher values of disparity in the ratio of members that participate in politics and decision making.

15. Households whose household heads are female, have large household size (more than 10 members), are younger than 31 years of age, are single, and are residing in the South East zone have the least health inequality while households whose head are male, have average household size, are younger than 31 years of age have the highest health inequality.

16. The result of the Shapley inequality decomposition of education, political participation and health care services inequalities into within and between group marginal contributions shows that education, political participation and health inequality is as a result of disparity within these various groups for the rural households at large and again when further dichotomized into farming and non-farming households.

17. The result of the Shapley inequality decomposition further shows that households whose household heads are male, have household size of 6-10 members, are between 31-60 years of age and are monogamist contributes the highest percentage to the total educational inequality among rural households in the country with the result holding when further disaggregated into farming and non-farming households.

18. Educational inequality are determined significantly and positively by household size, marital status, household sanitation index and house ownership and housing condition at 1% level. While gender, age and household asset base have a negative effect on the probability of households high educational attainment in the rural sector of the country at 1% level.

19. Ordered probit regression for ratio of members that participates in politics and decision making in the rural areas of the country shows that gender, sanitation index of households and household asset base are the factors that significantly and positively affect the probability of households having high ratio of participation in politics and decision making while household size, age and marital status of household heads have a negative effect on the probability that

households would have high level of participation in politics and decision making.

20. Probability of farming households having high level of participation in politics and decision making are determined significantly and positively by household size, household sanitation index, household asset base index, house ownership and housing condition and residence in the North West and North Central Zone. Female household headship and residence in the South East Zone will significantly reduce the participatory ratio in politics and decision making among farming households.

21. Household head being single, household sanitation index, Household asset base index, house ownership and housing condition and residence in the North East and North Central Zone have positive and significant effect on the probability of non-farming households having high participatory ratio in politics and decision making. Household size and residence in the South East and South South Zones are significant but have negative effect on the probability of non-farming households having high level of participation in politics and decision making.

22. The probability that rural households would have high level of access to health care service delivery are determined positively and significantly by marital status of household heads, household sanitation index, household asset base and house ownership and housing condition while gender and age have a negative relationship with the probability that households would have high access to health care facilities for the rural areas of the country.

23. Household head being single, household sanitation index, house ownership and housing condition index, household asset base index and residence in the South East and South South Zones relative to the South West Zone positively and significantly influences the probability of farming households having high level of access to health care service delivery. Household head being female, age of the household head and residence in the Northern region will significantly reduce the probability of farming households to have high access to health care service delivery.

24. Household sanitation index, household asset base, index house ownership and housing condition and residence in the South East and South South Zones have positive and significant effect on the probability of non-farming households having high access to health care service delivery. Probability of non-farming households having high level of access to health care service delivery would reduce significantly with increase in age of household head and residence in the Northern region.

7.3: Policy Implications

The findings of this study have shown that educational, political participation and health inequalities exist and differ among different socio-economic groups, occupational groups (farming and non-farming households) and geo-political Zones. The policy implications of the findings are:

Increased rural sector targeted public investment in education and health care delivery since farming households have the least percentage of households educational attainment, least ratio of household members that participate in politics and decision making and households with high access to health care service delivery; there is the need to target farming households for incentives to increase their level of access education and health care service delivery.

Farming households in the rural areas of the country have higher educational, political and health inequality index when compared with non-farming households in the country. There is therefore the need to increase investment and commitment in education and health sectors of the country especially among households that are in the Northern regions who are the most vulnerable.

Households with average household size (6 -10) are the groups that contribute the highest to total educational, political and health inequalities within different household size groups in the rural areas of the country at large and whether they are into farming or non-farming activities. Large households reduce the mean per capita household expenditure and invariably the amount of expenditure that can be invested in human capital development such as

education and health. This has the tendency to reduce their productivity since their skills are not enhanced and the likelihood to loose income due to loss of mandays.

Households in the North have the least political inequality in the country. High level of participation in politics and decision making is however yet to translate to development in this area since they have the higher educational and health inequalities.

7.4: Policy Recommendations

1. The study revealed high level of educational inequality in the Northern region and this is more pronounced in the North West Geo-political Zone of the country. Hence there is the need to enlighten households residing especially in this region on the importance of education in human capacity development. Furthermore, government should invest more in education in terms of infrastructural development so that the country can achieve the millennium development goal on education in Nigeria.
2. Health inequality profile showed that health inequality is higher in the Northern region with the North East Zone having the highest incidence irrespective of whether they are into farming and non-farming households. Government and other stakeholders needs especially in the North needs to increase their expenditure in the area of establishing more health care centres, provisions of drugs and medical personnel's. Households should be sensitized on the importance of proper sanitation by public health workers as this will help to improve their health status.
3. Despite the high level of political participation in the Northern region, education and health inequality was higher in the region thereby underscoring the need for policy framework that will guarantee pursuant of the development of the social sector through political influence. This could be promoted through awareness campaign on effective governance among political stakeholders.
4. Female headed households were found to have the higher education, political and health inequality when compared with their male counterparts. In addition, household heads being female is a significant factor that determines probability of households having low access to educational attainment, political participation and health care service. There is therefore the need for cultural and social re-orientation that will encourage and give room for female participation in politics and decision making.

5. Educational, political and health inequality tends to increase as household composition increases whether the rural households are engaged in farming activities or in non-farming activities. Rural households should therefore be educated and encouraged to adopt birth control techniques in order to reduce their mean per capita household expenditure. This will enable them to invest on their education and health demands and that of their households.
6. The study revealed that farming households have higher incidence of education, political and health inequalities when compared with households who are into non-farming activities. In order to reduce inequality by sector (agriculture versus non-agriculture) efforts should be placed to ensure that farming households have enhanced educational attainment and access to health care service delivery in order to improve their productivity and efficiency. In addition, farming households should be encouraged to participate in politics and decision making so that they can be involved in the process of policy formulation and execution.

7.4: Areas for Further Research

One of the limitations of this study is its inability to examine income inequality in the country and find out if the worrying trend in the non-income inequalities can be attributed to income inequality. This was caused by unavailability of data on income level of households in the country in the national survey that was carried out by NBS on Core Welfare Indicator Questionnaire which data set was used.

Future research on inequality should include the following

1. Comparative analysis of access to Non-income welfare attributes among rural and urban households in Nigeria. Insight into these will help to know which of these sectors have higher incidence of inequality in order to know the appropriate intervention for each sector.
2. There is the need to extend the scope of the work to other countries in Sub Sahara Africa in order to compare the level of education, political and health inequality across the selected countries with that of Nigeria.
3. Multidimensional inequality among households in Nigeria: this study will help to generate a single inequality index for households in the country using both income and non-income welfare indicators.

REFERENCES

Adewusi O.A (2009): Spatial Dimension of Inequality and Poverty in Rural Nigeria. An Unpublished thesis submitted in the Department of Agricultural Economics, University of Ibadan for the Award of PhD Pp 21-34.

Aghenta, J.A. (2001). "Educational planning: A turning point in education and development in Nigeria". *58th Inaugural Lecture Series*. University of Benin, Benin City. 19th October

Aghion, P. E. C. and C. Garcia-Penalosa (1999), 'Inequality and Economic Growth: The Perspective of the New Growth Theories', Journal of Economic Literature, Vol. 37, No. 4, pp. 1615–60.

Aighokhan B.E., (1999): The Impact of Adjustment Policies and Income Distribution in Nigeria: An Empirical Study Research Report No 5. Development Policy Centre (DPC) Ibadan, Nigeria.

Aighokhan B.E., (2000) "Poverty, Growth and Inequality in Nigeria: A Case Study. African Economic Research Consortium Research Paper 102

Ajakaiye, D.O and V.A Adeyeye (2001): The Nature of Poverty in Nigeria. NISER Monograph Series No 13. Nigeria Institute of Social and Economic Research Ibadan

Akanji, O.B (2007) Globalization, Poverty and Food Security: The Linkages of Gender Inequality and Agricultural Growth in Africa: Conceptual and Empirical Issues. Journal of Political theory and Research on Globalization and Gender studies pp32-41.

Akita, T, R. A. Lukman and Y Yamada (1999) Inequality in the Distribution of Household Expenditure: A Theil Decomposition Analysis. *The Developing Economies* 37(2) 197-221

Alabi (2009a): Marginal Benefit Incidence Analysis of Public Spending On Health Services In Nigeria. Research Report 121 of the Institute for World Economics and International Management

Alabi (2009b): Redistribution Of Education And Redistributive Effectsof Education Spending In Nigeria. Research Report 120 of the Institute for World Economics and International Management

Alayande, B. A (2003) Decomposition of Inequality Reconsidered: Some Evidence from Nigeria. Paper Presented to the UNU/WIDER Conference on Inequality Poverty and Human Well being, Helsinki, Finland, May.

Aleyidieno, S. (1985). Education and Occupational Diversification among Young Learners: The Problem of Harmonizing Tradition Practices with the Lessons of Our Colonial Heritage. In *Issues on Development: Proceedings of a Seminar held in Zaria*. January 12-13. Zaria, Nigeria: Ahmadu Bello University Press.

Anand, Sudhir (1983): *Inequality and Poverty in Malaysia: Measurement and Decomposition*. New York: Oxford University Press Pp 47-61.

Appleton, S., and L. Song (1999). 'Income and Human Development at the Household Level: Evidence from Six Countries'. Oxford: Centre for the Study of African Economies, Oxford University. Mimeo.

Awoyemi T.T (2004). Explaining Income Inequality in Nigeria: A Regression-Based Approach. http://www.aercafrica.org/aes/paper/group_A/9-Timothy%20Awoyemi.pdf

Atkinson, A. and Bourguignon, F. (1982), "The Comparison of Multi-Dimensioned Distributions of Economic Status", *Review of Economic Studies* 49 (1982), 183-201.

Atkinson, A. and Bourguignon, F. (2000). Income Distribution and Economics. In A. B. Atkinson and F. Bourguignon (eds.), Handbook of Income Distribution, North-Holland Pp 1-58.

Atkinson, A. B. (1996), *Bringing Income Distribution in from the Cold*, Presidential Address to the *Royal Economic Society* (1996), Swansea, April, 1996.

Atkinson, A.B. (1970) - "On the measurement of Inequality" – Journal of Economic Theory, 2, 244-263

Axinn W.G and J.S Barber (2001). "Mass Education and Fertility Transition" American Sociological Review 66: 481 -505.

Baden, S., 2000, 'Gender, Governance and the Feminization of Poverty', *Women and Political Participation: 21st Century Challenges*, New York: UNDP

Barro, R. J. and X. Sala-i-Martin (1992) "Convergence," *Journal of Political Economy*, 100, 223–51.

Bates (1981). *Markets and States in Tropical Africa: The Political Basis of Agricultural Policies*, Berkeley: University of California Press.

Baker, D.P. and D.B. Holsinger, (1996). "Human Capital Formation and School Expansion in Asia: Does a Unique Regional Model Exist?" International Journal of Comparative Sociology XXXVII: 159-173

Basilevsky, A.T. (1994). StatisticalFactor Analysis and Related Methods. New York: John Wiley and Sons. Pp 23-49

Bauman, Z. (2004). Wasted Lives: Modernity and Its Outcasts. Cambridge: Polity. Pp 11-17

Baye M.F (2005): Alternative Method for Setting Poverty Line. Measuring Poverty in Cameroon, Pakistan Economic and Social Review, Vol XLIII, No 1, pp 543-570

Baye F.M (2008), Exact Configuration of Poverty, Inequality and Polarization Trends in the Distribution of Well-being in Cameroon Paper Presented at the Centre for the Study of African Economies (CSAE) Conference on "Economic Development in Africa", St Catherine's College, Oxford, 16-18 March.

Beck, U. and Beck-Gernsheim, E. (2002). Individualization. Thousand Oaks, California: SAGE. Pp 113-27

Becker, G. (1981). ***A Treatise on the Family.*** Cambridge: Harvard University Press.

Behrman, J. R., Gaviria, A. and Székely, M. (2002), *Social Exclusion in Latin America:Introduction and Overview*. IADB Working Paper no. R-445. Washington D. C.: Inter-American Development Bank.

Benabou, R. (1996), 'Inequality and Growth', National Bereau of Economic Research Macroeconomics Annual, pp. 11–73.

Berry, A., F. Bourguignon, and C. Morrisson (1983) "Changes in the World Distribution of Income between 1950 and 1977," *Economic Journal*, 93, 331–50, 1983.

Betti , G.; Cheli B.; Lemmi, A and V. Verma (2005). The Fuzzy Approach to Multidimensional poverty: The Case of Italy in the 90's. Paper presented at the Multidimensional Approach to Measurement of Poverty, Theory and Evidence. Brassila. August 29-31 2005

Blinder, A.S (1973): Wage discrimination: Reduced Form and Structural Estimates. *Journal of Human Resources* 8: 436-55

Bossert W. (1995): "Redistribution mechanisms based on individual characteristics", *Mathematical Social Sciences* 29, 1-17

Bourguignon, F. (1999). "Comment to 'Multidimensional approaches to welfare analysis' by Maausoumi, E.". Hand Book of Income Inequality Measurement, pp. 477-484. Ed. J. Silber, Boston: Kluwer Academia.

Bourguignon, F. and C. Morrison, (2002) "Inequality Among World Citizens: 1820–1992," *American Economic Review*, 92(4), 727–44,.

Bourguignon, F. (1979), "Decomposable Income Inequality Measures", *Econometrica* 47 (1979), 901-920.

Castells, M. (1996). The Rise of the Network Society. Cambridge, Mass.: Blackwell Publishers. Pp 45-48.

Caul, M.C. (2005). Rising Political Inequality in Established Democracies: Mobilization, Socio-Economic Status and Voter Turnout, 1960s to 2000. Delivery at the 2005 Annual Meeting of the American Political Science Association. Washington, DC, September 1-5.

Cavendish, W. (1999) Poverty, Inequality and Environmental Resources: Quantitative Analysis of Rural Households Centre for the Study of African Economics. Working paper 99-9, Oxford. February

Central Bank of Nigeria (1999): Nigeria's Development Prospects: Poverty Assessment and Alleviation Study. CBN: Research Department.

Checchi, D. (2000). Does Educational Achievement Help to Explain Income Inequality? Working Paper no. 208. United Nations University/World Institute Development Economic Research, Helsinki.

Clarke G.,L (2003): “Inequality –Aversion and Income Mobility” A direct test: DELTA Working Papers 2003-11

Cornia. G. A. (ed.), (2004): *Inequality, Growth, and Poverty in an Era of Liberalization and Globalization*, Oxford University Press, Oxford.

Coudel, A., J. S. Hentschel and Q. T. Wodon (2002) 'Poverty measurement and analysis', in J. Klugman (ed.) *A sourcebook for poverty reduction strategies*, Washington, DC: World Bank.

Cummins, R. A. (1996), “Domains of Life Satisfaction: An Attempt to Order Chaos,” *Social Indicators Research*, 38(3), 303–28.

Coleman, J. (1967): Equality of Educational Opportunity. A Conference Paper Presented at the Instance of the Colloquium board of the Harvard Graduate School of Education

Cowell, F. (1995), Measures of Distributional Change: An Axiomatic Approach Review of Economic Studies, 52: 135-151

Cowell, F. A. (2000). Measurement of inequality. In A. B. Atkinson and F. Bourguignon (Eds.), Handbook of Income Distribution, Chapter 2, pp.87.166. Amsterdam: North Holland.

Dahl, Robert A (1989): Democracy and its Critics. Yale University Press, New Haven, London. Pp 82-101

Dalton, H.; (1920): The Measurement of the Inequality of Incomes. *Economic Journal*,30; 348-361

Dalton, R.J. (2002). Citizen Politics: Public Opinion and Political Parties in Advanced Industrial Democracies. 3rd ed. New York ; London: Chatham House Publishers/Seven Bridges Press.

Datt, G. And M. Ravallion (1992): Growth and Redistribution Components of Changes in Poverty Measures: A Decomposition with Application to Brazil and India in the 1980’s. Journal of Development Economics, 38: 275-95.

De Vreyer, P., J.Herrera and S. Mesple-Somps (2003): Consumption, Growth and Spatial Poverty Traps: An Analysis of the Effects of Social Services and Community Infrastructures on Living Standards in Rural Peru. DT/2002/17. Document de travail DIAL/Unite de Recherche CIPRE Nouvelle Version 2003.

Doyal, L. and I. Gough, (1991): *A Theory of Human Need*, Macmillan, Basingstoke.Pp 14-19

Duclos Jean-Yves and A. Araar (2006), Poverty and Equity: Measurement, Policy and Estimation with DAD. Springer and the International Development Research Centre (IDRC).

Duclos, J-Y., Sahn, D. and Younger, S. D. (2001). Robust Multidimensional Poverty Comparisons. Working Paper #0115, University of Laval, Département of Economics, Québec.

Duta P.V. and H.K Nagarajan (2005) : Spatial Inequality Among Indian Villages: Do initial Conditions Matter? Paper Presented at CPRC-IIPA Seminar on Chronic Poverty: Emerging Policy Options And Issues. 29th and 30th September 2005, Indian Institute of Public Administration New Delhi.

Easterly, William, and Ross Levine (1997). "Africa's Growth Tragedy: Policies and Ethnic Divisions." *Quarterly Journal of Economics* 112(November):1203–50.

Education For All (2009), Overcoming Inequality: Why governance matters, Education for All Global Monitoring Report 2009, UNESCO, Paris and Oxford University Press

Erwan Quintin and Jason L.S (2008): Inequality and Growth: Challenges to the Old Orthodoxy Economic Letter: Insights from Federal Reserve Bank of Dallas Vol. 3, No. 1

Estudilo, J. P. (1997) Income Inequality in the Philippines, 1961-91. *The Developing Economies* 35 (1) 68-95

Ezeomah, C. (1982). Movements and Demography of Fulani Nomads and their implications for Education Development. Published in the proceedings of the *1st Annual Conference on the Education of Nomads in Nigeria*, Jos, Nigeria

Ezeomah, C. (1983). The Education of Nomadic People: The Fulani of Northern Nigeria. In Ver Eecke, C. (1989) *Nigeria's Experiment with a National Programme for Nomadic Education*. Ohio Centre for African Studies: The Ohio State University.

Fadipe, J.O., (2000). Teacher Retention in the School Sysytem A strategy towards Planning for Quality Education in Nigeria in C.T.O Akinmele, T.O Oyatunde, C.O Akpa, A.E Owan (eds). Improving Teachers Education in the 21st Century. Challenges and Strategies 348-353

Fadipe, J.O., (2001). Plan formulation and implementation. Draft Module 1 in Planning and management of education in Nigeria, NIEPA, Ondo.

Fearon, J., & Laitin, D. (2003). Ethnicity, Insurgency, and Civil War. The American Political Science Review. Vol. 97, No. 1, pp. 75-90.

Federal Government of Nigeria (2006): National Policy on Poverty Eradication, Abuja: Federal Government of Nigeria.

Federal Ministry of Health Nigeria (2001): Strategic Plan for Rolling Back Malaria 2001-2005. Abuja Federal Ministry of Health

Federal Ministry of Women Affairs (2007): Country Report on Implementation of AU Solemn Declaration on Gender Equality in Africa.

Federal Office of Statistics 1999. *Poverty Profile for Nigeria, 1980-1996*. Abuja:FOS.

Federal Republic of Nigeria (2004): *National Policy on Education (NPE) 4th Edition.* Abuja: NERC Press, Yaba.

Federal Republic of Nigeria (2006): Poverty Profile for Nigeria. National Bureau of Statistics (NBS) FRN.

Federal Republic of Nigeria (2007): Legal Notice on the Publication of 2006 Census Result. Federal Republic of Nigeria Official Gazette. No 4 Vol 94.

Feng Jin and Yu Yangyang (2006): Income Inequality and Health in Rural China. *Economic Research Journal*. 007-1. Pp 57-65

Fields, G.S (1998) 'Poverty, inequality and economic wellbeing: African Economic Growth in Comparative Perspective', Paper prepared for presentation to the African Economic Research Consortium .

Fields, G.S. (2000). Measuring Inequality Change in an Economy with Income Growth.The Internationa Library on Critical Writings in Economics: Income Distribution: Edward Elgar

Fields, G.S. (2001). "Distribution and Development: A New Look at the Developing World". Russell Sage Foundation, New York and MIT Press, Cambridge MA.

Firebaugh, G. (1999). "Empirics of World Income Inequality," *The American Journal of Sociology*, 104(6), 1597–630.

Fleurbaey M. 1994, "On Fair Compensation", Theory and Decision 36: 277-307.

Fleurbaey M., F.Maniquet 2002, "Fair income tax," forth. in *Review of Economic Studies*.

Frohlich K. L., Ross N, Richmond C (2006). Health Disparities in Canada today: Some evidence and a theoretical framework www. Sciencedirect.com

Gacitúa E. and C. Sojo. (2000). *Social Exclusion and Poverty Reduction in Latin America and the Caribbean.* Washington D.C.: World Bank.

Gajdos,T.,Weymark, J.A. (2003). Multidimensional Generalized Gini Indices. Distributions of Economic Status, Review of Economic Studies (49), 183-201.

Gakidou, E. E., Murray, C. J. L. and Frenk, J. (2000). Defining and Measuring Health Inequality: An Approach Based on the Distribution of Health Expectancy. Bulletin of the World Health Organisation 78 (1): 42-54.

Greerly, M (1994), Measurement of Poverty and Poverty of Measurement. Institute of Development Study Bulletin 25 (2): 50-57

Haddad, L., H. Alderman, A. Appleton, L. Song, and Y. Yohannes (2003). 'Reducing Child Malnutrition: How Far Does Income Growth Take Us?'. *World Bank Economic Review,* 17 (1):107-31.

Heshmati A (2004): A review of Decomposition Income Inequality. Institute of Study for Labor, Germany. IZA Discussion Paper No 1221.

Heymans and Pycroft (2005) "Drivers of Change in Nigeria" A Preliminary Overview. Department for International Development

Iro, I. (2006). *Nomadic Education and Education for Nomadic Fulani*. Retrieved May 18, 2007 from: http://www.gamji.com/fulani7.htm

Iwayemi, Akin; Afeikhena Jerome and Thompson Adeboyejo, (2000) "Inequality: Concept and Issues" Centre for Econometric & Allied Research, University of Ibadan, Nigeria.

Iyun, F. (1988) Inequalities in health care in Ondo State, Nigeria. Health Policy and Planning, 3(2): 159-163.

Jackman, R. W. (1982), "Dependence on Foreign Investment and Economic Growth in the Third World" *World Politics*, 34, 175–96.

Jenkins S.P. and Van Kerm (2004), Accounting for Income Distribution Trends: A Density Function Decomposition Approach. An integrated Research Infrastructure in the Socio-Economic Sciences (IRISS) Working Paper Series No 2004-07.

Jensen, P. and Skyt Nielsen, H. (1997). Child Labour or School Attendance? Evidence from Zambia. Journal of Population Economics 10 (4): 407-424.

Juhn, C., Murphy and B Pierce (1993). Wage Inequality and the Rise in Returns to Skills. *Journal of Political Economy* 101:410-42

Jones, C. I. (1997). "Convergence Revisited," *Journal of Economic Growth*, 2, 131–53.

Justino, P. (2003), *Measuring Non-Income Inequalities*. Poverty Research Unit Sussex Working Paper no. 15. University of Sussex, Brighton.

Justino, P. and Acharya, A. (2003), *Inequality in Latin America: Processes and Inpus*. PRUS Working Paper no. 22. Poverty Research Unit, University of Sussex, Brighton.

Justino, P. Litchfield J and Whitehead L. (2003). The Impact of *Inequality in Latin America:* PRUS Working Paper no. 22. Poverty Research Unit, University of Sussex, Brighton.

Justino, P. (2004), Multidimensional Inequality: An Empirical Framework. Poverty Research Unit Sussex Working Paper No 23, Poverty Research Units at Sussex, Department of Economics, University of Sussex. Kluwer, MA.

Justino, P.; J. Litchfield and Y. Niimi (2004). Multidimensional Inequality: An empirical application to Braazil, Working paper No 24 Poverty Research Units at Sussex. University of Sussex.

Kanbur, R. (1998), Income Distribution and Development, *in A.B. Atkinson and F. Bourguignon (eds.) Handbook of Income Distribution*, North Holland.

Kanbur, R. And N Lustig (1999): Why is Ineuality Back on the Agenda. Paper Prepared for the Annual Bank Conference on Development Economics, World Bank Washington DC. April 28-30, 1999.

Karingi, S. and B. Wanjala (2005). The Tax Reform Experience in Kenya. United Nations University/ World Institute for Development Economics Research, Research Paper No 2005/67, Helsinki

Ki, J. B., B. Faye and S. Faye (2004) : Multidimensional Poverty in Senegal: A Nonmonetary Basic Needs Approach. PMMA Working Paper 2005-05. Poverty and Economic Policy (PEP) Network, Canada.

Kim, S. (2008). Spatial Inequality and Economic Development : Theories, Facts and Polices. The International Bank for Re-construction and Development/World Bank, On behalf of the Commission on Growth and Development. Working paper No 16

Kiringa, J. (2006): Public Spending in Kenya: An Inequality Perspective. Readings on Inequality in Kenya, Sectoral Dynamics and Perspectives. Society for International Development East Africa Pp 11-55

Kolm S. C., (1977) "Multidimensional Egalitarianisms," Quarterly Journal of Economics, 91:1-13

Korzeniewicz, R. P. and T. P. Moran, (1997): "World Economic Trends in the Distribution of Income, 1965–92," *American Journal of Sociology*, 102, 1000–39, 1997.

Kranich L. J. (1996) "Equitable Opportunities: An Axiomatic Approach", Journal of Economic Theory 71, 131-147.

Kuznets, S., (1955): "Economic Growth and Income Inequality", *American Economic Review* 45 (1955), 1-28.

Litchfield, J. A. (1999): Inequality: Method and Tools. The World Bank, Washington D.C, available on http://www.worldbank.org/poverty/inequal/index.html. Retrieved December 14, 2008.

Litchfield, J. A. (2001). Poverty, Inequality and Social Welfare in Brazil 1981-1995. PhD Thesis, London School of Economic, University of London, London: Routledge.

Lorenz, M.O. (1905). Methods of measuring concentration of wealth. J. Amer. Statist. Assoc. 9, 209-219.

Maasoumi, E. (1999): "Multi-Dimensioned Approaches to Welfare Analysis" in Handbook of income inequality measurement, ed. -. J. Silber, Boston: Kluwer Academic, pp. 437-477.

Maasoumi, E., (1986): "The Measurement and Decomposition of Multi-Dimensional Inequality", *Econometrica* 54 (1986), 991-997.

Mahmud Khan, David Hotchkiss, Andres Berruti and Paul Hutchinson (2005): Geographical Aspect of Poverty and Health in Tanzania, Does Living in a Poor Area Matter? *Health and Policy Planning*, vol 21, issue 2 pp 110-122.

Maniquet Francois, (2002). "On the Equivalence between Welfarism and Equality of Opportunity," Economics Working Papers 0022, Institute for Advanced Study, School of Social Science.

Map of Nigeria: http://geography.about/library/cia/blcnigeria.html. Retrieved July 6 2011

Mashood E and I. Young (2003); Nigerian Social and Economic Inequality in Its Global Context. Center for Human Right Research and Development, Australia, Research Review No. 2

Melchior, A., K. Telle, and H. Wiig (2000), *Globalisation and Inequality: World Income Distribution and Living Standards, 1960–98*, Studies on Foreign Policy Issues, Report 6B, Royal Norwegian Ministry for Foreign Affairs, Oslo.

Milanovic, B. (1999). True World Income Distribution, 1988 and 1993: First Calculations Based on Household Surveys Alone. Economic Journal 112: 51-92.

Milanovic, B., (2002a) "Worlds Apart: International and World Inequality 1950–2000," World Bank, Washington D. USA

Milanovic, B., (2002b) "True World Income Distribution, 1988 and 1993: First Calculations based on Household Surveys Alone," *Economic Journal*, 112, 51–92.

Milanovic, B., (2003) Is Ineuality in Africa Reallly Different? Policy Research Working Paper Series. 3169. World Bank

Milbrath, L.W. and Goel, M.L. (1977). Political Participation: How and Why do People get involved in Politics? 2nd edn. Lanham, MD: University Press of America.

Mookerjee, D. and A. Shorrocks 1982, "A Decomposition Analysis of the Trend in UK Income Inequality." In: *Economic Journal*, 92: 886-902.

Morduch, J. and Sicular, T. (2002): 'Rethinking Inequality Decomposition, with Evidence from Rural China', Economic Journal, 112: 93–106.

Mustapha A.R: (2006) Ethnic Structure, Inequality and Governance of the Public Sector in Nigeria. United Nations Research Institute for Social Development, Geneva, Switzerland Research Paper No. 24

Narayan, D., Chambers, R., Shah, M. and Petesch, P., *Voices of the Poor: Crying Out for Change* (2000), Oxford University Press for the World Bank. New York.

National Bureau of Statistics (2005): Poverty Profile for Nigeria. National Bureau of Statistics

National Bureau of Statistics (2006): National Living Standard Survey Data (2006)

National Bureau of Statistics (2006): Core Welfare Indicator Questionnaire (2006) National Bureau of Statistics

Natufe, Igho. O (2006): Governance and Politics in Nigeria. A lecture delivered at the Staff and Graduate Seminar of the Department of Political Science and Public Administration, University of Benin, Benin, Edo State.

NPC (2004), Nigeria National Population Commission, Education Data for Decision making, Abuja, Nigeria

Nnadozie, E. (2003), *African Economic Development*, Academic Press, San Diego, California, USA

Norris, P. (2002). Democratic Phoenix: Reinventing Political Activism. Cambridge: Cambridge University Press.

Norris, P., Walgrave, S., and Van Aelst, P. (2005): Who Demonstrates? Anti-State Rebels, Conventional Participants, or Everyone?

Nussbaum, M. and Sen, A. K., (1993): *The Quality of Life* (1993), Claredon Press, Oxford.

Nussbaum, M. C., (2000) *Women and Human Development: The Capabilities Approach*, Cambridge University Press, Cambridge

Nyako Zainab (2010): Women's Participation in Political Matters Arising. Nigerian Tribune Thursday, 7th October 2010, page 10.

Oaxaca, R (1973): Male-Female Wage Differences in Urban Labour Markets. International Economic Review 14: 693-709

Osaghae, E., 1989, 'The Federal Cabinet, 1951-1984', in P.P. Ekeh & E.E. Osaghae, eds., Federal Character and Federalism in Nigeria, Heinemann, Ibadan.

Olaniyan O and Awoyemi T.T (2006). Inequality in the Distribution of Household Expenditure in Rural Nigeria: A decomposition analysis. A Research Report Submitted to the African Economic Research Consortium (AERC), Nairobi for the Second Phase Collaborative Poverty Research Project.

Omilola, B. (2004): Decomposing Inequalities in Nutritional Status of Children in Kenya. Paper presented at the International Conference-.Promoting Human Rights and Social Policies for Children and Women: Monitoring and Achieving the Millennium Development Goals., organized by the United Nation's Children's Fund and the Graduate Program in International Affairs at the New School University in New York City between April 28-30.

Oyediran K.A and Odusola (2005)**:** Poverty and the Dynamics of Women's Participation in Household Decision-Making. *African Population Studies* vol. 19 pp 115-139

Oyekale A.S., Adeoti A.I and Oyekale T.O (2006) Measurement and Sources of inequality in Rural and Urban Nigeria. A final report submitted to Poverty and Economic Policy Network, Canada

Pattanaik P.K (1994). Some Non-Welfaristic Issues in Welfare Economics. In Bhaskar Dutta, editor, Welfare Economics, pages 197—248. Oxford University Press, Oxford.

Peacock,W. G., G. A. Hoover, and C. D. Killian, (1988) "Divergence and Convergence in International Development: A Decomposition Analysis of Inequality in the World System," *American Sociological Review*, 53, 838–52.

Phillips, A. (1999). Which Equalities Matter? Oxford: Polity Press. [ch. 1: Democracy and Equality]

Pigou, A.F (1912): Wealth and Welfare, Macmillan, London

Pradhan M, Sahn D.E., Younger S.D (2003) Decomposing World Health Inequality Journal of Health Economics 22 (2003) 271–293

Psacharopoulos, G. (1984), 'The contribution of education to economic growth: International comparisons', in: J. W. Kendrick (Ed.), *International comparisons of productivity and causes of the slowdown*, New York, Ballinger, pp. 335-360

Pyatt G.C, C Chen, and J. Fei (1980). The Distribution of Income by Factor Components. Quarterly Journal of Economics 95 (451-73)

Raghupathy, S. 1996. "Education and the Use of Maternal Health Care in Thailand" *Social Science and Medicine* 43: 459 – 471.

Ram, R. (1989) "Level of Development and Income Inequality: An Extension of the Kuznets Hypothesis to the World Economy," *Kyklos*, 42, 73–88, 1989.

Ram, R. (1990). Educational Expansion and Schooling Inequality: International Evidence and Some Implications. *Review of Economics and Statistics* 72 (2): 266-274.

Rao, V.M (1969). Two Decompositions of Concentration Ratio, *Journal of the Royal Statistical Societies*, 132, 418-25

Ravallion, M. (1997), Can High-Inequality Developing Countries Escape Absolute Poverty? *Economics Letters*, 56, 51-57.

Ravallion, M. (2001): 'Growth, Inequality and Poverty: Looking Beyond Averages', *World Development*, 29(11), 1803-1815.

Roemer J.E. (1993): "A Pragmatic Theory of Responsibility for the Egalitarian Planner" *Philosophy and Public Affairs* 22, 146-166

Roemer, J.E (1996): Theories of Distributive Justice. Cambridge Harvard University Press

Rosenstone, S.J. (1982). "Economic Adversity and Voter Turnout" *American Journal of Political Science*, vol. 26, no. 1, pp. 25-46.

Rosenstone Steven J. and John Mark Hansen (1993): Mobilization, Participation and Democracy in America New York Macmillan Publishing.

Ruggeri Laderchi, C., Saith, R. and Stewart, F. (2003). Does It Matter That We Don't Agree on the Definition of Poverty? A Comparison of Four Approaches. Queen Elisabeth House Working Paper Series QEHWPS107. Queen Elisabeth House, University of Oxford.

Sahn, D. and D. C. Stifel (2000) 'Poverty comparisons over time and across countries in. Africa', *World Development* 28(1): 2123–55.

Sahn, D. and D. C. Stifel (2003). Urban- rural Inequality in Living Standards in Africa Journal of African Economics 12: 564-597

Sahn, D and Younger S.D (2007). Inequality and Poverty in Africa in an Era of Globalization Looking Beyond Income to Health and Education. United Nations University/World Institute Development Economic Research. Research paper No 2007/74

Saith, R. (2001). Capabilities: The Concept and Its Operationalisation. Queen Elisabeth House Working Paper Series QEHWPS66. Queen Elisabeth House, University of Oxford.

Sala-i-Martin, X. (2002) *The world distribution of income (estimated from individual income distributions)*, Working Paper 8933, Cambridge, MA: NBER.

Sala-i-Martin, Xavier; Subramanian, Arvind (2003). "Addressing The Natural Resource Curse: An Illustration From Nigeria," *Working Paper 9804* Cambridge, Mass.: National Bureau of Economic Research. June 2003.

Sassen, S (1999) 'Digital Networks and Power', in M. Featherstone and S. Lash (eds) *Spaces of Culture: City, Nation, World*, pp. 49–63. London: Sage.

Savaglio, E. (2002): Multidimensional Ineuality. University of Siena, Catholic University of Louvain. Centre for Operations Research and Econometrics (CORE). Economics Orking Paper No 362.

Savaglio, E. (2006), "Three approaches to the Analysis of Multidimensional Inequality" in Inequality and Economic Integration, eds. F. Farina and E. Savaglio,

Schultz, T. (1962), Reflections on investment in man, in: *The Journal of Political Economy* 70(5): 1-8

Schlozman, K.L., Verba, S., and Brady, H.E. (1999). "Civic Participation and the Equality Problem" in Civic Engagement in American Democracy, ed. Skocpol, Theda and Fiorina, Morris (Eds.), Washington, D.C.: Brookings, pp. 427-459.

Schwartz, J.C and Winship (1980). "The Welfare Approach to Measuring Inequality Pp 1-36 in Social Methods. Ed Schesster. Jossey Bass

Sen A. K (1970), Collective Choice and Social Welfare. Holden Day, San Francisco.

Sen, A. K., (1973) *On Economic Inequality* (1973), Clarendon Press, Oxford.

Sen, A. K., (1985) *Commodities and Capabilities* (1985), North-Holland, Oxford.

Sen A. (1992), Inequality Re-examined, Oxford, Clarendon Press

Sen, A. K., (1993) "Capability and Wellbeing" in the Quality of Life. M.C. Nussbaum and A. Sens (eds) Oxford University Press, Oxford.

Sen, A. K., (1997) "From Income Inequality to Economic Inequality", *Southern Economic Journa*l, 64 (1997), 384-401.

Sen, A. K., (1999) Development *as Freedom* (1999), Oxford University Press, Oxford.

Sennett, R. (1998). The Corrosion of Character: The Personal Consequences of Work in the New Capitalism. London: Norton.

Sheehey, E. J.(1996) "The Growing Gap between Rich and Poor Countries: A Proposed Explanation," *World Development*, 24, 1379–84, 1996

Shorrocks, A., F (1980) "The Class of Additively Decomposable Inequality Measures", *Econometrica* 48 (1980), 613-625.

Shorrocks, A.F., 1983. Ranking Income Distributions, Economica 50,3 –17.

Shorrocks,A.F. (1984) Inequality Decompositions by Population Subgroups. *Econometrica* 52(6), 1369-88.

Srinivasan T.N (2000). Growth, Poverty Reduction and Inequality. Paper presented at June 2000 Annual Bank Conference on Development Economics World Bank

Stewart, F. (1985) *Planning to Meet Basic Needs*, Macmillan, London, 1985.

Stewart, Frances, Valpy Fitzgerald and Associates, *War and Underdevelopment: The Economic and Social Consequences of Conflict* (Oxford: Oxford University Press, 2001).

Stewart, F. (2002). " Horizontal Ineualities A neglected Dimenson of Development. Working Paper Series 81. Ueen Elizabeth. Unoversity of Oxford, Oxford.

Stolle, D. and Hooghe, M. (2005). "Shifting Inequalities? Patterns of Exclusion and Inclusion in Emerging Forms of Political Participation", Prepared for Presentation at the 101 Annual Meeting of the American Political Science Association.

Streeten, P. (1981): Development Perspectives London: Macmillan

Sturm, J. (2001), Determinants of Public Capital Spending in Less Developed Countries CCSO Working Papers 200107, University of Groningen, CCSO. Center for Economic Research.

Thomas, V., Wang, Y. and Fan, X. (2000). Measuring Education Inequality: Gini Coefficients of Education. World Bank.

Tobin J. (1970), On Limiting the Domain of Inequality, Journal of Law and Economics, 13, 447-463.

Tsui K.-Y. (1999), Multidimensional Inequality and Multidimensional Generalized Entropy Measures: An axiomatic derivation, Social Choice and Welfare, 16, 145-157.

Tsui, K. (2002), "Multidimensional Poverty Indices", *Social Choice and Welfare* 19, 69-93.

Tsui, K.Y., (1995) "Multidimensional Generalizations of the Relative and Absolute Inequality Indices: The Atkinson-Kolm-Sen Approach", *Journal of Economic Theory* 67 (1995), 145-157

UNDP (1990), *Human Development Report 1990* (1990), United Nations Development Programme, United Nations, New York. UNESCO (2003). Right to Education: Scope and Implementation. General comment 13 on the right to education. *UNESCO Economic & Social Council.* Retrieved May 18, 2007 from: http://portal.unesco.org/education/en/file_download.php/c144c1a8d6a75ae8dc55ac385f58102erighteduc.pdf

United Nations Development Programme (1997), Human *Development Report*, New York: Oxford University Press.

United Nations Development Programme, Nigeria (2003), Human *Development Report*, New York: Oxford University Press.

United Nations Development Programme Nigeria (2009), Human Development Report, New York: Oxford University Press.

United Nations Educational, Scientific and Cultural Organization (2003): Rewarding Literacy, a Study of the History and Impact of the International Literacy. (UNESCO) Paris.

UNICEF (1996), *The State of the World's Children's Health*, New York: Oxford University Press

USAID (2006): Nigeria Economic Performance Assessment, February

United Nations University (2000): United Nations University /World Institute for Development Economics and Research-United Nations Development Programme World Income Inequality Database, v 1.0 ed.

Van Aelst, P. and Walgrave, S. (2001). "Who Is That (Wo)man in the Street? From the Normalization of Protest to the Normalization of the Protester". European Journal of Political Research, vol. 39, no. 4, pp. 461-486.

Vandemoortele, J. (2000). Absorbing Social Shocks, Protecting Children and Reducing Poverty: The Role of Basic Social Services, UNICEF Working Paper EPP-00-001 New York

Verba, S. (2004). "Would the Dream of Political Equality Turn out to Be a Nightmare?". Perspectives on Politics, vol. 1, no. 04, pp. 663-679.

Verba, S. and Nie, N.H. (1972). Participation in America: Political democracy and social equality. New York: Harper & Row.

Verba, S., Nie, N.H. and Kim, J. (1978). Participation and Political Equality: A seven-nation comparison. Cambridge, Eng. ; New York: Cambridge University Press.

Verba, S., Schlozman, K.L. and Brady, H.E. (1995). Voice and Equality: Civic Voluntarism in American Politics. Cambridge, Mass.: Harvard University Press.

Wagstaff, A. (2000). Socioeconomic Inequalities in Child Mortality: Comparisons Across Nine Developing Countries. Bulletin of the World Health Organization 78 (1): 19-29.

Wan G. (2002): Regression-Based Inequality Decomposition: Pitfalls and a Solution Procedure. World Institute for Development Economics and Research Discussion Paper 101, UNU-WIDER: Helsinki

Wanjala, B. (2006), 'Design and Performance of Kenya's Tax System: an Inequality Perspective', in 'Readings on Inequality in Kenya: Sectoral Dynamics and Perspectives', The Society for International Development (SID), Eastern and Southern African Region, Regal Press, Nairobi, Kenya.

Weymark, J. (2004) "The Normative Approach to the Measurement of Multidimensional Inequality." Working Paper 03-W14R (2004), Department of Economics, Vanderbilt University

Wolfinger, R.E. and Rosenstone, S.J. (1980): Who votes? New Haven: Yale University Press.

World Bank (1996): *Poverty in the Midst of Plenty-The Challenge of Growth with Inclusion*. A World Bank Poverty Assessment Report no. 14733-UNI.

World Bank (2000): "*World Development Report*", Washington, DC

World Bank (2001): "*World Development Report*", 2000/2001: Attacking Poverty Washington, DC, Oxford University Press

World Bank (2004): Inequality in Latin America and the Caribbean: Breaking With History? The World Bank, Washington D. C.

World Bank (2006): Equity and Development "*World Development Report*", New York, Oxford University Press.

WHO (2001), World Health Organization, Macroeconomics and health: Investing in health for economic development, Report of the Commission of Macroeconomic and Health, 190p.

Yahaya, D., 1994: “Key note address” Kano State Constitutional Conference Workshop, April Kano.

Young, H.P (1985): Monotonic Solutions of Comparative Games. International Journal of Game Theory 14, 65-72.

Young, I.M. (2002). Inclusion and Democracy: Oxford: Oxford University Press

Yitzhaki, S. and R.I. Lerman (1991) "Income Stratification and Income Inequality", *Review of Income and Wealth*

Zhang Y. and G.Wan (2005): Why Do Poverty Rates Differ From region to Region? The Case of Urban China, Research Paper No 2005/56. United Nations University / World Institute for Development Economics and Research Helsinki

Appendix 1: **Table of Analysis of Objectives**

Objectives	Data required	Method of analysis
1. Analyze the non-income inequalities profile among rural households.	Years of formal education of the household head, access to health care delivery (type of health care service consulted, problems encountered during consultation), level of participation in politics and decision making	Principal component analysis Gini index and Generalized Entropy
2. examine the extent of vertical inequality across different population groups and their marginal contributions to between and within group inequality	Educational inequality, health inequality, political inequality, age of household head, gender of household head, primary occupation and geo-political location	Gini index and Shapley Decomposition Model
3. To determine the factors that influence non-income inequality among households in Nigeria.	Educational, health and political inequality indices, location, sanitation variables (toilet facilities, method of waste disposal, source of water) Household composition variables, Employment status, Wealth variables, health variables (immunization, method of preventing malaria)	Principal Component Analysis and Ordered probit regression analysis

Appendix 2: Sample size for the national core welfare indicator survey.

State	LGA	EAs	HUs	Rural	Urban	Total sample
Abia	17	170	1700	1367	330	1697
Adamawa	21	210	2100	1630	470	2100
Akwa Ibom	31	310	3100	2830	260	3090
Anambra	21	210	2100	1280	820	2100
Bayelsa	20	200	2000	1840	160	2000
Bauchi	8	80	800	682	110	792
Benue	23	230	2300	2080	220	2300
Borno	27	270	2700	2173	510	2683
Cross River	18	180	1800	1359	440	1799
Delta	28	280	2800	1878	590	2468
Ebonyi	13	130	1300	1030	270	1300
Edo	18	180	1800	1360	440	1800
Ekiti	16	160	1600	839	760	1599
Enugu	17	170	1700	1136	558	1694
Gombe	11	110	1100	899	190	1089
Imo	27	270	2700	2370	320	2690
Jigawa	27	270	2700	2570	130	2700
Kaduna	23	230	2300	1920	380	2300
Kano	44	440	4400	3840	559	4399
Katsina	34	340	3400	2960	440	3400
Kebbi	21	210	2100	1749	350	2099
Kogi	21	210	2100	1467	630	2097
Kwara	16	160	1600	1147	450	1597
Lagos	20	200	2000	330	1645	1975
Nasarawa	13	130	1300	1291	0	1291
Niger	25	250	2500	1930	540	2470
Ogun	20	200	2000	1210	779	1989
Ondo	18	180	1800	1225	540	1765
Osun	30	300	3000	2221	751	2972
Oyo	33	330	3300	1847	1413	3260
Plateau	17	170	1700	1302	370	1672
Rivers	23	230	2300	1720	580	2300
Sokoto	23	230	2300	1940	350	2290
Taraba	16	160	1600	1337	260	1597
Yobe	17	170	1700	1198	500	1698
Zamfara	14	140	1400	1240	150	1390
FCT	6	60	600	370	230	600
Total	774	7740	77400	59567	17495	77062

Source: NBS, 2007. www.nigerianstat.gov.ng

Appendix 3: Descriptive Statistics of Gender of Households Head in Nigeria

	Farming		Non-farming		Pooled	
Zones	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
North West	98.9	1.1	97.6	2.4	96.6	3.4
North Central	93.2	6.8	89.1	10.9	90.9	9.1
North East	96.4	3.6	96.8	3.2	98.3	1.7
South East	74.7	25.3	74.7	25.1	74.1	25.9
South West	79.6	20.4	81.0	19.0	78.3	21.7
South South	75.7	24.3	76.3	23.7	75.9	24.1
Total	86.4	13.6	85.9	14.1	85.7	14.3

Source: Author's computation from the 2006 CWIQ data

Appendix 4: Distribution of Respondent by Mean Household Size

	Farming		Non-farming		Pooled	
Zones	**Mean**	**S.D**	**Mean**	**S.D**	**Mean**	**S.D**
North West	5.6251	2.7769	5.7660	3.0235	5.1469	2.9354
North Central	5.1338	3.1136	5.0683	3.0011	5.1511	3.0789
North East	5.2853	2.8818	5.4198	3.0551	5.5738	2.9042
South East	4.5792	2.7396	4.3232	2.2487	4.5599	2.6297
South West	3.9042	2.4973	3.9218	2.1132	3.9828	2.5164
South South	4.4309	2.6994	4.4495	2.1030	5.0401	2.8867
Total	4.9264	2.7848	4.8248	2.1774	4.9091	2.8253

Source: Author's computation from the 2006 CWIQ data

Appendix 5: Distribution of Respondent by Mean Age of Household Head

	Farming		Non-farming		Pooled	
Zones	Mean	S.D	Mean	S.D	**Mean**	**S.D**
North West	45.9554	14.6575	45.8402	15.4442	43.7398	14.6332
North Central	45.6014	16.5729	46.2756	16.2141	45.1655	15.6995
North East	43.9665	15.6932	44.3763	15.6892	45.3120	14.1469
South East	55.7836	15.4804	56.5598	16.7513	55.0667	14.7932
South West	52.1399	17.7679	51.2700	17.3653	51.6535	17.1137
South South	48.9020	16.9227	47.8620	12.7030	47.4861	15.5325
Total	48.7248	16.1824	48.6973	14.8611	48.706	15.3198

Source: Author's computation from the 2006 CWIQ data

Appendix 6: **Distribution of Respondent by Marital Status for Farming Households**

Zones	Single	Monogamous	Polygamous	Informal	Widow/Separated
NW	1.1	63.0	34.0	-	1.9
NC	7.4	63.8	19.6	-	9.2
NE	5.0	66.2	22.8	0.1	5.9
SE	4.6	61.8	6.5	0.2	26.9
SW	8.2	54.0	14.2	0.9	22.6
SS	10.4	57.8	8.6	1.7	21.5
Total	6.1	61.1	17.6	0.5	14.7

Source: Author's computation from the 2006 CWIQ data

Appendix 7: **Distribution of Respondent by Marital Status for Non-Farming Households**

Zones	Single	Monogamous	Polygamous	Informal	Widow /Separated
NW	2.6	61.9	32.5	-	3.0
NC	8.6	62.3	19.0	0.2	9.9
NE	5.1	65.2	24.1	0.1	5.5
SE	6.3	62.8	5.2	0.2	25.5
SW	7.8	55.8	14.7	0.8	21.4
SS	11.1	56.9	8.2	3.1	20.7
Total	6.9	60.8	17.3	0.7	14.3

Source: Author's computation from the 2006 CWIQ data

Appendix 8: Distribution of Respondent by Marital Status for Rural Households

Zones	Single	Monogamous	Polygamous	Informal	Widow / Separated
NW	4.8	65.5	24.1	0.0	5.6
NC	8.3	62.4	19.3	0.1	9.9
NE	1.8	62.0	33.8	0.0	2.4
SE	5.7	61.3	6.0	0.2	26.8
SW	7.5	52.3	17.5	0.6	22.1
SS	10.6	56.3	8.7	2.9	21.5
Total	6.5	60.0	18.2	0.6	14.7

Source: Author's computation from the 2006 CWIQ data

Appendix 9: Shapley Educational Inequality Decomposition by Gender

Rural Households (Pooled)					
Zones	**Gini**	**Between**	**Within**	**Intra group Decomposition Male**	**Female**
NW	0.7780	0.0129 (1.7)	0.2057(98.3)	0.7379(94.8)	0.0271(3.5)
NC	0.5579	0.0096 (1.7)	0.5483(98.3)	0.4634(83.1)	0.0849(15.2)
NE	0.7356	0.0018 (0.2)	0.7330(99.8)	0.6833(92.9)	0.0504 (6.9)
SE	0.4402	0.0262 (6.0)	0.4134(94.0)	0.2300(52.3)	0.1839(41.8)
SW	0.5381	0.0164 (3.1)	0.5217(69.9)	0.3310(61.5)	0.1907 (35.4)
SS	0.4113	0.0158 (3.8)	0.3955(96.2)	0.2357 (57.3)	0.1598(38.8)
Total	0.5917	0.0190 (3.2)	0.5727(96.8)	0.4655 (78.7)	0.1072 (18.1)
Farming Households					
Zones	**Gini**	**Between**	**Within**	**Intra group Decomposition Male**	**Female**
NW	0.8258	0.0110 (1.3)	0.8148 (98.7)	0.7964 (96.5)	0.0184 (2.2)
NC	0.5663	0.0112 (2.0)	0.5551 (98.0)	0.4838 (85.4)	0.0715 (12.6)
NE	0.7429	0.0034 (0.5)	0.7395 (99.5)	0.6855 (92.3)	0.0540 (7.2)
SE	0.4400	0.0279 (6.3)	0.4121 (93.7)	0.2328 (52.9)	0.1793 (40.8)
SW	0.5334	0.0131 (2.5)	0.5203 (97.5)	0.3218 (60.3)	0.1985 (37.2)
SS	0.4208	0.0136 (3.2)	0.4072 (96.8)	0.2399 (57.0)	0.1673 (39.8)
Total	0.6135	0.0247 (4.0)	0.5888 (96.0)	0.4896 (79.8)	0.0993 (16.2)
Zone	**Gini**	**Between**	**Within**	**Intra group Decomposition Male**	**Female**
NW	0.7327	0.0110 (1.5)	0.7216 (98.5)	0.6863 (93.7)	0.0353 (4.8)
NC	0.5443	0.0048 (0.9)	0.5395 (99.1)	0.4404 (80.9)	0.0991 (18.2)
NE	0.7300	0.0052 (0.7)	0.7248 (99.3)	0.6794 (93.1)	0.0454 (6.2)
SE	0.4385	0.0248 (5.7)	0.4137 (94.3)	0.2268 (51.7)	0.1869 (42.6)
SW	0.5405	0.0182 (3.4)	0.5223 (96.6)	0.3359 (62.1)	0.1864 (34.5)
SS	0.4034	0.0168 (4.2)	0.3866 (95.8)	0.2316 (57.4)	0.1550 (38.4)
Total	0.5731	0.0142 (2.5)	0.5589 (97.5)	0.4454 (77.7)	0.1135 (19.8)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 10: Shapley Educational Inequality Decomposition by Household Size

Rural Households (Pooled)						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**< 6**	**6 - 10**	**>10**
NW	0.7420	0.0393(5.3)	0.7027(94.2)	0.2556(34.4)	0.4101(55.3)	0.0370 (5.0)
NC	0.5172	0.0098(1.9)	0.5074(98.1)	0.2171(42.0)	0.2565(49.6)	0.0337(6.5)
NE	0.6995	0.0228(3.3)	0.6767(96.7)	0.2629(37.6)	0.3813(54.5)	0.0326(4.6)
SE	0.3555	0.0254(7.2)	0.3301(92.8)	0.1630(45.8)	0.1572(44.2)	0.0099(2.8)
SW	0.4483	0.0284(6.3)	0.4199(93.7)	0.2619(58.4)	0.1506(33.6)	0.0074(1.7)
SS	0,3596	0.0190(5.3)	0.3406(94.7)	0.1666(46.3)	0.1702(47.3)	0.0038(1.1)
Total	0.5724	0.0100 (1.8)	0.5624 (98.2)	0.2329(40.7)	0.3036 (53.0)	0.0259 (4.5)
Farming Households						
				Intra group Decomposition		
Zone	**Gini**	**Between**	**Within**	**1-5**	**6-10**	**>10**
NW	0.7904	0.0602 (7.6)	0.7302 (92.4)	0.2761(27.0)	0.4264 (53.9)	0.0277 (3.5)
NC	0.5215	0.0157 (3.0)	0.5058 (97.0)	0.2198(42.1)	0.2553 (49.0)	0.0307 (5.9)
NE	0.2819	0.0048 (1.7)	0.2771 (98.3)	0.1029(36.5)	0.1628 (57.8)	0.011 (4.0)
SE	0.3610	0.0232 (6.4)	0.3398 (93.6)	0.1655 (45.9)	0.161 (44.6)	0.0113 (3.1)
SW	0.4386	0.0265 (6.0)	0.4121 (94.0)	0.2541 (57.9)	0.149 (34.0)	0.0087 (2.1)
SS	0.3704	0.0207 (5.6)	0.3497 (94.4)	0.1742 (47.0)	0.171 (46.4)	0.0037 (1.0)
Total	0.5956	0.0126 (2.1)	0.5830 (97.9)	0.2459 (41.3)	0.3138 (52.7)	0.0234 (3.9)
Non-Farming Households						
				Intra group Decomposition		
Zone	**Gini**	**Between**	**Within**	**1-5**	**6-10**	**>10**
NW	0.6968	0.0236 (3.3)	0.6732 (96.7)	0.2335 (33.5)	0.3935 (56.5)	0.0462 (6.7)
NC	0.5443	0.0048 (0.9)	0.5395 (99.1)	0.4404 (80.9)	0.0000 (0.0)	0.0991(18.2)
NE	0.6944	0.0234 (3.4)	0.6710 (96.6)	0.2539 (36.6)	0.3825 (55.2)	0.0346 (5.0)
SE	0.3482	0.0280 (8.0)	0.3203 (92.0)	0.1602 (46.0)	0.1518 (43.6)	0.0083 (2.4)
SW	0.4533	0.0302 (6.7)	0.4231 (93.3)	0.2660 (58.7)	0.1509 (33.2)	0.0062 (1.4)
SS	0.3509	0.0182 (5.2)	0.3327 (94.8)	0.1610 (45.9)	0.1678 (47.8)	0.0038 (1.1)
Total	0.5520	0.0094 (1.7)	0.5426 (98.3)	0.2214 (40.1)	0.2940 (53.2)	0.0272 (5.0)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 11: Shapley Educational Inequality Decomposition by Age for Rural Households

Rural Households (Pooled)						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**0 - 30**	**31 - 60**	**>60**
NW	0.7812	0.0307(3.9)	0.7505(96.1)	0.0889(11.4)	0.5090(65.1)	0.1527(19.5)
NC	0.5678	0.0473(8.3)	0.5205(91.1)	0.0698(12.3)	0.3178(56.0)	0.1329(23.4)
NE	0.7380	0.0302(4.1)	0.7078(95.9)	0.1072(14.5)	0.4663(63.2)	0.1343(18.2)
SE	0.4490	0.0481(10.7)	0.4009(89.3)	0.0073(1.8)	0.1742(38.8)	0.2157(48.7)
SW	0.5480	0.0598(10.9)	0.4882(89.1)	0.0334(6.1)	0.2317(42.3)	0.2231(40.7)
SS	0.4154	0.0258(6.2)	0.3895(93.8)	0.0322(7.8)	0.2297(55.3)	0.1276(30.7)
Total	0.6024	0.0252 (4.2)	0.5772(95.8)	0.0613(10.2)	0.3489(57.9)	0.1670 (27.7)
Farming Households						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**≤ 30**	**31-60**	**>60**
NW	0.8252	0.0307 (3.7)	0.7945(96.3)	0.0929(11.3)	0.5406(65.5)	0.1610 (19.5)
NC	0.5682	0.0398 (7.0)	0.5285(93.0)	0.075 (13.2)	0.3257(57.3)	0.1276 (22.5)
NE	0.7745	0.0237 (3.1)	0.7208(96.9)	0.106 (13.8)	0.4823(62.3)	0.1317 (17.0)
SE	0.4457	0.0424 (9.5)	0.4033(90.5)	0.0082 (1.8)	0.190 (42.7)	0.2049 (46.0)
SW	0.4386	0.0265 (6.0)	0.4121(94.0)	0.0087 (2.0)	0.149 (34.0)	0.2541(57.9)
SS	0.4225	0.0170 (4.0)	0.4048(96.0)	0.0320 (7.6)	0.238 (56.4)	0.1345 (31.8)
Total	0.6212	0.0157 (2.5)	0.6056(97.5)	0.0655(10.5)	0.3715(59.8)	0.1658 (27.1)
Non –Farming Households						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**≤ 30**	**31-60**	**>60**
NW	0.7384	0.0321 (4.3)	0.7063(95.7)	0.0824(11.2)	0.4775(64.7)	0.1464 (19.8)
NC	0.5613	0.0548 (9.7)	0.5065(90.3)	0.0642(11.4)	0.3034(54.1)	0.1390 (24.8)
NE	0.7333	0.0345 (4.7)	0.6988(95.3)	0.1074(14.6)	0.4551(62.1)	0.1363 (18.6)
SE	0.4503	0.0529(11.7)	0.3974(88.3)	0.0078 (1.7)	0.1596(35.4)	0.2300 (51.1)
SW	0.4533	0.0302 (6.7)	0.4231(93.3)	0.0062 (1.4)	0.1509(33.3)	0.2660 (58.7)
SS	0.4090	0.0295 (7.2)	0.3795(92.8)	0.0321 (7.8)	0.2233(54.6)	0.1241 (30.3)
Total	0.5859	0.0316 (5.4)	0.5543(94.6)	0.0580 (9.9)	0.3297(56.3)	0.1666 (28.4)

N.B: Figures in parenthesis are in percentage

Source: Author's computation from the 2006 CWIQ data

Appendix 12: Shapley Educational Inequality Decomposition by Marital Status for Rural Households

Zones	Gini	Between	Within	Intra Group Decomposition				
				Single	Monogamous	Polygamous	Informal	Divorce/Widow
NW	0.7781	0.0474(6.1)	0.7307(93.9)	0.0000(0.0)	0.2913(34.9)	0.4119(52.9)	0.0048(0.6)	0.0426(5.5)
NC	0.5644	0.0380(6.7)	0.5264(93.3)	0.0010(0.2)	0.1091 (9.3)	0.2907(51.5)	0.0130(2.3)	0.1126(20.0)
NE	0.7411	0.0483(6.5)	0.6923(93.5)	0.0044(0.8)	0.1780 (2.4)	0.4047(54.6)	0.0140(2.6)	0.0974(13.1)
SE	0.4131	0.0237(5.7)	0.3894(94.3)	0.0141(3.4)	0.0346 (8.4)	0.1616(39.1)	0.0169(4.1)	0.1622(39.3)
SW	0.5481	0.0417(7.6)	0.5064(92.4)	0.0003(0.1)	0.0661(12.1)	0.1890(34.5)	0.0125(1.7)	0.2330(42.5)
SS	0.4503	0.0391(8.7)	0.4112(91.3)	0.0001(0.2)	0.0229 (5.1)	0.1642(36.5)	0.0066(1.5)	0.2166(48.1)
Total	0.6010	0.0501 (8.3)	0.5509 (91.7)	0.0032 (0.5)	0.1207 (20.1)	0.2830 (47.1)	0.0105 (1.7)	0.1335 (22.2)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 13: Shapley Educational Inequality Decomposition by Marital Status for Farming Households

Farming Households								
				Intra group Decomposition				
Zone	**Gini**	**Between**	**Within**	**Single**	**Monogamous**	**Polygamous**	**Informal**	**Widow/divorce**
NW	0.8241	0.0373(4.5)	0.7868 (95.5)	0.0000(0.0)	0.2994 (36.3)	0.4472 (54.3)	0.0368 (4.5)	0.0034(0.4)
NC	0.5715	0.0350 (6.1)	0.5365 (93.9)	0.0002 (0.0)	0.1090 (19.1)	0.2971 (52.0)	0.1179 (20.6)	0.0122 (2.1)
NE	0.7485	0.0874 (1.2)	0.7451 (99.5)	0.0000 (0.0)	0.1744 (23.3)	0.4141 (55.3)	0.1027 (13.7)	0.0119 (2.1)
SE	0.4488	0.0384 (8.6)	0.4104 (91.4)	0.0012 (0.3)	0.0252 (5.6)	0.1634 (47.9)	0.2149 (36.4)	0.0057 (1.3)
SW	0.5395	0.0328 (6.1)	0.5067 (93.9)	0.0035(0.6)	0.0651 (12.1)	0.1830 (44.4)	0.2394 (33.9)	0.0157 (2.9)
SS	0.4208	0.0184 (4.4)	0.4024 (95.6)	0.0091(2.2)	0.0354 (8.4)	0.1700 (40.7)	0.1712 (40.4)	0.0168 (4.0)
Total	0.6217	0.0589 (9.5)	0.5628(90.5)	0.0019 (0.3)	0.1280(20.6)	0.2946(47.4)	0.1287(20.7)	0.0096 (1.5)
Non-Farming Households								
				Intra group Decomposition				
Zone	**Gini**	**Between**	**Within**	**Single**	**Monogamous**	**Polygamous**	**Informal**	**Widow/Separated**
NW	0.7338	0.0479 (6.5)	0.6859(93.5)	0.000 (0.0)	0.2485 (33.9)	0.3827 (52.2)	0.0062 0.8)	0.0484 (6.6)
NC	0.5522	0.0417 (7.6)	0.5105(92.4)	0.0051(0.9)	0.1079 (19.5)	0.2795 (50.6)	0.0139 (2.5)	0.1076 (19.5)
NE	0.7356	0.0517 (7.0)	0.6839(93.0)	0.0000 (0.0)	0.1803 (24.5)	0.3974 (54.0)	0.0129 (1.8)	0.0933 (12.7)
SE	0.4500	0.0391 (8.7)	0.4109(91.3)	0.0007(0.2)	0.0208 (4.6)	0.1644 (36.5)	0.0073 (1.6)	0.2177 (48.4)
SW	0.5526	0.0467 (8.5)	0.5059(91.5)	0.0048 (0.9)	0.0666 (12.5)	0.1921 (34.6)	0.0132 (2.4)	0.2293 (41.5)
SS	0.4067	0.0269 (6.7)	0.3798 (93.3)	0.0168(4.0)	0.0339 (8.3)	0.1552 (38.2)	0.0168 (4.2)	0.1571 (38.6)
Total	0.5833	0.0445 (7.6)	0.5388(92.4)	0.0042 (0.7)	0.1146 (19.6)	0.2721 (46.6)	0.0112 (1.9)	0.1368 (25.4)

N.B: Figures in parenthesis are in percentage

Appendix 14: Shapley Political Inequality Decomposition by Gender

Rural Households (Pooled)					
Geo-Political Zones	**Gini**	**Between**	**Within**	**Intra group decomposition Male**	**Female**
North West	0.2187	0.0000(0.0)	0.2187(100)	0.2122(92.0)	0.0066(3.0)
North Central	0.2119	0.0063(3)	0.2057(97.0)	0.1763(83.2)	0.0294(13.9)
North East	0.2103	0.0019(0.9)	0.2084(99.1)	0.1957(93.1)	0.0127(6.0)
South East	0.2417	0.0058(2.4)	0.2359(97.6)	0.1544(63.9)	0.0814(33.7)
South West	0.2162	0.0015(0.7)	0.2147(99.3)	0.1474(68.2)	0.0673(31.1)
South South	0.2084	0.0040(1.9)	0.2044(98.1)	0.1354(65.0)	0.0690(33.1)
Total	0.2195	0.0040 (1.8)	0.2155(98.2)	0.1755(79.9)	0.0400 (18.3)
Farming Households					
Geo-Political Zones	**Gini**	**Between**	**Within**	**Intra group Decomposition Male**	**Female**
North West	0.2064	0.0003 (0.1)	0.2061 (99.9)	0.2013(97.6)	0.0048 (2.3)
North Central	0.2045	0.0059 (2.9)	0.1985(97.1)	0.1764(86.3)	0.0221 (11.8)
North East	0.2124	0.0030 (1.4)	0.2094(98.6)	0.1961(92.3)	0.0133 (6.3)
South East	0.2372	0.0095 (4.0)	0.2276(96.0)	0.1446(61.0)	0.0830 (35.0)
South West	0.2169	0.0007 (0.3)	0.2162(99.7)	0.1467(67.6)	0.0695 (32.1)
South South	0.2071	0.0044 (2.1)	0.2027 (97.9)	0.1323(63.9)	0.0704 (34.0)
Total	0.2146	0.0050 (2.3)	0.2096(97.7)	0.1723(80.3)	0.0373 (17.4)
Non-Farming Households					
Geo-Political Zones	**Gini**	**Between**	**Within**	**Intra group Decomposition Male**	**Female**
North West	0.2295	0.0003 (0.1)	0.2292(99.9)	0.2214(96.5)	0.0078 (3.4)
North Central	0.2192	0.0060 (2.7)	0.2132(97.3)	0.1762(80.4)	0.0370 (16.9)
North East	0.2088	0.0011 (0.5)	0.2077(99.5)	0.1953(93.5)	0.0124 (6.0)
South East	0.2456	0.0028 (1.1)	0.2429(98.9)	0.1626(66.2)	0.0803 (32.7)
South West	0.2159	0.0020 (0.9)	0.2139(99.1)	0.1478(68.5)	0.0661 (30.6)
South South	0.2089	0.0038 (1.8)	0.2050(98.2)	0.1370(65.6)	0.0681 (32.6)
Total	0.2232	0.0031 (1.4)	0.2200(98.6)	0.1778(79.7)	0.0422(18.9)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 15: Shapley Political Inequality Decomposition by Household Size for Rural Households

Rural Households (Pooled)						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**< 6**	**6 - 10**	**>10**
NW	0.2157	0.0113(5.2)	0.2044(94.8)	0.0627(29.1)	0.1294(60.0)	0.0123(5.7)
NC	0.2041	0.0146(7.1)	0.1895(92.9)	0.0649(31.8)	0.1091(53.3)	0.0155(7.6)
NE	0.2140	0.0172(8.0)	0.1968(92.0)	0.0595(27.8)	0.1242(58.0)	0.0131(6.1)
SE	0.2333	0.0086(3.7)	0.2247(96.3)	0.0956(40.9)	0.1222(52.4)	0.0070(3.0)
SW	0.2192	0.0114(5.2)	0.2078(94.8)	0.1094(49.9)	0.0936(42.7)	0.0048(2.2)
SS	0.2233	0.0084(3.8)	0.2149(96.2)	0.0803(35.9)	0.1307(58.5)	0.0040(1.8)
Total	0.2184	0.0114 (5.2)	0.2069 (94.8)	0.0734 (33.6)	0.1228 (56.2)	0.0108 (4.9)
Farming Households						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**1-5**	**6-10**	**>10**
NW	0.2065	0.0094(4.6)	0.1971(95.4)	0.0635(30.8)	0.1247(60.4)	0.0088(4.4)
NC	0.1982	0.0170 (8.6)	0.1812 (91.4)	0.0627(31.6)	0.1052(53.1)	0.0133(6.7)
NE	0.2180	0.0185 (8.5)	0.1995 (91.5)	0.0641(29.4)	0.1234(56.6)	0.0120(5.5)
SE	0.2282	0.0101 (4.4)	0.2181 (95.6)	0.0933(40.9)	0.1156(50.7)	0.0092(4.0)
SW	0.2158	0.0145 (6.7)	0.2013 (93.3)	0.1049(48.6)	0.0932(43.2)	0.0033(1.5)
SS	0.2172	0.0061 (2.8)	0.2111 (98.2)	0.0794(36.5)	0.1287(59.3)	0.0031(1.4)
Total	0.2146	0.0118 (5.6)	0.2009 (94.4)	0.0725(34.1)	0.1189(55.9)	0.0094(4.4)
Non-Farming Households						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**1-5**	**6-10**	**>10**
NW	0.2237	0.0126 (5.5)	0.2111 (94.5)	0.0621(27.8)	0.1336(59.7)	0.0154(6.8)
NC	0.2209	0.0098 (4.4)	0.2111 (95.6)	0.1118(50.6)	0.0938(42.5)	0.0055(2.5)
NE	0.2113	0.0164 (7.8)	0.1949 (92.2)	0.0564(26.7)	0.1246(59.0)	0.0139(6.5)
SE	0.2377	0.0072 (3.0)	0.2305 (97.0)	0.0975(41.0)	0.1280(53.8)	0.0050(2.2)
SW	0.2209	0.0098 (4.4)	0.211 (95.6)	0.111 (50.6)	0.0938(42.5)	0.0055(2.5)
SS	0.2267	0.0100 (4.4)	0.2167 (95.6)	0.0810(35.7)	0.1313(57.9)	0.0044(1.9)
Total	0.2228	0.0110 (5.0)	0.2118 (95.0)	0.0740(33.2)	0.1259(56.5)	0.0119(5.3)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 16: Shapley Political Inequality Decomposition by Age for Rural Households

Rural Households (Pooled)						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**0 - 30**	**31 - 60**	**>60**
NW	0.2297	0.0079(3.4)	0.2218(96.0)	0.0214(9.3)	0.1400(61.0)	0.0604(26.3)
NC	0.2322	0.0174(7.5)	0.2149(92.5)	0.0199(8.5)	0.1135(48.9)	0.0815(35.1)
NE	0.2220	0.0111(5.0)	0.2109(95.0)	0.0239(10.8)	0.1285(57.9)	0.0585(26.3)
SE	0.2640	0.0131(5.0)	0.2510(95.0)	0.0046(1.7)	0.0080(41.2)	0.1376(52.1)
SW	0.2331	0.0001(0.4)	0.2322(99.6)	0.0095(4.1)	0.1082(46.4)	0.1145(49.1)
SS	0.2257	0.0063(2.8)	0.2194(97.2)	0.0126(5.6)	0.1305(58.0)	0.0759(33.6)
Total	0.2358	0.0100(4.2)	0.2258(95.8)	0.0164 (7.0)	0.1253(53.1)	0.0841 (35.7)
Farming Households						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**≤ 30**	**31-60**	**>60**
NW	0.2144	0.0063(2.9)	0.2081(97.1)	0.0194 (9.0)	0.1353(63.1)	0.0534 (25.0)
NC	0.2213	0.0156(7.0)	0.2057(93.0)	0.0205 (9.3)	0.1122(50.7)	0.0730 (33.0)
NE	0.2186	0.0104(4.8)	0.2082(95.2)	0.0259(11.8)	0.1330(60.8)	0.0493 (22.6)
SE	0.2535	0.0109(4.3)	0.2426(95.7)	0.0041 (1.6)	0.1122(44.3)	0.1263 (49.9)
SW	0.2370	0.0041(1.6)	0.2329(98.4)	0.0088 (3.5)	0.1064(42.0)	0.1177 (46.5)
SS	0.2217	0.0051(2.2)	0.2166(97.8)	0.0121 (5.5)	0.1272(57.4)	0.0773 (38.9)
Total	0.2273	0.0094(4.1)	0.2179(95.9)	0.0164 (7.2)	0.1241(54.6)	0.0774 (34.1)
Non-Farming Households						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**≤ 30**	**31-60**	**>60**
NW	0.2433	0.0093(3.8)	0.2340(96.2)	0.0232 (9.5)	0.1442(59.3)	0.0666 (27.4)
NC	0.2434	0.0190(7.8)	0.2244(92.2)	0.0191 (7.8)	0.1148(47.2)	0.0905 (37.2)
NE	0.2244	0.0116(5.2)	0.2128(94.8)	0.0225(10.0)	0.1254(55.9)	0.0649 (28.9)
SE	0.2730	0.0150(5.5)	0.2580(94.5)	0.0048 (1.8)	0.1059(38.8)	0.1473 (53.9)
SW	0.2310	0.0022(9.5)	0.2288(91.5)	0.0099 (4.3)	0.1078(47.7)	0.1111 (48.1)
SS	0.2279	0.0074(3.2)	0.2205(97.8)	0.0129 (5.7)	0.1329(58.3)	0.0748 (32.8)
Total	0.2423	0.0103(4.3)	0.2320(95.7)	0.0164 (6.8)	0.1262(52.1)	0.0894 (36.9)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 17: Shapley Political Inequality Decomposition by Marital Status for Rural Households

Zones	Gini	Between	Within	Intra Group Decomposition				
				Single	Monogamous	Polygamous	Informal	Divorce/ Widow
NW	0.3047	0.0224 (7.4)	0.2822(92.6)	0.0001(0.0)	0.0104 (34.2)	0.1573 (51.6)	0.0027(0.9)	0.0182 (8.0)
NC	0.4023	0.0247 (6.1)	0.3776(93.9)	0.0008(0.2)	0.0659 (16.4)	0.2193 (54.5)	0.0097(2.4)	0.0820(10.4)
NE	0.2909	0.0287 (9.9)	0.2622(90.1)	0.0001(0.0)	0.0625 (21.5)	0.1553 (53.4)	0.0071(2.4)	0.0373(12.8)
SE	0.2906	0.0199 (6.9)	0.2706(93.1)	0.0006(0.2)	0.0137 (4.7)	0.1202 (41.4)	0.0051(1.8)	0.1310 (45.1)
SW	0.3896	0.0488(12.5)	0.3408(87.5)	0.0028(0.7)	0.0393 (10.1)	0.1906 (48.9)	0.0006(1.7)	0.1015 (3.6)
SS	0.3413	0.0080 (3.4)	0.3333(97.6)	0.0116(3.4)	0.0282 (8.3)	0.1411 (41.3)	0.0124(3.6)	0.1400 (41.0)
Total	0.2207	0.0057 (2.6)	0.2150 (97.4)	0.0012 (0.6)	0.0475 (21.5)	0.1080 (48.9)	0.0050 (2.2)	0.0534 (21.4)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 18: Shapley Political Inequality Decomposition by Marital Status for Farming and Non-Farming Households

Farming Households								
				Intra group Decomposition				
Zones	**Gini**	**Between**	**Within**	**Single**	**Monogamous**	**Polygamous**	**Informal**	**Widow/separated**
NW	0.2069	0.0119 (5.8)	0.1950(94.2)	0.0000 (0.0)	0.0800(38.7)	0.1057 (51.1)	0.0009 (0.4)	0.0084 (4.1)
NC	0.2056	0.0102 (5.0)	0.1954(95.0)	0.0003 (0.1)	0.0413(20.1)	0.1026 (49.9)	0.0069 (3.4)	0.0444(21.5)
NE	0.2153	0.0144 (6.7)	0.2009(93.3)	0.0000 (0.0)	0.0570(26.5)	0.1093 (50.8)	0.0046 (2.1)	0.0300 (13.9)
SE	0.2367	0.0071 (3.0)	0.2296(97.0)	0.0008 (0.3)	0.0153 (6.5)	0.1058 (44.7)	0.0040 (1.7)	0.1037 (43.8)
SW	0.2202	0.0133 (6.0)	0.2069(94.0)	0.0030 (1.4)	0.0341 (1.5)	0.0836 (38.0)	0.0039 (1.8)	0.0823 (37.3)
SS	0.2114	0.0039 (1.8)	0.2075(98.2)	0.0024 (1.1)	0.0180 (9.5)	0.0952 (45.0)	0.0067 (3.2)	0.0852 (40.3)
Total	0.2161	0.0086 (4.0)	0.2074(96.0)	0.0008 (0.4)	0.0463(21.4)	0.1035 (47.9)	0.0045 (2.1)	0.0523 (24.2)
Non-Farming Households								
				Intra group Decomposition				
Zones	**Gini**	**Between**	**Within**	**Single**	**Monogamous**	**Polygamous**	**Informal**	**Widow/separated**
NW	0.2288	0.0083(3.6)	0.2205 (96.4)	0.0026 (1.2)	0.0875(38.2)	0.1186(51.8)	0.0000 (0.0)	0.0118 (5.2)
NC	0.2196	0.0065(3.0)	0.2131 (97.0)	0.0077 (3.5)	0.0473(21.5)	0.1116(50.8)	0.0005 (0.2)	0.0459 (20.9)
NE	0.2102	0.0123(5.9)	0.1979 (94.1)	0.0055 (2.6)	0.0592(28.2)	0.1069(50.9)	0.0000 (0.0)	0.0263 (12.5)
SE	0.2367	0.0071(3.0)	0.2296 (97.0)	0.0040 (1.7)	0.0153 (6.5)	0.1058(44.7)	0.0008 (0.3)	0.1037 (43.8)
SW	0.2173	0.0096(4.4)	0.2077 (95.6)	0.0041 (1.9)	0.0372(17.1)	0.0858(39.5)	0.0014 (0.6)	0.0792 (35.7)
SS	0.2140	0.0048(2.2)	0.2092 (97.8)	0.0063 (2.9)	0.0189 (8.8)	0.0981(45.8)	0.0168 (7.9)	0.0691 (32.3)
Total	0.2242	0.0035 (1.6)	0.2207 (98.4)	0.0052 (2.3)	0.0484(21.6)	0.1112(49.6)	0.0016 (0.7)	0.0542 (24.4)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 19: Shapley Health Inequality Decomposition by Gender for rural Households

Rural Households (Pooled)					
Geo-Political Zones	**Gini**	**Between**	**Within**	**Intra group Decomposition Male**	**Female**
North West	0.3113	0.0056 (1.8)	0.3056(98.2)	0.2913(93.6)	0.0144 (4.6)
North Central	0.4056	0.0109(2.7)	0.3947(97.3)	0.3298(81.3)	0.0649(16.0)
North East	0.2994	0.0007 (0.2)	0.2987(99.8)	0.2770(92.5)	0.0216 (7.2)
South East	0.2906	0.0134 (4.6)	0.2773(95.4)	0.1635(56.2)	0.1138(39.2)
South West	0.4002	0.0263 (6.6)	0.3739(93.4)	0.2886(72.1)	0.0853(21.3)
South South	0.3359	0.0101(3.0)	0.3257(97.0)	0.2011(59.9)	0.1246(37.1)
Total	0.3632	0.0086 (2.4)	0.3546(97.6)	0.2845(78.3)	0.0701(19.3)
Farming Households					
Geo-Political Zones	**Gini**	**Between**	**Within**	**Intra group Decomposition Male**	**Female**
North West	0.2064	0.0003 (0.1)	0.2061(99.9)	0.2013(97.5)	0.0048 (2.4)
North Central	0.4470	0.0109 (2.4)	0.4361 (97.6)	0.3741(83.7)	0.0620 (13.9)
North East	0.2941	0.0013 (0.4)	0.2928 (99.6)	0.2716(92.4)	0.0212 (7.2)
South East	0.2871	0.0140 (4.9)	0.2731 (95.1)	0.1628(56.7)	0.1103 (43.3)
South West	0.3279	0.0118 (3.6)	0.3161 (96.4)	0.2239(68.3)	0.0922 (28.1)
South South	0.3306	0.0063(1.9)	0.3243 (98.9)	0.1931(58.4)	0.1312 (40.5)
Total	0.3591	0.0118 (3.3)	0.3473 (96.7)	0.2816(78.4)	0.0658 (18.3)
Non-Farming Households					
Geo-Political Zones	**Gini**	**Between**	**Within**	**Intra group Decomposition Male**	**Female**
North West	0.3294	0.0074 (2.2)	0.3220 (97.8)	0.3016(91.6)	0.0204 (6.2)
North Central	0.3590	0.0119 (3.3)	0.3471 (96.7)	0.2805(78.1)	0.0666 (18.6)
North East	0.3026	0.0021 (0.7)	0.3005 (99.3)	0.2798(92.5)	0.0207 (6.8)
South East	0.2456	0.0028 (1.1)	0.2428 (98.9)	0.1626(66.2)	0.0802 (32.7)
South West	0.4310	0.0319 (7.4)	0.3991 (92.6)	0.3164(73.4)	0.0827 (19.2)
South South	0.3389	0.0124 (3.7)	0.3265 (96.3)	0.2059(60.8)	0.1206 (35.6)
Total	0.3644	0.0058 (1.6)	0.3587 (98.4)	0.2851(78.2)	0.0736 (20.2)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 20: Shapley Health Inequality Decomposition by Household Size for Farming Households

Rural Households (Pooled)						
				Intra group Decomposition		
Zone	**Gini**	**Between**	**Within**	**< 6**	**6 - 10**	**>10**
NW	0.3028	0.0082(2.7)	0.2946(97.3)	0.0940 (31.1)	0.1818 (60.0)	0.0187(6.2)
NC	0.3939	0.0160(4.0)	0.3779(96.0)	0.1306 (33.1)	0.2246 (57.0)	0.0227 (5.9)
NE	0.2852	0.0039(1.4)	0.2813(98.6)	0.1007 (35.3)	0.1649(57.8)	0.0157(5.5)
SE	0.2605	0.0130(5.0)	0.2475(95.0)	0.1157 (44.4)	0.1254 (48.1)	0.0064(2.5)
SW	0.4398	0.0395(9.0)	0.4003(91.0)	0.2786 (63.3)	0.1192 (27.1)	0.0025(0.6)
SS	0.3332	0.0120 (3.6)	0.3312(96.4)	0.1342 (40.3)	0.1833 (55.0)	0.0037(1.1)
Total	0.3586	0.0063 (1.8)	0.3523(98.2)	0.1451 (40.5)	0.1930 (53.8)	0.0142(4.0)
Farming Households						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**1-5**	**6-10**	**>10**
NW	0.2801	0.0141(5.0)	0.2660(95.0)	0.0855 (30.5)	0.1679(60.0)	0.0126 (4.5)
NC	0.4368	0.0316(7.1)	0.4052(92.9)	0.1249 (28.6)	0.2616 (60.0)	0.0188 (4.3)
NE	0.2819	0.0048(1.7)	0.2771(98.3)	0.1029 (36.5)	0.1628 (57.8)	0.0114 (4.0)
SE	0.2606	0.0084(3.2)	0.2522(96.8)	0.1164 (44.7)	0.1283 (49.2)	0.0075 (2.9)
SW	0.3581	0.0234(6.5)	0.3347(93.5)	0.1440 (40.2)	0.1872 (52.3)	0.0035 (1.0)
SS	0.3196	0.0030(0.9)	0.3166(99.1)	0.1463 (45.8)	0.1673 (52.3)	0.0030 (0.9)
Total	0.3539	0.0074 (2.1)	0.3465(97.9)	0.1281 (36.2)	0.2055 (58.1)	0.0129 (3.7)
Non-Farming Households						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**1-5**	**6-10**	**>10**
NW	0.3160	0.0022(0.7)	0.3139 (99.3)	0.0982 (31.0)	0.1912 (60.5)	0.0245 (7.8)
NC	0.3427	0.0020(0.6)	0.3407 (99.4)	0.1362 (39.7)	0.1779 (51.9)	0.0267 (7.8)
NE	0.2870	0.0056(2.0)	0.2814 (98.0)	0.0987 (34.4)	0.1656 (57.7)	0.0171 (5.9)
SE	0.2595	0.0169(6.5)	0.2426(93.5)	0.1152 (44.4)	0.1219 (47.0)	0.0055 (2.1)
SW	0.4723	0.0664(14)	0.4059 (86.0)	0.3207 (67.9)	0.0830 (17.6)	0.0022 (0.5)
SS	0.3408	0.0179(5.3)	0.3229(94.7)	0.1272 (37.3)	0.1919 (56.3)	0.0039 (1.1)
Total	0.3604	0.0159(4.4)	0.3445 (95.6)	0.1510 (41.9)	0.1784 (49.5)	0.0151 (4.2)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 21: Shapley Health Inequality Decomposition by Age for Rural Households

Rural Households (Pooled)						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**0 - 30**	**31 - 60**	**>60**
NW	0.3065	0.0130(4.0)	0.2935(95.5)	0.0231(10.3)	0.2026(66.0)	0.0578(10.9)
NC	0.3984	0.0283(7.1)	0.3701(92.9)	0.0425 (14.5)	0.1844(63.1)	0.0472(16.2)
NE	0.2925	0.0183(6.3)	0.2141(93.7)	0.0425 (14.5)	0.1844(63.1)	0.0472(16.2)
SE	0.2958	0.0280(9.5)	0.2678(90.5)	0.0059 (2.0)	0.1263(42.7)	0.1356(45.8)
SW	0.4099	0.0475(11.6)	0.3625(88.4)	0.6167(4.1)	0.2414(58.9)	0.1044(25.5)
SS	0.3457	0.0041(1.2)	0.3416(98.8)	0.0270(7.8)	0.1885(54.4)	0.1262(36.5)
Total	0.3656	0.0115 (3.2)	0.3541(96.8)	0.0315(8.6)	0.2212(60.5)	0.1013(27.7)
Farming Households						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**≤ 30**	**31-60**	**>60**
NW	0.2755	0.0097 (3.5)	0.2657(96.5)	0.0291 (10.7)	0.1858(67.4)	0.0508 (18.4)
NC	0.4324	0.0336 (7.8)	0.3988(92.2)	0.0420 (9.7)	0.2838(65.6)	0.0730 (16.9)
NE	0.2868	0.0150 (5.2)	0.2718(94.8)	0.0409 (14.3)	0.1868(65.1)	0.0441 (15.4)
SE	0.2914	0.0230 (7.9)	0.2684(92.1)	0.0056 (1.9)	0.1351(46.4)	0.1277 (43.8)
SW	0.3247	0.0105 (3.2)	0.3140(96.7)	0.0188 (5.8)	0.1757(54.1)	0.1195 (36.8)
SS	0.3257	0.0121 (3.6)	0.3136(96.4)	0.0272 (8.4)	0.1881(57.8)	0.0983 (30.2)
Total	0.3252	0.0091 (2.6)	0.3440(97.4)	0.0319 (9.0)	0.2204(62.4)	0.0917 (26.0)
Non-Farming Households						
				Intra group Decomposition		
Zones	**Gini**	**Between**	**Within**	**≤ 30**	**31-60**	**>60**
NW	0.3264	0.0166 (5.1)	0.3098(94.9)	0.0349 (10.7)	0.2113 (64.7)	0.0636(19.5)
NC	0.3598	0.0264 (7.3)	0.3334(92.7)	0.0422 (11.7)	0.2016 (56.0)	0.0896(24.9)
NE	0.2961	0.0207 (7.0)	0.2754 (93.0)	0.0436 (14.7)	0.1824 (61.6)	0.0494(16.7)
SE	0.2993	0.0325 (10.9)	0.2668 (89.1)	0.0062 (2.1)	0.1184 (39.6)	0.1422(47.5)
SW	0.4455	0.0639 (14.3)	0.3816 (85.7)	0.0160 (3.6)	0.2659 (59.7)	0.099 (22.4)
SS	0.3575	0.0107 (3.0)	0.3468 (97.0)	0.0259 (7.2)	0.1845 (51.6)	0.1364(38.2)
Total	0.3781	0.0136 (3.6)	0.3595(96.4)	0.0310 (8.3)	0.2200 (59.0)	0.1051(29.1)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 22: Shapley Health Inequality Decomposition by Marital Status for Rural Households

	Gini	Between	Within	Intra Group Decomposition				
				Single	Monogamous	Polygamous	Informal	Divorce/ Widow
NW	0.3047	0.0224(7.4)	0.2822(96.2)	0.0001 (0.0)	0.01041(34.2)	0.1573(51.6)	0.0027(0.9)	0.0182(8.0)
NC	0.4023	0.0247(6.1)	0.3776(93.9)	0.0008 (0.2)	0.0659 (16.4)	0.2193(54.5)	0.0097(2.4)	0.0820(10.4)
NE	0.2909	0.0287(9.9)	0.2622(90.1)	0.0001 (0.0)	0.0625 (21.5)	0.1553(53.4)	0.0071(2.4)	0.0373(12.8
SE	0.2906	0.0199(6.9)	0.2706(93.1)	0.0006 (0.2)	0.0137 (4.7)	0.1202(41.4)	0.0051(1.8)	0.1310(45.1)
SW	0.3896	0.0488(12.5)	0.3408(87.5)	0.0028 (0.7)	0.0393 (10.1)	0.1906(48.9)	0.0006(1.7)	0.1015(3.6)
SS	0.3413	0.0080 (3.4)	0.3333 (97.6)	0.0116 (3.4)	0.0282 (8.3)	0.1411(41.3)	0.0124(3.6)	0.1400(41.0)
Total	0.3606	0.0288 (8.0)	0.3318 (92.0)	0.0027 (0.7)	0.0595 (16.5)	0.1800 (49.9)	0.0071 (2.0)	0.0825 (22.9)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data

Appendix 23: Shapley Health Inequality Decomposition by Marital Status for Farming and Non-Farming Households

Farming Households								
				Intra group Decomposition				
Zones	**Gini**	**Between**	**Within**	**Single**	**Monogamous**	**Polygamous**	**Informal Union**	**Widow/separated**
NW	0.2748	0.0016 6.0)	0.2582 (94.0)	0.0000 (0.0)	0.0984 (35.8)	0.1472 (53.6)	0.0016 (0.6)	0.0110 (4.0)
NC	0.4413	0.0028 (6.5)	0.4125 (93.5)	0.0003 (0.1)	0.0627 (14.2)	0.2501 (56.7)	0.0093 (2.1)	0.0901 (20.4)
NE	0.2863	0.0277 (9.7)	0.2586 (90.3)	0.0000 (0.0)	0.0603 (21.1)	0.1541 (53.8)	0.0062 (2.2)	0.0380 (13.3)
SE	0.2877	0.0200 (7.0)	0.2677 (93.0)	0.0007 (0.2)	0.0157 (5.5)	0.1174 (45.2)	0.0039 (1.4)	0.1299 (40.8)
SW	0.3217	0.0212 (6.6)	0.3005 (93.4)	0.0029 (0.9)	0.0435 (13.5)	0.1410 (43.8)	0.0079 (2.5)	0.1052 (32.7)
SS	0.3296	0.0086 (2.6)	0.3210 (97.4)	0.0068 (2.1)	0.0286 (8.7)	0.1408 (42.7)	0.0123 (3.7)	0.1325 (40.2)
Total	0.3550	0.0319 (9.0)	0.3231 (91.0)	0.0063 (0.5)	0.0593 (16.7)	0.1772 (49.9)	0.0016 (1.8)	0.0787 (22.2)
Non-Farming Households								
				Intra group Decomposition				
Zones	**Gini**	**Between**	**Within**	**Single**	**Monogamous**	**Polygamous**	**Informal Union**	**Widow/separated**
NW	0.3234	0.0255 (7.9)	0.2979 (92.1)	0.0000 (0.0)	0.1075 (33.2)	0.1627 (50.3)	0.0035 (1.1)	0.0242 (7.5)
NC	0.3573	0.0207 (6.0)	0.3366 (94.0)	0.0013 (0.4)	0.0693 (19.4)	0.1837 (35.7)	0.0100 (2.8)	0.0723 (20.2)
NE	0.2936	0.0308(10.5)	0.2628 (89.5)	0.0001 (0.0)	0.0638 (21.7)	0.1554 (52.9)	0.0078 (2.7)	0.0357 (12.2)
SE	0.2936	0.0308(10.5)	0.2628 (89.5)	0.0001 (0.0)	0.0638 (21.7)	0.1554 (52.9)	0.0078 (2.7)	0.0357 (12.2)
SW	0.4191	0.0610(14.6)	0.3581 (85.6)	0.0027 (0.6)	0.0378 (9.0)	0.2105 (50.2)	0.0061 (1.5)	0.1011 (24.1)
SS	0.3482	0.0077 (2.2)	0.3405 (97.8)	0.0144(4.1)	0.0280 (8.0)	0.1411 (40.5)	0.0125 (3.6)	0.1445 (41.5)
Total	0.3631	0.0261 (7.2)	0.3370 (92.8)	0.0036 (1.0)	0.0593 (16.3)	0.1808 (48.9)	0.0077 (2.1)	0.0855 (23.6)

N.B: Figures in parenthesis are in percentages

Source: Author's computation from the 2006 CWIQ data