

## **Dynamic Modelling Of Poverty among Female-Headed/Female-Maintained Households in Nigeria**

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**Abstract:** *The issue of female poverty has gained prominence among researchers and policy makers alike culminating into the concept of feminization of poverty. This concept describes a phenomenon in which women represent a disproportionate percentage of the world's poor. A more serious concern however relates to how female headship of a household contributes to feminization of poverty. Some of the factors responsible for female headship include, but are not limited to male migration, the deaths of males in civil conflicts and wars, un-partnered adolescent fertility and family disruption. In other words, a woman may become the head of the household if she is divorced, widowed, or separated or a single unwedded mother and the extent of poverty may differ across these types of female headed households (FHHs). This study, therefore, seeks to broadly model poverty among the different FHHs in Nigeria. One of the outcomes of this study is to establish and document empirically, factors driving high poverty rates among FHHs and whether the nature of FHH matters when dealing with poverty feminization. The Gini coefficients of income are then estimated using an existing data from NBS and the Lorenz curve. Suggestions for the reduction and eventual eradication from generation to generation of extreme poverty among FHHs are proffered.*

**Keywords:** *FHH; NBS; GiniCoefficient; Lorenzcurve*

**Mathematics Subject Classification (2010):** *62-XX, 97K80*

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### **I. Background/Problem Statement**

Recent population statistics by the United Nations (UN) reveal that there are approximately 57 million more men than women in the world amounting to 50.4 per cent men and 49.6 per cent women<sup>1</sup>. Conversely however, poverty level among women seems higher than men. The United Nations (UN) report (2000) on feminization of poverty revealed that the majority of the 1.5 billion people living on 1 dollar a day or less are women. The concept of poverty feminization describes a phenomenon in which women represent a disproportionate percentage of the world's poor. The increasing trends in female poverty have continued to strengthen discussions and policy initiatives around poverty feminization. Factors such as lack of opportunities due to gender biases and fixed gender roles in some societies that bar or discourage women from productive business engagements have played a dominant role in the rising female poverty. For instance, in most parts of the world, women are responsible for the welfare of the family life and therefore they are usually preoccupied with proper functioning and maintenance of households. These activities crowd out quality time required by women to pursue capacity development programmes or educational attainment that will guarantee higher and competitive salaries. Also, lack of access to and control over resources limits women economic autonomy and increases their vulnerability to economic or environmental shocks (UN report, 2010).

A more serious concern however relates to how female headship of a household contributes to feminization of poverty. The UN report (2010) showed that at the household level, certain types of female-headed households are more likely to be poor than male-headed households of the same type. Some of the factors responsible for female headship include, but not limited to male migration, the deaths of males in civil conflicts and wars, unpartnered adolescent fertility and family disruption. In other words, a woman may become the head of the household if she is divorced, widowed, or separated and the extent of poverty may differ across these types of female headed households (FHHs). For instance, in Latin America and the Caribbean and the more developed regions households of lone mothers with children have higher poverty rates than those of lone fathers with children (UN report, 2010). Compared to men, lower proportions of women have cash income in the less developed regions while existing statutory and customary laws still restrict women's access to land and other types of property in most countries in Africa and about half the countries in Asia (UN report, 2010).

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<sup>1</sup>These global aggregates do not necessarily reflect distribution at the regional or country level.

In Nigeria, just like many other countries in Africa, most of the women suffer from illiteracy, high maternal mortality, low income and poverty (CBN/World Bank, 1999). Thus, tackling poverty in Nigeria will necessarily require an in-depth understanding of the gender bias nature of poverty as well as the underlying factors. The lack of evidence-based approach may be responsible for the unimpressive outcomes of the previous intervention programmes pursued by successive governments to alleviate poverty in the country. This is therefore an essential preliminary step towards addressing the problem. Essentially, the study is set to analyse poverty among the different types of FHHs.

Against the foregoing, the following questions become pertinent. First, what is the nature of poverty in Nigeria? Answer to this question will provide all the necessary background information about poverty in Nigeria including its various dimensions. Another question of concern is: what are the determinants of poverty among FHHs in Nigeria? Again, answering this question would give a clearer picture to policy makers on how to tackle female poverty in Nigeria. Finally, the study will seek to address the question of how to develop veritable options for effectively addressing female poverty in Nigeria? All these questions are germane to this study.

## **II. Study Objectives**

The broad objective of this study is to provide a detailed analysis on the nature and determinants of poverty among FHHs in Nigeria as a basis for proffering possible effective solution(s) to the problem. To achieve this broad objective, the study specifically hopes to:

1. Characterize poverty in Nigeria in terms of the nature, magnitude, temporal and spatial variations.
2. Analyze the determinants of poverty among FHHs in its various dimensions in Nigeria.
3. Provide recommendations based on research findings.

## **III. Female Poverty**

The typical definitions and measurements of women's poverty in the literature may be based on the conventional measures of household income and consumption, or on qualitative and quantitative measures of "entitlements" and "capabilities". The latter are captured by social indicators such as literacy, life expectancy, primary and secondary school enrollments, access to health care, maternal mortality rates, access to land or employment, wage differentials, time-use, average age at first marriage (or % teenaged girls ever married or pregnant), fertility rates, the sex ratio, and the extent of prostitution. These social indicators, along with the more conventional definitions and measures of household income and consumption, capture what the UNDP terms "human development" or "human poverty". Human development is defined as the process of enlarging people's choices and opportunities through long life, health, and education. Human poverty is defined as "more than income poverty – it is the denial of choices and opportunities for living a tolerable life" (UNDP 1997, p. 2). The "dimensions of poverty" include a short life, illiteracy, exclusion, and lack of material means. These concepts are consistent with the WID/GAD framework, which seeks to elucidate the social, economic, and political positions of women by examining women's fertility, literacy, health, and educational attainment, access to employment, earnings, political participation, and legal status. Attention to progress or setbacks in social indicators is also important in tracking the state of women's "practical gender needs", or basic needs, and "strategic gender interests", or equality, autonomy, and empowerment (Moser, 1989). WID/GAD specialists who research women's poverty and advocate solutions tend to combine an entitlements/capabilities approach with more conventional definitions and measures of poverty (see Beneria & Feldman, 1992; Meer, 1994; Tanski, 1994; Bell 2004).

Whether measured by income/consumption or the broader array of entitlements/capabilities indicators, the incidence of poverty among women appears to be on the increase, according to many researchers, increasing family break-up, low productivity, a deteriorating environment, the economic recession of the 1980s (including economic crisis and structural adjustment policies in the developing countries), the market transition in the former socialist countries, and "welfare reform" in the United States. The adverse effects of these factors on women are in turn exacerbated by intra-household inequalities which leave women unprepared for and especially vulnerable to socio-economic downturns, changes in marital status, or natural disasters. The main factors behind this trend are population growth, the emigration of men,

The feminist approach to poverty focuses on the gender implications and social costs of poverty. They include the growing involvement of women and children in the informal economy; differential treatment of girls and boys in households; pressure to get girls married off quickly; higher school drop-out rates for girls; less control over fertility; and recourse to prostitution. Studies on female poverty have given rise to policy recommendations that there be poverty-alleviation or employment-generation programs designed specifically for women, or that households maintained by women alone be targeted for social programs. Similarly, the Beijing Platform for Action calls on governments to "Formulate and implement, when necessary, specific economic, social, agricultural and related policies in support of female-headed households;" (United Nations, 1995, p. 41).

Since the 1980s, studies on the proliferation of female-headed households and research into the social impacts and gender-specific effects of structural adjustment policies have led to increased attention to what has become known as “the feminization of poverty”. The perception is growing around the globe that poverty is becoming increasingly feminized, that is, that an increasing proportion of the world’s poor are female. A 1992 UN report found that “the number of rural women living in poverty in the developing countries has increased by almost 50% over the past 20 years to an awesome 565 million -- 374 million of them in Asia, and 129 million in Sub-Saharan Africa. While poverty among rural men has increased over the last 20 years by 30%, among women it has increased by 48%” (Power, 1993, p. 5). The feminization of poverty was a key concern of the women’s caucus of the World Summit on Social Development.<sup>2</sup> According to the Platform for Action adopted at the Fourth World Conference on Women in Beijing in September 1995, “More than one billion people in the world today, the great majority of whom are women, live in unacceptable conditions of poverty, mostly in the developing countries” (United Nations, 1996, p. 37). Buvinic (1997) has written: “Women now account for a growing percentage of the world’s poor.” And a publication of the United Nations Development Programme states: “70% of the world’s poor are women (UNDP, 1995, p. 4).

Is poverty taking on a female face? In the early 1990s, one researcher noted that “international comparisons of female poverty and the feminization of poverty are still rare, and the existing data are not usually comparable. No thorough analysis of the subject exists” (Allen, 1992, p. 108). The prodigious scholarship emanating from the Luxembourg Income Study shed light on the industrial countries and, more recently, on Central Europe, but data sets for the developing world are limited. By 1996, the World Bank had prepared poverty assessments, based on living standards measurement surveys, for 76 countries, but most of the assessments, like the data from which they are derived, were not gender-disaggregated.<sup>3</sup> The more recent Poverty Reduction Strategy Papers (PRSP) have been criticized for insufficient sex-disaggregated data and for not engaging women’s groups in the consultative process. The subject itself is vast, as the poverty status of women is manifested at the household, sectoral, occupational, and locational levels. The global feminization of poverty may have many causes or correlates, including wars and civil conflicts.

In the United States and around the world, women bear much of the brunt of poverty (Goldberg, 2010; International Labour Office (ILO), 2010; US Census Bureau, 2012a). Seventy percent of the world’s poor are women (United Nations Women, n.d.), and despite tremendous differences in living standards, wealth, and opportunity, common root causes emerge around the world –discrimination, unequal sharing of family and household responsibilities, abusive relationships, lack of control and access to resources (e.g., education and land),and segregation into low-paid, low-status jobs (ILO, 2011). Substandard, dangerous living conditions, poor health and limited access to health care, lack of nutritious food, and the stress of financial insecurity are but a few of the devastating daily realities faced by poor women and their children.

An examination of the “feminization of poverty” around the world is approached in terms of the three contributing factors that have been underscored in the women-in-development and gender-and-development (WID/GAD) literature:

1. The growth of female-headed households,
2. Intra-household inequalities and bias against women and girls, and
3. Neoliberal economic policies, including structural adjustments and the post-socialist market transitions. The growing visibility of women’s poverty, it is argued, is rooted in demographic trends, “cultural” patterns, and political economy (Moghadam, 2005)

### **3.1 Female-Headed Households and Women’s Poverty**

The term “feminization of poverty” originated in the United States in the late 1970s, when it was discovered that the fastest growing type of family structure was that of female-headed households (Pearce, 1978). Moreover, because of the high rate of poverty among these households, their increase was mirrored in the growing numbers of women and children who were poor.

The U.S. studies pointed out that although historically class and race had been the principal structural determinants of poverty, the increasing tendency of women to seek jobs or to maintain households alone had introduced a new variable into the equation: gender. Thus:

[F]or men, poverty is often the consequence of unemployment and a job is generally an effective remedy, while female poverty often exists even when a woman works full-time. Virtually all women are vulnerable -- a divorce or widowhood is all it takes to throw many middle-class women into poverty” (cited in Gimenez, 1987, p.7).

Demographic factors contributing to the increase in female-headed households in the United States include changes in mortality and life expectancy, marriage rates, divorce and separations, and out-of-wedlock births. Studies have pointed to the fact that poor young women, particularly minority women, are more likely to become single mothers; indeed, in the United States, teenage motherhood is one of the correlates of poverty. Many studies have noted that the level of child support that women receive from their children’s father is very

low, and that in the United States, welfare payments and family allowances are not as generous as in other industrialized countries (see Kamerman & Kahn, 1995). The intergenerational transmission of poverty (i.e., from mothers to daughters) is characteristic of households maintained by women who have had early childbearing experience and incomplete secondary education (Furstenberg et al., 1987). Members of such female-headed households also experience difficulties in the labor market; because of their incomplete education, they face the availability only of poorly-paid jobs without benefits. The lack of affordable childcare compounds their difficulties.

WID research was focusing on female household headship and its importance to development planning, particularly in light of rural poverty and labor migration (Buvinic, Lycette & McGreevey, 1987; Buvinic & Youssef, 1978). Studies proliferated on female-headed households (FHHs) in sub-Saharan Africa, Latin America, and the Caribbean and to a lesser degree, in South Asia (e.g., Chant, 1985; Dwyer & Bruce, 1988). These and other empirical studies found that women who head households have greater constraints in obtaining resources and services in housing and agriculture. Because women have less access to land, credits, capital, and jobs with good incomes, and because they are likely to have dependent children, they are disadvantaged and more vulnerable to poverty. The WID studies thus recommended that poverty-alleviation policies explicitly target FHHs.

According to IFAD, "Female-headed households dominate the poverty statistics" (Power, 1993, p. 27). According to Indian economist Gita Sen, "Among households, based on any criteria, female-headed households tend to be the poorest" (Sen, 1991, p. 1). Certainly in India, where FHHs are predominantly those of widows, and where Chen and Drèze (1995) note that widowhood is identified as a cause of deprivation, this would appear to be the case, and would justify targeting of widows and of FHHs for social assistance. Lipton (1994) argues that Indian women are not over-represented in poorer households or among heads of households that are more likely to be poor, but notes that widow-headed households with no adult male rely extensively on child labor. In Egypt, where chronic poverty affects a very large population, especially in the south, widows and FHHs are worse off than MHHs (World Bank, 1991; Bibars 2001). Koc (1998) finds that in Turkey FFHs are not a homogeneous group, but the majority consist of previously married women who are very poor and very vulnerable. In Zimbabwe, as in many sub-Saharan African countries, women are less likely than men to own land, with the result that female-headed household are likely to be poor. Their low involvement in wage employment also renders them more vulnerable (Kanji, 1994; Government of Zimbabwe, 1995).

The steady rise in female-headed households and in the number of children living in female-headed households (Casper and Bianchi 2002) has important life course implications for recent cohorts of women and children. About half of all women will experience single mother-hood at some point in their lifetimes (Moffitt and Rendall 1995), and a majority of children will live in a female-headed household (Graefe and Lichter 1999). High poverty rates among female headed households with children, when compared with other household types, raise serious questions about the implications of changing family and household structure for economic and other well-being outcomes of children and women. The highest poverty rates among female-headed households occur among African American, Hispanic, and Native American-headed households, and among those living in central cities and nonmetropolitan areas. These differentials highlight the role of race/ethnicity and residence for economic well-being outcomes (McLaughlin and Sachs 1988; Snyder and McLaughlin 2004).

Perhaps as a response to their high risks of poverty, female-headed households with children are increasingly found to include a co-habiting partner, or to be headed by a grandmother caring for her grandchildren (Bumpass and Raley 1995; Edin and Lein 1997; Manning and Lichter 1996; Trent and Harlan 1994). It is these different types of female-headed households with children—cohabiting and grandmother headed—that are the focus of this study. The implications of growing household complexity is the theme of several recent studies aimed at evaluating economic well-being outcomes for cohabiting households that contain children (Lichter 2006; Lichter, Qain and Crowley 2005; Manning and Brown 2006). These emerging households complicate the issue of assessing poverty and raise concerns regarding the validity of traditional poverty measures (Bauman 1999; Lichter 2006; Lichter et al. 2005). This study considers carefully single female-headed households with children. The goal is to better understand the pattern of economic resources available to children in different types of female-headed households and the degree to which poverty is reduced in each household type. We accomplish this goal by describing the prevalence of single-mother, grandmother, and cohabiting female-headed households with children, discussing what we know about their economic well-being, and then further examining their economic well-being across ethnic groups for nonmetropolitan (non-metro), metropolitan central city (metro central city) and metropolitan suburban (metro suburban) areas.

Earlier, some Nigerian authors have enlisted in this research in different perspectives as follows: Julius O. Bogunjoko (1999): Poverty and Women Development Strategies: Lessons from policy targeting and public transfers in Nigeria. Nigerian Journal of Economic and Social Studies. Volume 41 No. 1

- The migration of men from rural to urban centres has increased the number of female headed households in the rural areas



- Despite enormous contributions of women to the development process, their poverty role has been grossly underestimated, undervalued and rarely acknowledged. In relative terms, while women constitute over 60% of the labour force in some sectors and produce an increasingly high proportion of the food supply, evidence suggests that they earn less than 10% of the world's income and own less than 1% of the world's assets (United Nations 1993).
- The high number of Nigerian woman is a potential source of for the supply of requisite labour for a virile and dynamic growth process as well as poverty reduction.
- Nigerian women are seriously disadvantaged in terms of equal access to healthcare, education, financial and agricultural extension services. Female headed households are particularly vulnerable, about 75% of such households are poor (World Bank, 1996)
- Gender based transfer has generally been based on the simple direct argument that most disadvantages are gender caused. Using a variety of indicators:-food consumption, mortality, healthcare, morbidity, education and leisure. Women have been found to be generally disadvantaged.
- Data and educational attainment in developing countries suggest fairly widespread pro-male inequalities:-women received between half and three quarter the years of schooling that men received.
- Targeting female headed households may be a way round the problems of male appropriating benefits intended for females; this could however indirectly lead to the dissolution of marriages and the disintegration of families.
- Since independence, Nigeria's economy has been characterised with efforts to alleviate poverty, the idea and motivation for targeting woman for development and poverty reduction in particular dates back to the initiation of a unit for women and development in the ministry of information, youth, sports and culture during the UN decade for women.
- Poverty alleviation cannot be divorced from illiteracy. A literate person can understand and benefit optimally from modern production enhancement innovations and methods, he can comprehend and practice preventive medicine.

RisikatOladoyinS.Dauda(2012): Female Education for growth and Structural Transformation in Nigeria: An Emperical Investigation. Nigerian Journal of Economic and Social Studies. Volume 54 No. 2

- Gender bias in education may generate instrumental problems for development policymakers as it compromises progress on other important development goals.
- The need to bridge the gender inequality in access to productive resources has been a major concern in Nigeria, especially since the 1985 Nairobi declaration and World declaration on education for all.
- It has been acclaimed that improving the education of women alongside that of men may be the most efficient way to reduce poverty and ensure rapid growth and structural transformation.
- A growing body of research suggests that education helps women to stand up for themselves and their children. By changing women's 'bargaining position' in both the family and society, education can bring benefits not only to women and their children, but to the broader community and society.
- Female education encourages smaller, healthier, better-educated families.
- Evidence is increasingly showing that education can be one of the best defenses against HIV & AIDS and other disease prevention, both because education's impact on women's earning capacity, empowerment and family well-being.
- In comparison with the rest of the country, the northern states of Nigeria lagged in providing girls access to formal schooling. According to INICEF (2010) as few as 20% of women in the North West and North East of the country are literate and have attended school, thus the regions have the lowest level of female education attainment in Nigeria.
- Her result suggests the need for investment in female human capital. The policy implication of the study is that if the country wants to achieve sustainable growth which would engender structural transformation of the Nigerian economy, government should reappraise existing development policies and strategies and pay more attention to educational policies that enhance female enrolment rates, female participation in educational institutions and female literacy.

## **IV. Data andMethods**

### **4.1 The Model**

The  $P_{\mu}$  index measures proposed by Foster et al. (1984), which can be used to generate the head count ratio ( $\mu= 0$ ); as well as the depth ( $\mu= 1$ ); and severity ( $\mu= 2$ ) of poverty, will be used in this research. The simplest and most common measure of poverty is the headcount ratio or the incidence of poverty. The poverty headcount is the number of people in a population who are poor, while the poverty headcount ratio,  $H$  is the fraction who are poor. That is:

$$H = \frac{r}{k} + \lambda_k$$

Where

r= the number below the poverty line;

k= the population size

$\lambda_k$ = scaling factor

The  $P_\mu$  index proposed by Foster et al. (1984) incorporates some degree of concern about poverty through a poverty aversion parameter  $\mu$ . The  $P_\mu$  class measure can be written as

$$P_\mu = \frac{r}{k} \sum_{i=1}^r \frac{(Z - P_k)^\mu}{Z} - \lambda_k$$

Where

Z = poverty line

r= number of persons/households below the poverty line

$P_k$ = income of the person/household

$\mu$  = the Foster-Greer-Thorbecke (FGT) parameter which takes the value 0; 1; 2 depending on the degree of concern about poverty

Z -  $P_k$  = is the proportionate shortfall below the poverty line

$\lambda_k$  = the scaling factor of probabilistic adjustment to poverty.

When  $\mu = 0$ , this last equation becomes the first given by H, the headcount ratio which measures the incidence of poverty. When  $\mu = 1$ ,  $P_\mu$  measures the depth of poverty; when  $\mu = 2$ ,  $P_\mu$  measures the severity of poverty.

Indeed, Palmer-Jones and Sen (2003) found that rural households in India, where the primary wage-earner has received no formal education or only up to primary level, are more likely to be poor than households whose earning members have attended secondary school and beyond. It is hypothesized that occupation has a high correlation with poverty because occupations that require low amounts of capital, either human or physical, will be associated with low earnings and therefore with higher poverty rates. Location of residence also matters. In particular, due to more job opportunities in urban areas, poverty tends to be lower in urban than rural areas. Thus, in the model, the response variable is binary, taking only two values, 1 if the Nigerian household is poor, 0 if not. The probability of being poor depends on a set of variables listed above and denoted as X so that:

$$\text{Prob}(P_k = 1) = F(\gamma'x)$$

And

$$\text{Prob}(P_k = 0) = 1 - F(\gamma'x)$$

Using the logistic distribution we have:

$$\text{Prob}(P_k = 1) = \frac{e^{\gamma'x}}{1 + e^{\gamma'x}} = \Lambda(\gamma'x),$$

Where  $\Lambda$  represents the logistic cumulative distribution function. Then, the probability model is the regression:

$$E(Y | X) = 1[F(\beta'x)] + 0[1 - F(\beta'x)] = F(\beta'x)$$

The median of the distribution gives the maximum point where  $\text{Prob}(P_k = 0.5)$ .

The results are meant to strengthen and clarify the descriptive analysis. To gauge the determinants of gendered poverty in Nigeria, a separate estimation was made by gender of household head. The dependent variable is defined as 1 if average per capita household expenditure is below the poverty line and 0 if it is above the poverty line (see also Anyanwu, 1997, 1998b, 2005; Anyanwu and Erhijakpor, 2010; Rodriguez, 2002; Ghazouani and Goaid, 2001; and Gang et al., 2002). Since the logistic model is not linear, the marginal effects of each independent variable on the dependent variable are not constant but are dependent on the values of the independent variables (Greene, 2003). Thus, to analyze the effects of the independent variables upon the probability of being poor, we looked at the change of odds ratio as the dependent variables change. The odds ratio is defined as the ratio of the probability of being poor divided by the probability of not being poor

#### 4.1. Research method

This research will use both the micro-level and macro-level data. The micro-level data mainly comprise surveys. Specifically, data used will be obtained from officially implemented surveys in Nigeria that have detailed sections/questions on poverty. These include the National Living Standard Survey (NLSS 2003/2004) and the Harmonised National Living Standard Survey (HNLSS 2009/2010). Other relevant surveys include the

General Household Survey of 2006, 2007, 2008 and 2009 as well as the General Household Survey-Panel of 2010-2011.

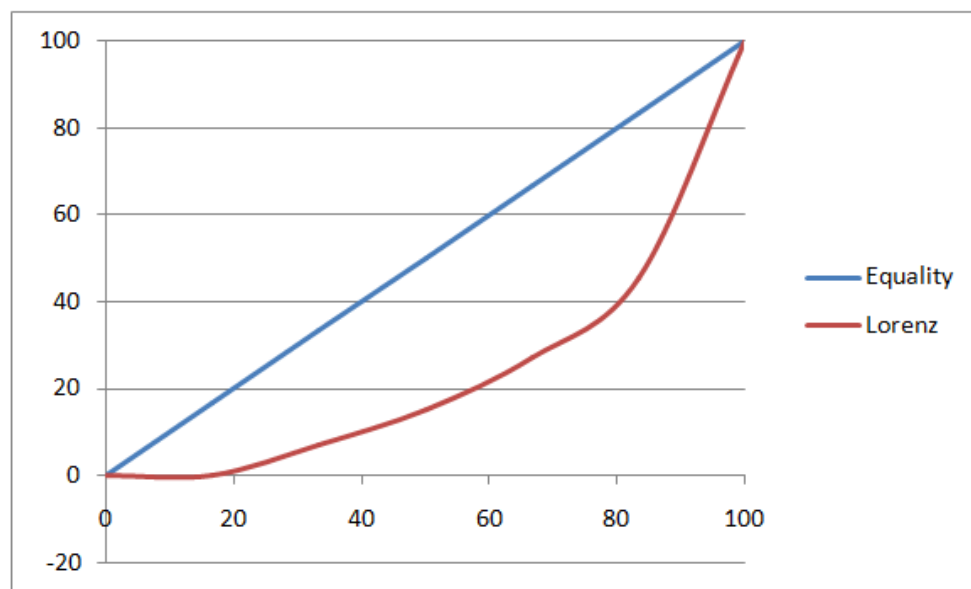
Using the HNLSS as an example; it is an instrument for regular monitoring of welfare and social trends for different population groups of the Nigerian society. The survey was conducted in 2009/2010 and it covered all 36 States of the Federation and the Federal Capital Territory (FCT). The sample studied for the Harmonized Nigeria Living Standard was designed to have LGA as reporting domain.

**4.3. Data analysis**

The official statistics was used to present background analysis of the study through descriptive analysis and various charts. The data was analyzed by both descriptive and inferential statistical methods. The results showed that most female headed households suffered as a result of neglect, joblessness, and unemployment. This has in turn caused untold hardship on their children, and the nation. The result of this is therefore devastatingly enormous. These include among other things child labour, trafficking, prostitution early and unwanted pregnancy, armed robbery, and even kidnapping. The results of the Gini Coefficients and Lorenz curve are as shown in Figure 1 below.

	Education	% pop.	% Educ.	Cummulative % Edu.	Area under the Lorenz		
0	0	0	0	0	0	0	
1	0	16.6666667	0	0	0	0	
2	9.9	33.3333333	7.14801444	7.14801444	0.07148014	0.00595668	
3	11.4	50	8.23104693	15.3790614	0.15379061	0.01877256	
4	16.3	66.6666667	11.7689531	27.1480144	0.27148014	0.03543923	
5	25.4	83.3333333	18.3393502	45.4873646	0.45487365	0.06052948	
6	75.5	100	54.5126354	100	1	0.12123947	
	138.5					0.24193742	
		Area A	0.25806258				
		Gini Coef.	0.51612515				

**Figure 1:** Computation of the Gini Coefficients and area under the Lorenz curve for Income Inequalities in the six Geopolitical Zones.

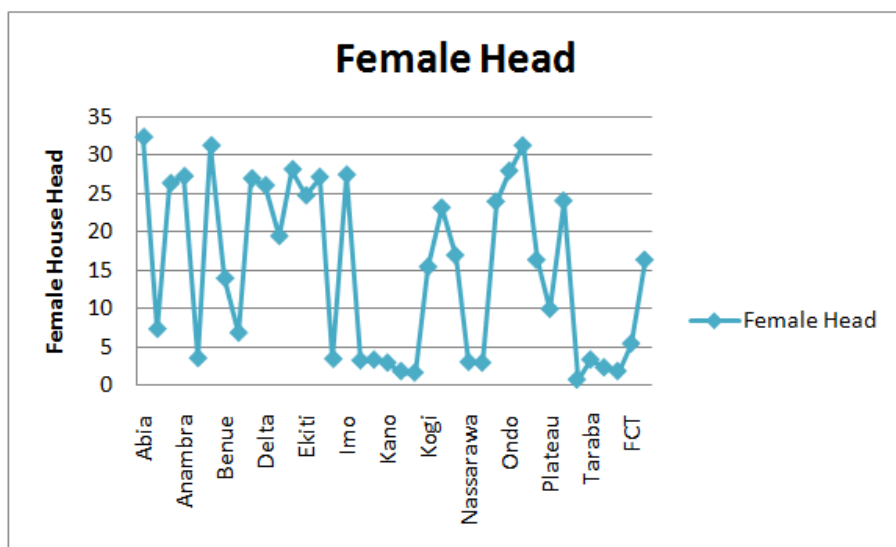


**Figure 2:** Area under the Lorenz curve for Income Inequalities in the six Geopolitical Zones

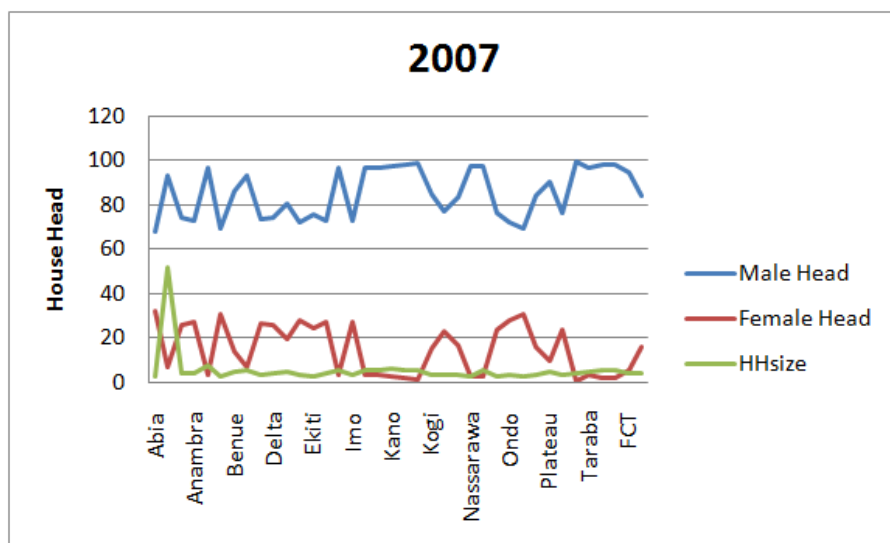
Using the charts above we observe that the scaling factor  $\lambda_k$  is strictly determined by the head of the household and the job placement of the female head. In our computation, the total area under the Lorenz curve is given by:

$$B = \frac{100}{k} \sum_{i=1}^k [Y_{i-1} + \frac{1}{2}(Y_i - Y_{i-1})]$$

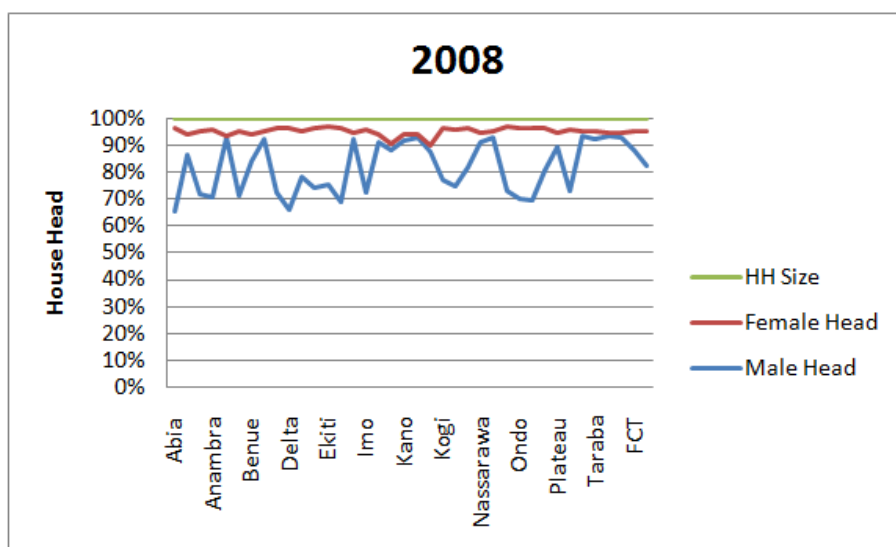
for k=6, the number of the Geopolitical zones.



**Figure 3:**Percentage of FHH per each state of the Federation (2007-2015)

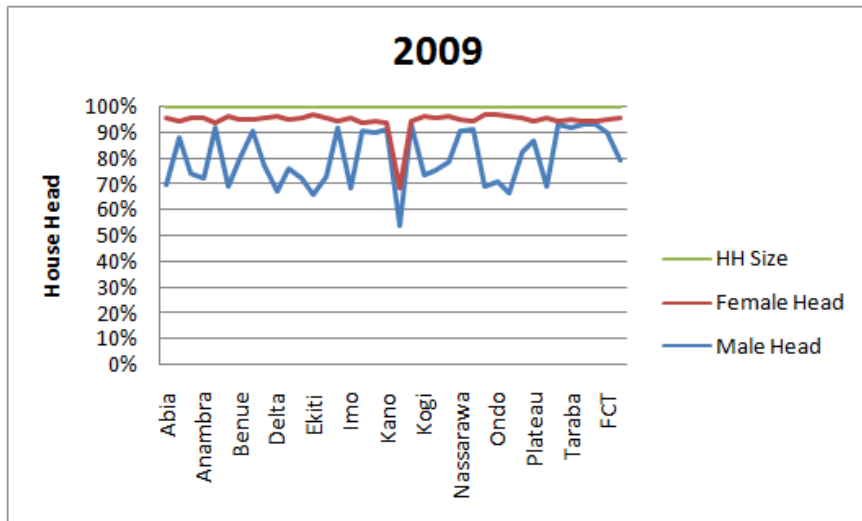


**Figure 4:** Percentage of HHH per each state of the Federation (2007)

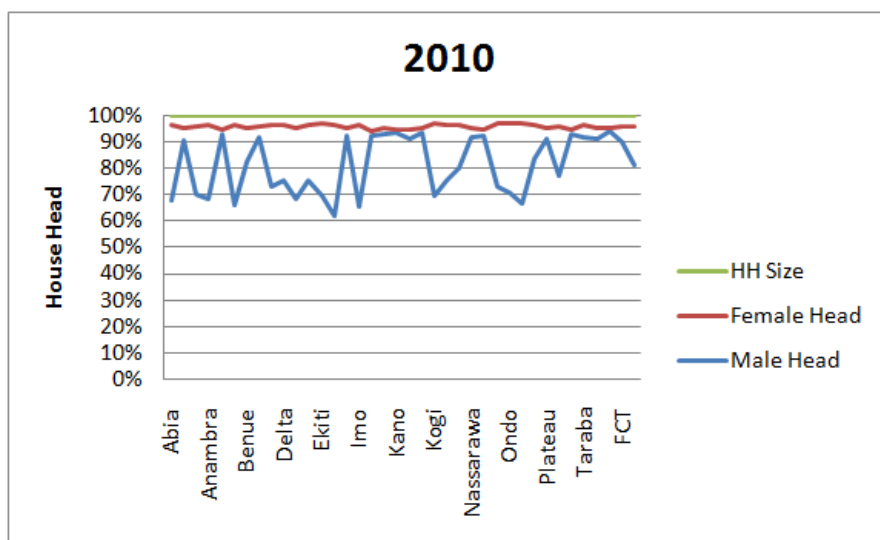


**Figure 5:** Percentage of HHH per each state of the Federation (2008)



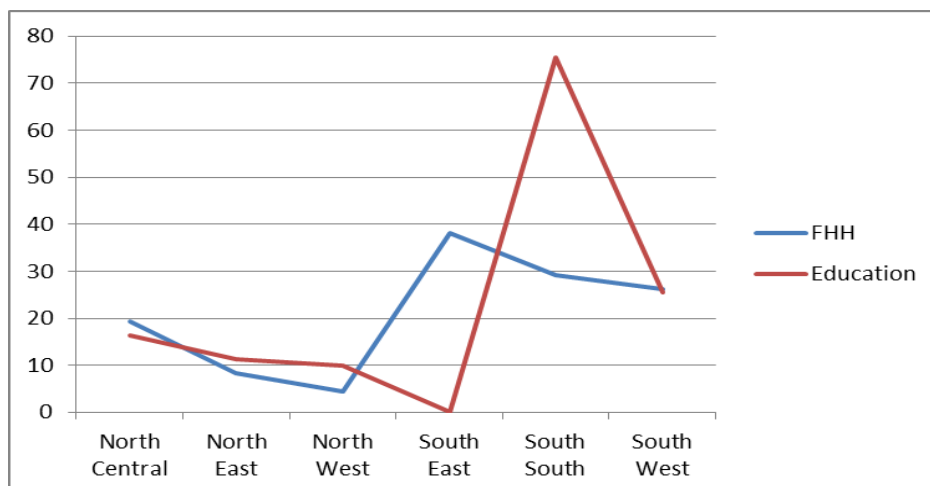


**Figure 6:** Percentage of HHH per each state of the Federation (2009)

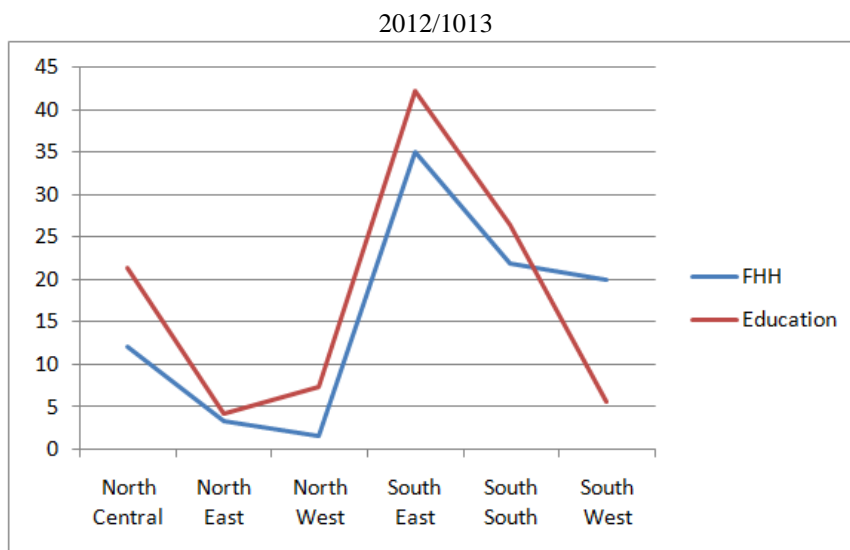
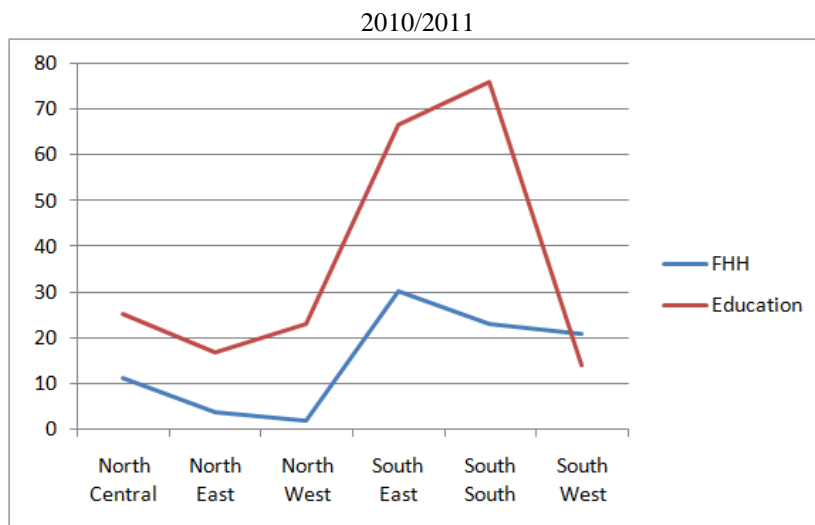
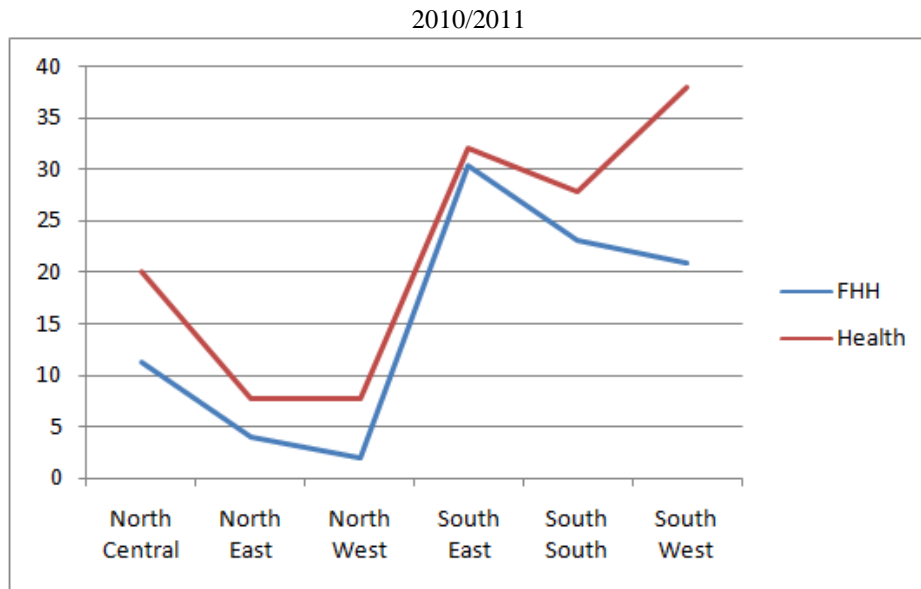


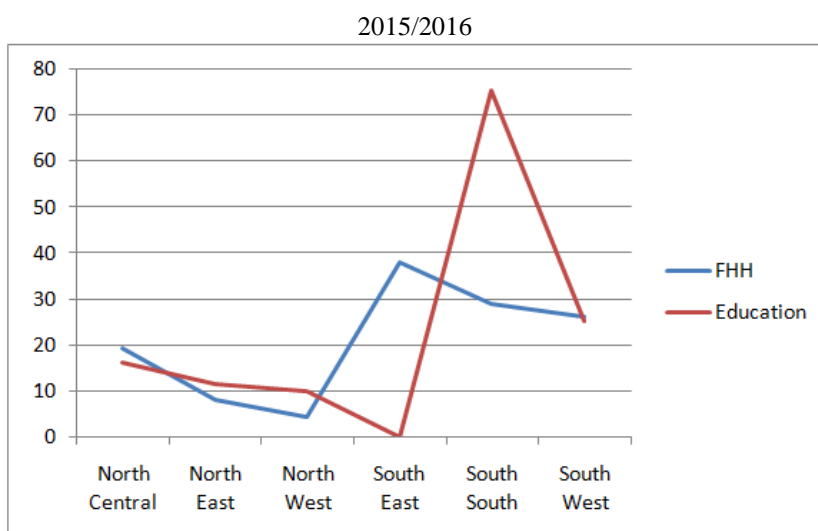
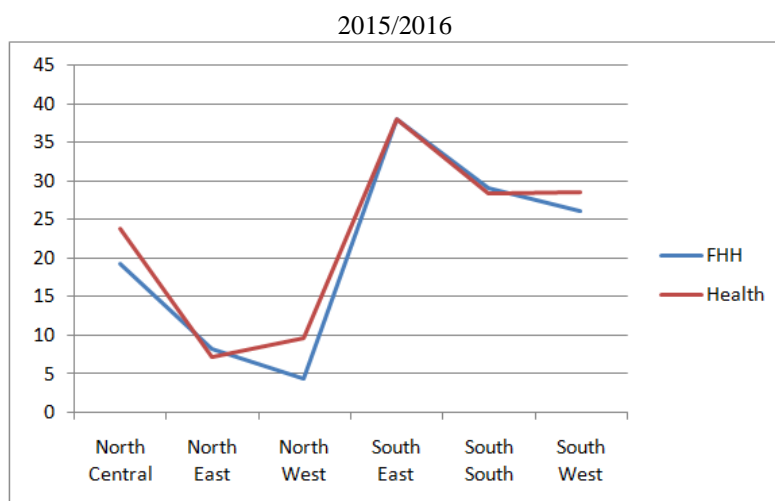
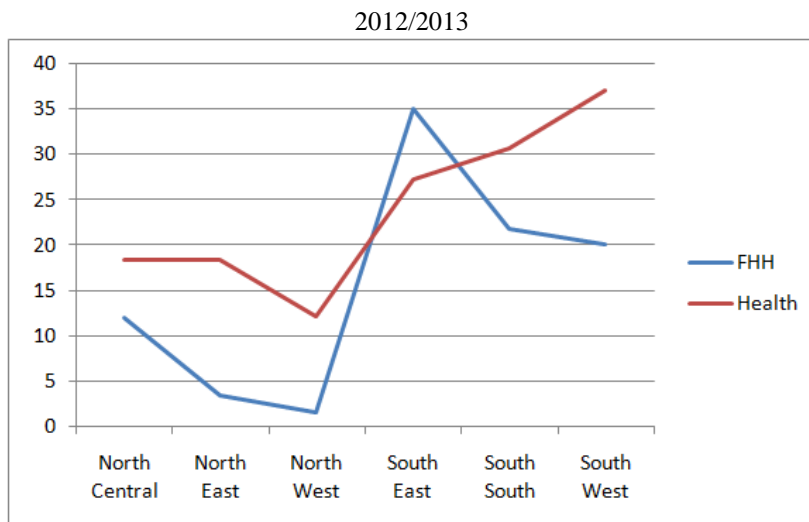
**Figure 7:** Percentage of HHH per each state of the Federation (2010)

Education factor in this context also refers to reasons for not enrolling in School (Female Children 5–14) Percent Distribution by Zones due to lack of money. Geopolitical Zones



**Figure 8:** Education of the Female Gender and Percentage effect on FHH in the six Geopolitical zones (2010)





## V. Recommendations

FHHs are the fastest growing type of family structure in Nigeria today due to divorce, insecurity and loss of jobs among other factors.

From the foregoing, it could be easily deduced that the education of the female child is paramount. In fact, failed education policies of government had in the past led to high rate of women turning into baby breeders which has led to vertical growth rate of poor women and children.

The following are therefore recommended for immediate implementation.

- 1) Compulsory free education of the girl child from Primary to Junior Secondary level.
- 2) Numeracy, literacy and skill acquisition for the girl child and jobless FHHs.
- 3) A compulsory orientation programme for every girl child above the age of 12 years in all schools.
- 4) Endowment of a scholarship scheme in some key subject areas to encourage the girl child.

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