



EXAMINING THE GENDERING OF POVERTY AND INCOME INEQUALITY IN RURAL COMMUNITIES OF ADAMAWA STATE NIGERIA

ABSTRACT

This study investigates the gendering of poverty and income inequality in rural Adamawa State, Nigeria, employing descriptive analysis. The research explores socio-economic characteristics such as household income, household size, occupation, education, marital status, age, and household headship across three geo-political zones (North, Central, and South). To achieve this aim, this study utilized primary data consisting of 400 rural households in the three selected local governments of Adamawa state Nigeria (Mubi North, Gombi and Ganye) with the aid of Kobocollect tool kit and personal interview of the focus group. Findings reveal that female-headed households are more prevalent in the North and Central zones, facing significant economic challenges. Larger households, particularly in the South, and lower educational attainment contribute to income disparities. Farming is the dominant occupation, with non-farming activities less common, except in the Central zone. Marital status and age also impact economic outcomes, with widowed and separated women, particularly in female-headed households, being more vulnerable to poverty. Income analysis, calculated in USD at the current exchange rate, shows that the mean annual income (₦789,057.20 or \$494.02 per annum) falls below the global poverty line (\$785.75/year), highlighting widespread poverty and income inequality. The study recommends the need for gender-sensitive policies to address these disparities and improve the economic well-being of vulnerable populations in rural Adamawa State.

Keywords: Poverty, Income inequality, Gender, Rural Communities, Nigeria

1.0 Introduction

Income inequality is a significant global issue that continues to threaten social cohesion and economic development. Out of every four individuals that live below the \$1.9 per day, live in the rural area (Castañeda et al, 2018). Despite various poverty alleviation programs, income inequality remains a persistent challenge, especially in rural areas. This issue is particularly pronounced in developing countries like Nigeria (Akin-Olagunju & Omonona, 2013; Awoyemi, 2007), where rural communities are disproportionately affected. In Nigeria, the gap between the rich and the poor continues to widen, exacerbated by unequal ownership of production resources, such as land and capital, and unequal access to social and economic opportunities. Despite government efforts to alleviate poverty, millions of Nigerians still live in extreme poverty. According to the National Bureau of Statistics, as of 2022, about 133 million Nigerians live in extreme poverty, with an estimated six people falling into extreme poverty every minute (NBS, 2022; World Bank, 2022).

Danjuma Ahmad
Department of Economics,
Faculty of Social Sciences
Adamawa State University, Mubi
yahyaadamdanjuma@gmail.com

Abdullahi Mohammed Jauro
Department of Economics,
Faculty of Social Sciences
Adamawa State University, Mubi

***Corresponding author:**
Danjuma Ahmad
Department of Economics,
Faculty of Social Sciences
Adamawa State University, Mubi
yahyaadamdanjuma@gmail.com

The situation in rural Adamawa State provides a microcosm of the broader issues facing rural Nigeria where 59% of the population lives in poverty, with an additional 20.4% being vulnerable to poverty (UNDP, 2018). The state also lags behind the national average in human development, with a Human Development Index (HDI) score of 0.428 compared to the national average of 0.511. These figures highlight the stark realities faced by the rural population, most of whom rely on farming for their livelihoods.

Poverty and income inequality in rural Nigeria manifest in various forms, including limited access to basic social amenities, food insecurity, inadequate financial resources, and social and economic exclusion with element of gender perspective. The consequences of these challenges extend beyond economic underdevelopment, contributing to insecurity and civil unrest. The Boko Haram insurgency in the Northeast, which has severely affected states like Borno, Yobe, and Adamawa, is one such example where poverty and inequality fuel broader social and political instability in the region.

Despite numerous government initiatives and developmental programs aimed at eradicating poverty and promoting rural development, the improper diagnosis of income inequality and poverty has led to poor targeting of intervention beneficiaries and a lack of policy continuity. Previous studies on poverty and income inequality in Adamawa State have approached the issue from a multidimensional perspective (Michael, Tashikalma, Maurice and Tafida, 2019), but often the variation among the population and regional differences. A more comprehensive approach is necessary, particularly one that takes into account the gender dimensions of poverty. Understanding the gendered nature of poverty in rural areas like Adamawa State is crucial for developing effective pro-poor development strategies. Gender disparities in income and wealth accumulation can be traced back to underlying gender gaps in the labor force, where women typically earn less than men and are underrepresented in high-ranking positions. These disparities are further exacerbated by issues like limited financial access, where women have nearly equal rights in terms of access to financial services and land assets but face uneven rights regarding non-land assets. For instance, only 33% of women in Nigeria own bank accounts compared to 46% of men counterpart.

The challenges of poverty and income inequality in rural Adamawa State are further compounded by the ongoing insurgency in the region which left many women in these rural communities as widowed or being separated from their families due to the conflict (Zarami et al 2021). This further exacerbates income inequality. As such, recognizing the gendered nature of rural poverty and inequality is essential for addressing these issues effectively.

Thus the aim of this study is to explore the gendered dimensions of poverty and income disparity in rural Adamawa State specifically analyzing the socio-economic attributes of the households in the study area to provide a foundation for understanding the diverse factors influencing poverty and income distribution particularly in the state. To achieve this aim, the study is organized in five sections. Section one provides the background of the study, section two review some related literature and established the framework of the study. Section three offers the methodological approach and techniques of analyzing the data. In section four we present the results while section five summaries and makes recommendation based on the findings.

2.1 Literature Review

Nigeria is characterized by significant social inequalities and these inequalities manifest across various facets, creating intricate interactions. The complexity of the situation is the urban-rural divide. Rural income inequality in Nigeria is on par with other underdeveloped African economies (Babatunde, 2008). In fact, income inequality is more pronounced in rural areas compared to urban settings (Madu, 2006; Oyekale, Adeoti, & Oyekale, 2006). Geographical dimensions further exacerbate this urban-rural disparity given that the most impoverished and rural areas of Nigeria are located in the North (Archibong, 2018; Madu, 2006). Adamawa state, for instance, was ranked 5th in terms poverty in the country (NBS, 2019).

Some studies also show that poverty and income inequality is gendering and multidimensional (Strønen & Nangacovie, 2018). Medina-Hernández, Fernández-Gómez, and Barrera-Mellado, (2021) noticed that for every 100 men living in poor households in the Latin American countries there were 116 women in a similar situation. This may be attributed to the lack of economic autonomy of women, who in the absence of other household income are more likely to be in poverty. This situation is even more exacerbated in households with a greater number of children. For example, in a study carried out in rural Malanje-Angola by Strønen and Nangacovie (2018) women are found to be more destitute than their counterparts attributed largely to economic crisis.

In recent times, the understanding of poverty has expanded beyond its purely economic dimensions, but encompasses a range of human development variables (Battiston et al., 2013; Le, 2015). Furthermore, studies on the contemporary perspective on poverty recognizes it as a multidimensional and intricate challenge, contingent on contextual factors, location, and the capacity to address it (Kalinowski, 2018). The literature in this aspects includes various typologies of material deprivation, extending to cross-country analyses (Anacka and Kobus, 2012; Bieńkuńska, 2013; Sokołowski et al., 2019).

However, empirical evidences have been marked by conflicting findings, stemming from disparities in samples, econometric techniques, and measurement of poverty, specifications, and country-specific factors. Some studies (Roine & Waldenström, 2015), tended to support the notion of Kuznets' inverted-U curve, suggesting an initial increase in income inequality during the early stages of economic growth, followed by a decline. Many of these studies were conducted on a cross-sectional basis.

In the rural landscapes of Nigeria, the multifaceted deprivation of human wellbeing, often termed as poverty, manifests itself through various dimensions (Michael, Tashikalma, Maurice and Tafida, 2019). These deprivations are conspicuous in the limited access of rural communities to fundamental social amenities and services, including healthcare, education, clean drinking water, electricity, and adequate transportation infrastructure. Additionally, issues such as food insecurity, insufficient financial resources, environmental degradation, and social exclusion from civil, social, and cultural life further highlight the depth of poverty in the country (UNDP, 2018).

However, beyond the evident underdevelopment in many rural regions, a particularly distressing consequence of poverty in recent times in Nigeria is the escalating issue of insecurity, contributing to instability across the country (Muhammad, 2012; Egwemi and Odo, 2013). An illustrative example is the pervasive challenge of Boko Haram insurgency, significantly affecting the North-Eastern parts, especially Borno, Yobe, and Adamawa States. Over the years, these challenges have played a substantial role in

precipitating civil unrest, leading to widespread humanitarian crises, underdevelopment, and the loss of livelihoods, economic empowerment for a significant portion of the region's residents (Ogbozor, 2016; UNDP, 2018).

2.2 Empirical Literature

Studies at cross-country level document evidences on number of factors that derive income inequality. Dabla-Norris (2015) argue that technological progress, increase in skills, globalization, decline in labour market institutions, and financial openness and deepening are the main determinants of income inequality. However, the most important determinants varies with the level of development. While in advanced economies, increase in skilled labour wages is cited most frequently, financial deepening is that which is mostly reported in the developing and emerging economies. Klasen (2005) attributed the differences in growth rates between East Asia, Sub Saharan Africa, Middle East and East Asia to widening of income inequality among the population and escalating poverty.

A review of research conducted in the past three decades highlights a pervasive incidence of poverty and inequality in Nigeria. Canagarajah, Thomas & Ngwafon (1997) documented a rise in the Gini coefficient from 38.1% in 1985 to 44.9% in 1992. Similarly, Aigbokhan (1997) reported a Gini coefficient of 0.510 for rural households in his 1991 survey of Western Nigeria. The urban scenario witnessed a deepening inequality from 0.394 to 0.520 between 1983/84 and 1991, while rural inequality increased from 0.389 to 0.510 during the same period. The World Bank (1996) estimated a parallel trend of deepening inequality, with the Gini coefficient rising from 0.387 in 1985 to 0.499 in 1992. Oyekale et al. (2006) noted a worsening of income inequality between 1998 and 2004.

Recently, (Ogunniyi, Olagunju, and Asaley, 2019; Ajakaiye and Adeyeye, 2001; Ogunniyi and Olagunju, 2020; World Bank, 2016) investigated the impact of poverty and income inequality in rural household of Nigeria looking about the gender dimension. The result shows that majority of the rural household in the study area were poor and income inequality among them was high and above the globally accepted index..

2.3 Theoretical Framework

There are number of theories that elucidate the intricate relationship between income inequality, gender and sustainable development. Among such theories is the Human Capital Theory. This theory posits that education and skills development are the investment in human capital that leads to higher productivity and increase in income (Barro, 1991; Becker, 1994; Hanushek, & Woessmann, 2008). The theory argues that access to quality education and skills-building opportunities play significant role to accumulation of human capital which may also be applicable to the rural communities. Additionally, there are considerable gender gaps in access to education, health and finance. Hence, evidencing that lack of gender equality foster large economic costs as it hampers productivity and weighs on growth. This theory, combined with Intersectionality theory and Gender and Development Theory can serve as the bedrock upon which this study can be routed.

2.4 Research Gap

Whereas there exist a substantial body of literature on poverty and income inequality in Nigeria (Akin-Olagunja, 2013; Oyekale, Adeotu & Oyekale, 2006), the specific shifts of income inequality within rural communities and the gendered aspects of this shift remains relatively unexplained. This study aims to address this research gap by providing a comprehensive analysis of income inequality in rural communities,

with specific emphasis on gender, and by assessing its implication for achieving sustainable development in Nigeria. This missing link in the literature underscores the need for targeted investigation into the intersection of income inequality and gender in Nigeria looking from rural perspectives. Thus, the study seeks to investigate the issue of poverty and income inequality in rural communities in three selected local government areas of Adamawa-Nigeria by specifically paying attention to its gender dimensions and its impact on achieving sustainable development goals.

3.1 Methodology

3.2 Research Design

The study used quantitative research design. The choice of the method suite the research question, as it recognizes the nature of the issue and aims of the study. In the first place, the researcher issued structured questionnaires to selected households. The approach generated numerical data that was used in the statistical analysis. The questionnaires provide essential information on household demographics, educational attainment, and access to finances, land ownership and access to healthcare services. Quantitative data is important in providing a broad overview of trends, associations, and patterns that can help examine statistical relationships among variables.

3.3 Data Collection and Sampling procedure

The data collection process leverage on the KoboToolKit (Kobocollect), a mobile-based tool that presents several advantages over traditional paper-based methods. Firstly, it aligns with environmental sustainability by eliminating paper waste and its associated ecological footprint. Thirdly, it proves cost-effective compared to conventional paper-based methods. Lastly, KoboToolKit enables instantaneous data transmission and long-term record-keeping, thereby minimizing errors during the subsequent data analysis phase. This technology-enhanced approach not only streamlines data collection but also underscores a commitment to ecological consciousness and data integrity throughout the duration of the study. In collecting the data, we employed a stratified multi-stage sampling technique. This provides numerous benefit in obtaining thorough insight into the gendered aspect of poverty and income inequality in Adamawa state rural communities. The method ensures that respondents living in different house and different wards are sampled. It also helps in formation of a representative sample, improves efficiency in data collection, include diverse representatives and seamlessly integrates both quantitative and qualitative data collection methods. Encompassing broad geographical area that mirrors income variations, it align with the research method establishing itself as a robust strategy to effectively address the research objectives.

3.4 Selection of the Study Area

3.4.1 Selection of the Local Government Areas

In the initial phase of the sampling procedure, three local governments were chosen from each of the three senatorial zones of Adamawa. The selection is guided by specific criteria such as the degree of economic activities, vulnerability of the population to ethno-religious, social and political upheavals that prevails in the respective areas. For that reasons, Mubi North, Gombi and Ganye were selected in the three senatorial zones, given that they all exhibit the features mentioned as such we can generate data that can suit the study from these areas.

3.4.2 Selection of Wards

Building upon the preceding stage, the second phase involves the selection of five wards each from Mubi North and Gombi, and six wards from Ganye local government areas as identified earlier. The criteria for this selection was rooted in factors such as economic activities and the susceptibility of the communities to ethno-religious, social and political upheavals. The objective of using this approach is to generate varied representation of areas within the previously identified local governments.

3.4.3 Selection of Households

Continuing from the sampling process outlined above, the final stage involves the random selection of 25 households in male and female strata in each of the previously selected wards. To achieve randomness, a systematic sampling was used. This involves selection of the household at regular intervals from a list of eligible households provided by the ward leaders and community representatives.

3.5 Sample size

A study sample of approximately 400 respondents was utilized in the research. The determinants of this sample size follows Taro Yamane’s criteria, taking into account the projected population of 723,600 of the area as projected by the National Population Commission (NPC) in 2022 (NPC, 2022). The determination of the sample size is given below using the formula:

$$n = \frac{N}{1 + Ne^2}$$

Where n = sample size, N = Total population, e = error margin (the common error margin of 0.05 i.e. 5% is chosen with, 95% confidence interval).

$$N = 723,600, e = 0.05 \quad n = \frac{723,600}{1+723,600(0.05)^2} = 399.779 \approx 400$$

Table 1 gives the sample distribution totaling a sample of 400 households.

Table 1: Sample Size Distribution

LGAs (a)	No. of Wards (b)	No. of Wards Selected (c)	Total Projected Population in the LGA(NPC, 2022)	Proposed Sample size from each ward	Total sample size from each LGA
Mubi North	11	5	233,600	25	125
Gombi	10	5	227,900	25	125
Ganye	10	6	262,100	25	150
Total	31	16	723,600		400

Source: Designed by the researchers, (2024).

3.6 Technique of Data Analysis

Descriptive statistics using tables and graphs was used to analyze the data leveraging on the socioeconomic characteristics of the household similar to the work of (Waris et. al., 2023). We employed statistical measures such as mean, median, mode and standard deviation. These statistical measures help in presenting a clear and concise overview of the data, allowing for a better understanding of the central tendencies, variability, and distribution patterns of the variables under investigation.

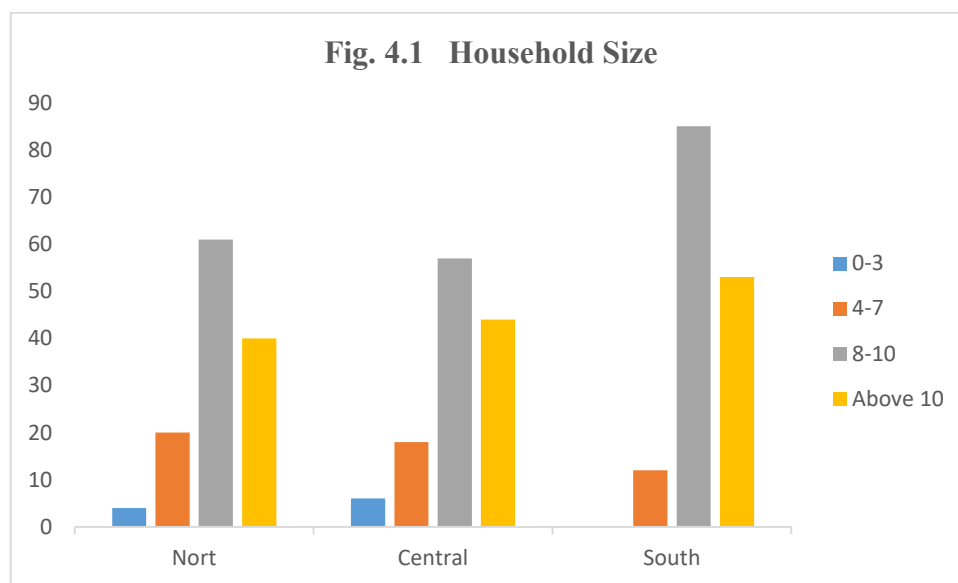
4.0 Result Presentation and Discussion

The main objective of this study is to examine the gendering of poverty and income inequality in rural Adamawa State Nigeria. In this section we are presenting the result of the findings using both descriptive analysis as outlined in the methodological section. The analysis in this section involves visualizing the data using the socioeconomic characteristics of the respondents which includes: gender, household size, occupation, education background, and marital status.

4.1. Descriptive Analysis

4.1.1 Household Size

There is great connection between household size and personal income. Figure 4.1 displayed the household size in relation to the three senatorial zones in the study area.



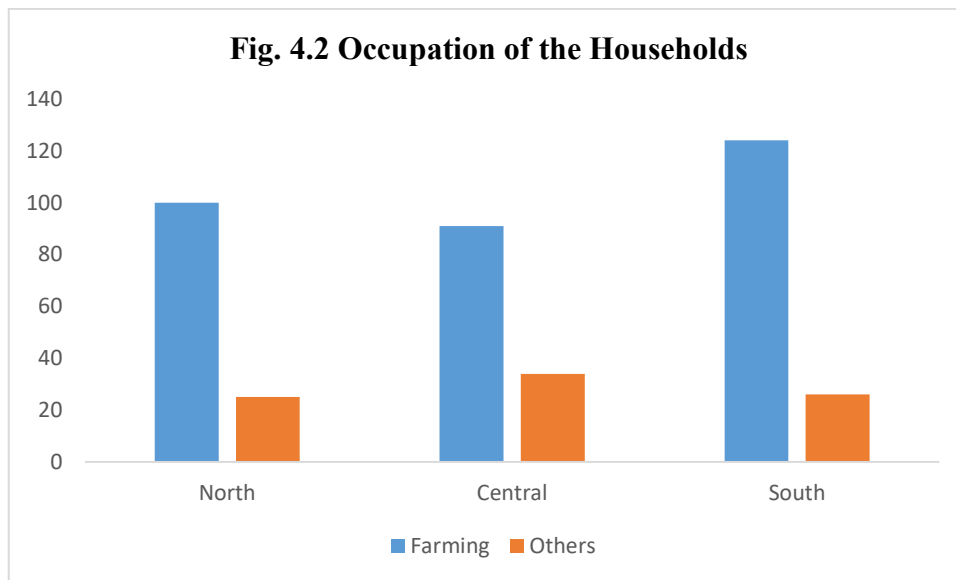
Source: *Field survey, 2024*

From the figure 4.1 displayed, very few household in all the senatorial zones have 0 - 3 members with the southern senatorial zone having no households in this category. This indicates that small household are relatively uncommon in these areas. The survey also show a moderate number of household with 4 – 7 members across all the senatorial zones, with the northern senatorial zone having 16% which is slightly more than the central and the southern senatorial zones that have 14% and 8% respectively. This suggests that medium-sized household is present but not dominant in the study areas. Majority of the households fall under the category of household with 8 – 10 members particularly in the southern senatorial zone which has

the highest number, prevalence of larger household particularly in the southern senatorial zone. Significant number of the households in all the three senatorial zones have more than 10 members in their family with southern senatorial zone leading by 35.3% followed by central 35.2% and then northern senatorial zone 32%. This also explain the prevalence of large family members in across the three senatorial zones.

4.1.2 Occupation

Occupation and its types act significantly in determining individuals income and hence the level of income distribution. Thus, given that the respondents resides in co-rural and pre-urban centers, their occupation activities revolved around farming and non-farming business activities. The result is displayed in fig 4.2 according to the three senatorial senatorial zones.

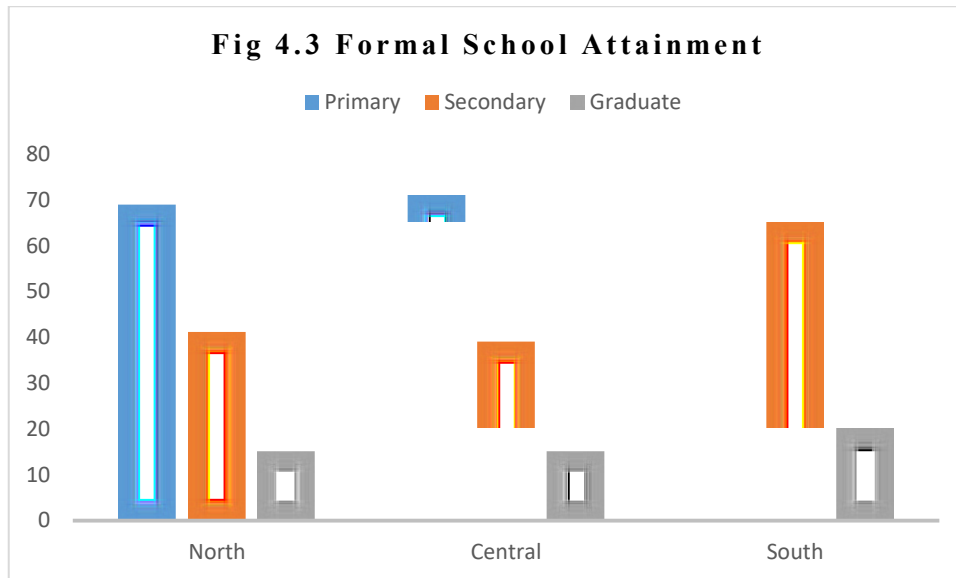


Source: *Field survey, 2024*

Figure 4.2 shows that 80% of the respondent in the northern senatorial zone engaged in farming activities while the remaining 20% engaged in other business activities. Similarly, in the other two senatorial zones (central and southern senatorial zone) 73% and 83% engaged in farming activities and 27% and 17% engaged in other businesses respectively. From the information on the chart, farming is clearly the primary occupation in the three senatorial zones with particularly higher concentration in the south. This could reflect in the agricultural focus of the region and the absence of social disorder in the senatorial zone, where large portion of the population engage in farming activities. The data also suggests that non-farming activity is significantly less common in all the senatorial zones. However, in the central senatorial zone, there is relatively more diverse occupational structure, with a higher number of people engaged in non-farming activities as compared to northern or southern senatorial zones. The suggest some regional variation, with south having more people into farming activities and central senatorial zone more people into non-farming activities.

4.1.3 Education

Education plays a significant role in the developing a financial activities and capability of a person. An educated person is expected to be skillful and efficient to learn and adopt new ideas which an uneducated person might likely find it difficult. Thus, as education level increase, the level of output and income also increased. Fig 4.3 shows the graphical presentation of the respondents based on educational composition.

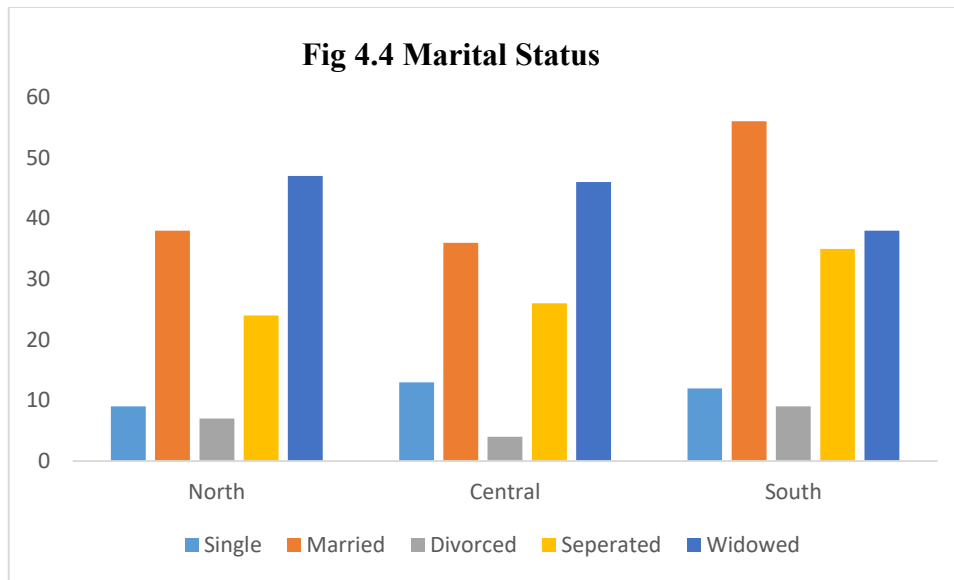


Source: *Field survey, 2024*

The result shows that in the three senatorial zones, 55% of the respondent attained primary school, 33% attained secondary school while 22% attained a graduate level of education. There is a little variation in the central senatorial zone as compared to the northern senatorial zone. In the central senatorial zone, 71 respondent representing 57% attained primary school, while 41 respondents representing 31% attained secondary school level and 15 respondents representing 12% attained graduate level of education.

4.1.4 Marital Status

The marital status of individuals is a key socio-economic characteristics that can influence both income levels and poverty status. Figure 4.4 provides the marital status of the respondents across the three senatorial zones in the state. From the data, number of single individuals is relatively low across the three senatorial zones with the central senatorial zone having the highest 10% and the north having the lowest 7%. This suggest that being single is less common in all the three senatorial zones. Across the senatorial zones, married individuals constitutes a significant proportion of the population with the south having the highest 37.3% and lowest in the central senatorial zone having 29% approximately.

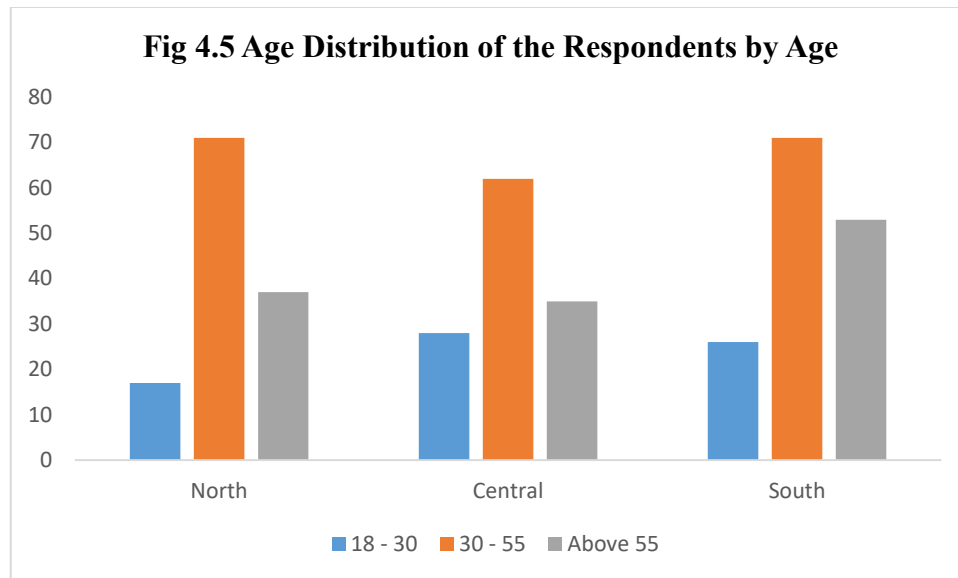


Source: *Field survey, 2024*

Number of divorced individual is relatively low across the three senatorial zones with south having the highest percentage 6% and central senatorial zone recoding the lowest 3%. Furthermore, the number of separated individuals is moderate compared to other form of marital status. Under this category, the southern senatorial zone recorded the highest 23% and north the lowest with 19%. Widowed individuals are moderate in all the three senatorial zones particularly north and the central senatorial zones. This could reflect in higher incidence of death among spouses in these region which intuitively can be attributed to insurgency related problems that engulfed lives of many individuals in the northern senatorial zones. If many of the widowed or separated households are female-headed, this could indicate a higher vulnerability to poverty among women. The distribution of marital status by senatorial zone reveal regional differences in how gender impacts economic outcomes. For instance, if the North and Central senatorial zones have more female-headed widowed households, these areas might experience higher levels of poverty among women compared to the South. The data could suggest that women, especially those who are widowed or separated, face greater economic challenges. This links directly to the concept of the gendering of poverty, where women are disproportionately affected by poverty due to their marital status and the economic disadvantages it often brings.

4.1.5 Age

Age is another important determinant of the household income. Population group in which there are more young age members of a household means there will be more energetic labor force which can cause increase in household income. From the descriptive analysis of this study as presented under figure 4.5, it clearly shows that

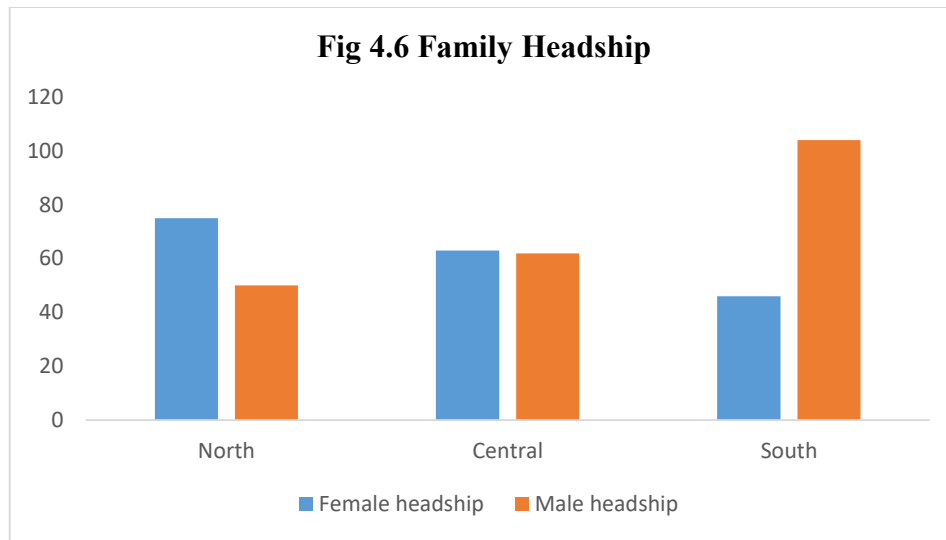


Source: *Field survey, 2024*

The Central senatorial zone has the highest number of young adults (28) in absolute number, followed closely by the South (26), with the North having the fewest (17). This could indicate that the Central and South senatorial zones have a relatively younger population, which might be more economically active or seeking employment. This age group is the most prominent in both the North and South senatorial zones, with 71 individuals in each, while the Central senatorial zone has slightly fewer (62). The 30-55 years age group is typically the most economically productive, signifying that these regions have a strong working-age population. The South senatorial zone has the highest number of individuals above 55 years old (53), followed by the North (37) and Central (35). This suggests that the South has a larger elderly population, which could imply different social and economic needs, such as pensions or healthcare support.

4.1.6 Family Headship

The distribution of female-headed and male-headed households across the North, Central, and South senatorial zones provides critical insights into the socio-economic dynamics of rural Adamawa State. The result is displayed in figure 4.6. In the North, the percentage of female-headed households (60%) is significantly higher than that of male-headed households (40%). This suggests that women, as heads of family, constitute a larger portion of the population in this senatorial zone. This could have implications for income distribution and poverty, especially given the potential economic vulnerabilities faced by female-headed households. The Central senatorial zone shows a nearly balanced distribution of female-headed with that of male-headed households, with a slight majority of female-headed households (50.4%). This balance might influence how income and poverty are distributed between households led by men and women in this region. The South has a higher number of male-headed households (69%) compared to female-headed households (31%), indicating a male-dominated household headship in this senatorial zone. This could reflect different socio-economic dynamics, potentially affecting the economic opportunities available to female-headed households.



Source: *Field survey, 2024*

4.1.7 Income Distribution

In this subsection, we analyze the income distribution among the respondents based on the data collected and made comparison with international poverty line index to enable us understand rge extend of poverty and income variation among the sample. Table 4.1 shows the summary statistics of the income distribution.

Table 4.1 Summary Statistics of Income Distribution of the Respondents

Variable	Observations	Mean	Standard Dev.	Minimum	Maximum
Income	400	789057.2	374431.2	125454	1800032

Authors' computation using Stata, (2024)

The summary statistics shows that the average income of the sample is approximately ₦789057.20 (\$494.02/year) which is below the global poverty line ((\$785.75/year). This value shows what the households earned on average annually. The value of the standard deviation stood at ₦374431.20. This also is quite large, indicating a significant variation in income levels among the population of the study. Meaning that some household earn more or less than the average. The lowest income recorded in the sample is ₦125454 (\$78.55/year or (\$0.22/day), strengthening the fact that the households live in extreme poverty, struggling to meet up with basic needs. The highest income in earners among the population receive approximately ₦1800032 which is more than twice that which earned by the average household in the study area. This, perhaps might be due to wealth accumulation and access to profitable business of these categories of individuals.

Conclusion and Recommendations

This study examines the gendering of poverty and income inequality in rural Adamawa State, Nigeria by employing a descriptive analyses approach. The research explores how socio-economic characteristics of the respondents which includes gender, household size, occupation, education attainment, marital status, age, and household headship, influence income inequality and poverty across the rural areas in the three senatorial zones (North, Central, and South) of the state. The findings of the study reveals significant

variations in socio-economic conditions across these senatorial zones, with particular attention to the disparities between female-headed and male-headed households. These findings provide a clear understanding of how gender dynamics impact poverty and income inequality in the region.

The study thus, concludes that gender plays an important role in shaping poverty and income inequality in rural Adamawa State. The statistics of the female-headed households, particularly in the North and Central senatorial zones, are more prevalent and likely face greater economic challenges compared to male-headed households. The analysis reveals that larger household sizes, lower educational attainment, and occupation in farming are common across the senatorial zones, contributing to income disparities. Marital status and age also significantly influence economic outcomes, with widowed and separated individuals, especially women, being more vulnerable to poverty. The South senatorial zone's male-dominated household headship and the Central senatorial zone's balanced headship distribution further highlight the regional differences in gendered economic experiences. Overall, the study underscores the need for gender-sensitive policies to address the economic disadvantages faced by female-headed households and reduce income inequality in the region. The finding of the study coincides with previous studies (Ajakaiye and Adeyeye, 2001; Ogunniyi and Olagunju, 2020; World Bank, 2016). These studies analyzed the critical issues relating to poverty and income inequality in rural Nigeria highlighting how these challenges were exacerbated by gender dynamics

Thus, based on the findings, the study made the following recommendations. Firstly, it recommends the implementation of targeted poverty alleviation programs that specifically address the needs of female-headed households, particularly in the North and Central senatorial zones where they are more prevalent. These programs should focus on improving access to economic opportunities, education, and financial support for women. Secondly, given the prevalence of large households, particularly in the Southern senatorial zone, policies should aim to enhance income-generating opportunities for these families. This could include expanding access to agricultural resources, as farming is the primary occupation in these areas. Thirdly, policymakers should also develop and implement educational programs that can increase access to secondary and tertiary education, particularly for women. Education is a key factor in improving income levels, and efforts should be made to reduce the educational disparities observed across the senatorial zones. Fourthly, the study also recommends that through entrepreneurial development agencies like the Adamawa State Ministry of Entrepreneurship Development, SMEDAN, Microfinance Institution and alike should geared up to encourage economic diversification in rural areas by promoting non-farming activities, particularly in the Central senatorial zone where there is a relatively more diverse occupational structure. This can help reduce income inequality by providing alternative income sources to the teeming population in the state. Fifthly, the study also recommends that both government and non-governmental organization, should design interventions programs that can support widowed and separated individuals, particularly female heads of households, who are disproportionately affected by poverty. These interventions could include social protection programs, access to healthcare legal support, and free-interest loan with flexible repayment for instance. This would help address the gendered nature of poverty and income inequality in the senatorial zones. Lastly, the study promotion of Gender Equality in Household Headship. This can be achieved by encouraging policies that promote gender equality in household headship, particularly in the

South where male-headed households dominate. This could involve empowering women through legal rights, economic opportunities, and social support to take on household leadership roles.

References

- Adams, R. H. (2001). *Nonfarm income, inequality, and poverty in rural Egypt and Jordan* (Vol. 2572). World Bank Publications.
- Aigbokhan, B. E. (1997). Poverty alleviation in Nigeria: Some macroeconomic issues. In *NES annual conference proceedings* (pp. 181-209).
- Ajakaiye, O., & Adeyeye, V. A. (2001). *Concepts, Measurement and Causes of Poverty in Nigeria*. Central Bank of Nigeria Economic and Financial Review, 39(4), 8-44.
- Akin-Olagunju, O. A., & Omonona, B. T. (2013). Determinants of income inequality among rural households of Ibadan, Oyo State, Nigeria. *Nigerian Journal of Rural Sociology*, 13(3), 27-37.
- Alkire, S. and Robles, G. (2017). 'Global Multidimensional Poverty Index 2017', Global MPI Report 8 (OPHI Briefing 47), Oxford Poverty and Human Development Initiative (OPHI), University of Oxford.
- Anacka, M., & Martyna, K. O. B. U. S. (2012). Multidimensional poverty analysis in Polish gminas. *Ekonomista*, (1).
- Archibong, B. (2018). Historical origins of persistent inequality in Nigeria. *Oxford Development Studies*, 46(3), 325-347.
- Awoyemi, T. T. (2007). Explaining income inequality in Nigeria: A regression based approach. *Journal of Economics and Rural Development*, 4(6), 45-59.
- Babatunde, R. O. (2008). Income inequality in Rural Nigeria: Evidence from farming households survey data. *Australian journal of basic and applied sciences*, 2(1), 134-140.
- Battiston, D., Cruces, G., Lopez-Calva, L. F., Lugo, M. A., & Santos, M. E. (2013). Income and beyond: Multidimensional poverty in six Latin American countries. *Social indicators research*, 112, 291- 314.
- Barro, R. J. (1991). *Economic Growth in a Cross Section of Countries*. The Quarterly Journal of Economics, 106(2), 407-443.
- Becker, G. S. (1994). *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education* (No. beck94-1). National Bureau of Economic Research.
- Bieńkuńska, A. (2013). Multidimensional poverty and social isolation in Poland. Working paper 20. United Nations Economic Commission for Europe Conference of European Statisticians.
- Bourguignon, F. (1979). Decomposable income inequality measures. *Econometrica: Journal of the Econometric Society*, 901-920.
- Canagarajah, S., Thomas, S., & Ngwafon, J. (1999). *The evolution of poverty and welfare in Nigeria, 1985- 92*. The World Bank.

- Castañeda, A., Doan, D., Newhouse, D., Nguyen, M. C., Uematsu, H., & Azevedo, J. P. (2018). A new profile of the global poor. *World Development*, 101, 250-267.
- Chancel, L., Piketty, T., Saez, E., & Zucman, G. (Eds.). (2022). *World inequality report 2022*. Harvard University Press.
- Dabla-Norris, M. E., Kochhar, M. K., Suphaphiphat, M. N., Ricka, M. F., & Tsounta, M. E. (2015). *Causes and consequences of income inequality: A global perspective*. International Monetary Fund.
- Egwemi, V., Odo, L. U. (2013). Rural Development and Poverty Eradication in Nigeria. *JORIND*, 11(1), 101–110.
- Gunatilaka, R., & Chotikapanich, D. (2006). Inequality trends and determinants in Sri Lanka 1980-2002: a Shapley approach to decomposition.
- Hanushek, E. A., & Woessmann, L. (2008). *The Role of Cognitive Skills in Economic Development*. *Journal of Economic Literature*, 46(3), 607-668.
- Klasen, S. (2005). *Population growth, economic growth, and poverty reduction in Uganda: Theory and evidence* (No. 125). *Diskussionsbeiträge*.
- Le, H., Nguyen, C., & Phung, T. (2015). Multidimensional poverty: evidence from Vietnam. *Economics Bulletin*, 35(4), 2820-2831.
- Leuze, K., & Strauß, S. (2016). Why do occupations dominated by women pay less? How ‘female-typical’ work tasks and working-time arrangements affect the gender wage gap among higher education graduates. *Work, employment and society*, 30(5), 802-820.
- Madu, I. A. (2006). Spatial inequality in Nigeria: the imperative of geographic perspectives in the development process. *Journal of Social and Economic Development*, 8(2), 105.
- Medina-Hernández, E., Fernández-Gómez, M. J., & Barrera-Mellado, I. (2021). Gender inequality in Latin America: a multidimensional analysis based on ECLAC indicators. *Sustainability*, 13(23), 13140.
- Michael, A., Tashikalma, A. K., Maurice, D. C., & Tafida, A. A. (2019). Analysis of multidimensional poverty in rural Adamawa State, Nigeria. *Journal of Agribusiness and Rural Development*, 53(3).
- Muhammad, M. (2012). Poverty and National Security: A Review of Policies 1960–2010. *JORIND*, 10(2), 243–251. Retrieved from: www.transcampus.org/journals, www.ajol.info/journals/jorind
- NBS (National Bureau of Statistics). (2022). Data Monitor Abuja, Nigeria: NBS. Retrieved from: www.nbs.gov.ng
- Ogbozor, E. (2016). Households in Conflict Network: Causes and Consequence of Violent Extremism in Northeast Nigeria. Brighton, UK. Retrieved from: www.hicn.org
- Ogunniyi, A., & Olagunju, K. O. (2020). *The Impact of Social Protection Programmes on Poverty Reduction in Nigeria*. *PLOS ONE*, 15(12), e0242312.
- Ogunniyi, A., Olagunju, K., & Asaley, A. J. (2019). Poverty and income inequality in rural Agrarian household of southwestern Nigeria: the gender perspective. *The Open Agriculture Journal*, 13(1), 51-57.

- Onu, E., Bax, P., Adamu, M., & Ibukun, Y. (2019, February 22). *Six People Fall into Extreme Poverty in This Nation Every Minute*. Bloomberg.com. <https://www.bloomberg.com/news/articles/2019-02-22/six-people-fall-into-extreme-poverty-in-this-nation-every-minute>
- Oyekale, A., Adeoti, A. I., & Oyekale, T. O. (2006). Measurement and sources of income inequality among rural and urban households in Nigeria.
- Roine, J.; Waldenström, D. Chapter 7—Long-Run Trends in the Distribution of Income and Wealth. In *Atkinson, François Bourguignon, Handbook of Income Distribution*; Anthony, B., Ed.; Elsevier: Amsterdam, The Netherlands, 2015; Volume 2, pp. 469–592. ISSN 1574-0056. ISBN 9780444594303.
- Shorrocks, A. F. (1982). Inequality decomposition by factor components. *Econometrica: Journal of the Econometric Society*, 193-211.
- Shorrocks, A. F. (1999). *Decomposition procedures for distributional analysis: a unified framework based on the Shapley value*. UK: mimeo, University of Essex.
- Sokołowski, J., Lewandowski, P., Kielczewska, A., Bouzarovski, S. (2019). Measuring Energy Poverty in Poland With the Multidimensional Energy Poverty Index. IBS Working Paper 07/2019.
- Strønen, I. Å., & Nangacovie, M. (2018). The gendering of poverty and inequality in rural Malanje, Angola. *CMI Report*.
- UNDP (2018). National Human Development Report 2018. Achieving Human Development in North-East Nigeria. Plot 617/618 Diplomatic Drive, Central Area District, Diplomatic Zone, Garki, Abuja FCT, Nigeria
- UNICEF. (2023). Gender Equality: Global Annual Results Report 2022. Available at https://www3.weforum.org/docs/WEF_GGGR_2022.pdf
- Wan, G., & Zhou, Z. (2005). Income inequality in rural China: Regression-based decomposition using household data. *Review of development economics*, 9(1), 107-120
- Waris, A., Khan, S., Urrahman, A., Hronec, M., & Suplata, M. (2023). Measurement of Income Inequality and Its Determinants in District Dir Lower. *Journal of Financial Risk Management*, 12(2), 180-202.
- WEF, (2015) Why Gender and income inequality are linked available at <https://www.weforum.org/agenda/2015/10/why-gender-and-income-inequality-are-linked/>
- World Bank. (2016). *Poverty Reduction in Nigeria in the Last Decade*. Washington, D.C.: World Bank Group.
- Zarami, A. B., Kabir, A., El-Buba, S. S., & Pindiga, U. H. (2021). Patterns of Unnatural Deaths during Insurgency in Maiduguri, Borno State, North-Eastern Nigeria: A Ten-Year Retrospective Review. *Borno Medical Journal*, 18(1), 1-7.

ACKNOWLEDGEMENT

We wish to acknowledge and appreciate the support provided by the Tertiary Education Trust Fund (TETFund) through the Institutional Based Research (IBR) grant, with the Grant Number: TEFT/DR&D/UNI/MUBI/RG/2023/VOL.1. We also acknowledge the support extended by the Adamawa State University and the Research and Innovation Directorate in particular, for their collaborative efforts and contributions towards facilitating and advancing research initiatives at the University.