Poverty Reduction in Nigeria: Lessons from Small Scale Farmers of Niger and Kogi States

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Authors' contributions

This work was carried out in collaboration between all authors. Author JNN designed the study, wrote the protocol, analysed the data and edited the paper after peer-review. Authors ESY, JOS and HS jointly managed the literature searches, supervised the data collection process and wrote the first draft of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Data for this study was collected using multi-stage sampling technique using structured questionnaire and interview schedules during the 2012/2013 farming season, obtained from randomly selecting 12 LGAs from the 46 LGAs, followed by the random selection of five villages in each LGA (i.e. 60 villages), and then random selection of nine farming households in each village (i.e. 540) sample size.From the 540 sample, poor and non-poor farmers were estimated and presented under different domains using dollar per day, minimum wage and average income; and the time required for the poor to exit poverty was computed using Watts Index. Farmers in this area have exited the international poverty line as only 3% of the farmers fall below the dollar poverty line while most (66%) of them are below the average income poverty line. Farmers from Kogi States were poorer than those of Niger under the three poverty lines although almost equal per cent of male and female farmers were non-poor under the dollar poverty line. Separated family members, those from Dekina LGA and those had only in-service training seems to exhibit high level of

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poverty. Farmers that went through adult education training are among the richest. Eleven years is needed for the poor farmers to exit poverty on transfer of ₦584,267.92 ($3,651.67) to them. It appears that the critical policies needed to achieve the transformation agenda are client specific solutions to poverty reduction that addresses the issues of wealth distribution and enhanced property rights among homogenous income groups rather than national or international approach.

1. INTRODUCTION

The poverty situation in Nigeria is quite disturbing. Both the quantitative and qualitative measurements attest to the growing incidence and depth of poverty in the Country [1]. This situation however, presents a paradox considering the vast human and physical resources that the country is endowed with. It is even more disturbing that despite the huge human and material resources that have been devoted to poverty reduction by successive governments, actual evidence suggests that the depth and severity of poverty is still at its worst in Nigeria, Sub-Saharan African and Asia [1]. [2] pointed out that for growth to have significant impact on poverty, it must take place in sectors in where majority of the poor their livelihood. And agricultural sector still remains the most important sector for rural dwellers in Nigeria, which accounts for more than 70% of the population. However, income redistribution can significantly improve efficiency at aggregate level [3].

[4] defined poverty as the inability of a person to acquire the empowerment needed to substantively control the challenges of the environment. Stemming from this, [5] opined that people are poor when they lack the tools and capacity to subdue their environment or when they lack empowerment in tools and new techniques, innovations, management skills and ideas, and economic participation. Therefore, one becomes poor when his environment subdues him. And in an overview of world situation, [6] indicated that more than a billion people live in extreme poverty and many take the possibility of never escaping from it. While, [7] noted that poverty rate was at 0.9% in Belarus and 98.2% in Tanzania with a global median of 47.7%. In evaluating poverty in rural and urban setting, the author also established that China's poverty rate for urban is 17.8% and 34.8%, for rural which are both below global median – compared to 77.3% for urban India and 89.0% for rural India; these are far above the global median of 47.7%. He further considered poverty trends at the USD2.50 standard notes and considering two emerging giants that poverty falls faster for China and India and that China's poverty declined much faster in Urban than in rural areas and same for India. So it is noted that though most developing nations have incidences of poverty but it varies in magnitude from one nation to the other, and from urban to rural areas.

[5] defined poverty alleviation as means that are being adopted to lessen poverty in the society. It is also realized that little progress can be made in poverty reduction if inequality is high and rising [8]. Most issues of poverty has been linked with income distribution [6,9], this makes income distribution an important area of study anytime poverty alleviation is discussed. [10] reported that interest, dividends, rental, income, public assistance income, retirement income, self-employment income, supplementary income, social security income, and wage and salary income are some of the factors that could lift natives out of poverty bracket. [10] concluded that most of these factors are linked with education, the author further suggested that education is the greatest equalizer and very crucial in narrowing the income gap. And that it does not happen overnight, it is a long term deliberate measure.

Small scale farmers in developing countries have to cope with the risks and have long faced heavy challenges. Today, these challenges are particularly severe and the aspirations of young people on small farms have changed. Globalization and the integration of international markets are stimulating intense competition, offering some opportunities but also new risks. In light of these pressures and others, millions of the world's small scale farmers are simply not making it. Indeed, half of the world's undernourished people, three-quarters of Africa's malnourished children, and the majority of people living in absolute poverty live on small farms. According to [11] Poverty in Nigeria is severe in rural areas, where up to 80 per cent of the

population lives below the poverty line and social services and infrastructure are limited. The country's poor rural women and men depend on agriculture for food and income. About 90 per cent of Nigeria's food is produced by small-scale farmers who cultivate small plots of land and depend on rainfall rather than irrigation systems.

The transformation of the small-farm economy is one of the biggest economic challenges of our time. It is argued that in order to reduce poverty, it is fundamental that economic policies should aim at promoting rapid economic growth and development [12-16]. [2,17] argued that growth in incomes of the poor is strongly correlated with overall growth of the economy especially growth in the agricultural sector.

Poverty remains widespread within Nigeria. This is no longer a controversial subject. What is controversial is the choice of appropriate strategies for poverty reduction. African countries, including Nigeria, have committed themselves to carrying out extensive economic reform programmes, but the modest growth achieved has not translated into much significant improvement in poverty. For instance, between 1986 and 1992, Nigeria introduced a structural adjustment programme (SAP) which, has halted the decline in the national economy, and achieved an average growth rate of one per cent. The so-called trickledown effect of the structural adjustment programme has not materialized. In 2000, Poverty Alleviation Programme (PAP) was set up to create jobs for the unemployed in the face of increasing youth restiveness. The projects participates were to stimulate economic activities and improve the environment. According to [18], the implementation of PAP generated public outcry and was accused of shoddiness and corruption problems identified with the programme included over centralization, over politicization, irregular payment, uncoordinated management as well as high-level corruption. National Poverty Eradication Programme (NAPEP) was created in 2001to eradicate poverty in the nation since the PAP falls. It aimed at address the aspects of absolute poverty and involved all stakeholders in poverty eradication in Nigeria namely the federal, state and local governments, civil society organizations, research institutions, the organized private sector, women groups and concerned individuals. The weaknesses of the program were poor targeting mechanism, failure to focus on the poor, programme inconsistency, poor implementation, and corruption.

Infact, today it is clearly evident that the poor are not better off than they were in the past and there is no reasonable hope even for the future if things continue the way they are presently. More also, Nigerian government efforts at poverty reduction have not succeeded in reducing poverty. The Human Development Index Report for 2013 ranked Nigeria 153 out of 186 countries among the poorest in the world [19].

It is important to note that poverty though looks as if its embedded in the developing economies must be confronted not just with an ultimate intention of growing the economy rather by putting in place a structure that encourages equal distribution of income or a redistribution of income from what it is now, such that the low income earning groups of the countries would be empowered to earn more and narrow the gap between the high income earners and themselves. It is believed that as the low income earners earn more, the economy would inadvertently give in to redistribution of income which helps in narrowing the degree of inequality and reduces poverty. Empirical literature also revealed that the greater percentage of these low income earners resides in the rural area, which suggests that poverty has localized itself which makes it easier to be trapped and captured. This localization gives room for easy implementation of policy and its measurement.

The scope of this study is investigated the poverty status of farmers in Niger and Kogi States of Nigeria to ascertain whether Nigerian government's poverty reduction strategies are yielding desired results.

2. MATERIALS AND METHODS

The study was conducted in Niger and Kogi States in Central Nigeria. They lie between latitude 6°30' and 11° 30'N and longitude 3° 30' and 7° 20'. The area is bounded to the South by Federal Capital Territory (FCT, Abuja), Nasarawa, Benue, Enugu and Anambra States, West by Edo, Ondoand Ekiti States, North West by Kwara State, West by the Republic of Benin, North by Zamfara and Kebbi States and East by Kaduna State. They occupy 116,354.74km^2 land area or 3.27% of the land area of the country. The area experiences dry and wet seasons beginning with the wet season towards the end of March and ending in October, while the dry season is from November to March. The rainfall per annum ranges from 1000 to 1500mm with the average of 187 to 220 rainy days and

average monthly temperature ranging from 21°C to 37°C.The vegetation, soil and weather patterns are favorable for the production of a wide spectrum of agricultural food, industrial and cash crops of various types. The major crops grown in the area include rice, maize, millet, sorghum, yam and cassava [20].

The area comprises 46 Local Government Areas (LGAs) i.e. Niger (25) and Kogi (21) with a population of 7,264,292 [21]. The major ethnic groups in the area are Nupe, Gbagyi (Gwari), Hausa, Okun, Ebira and Igala. There are other minority tribes like Basawa, Dakarkari, Dibbo, Kambari, Ungwai, Yoruba, and Igbo, Koro, Bassa, Oworo, Ogori/Mangogo and Eggan. The major economic activity is agriculture (farming, fishing and Livestock rearing). The state is blessed with numerous natural resources like solid minerals, vast arable land, good weather and water. The extensive flood plains in the south and availability of large water bodies, dams and reservoirs offer great opportunity for dry season cultivation of rice, sugar cane, maize and assorted vegetables and ideal conditions for livestock production.

Niger and Kogi states were selected for this study because they share boundary with each other, and the residents have common economic activities due to their accessibility to River Niger.

Primary data used for this study was collected using multi-stage sampling technique. The sample for this study was obtained from randomly selecting 12 LGAs from the 46 LGAs representing 26% of LGAs in the area. This was followed by the random selection of five villages in each LGA (i.e. 60 villages) and then random selection of nine farming households in each village (i.e. 540) sample size.

The data used in this study were derived from a cross-section farm level survey of family unit decision-maker using structured questionnaire and interview schedules during the 2012/2013 farming season. The researchers were assisted by well-trained enumerators to elicit relevant information from the respondents by filling the questionnaire through interview schedules where the respondents are not literate. Data included farmers' socio-economic characteristics and various sources of income available to the family. The data was collected between August 2012 and March 2013.

Data collected was analyzed using descriptive statistics such as frequency distribution; percent, bar charts, Foster-Greer-Thorbecke (FGT) indices and Watts Index.

The incidence (headcount), depth (or gap) and severity of poverty among the sample farmers were measured using FGT. The model for the indices is given in equation (1).

$$P_\alpha = \frac{1}{N} \sum \left(\frac{G_i}{z}\right)^\alpha, (\alpha \geq 0) \tag{1}$$

Where $P_\forall$=poverty index, $\forall$=is a measure of the sensitivity of the index to poverty. When $\forall$=0, the equation (1) yields headcount, when $\forall$=1, then equation (1) yields poverty gap and when $\forall$=2, then equation (1) yields poverty severity.

$$G_i = z - x_i, G_i = 0 \text{ if } x_i > z \text{ [22,23]}$$

z= poverty line. In this study, the poverty status is defined on the basis of accrued farm income of the family, as a result, poverty line is defined using three measures: first on the basis of a dollar per day i.e. ₦58,400 per annum regarded as the *international poverty line* (IPL); second on the basis of national minimum wage i.e. ₦216,000 per annum regarded as *national poverty line* (NPL) and then on the basis average income of the families involved in this study i.e. ₦584,267.56 per annum regarded as *community poverty line* (CPL).

x_i =income of the *ith* family unit decision maker or house hold head, the income is the gross farm income.

N= sample size (540).

The farmers below the poverty line were then mapped to different domains i.e. state, gender, regions (LGAs), marital status, and educational level.

The time to exit poverty by those below the poverty line was calculated using Watts index given in equation (2).

$$W = \frac{1}{N} \sum_{i=1}^{q} [ln(z) - ln(y_i)] \tag{2}$$

Where W= Watts Index, q=number of farmers that are below poverty line, y_i=income of the ith family decision maker below the poverty line. Other variables as previously defined.

Then the time is calculated as given in equation (3).

$$t_g^i = \frac{W}{g} \qquad (3)$$

Where t_g^i =time to exit poverty by those below poverty line, g=growth rate of the country i.e. growth rate of Nigeria in 2013 (6.2%).

In order to determine the level of impact of government poverty reduction strategies on the income of the farmers, the difference between the per capita Nigeria GDP at 1990 and 2010 prices and the farm level income of the respondents were determined. Then the difference of the two differences gives the impact.

3. RESULTS AND DISCUSSION

The various poverty indices and the Watts index as well as the time to exit poverty by those below the poverty line are presented on Table 1 while Table 2 shows the distribution of the respondents based on the amount of difference between their income and Nigeria GDP at 1990 and 2010 prices. The results show that most of the farmers in this study are above the IPL but almost 70% of them are below the CPL and there is clear evidence that a positive impact has been made on the income of the farmers. As shown, almost 15% of the farmers are better off when compared to the 1990 and 2010 constant prices. The results also indicates that it will take eleven years for the poor to exit poverty if N584, 267.92 ($3,651.67) is transferred to them. Fig. 1 also presents the per cent of poor and non-poor farmers in the sample based on the three poverty lines. In addition, Fig. 2 is a presentation of the per cent of poor and non-poor farmers based on their respective states. The results indicate that Kogi State farmers are poorer than Niger State farmers based on the three poverty lines. The data on Fig. 3 shows the per cent of poor and non-poor farmers based on their regions or LGA indicating that farmers in Dekina LGA in Kogi State are the poorest while farmers in Mariga LGA seems to be the richest. This seems to

confirm that farmers in Kogi State are indeed poorer than farmers in Niger State. The results on Fig. 4 are the per cent of poor and non-poor farmers based on their gender. The results indicate that male farmers are richer than female farmers and there is more number of poor female farmers. However, there is almost equal per cent of female and male farmers under the IPL. In addition, Fig. 5 presents the per cent of poor and non-poor farmers based on their poverty status showing that the separated decision maker or house hold head in the sample of farmers seems to exhibit more poverty that others. This is followed by those divorced, then the single, those widowed and the least poor are the married. Although under the IPL, a different scenario was observed in which the single seems to be the most poor, followed by the widowed, then the married. Finally, Fig. 6 seeks to show the per cent poor and non-poor farmers with regards to their highest educational attainment. The results indicates that those whose highest educational attainment is in-service training seems to be the poorest followed by those who went to College of Health Technology but those who acquired Adult education seems to the richest.

It was also observed that Kogi States farmers were poorer than Niger State farmers under the three poverty lines although almost equal per cent of male and female farmers were non-poor under the dollar poverty line. The result is a clear indication that the rate of poverty is Nigeria is no more a global phenomenon as farmers in these communities have exited the IPL while only about a third of the farmers are below the NPL. The major domain of poverty is the community and homogenous income groups as shown in this study. In which case and in order to eradicate poverty in Nigeria, attention should be turned to policy and programmes that will address specific income groups. In this regard, the conditional cash grants in which the poorest in the communities are identified and targeted should be strengthened.

Table 1. Poverty indices by three poverty lines in Niger and Kogi States, Nigeria

Poverty line	Poor	Non poor	Poverty headcount (%)	Poverty gap	Poverty severity	Watts index	Time to exit poverty
Dollar	15	525	2.78	58,664.53	3295808.93	0.014779467	0.242
Minimum wage	163	377	30.19	216,017.89	1431.34	3.90207E-05	3
Average income	358	182	66.30	584,267.92	0.24369	5.59374E-05	11

Table 2. Distribution of farmers in Niger and Kogi State based on the amount of difference between their income and per capita Nigerian GDP

| Range	GDP at 1990 prices				GDP at 2010 prices				% change
	Frequency		cumulative frequency		Frequency		cumulative frequency		
	n	%	n	%	n	%	n	%	
-220,428.00 - 344,949.56	357	66.11	357	66.11	406	75.19	406	75.19	9.07
344,949.60 – 910,327.19	109	20.19	466	86.30	82	15.19	488	90.37	4.07
910,327.20 – 1,475,704.79	56	10.37	522	96.67	36	6.67	524	97.04	0.37
1,475,704.80 – 2,041,082.39	9	1.67	531	98.33	7	1.30	531	98.33	0.00
2,041,082.40 – 2,606,459.00	1	0.19	532	98.52	1	0.19	532	98.52	0.00
2,606,460.00 – 3,171,837.59	1	0.19	533	98.70	1	0.19	533	98.70	0.00
3,171,837.60 – 3,737,215.19	0	0.00	533	98.70	6	1.11	539	99.81	1.11
3,737,215.20 – 4,302,592.79	6	1.11	539	99.81	0	0.00	539	99.81	0.00
4,302,592.80 – 4,867,970.39	0	0.00	539	99.81	0	0.00	539	99.81	0.00
4,867,970.40 - 5,433,348.00	1	0.19	540	100.00	1	0.19	540	100.00	0.00
Total	540	100	540		540	100	540		14.63
Sum of differences	187,712,404.38				73,699,422.63				
Mean difference	347,615.56				136,480.41				
Impact	211,135.15								
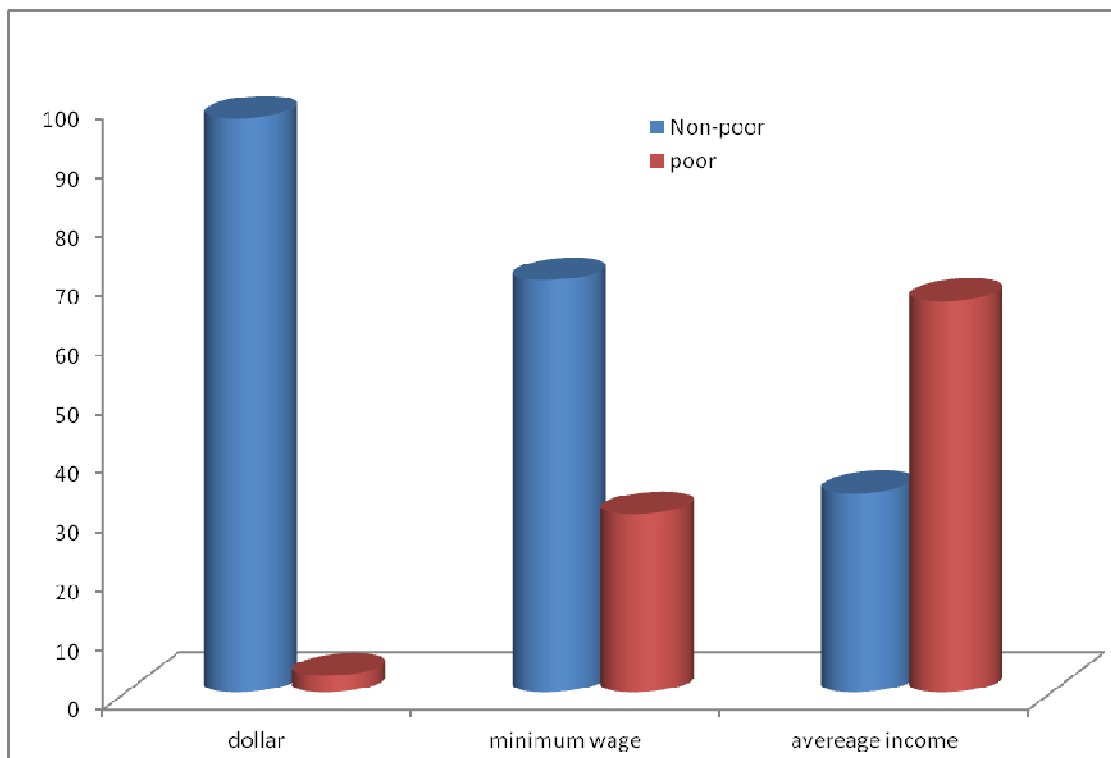
Fig. 1. Per cent poor and non-poor of the pooled small scale farmers in Niger and Kogi States
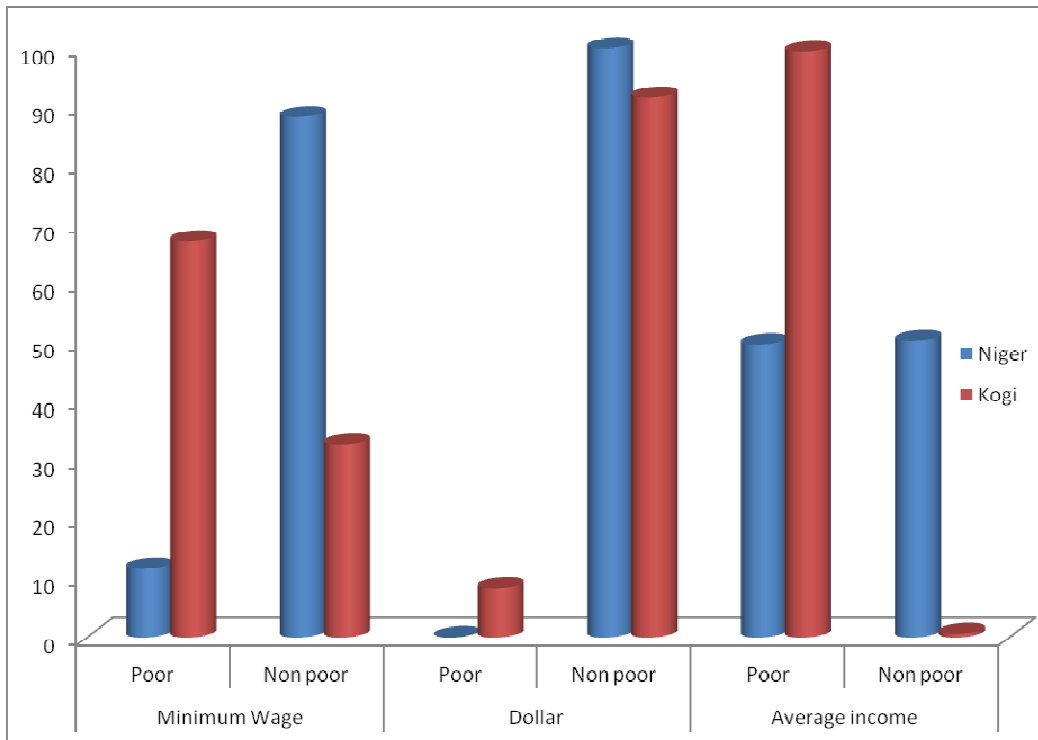
Fig. 2. Per cent poor and non-poor of the small scale farmers based on the individual states
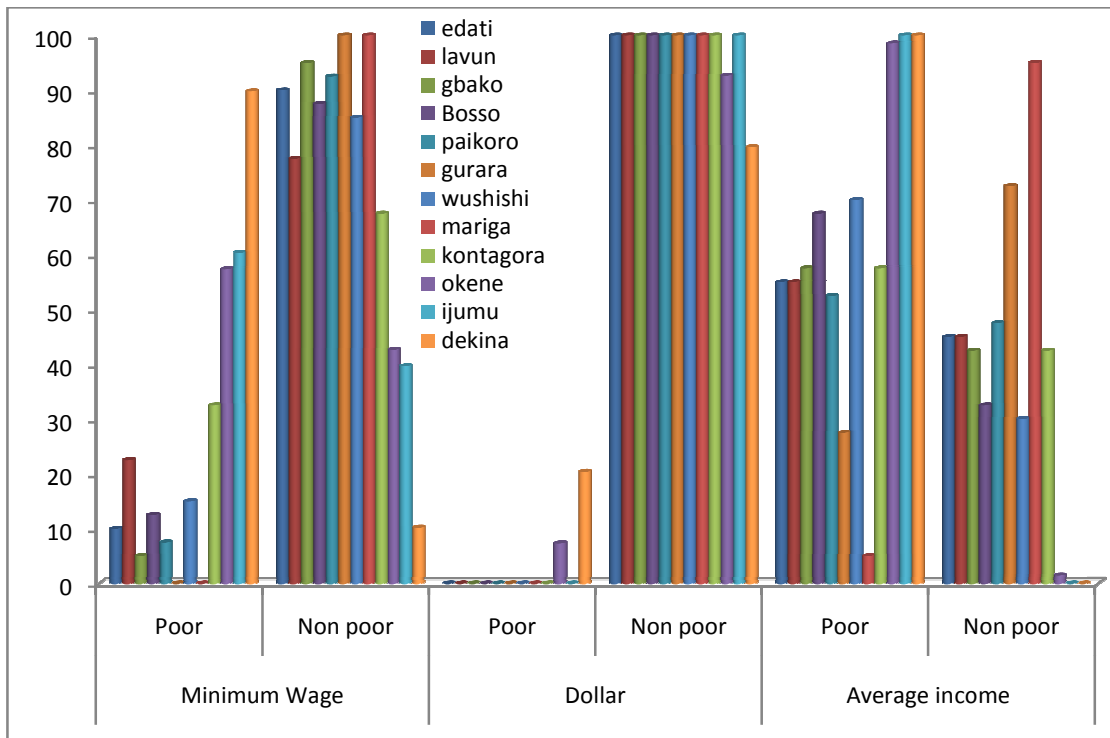

Fig. 3. Per cent poor and non-poor of the small scale farmers based on the LGAs in Niger and Kogi States
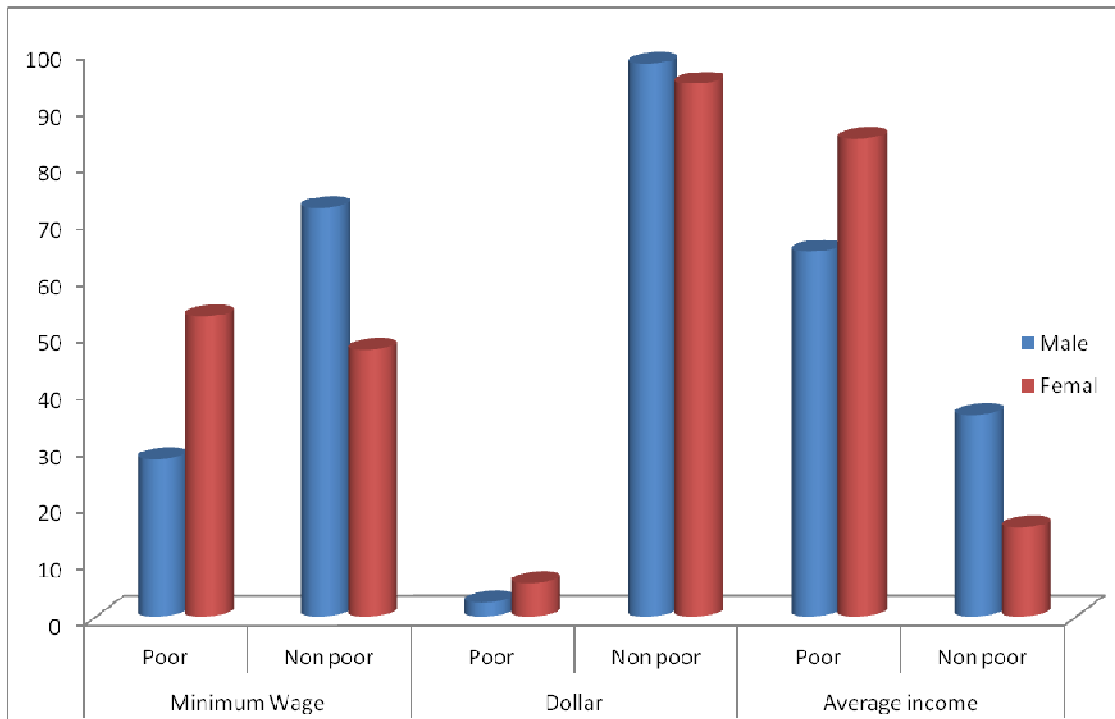
Fig. 4. Per cent poor and non-poor of the small scale farmers based on gender in Niger and Kogi States
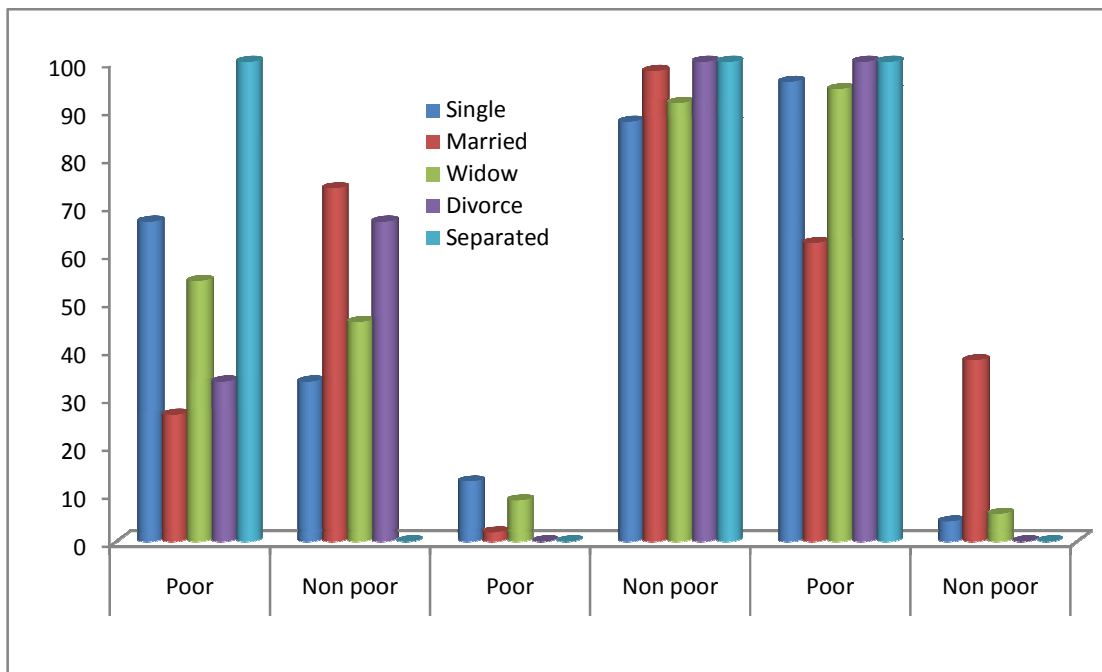

Fig. 5. Per cent poor and non-poor of the small scale farmers based on marital status in Niger and Kogi States
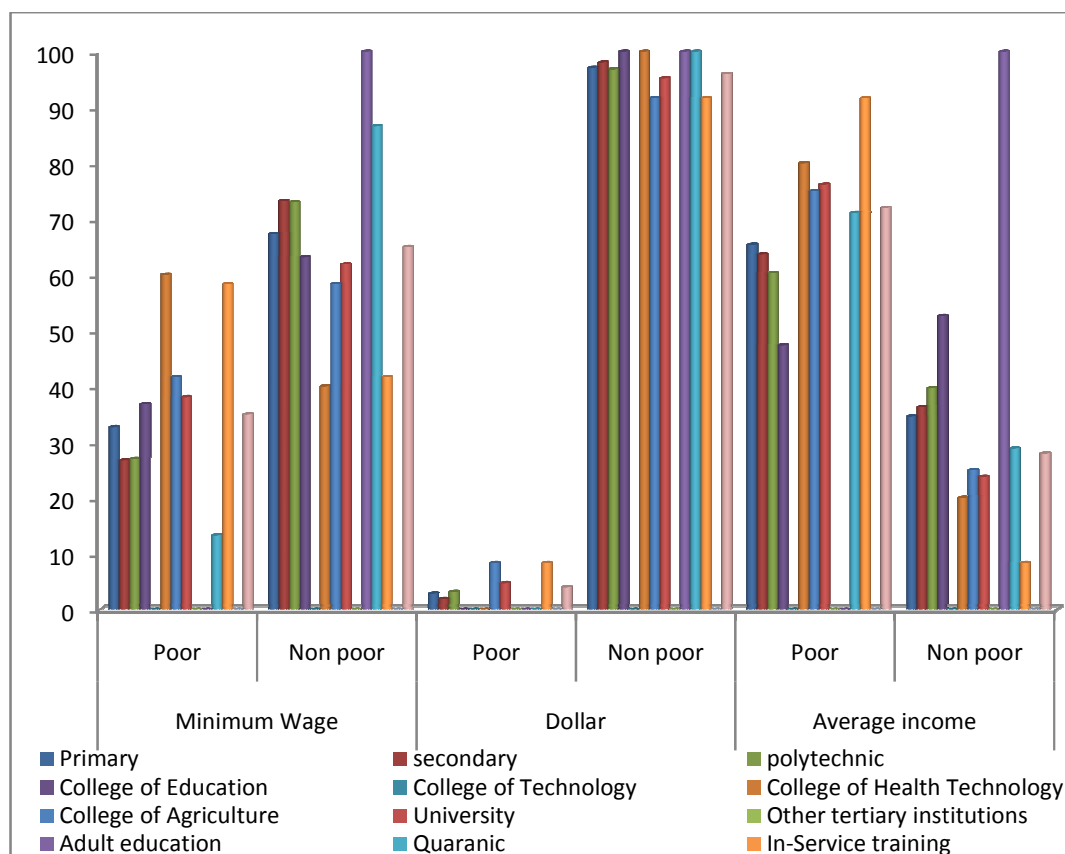
Fig. 6. Per cent poor and non-poor of the small scale farmers based on their educational level in Niger and Kogi States

In terms of marital status (*in Nigerian context, heterosexual*), separated and divorced farmers seem to exhibit higher levels of poverty while married and widowed farmers are the richest. This shows that a stable family is an asset to poverty reduction. Separated and divorced farmers' attention is divided between settling family issues and his farms. He might be involved in court cases and multiple expenses like double rents. It is then important that whatever poverty reduction strategies are pursued, it must be in context of a stable family.

Farmers from Mariga LGA in Niger state are the richest while farmers Dekina LGA are the poorest. Research is still needed to identify the factors responsible for this, but Mariga is the grains production zone and is home to one of the largest livestock market in Nigeria. Farmers in Dekina are the derived savannah and are not involved in extensive livestock production. Livestock production is a very strong tool for poverty reduction because it is 'season less', it has high return per investment, some of them

has short gestation period (as short as eight weeks for broiler production) and variation due to weather changes is less pronounced. Exchange programmes can be arranged between the two regions for the farmers to learn from their peers, if the farmers are interested, that is.

Farmers who had only in-service training seems to exhibit high level of poverty in contrast to farmers that went through adult education training who are among the richest. The import of these results seems to contrast popular perception that education enhances technology adoption and by extension increasing income. If this view were correct, then we should expect that university trained farmers should be the richest. Adult education is acquired by the farmer on his own volition while in-service training is acquired based on the felt need of the institution or the affiliation where the farmers is engaged, including his own farms. Farmers school, farm centres, farmers day, agricultural shows are some of the means by which further training is extended to the farmers; but as is evidenced with

these results, the benefit is maximised if the farmer is the one requesting for the training.

Watts Index show that it will take 11 years for the poor farmers to exit poverty if ₦584,267.92 ($3,651.67) is transferred to them. These transfers can be in the form of gifts, grants, capacity building on business creation and management, special inputs wallet in which the farmers are given certain considerations and discounts, infrastructures upgrade to enhance enhanced commercial activities in the communities, enhanced access to credit etc.

4. CONCLUSION

Data for this study was collected using multi-stage sampling technique obtained from randomly selecting 12 LGAs from the 46 LGAs, followed by the random selection of five villages in each LGA (i.e. 60 villages), and then random selection of nine farming households in each village (i.e. 540) sample size. The study investigated the poverty status of farmers in Niger and Kogi States of Nigeria to ascertain whether Nigerian government's poverty reduction strategies are yielding desired results. The results indicate that farmers in this area have exited the international poverty line and had positive impact on their income but are very much below the national poverty line. It does appear that the critical policies needed now should address the issues of wealth distribution and enhanced property rights among homogenous income groups rather than national or international approach. The agencies involved in poverty reduction programmes, particularly National Poverty Eradication Programme and Millennium Development Goals Office must now focus on client specific solutions to poverty reduction in order to achieve the transformation agenda.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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