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Keywords: rural women; income; non-farm activities; poverty reduction.

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Abstract This paper assessed the contributions of alternative income sources, other than farming, adopted by rural women, to understand their implication for poverty reduction. The study drew a sample of 382 rural women through a systematic sampling technique stratified into; women who engaged in farming activities only as their source of income on the one hand and women who engaged in farming and non-farm activities as their source of income. Data obtained were analyzed using relevant statistical packages and the Foster Greer Thorbecke (FGT) (1984) poverty measures. When total mean income of women that diversified their income was compared to those that were in farming alone, results established that there was significant difference between the incomes of women that adopted both farming and non-farming activities and those that were into farming alone, with poverty rates of 77.5% for the former and 80% for the later.

The findings of this study suggest that rural women should be empowered to enable them access financial and other resources, with a view to enhancing their participation in non-farm activities.

Also education opportunities should be expanded because more of the educated women engage in high income generating non-farm activities.

Keywords: rural women; income; non-farm activities; poverty reduction.

1. INTRODUCTION

One important pathway towards livelihood sustainability involves avoidance of long-term dependency on only one income source (Block and Webb, 2001). For many decades now, agriculture has remained the main source of income and employment in rural areas of Nigeria and most households are involved in the farm sector. However, the non-farm sector is becoming increasingly important (Haggblade, Hazell and Reardon, 2002).

In any case, it is a universally accepted fact that the agricultural sector is, by itself, incapable of creating additional opportunities of gainful employment in the wake of increasing population coupled with the common approach to rural poverty reduction in Nigeria which relies almost entirely on the production of crops and

livestock which depends solely on land and evidence show that the traditional land ownership system prevalent in Africa and Nigeria in particular do not encourage ownership of land by women (NBS, 2012). As a result, the impetus for achieving improved income in rural areas has to pivot around expanding the base of non-farm activities.

The other side of the coin is that agricultural activities in Nigeria is almost entirely rain-fed and the seasonality of rainfall in Nigeria influences agricultural production especially crop production which is prevalent in rural areas of Nigeria. Planting and harvesting occupy labour in peak seasons of farming activities; demand for farm labour is generally low during the rest of the year, hence the need for non-farm employment.

Incidence of poverty among women has attracted particular attention because women constitute the majority in rural areas (IFAD, 2016) and some of them are household heads catering for children, the aged and other vulnerable groups in the society. Participation in the rural non-farm activities allows poor people, women inclusive to offset fluctuations in agricultural income that usually occur on a seasonal basis or as a result of unexpected events such as flooding, this is especially the case where savings, credit and insurance mechanisms are not available for this purpose, as is the case in many rural areas of Nigeria.

It is estimated that 52% of the country's rural population are poor and women constitute 60% of this number (NBS, 2012) That being the case, it is critical that rural poverty is addressed in both poverty reduction strategies and, generally, as part of policies seeking to promote rural development. Correspondingly, it is important for developing countries and development organizations, in assessing approaches to rural development, not to view agriculture as the only basis for rural development, an approach which has neglected the contributions of other sectors and their effectiveness in reducing rural poverty and improving the quality of life of rural dwellers. It is therefore useful, when thinking about rural poverty reduction, to think of other rural income generating activities, to allow an understanding of the relationship between the various economic

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activities that take place in the rural space, and of their implications for income growth and poverty reduction.

Women involvement in non-farm activities is expected to lead to increase in income, release pressure on migration and tighten the labour supply for agriculture. The short term effects of rural non-farm income on food security are reasonably clear. Non-farm income provides the cash that enables a farm household to purchase food during drought, after a harvest shortfall or during difficult times. In this respect, the behavior of women in diversifying their sources of income and employment from solely agriculture to include non-agricultural, could be considered to be important requirement for rural poverty reduction in Nigeria. The objectives of this paper therefore examine the contributions of non-farm activities to poverty reduction among rural women in Kajuru Local Government Area of Kaduna State.

This paper is organized into five sections. The first is on the introduction, followed by literature review. Section three is on the materials and methods, the results and discussions follow in section four while the last section captures the conclusions and recommendations.

II. REVIEW OF RELATED LITERATURE

a) *Conceptual classifications on rural non-farm activities*

Reardon (2000) define non-farm as activity outside agriculture, while Marsland et al (2000) puts non-farm activities as those activities that are not agriculture or forestry or fisheries but includes trade of agricultural products. Farm activity means agricultural activity and non-farm activity is used synonymously with non-agricultural activity, to this end non-farm activities refer to those activities that are not agriculture or forestry or fisheries; however non-farm does include trade of agricultural products (Marsland *et al.*, 2000). This paper, therefore considers nonfarm activities to include; artisanal mining, rural small and cottage industries, construction, commerce and trading, tailoring, hair dressing, basket weaving, restaurants and food vending. Others includes Poultry, Pottery, Personal and government services, retail of airtime, rope-making and in fact all other activities that are income-generating other than production of primary agricultural commodities.

The term rural is subject to a similar amount of debate; hence the practical solution is for researchers to make sure that the definition they have adopted is clearly stated. Finally, there is the unit of observation which are the women referring to the female gender in the society.

The World Bank's Development Report (2015), defines poverty as an unacceptable deprivation in human well-being that can comprise both physiological

and social deprivation. Physiological deprivation involves the non-fulfillment of basic material or biological needs, including inadequate nutrition, health, education, and shelter. A person can be considered poor if he or she is unable to secure the goods and services to meet these basic material needs.

Poverty can also be defined as lack of material wellbeing, insecurity, social exclusion, psychological dismay, lack of freedom, and low self-esteem. According to the International Monetary Fund (IMF, 2014) poverty is pronounced deprivation in wellbeing comprising many dimension which includes low income and the inability to acquire the basic goods and services necessary for survival and dignity, while the united nations view poverty as the inability of getting choices and opportunities, a violation of human dignity and lack of capacity to participate effectively in society, in other words it means insecurity and powerlessness.

b) *Rural Non-farm Activities: Their Relative Importance within Rural Economies.*

Rural development has been pushed to the top of agenda in Nigeria's national development drive. There is growing interest in rural non-farm activities as research on rural economies is increasingly showing that rural people's livelihoods are derived from diverse sources and not overwhelmingly dependent on agriculture as previously believed. The existing literature points to a strong relationship between nonfarm employment and rural welfare (Ayeubomwam, Poopola and Adeoti 2017, Dirven 2011, Kochurani 2005, Awoyemi 2011).

The upsurge of interest in rural development can be attributed to a number of events which had their origin in our colonial heritage and the unanticipated oil boom of the seventies. These were massive rural-urban drift of able bodied young men and women, declining productivity in agriculture, increasing food imports, growing unemployment and the widening gap, in welfare terms between the urban and rural areas. In addressing this imbalance, there is growing interest in rural non-farm activities as research on rural economies is increasingly showing that rural people's livelihoods are derived from diverse sources and not overwhelmingly dependent on agriculture as previously believed. Moreover, policy makers are turning their attention to the wider rural economy.

Other researchers have been interested in evidence on the relationship between nonfarm employment and income inequality (Adams and He 1995, Reardon *et al.*, 1996; Canagarajah and Thomas, 2001).) found that sources of nonfarm incomes decrease income inequality.

Numerous studies indicate the importance of non-farm activities to rural incomes. Newman and Canagarajah (1999) found out that the rural non-farm is now more dynamic and important than previously

believed. Reardon, (1997) documented small enterprise study that show that the typical rural household in Africa has more than one member employed in non-farm activity. Islam, (1997) reported that the share of the non-farm sector in rural employment in developing countries varies from 20% to 50%. In Africa, the average share of rural non-farm incomes as a proportion of total rural incomes, at 42%, is higher than in Latin America and higher still in Asia (Reardon *et al*, 1998). Most evidence shows that rural non-farm activity in Africa is fairly evenly divided across commerce, manufacturing and services, linked directly to local agriculture, and is largely informal rather than formal (Reardon, 1997).

Several factors are responsible for women participation in non-farm activities, ranging from inadequate access to farm land, improved seedling, fertilizers, pesticides, agricultural finance, to long absence from the farm due to maternal activities.

There are many ways in which rural non-farm activities are important to rural areas, for instance cottage industries enable women to combine income generating activities with other tasks, such as food preparation and childcare. Households with greater income diversification are able to buy food and weather the effects of the drought and also tended to have higher overall incomes than those that were not able to supplement their farm incomes with non-farm incomes. There is general consensus that non-farm employment, helps to stimulate the rural economy, will lead to the reduction of rural income inequality and, as a result, social and political tensions.

Non-farm income compensates for a bad harvest or insufficient land. In other words, for a given woman with a given level of farm income, an increase in non-farm income clearly raises total income by the same amount enriching the woman and compensating a drop in agricultural production. As far as nonfarm income is concerned, women participate to a greater degree in wholesale or retail trade or in local crafts, than in other sectors. Existing patterns of rural non-farm participation suggest substantial entry barriers faced by women, so women also tend to engage in businesses that require lower start-up capital.

On the evidence of the relationship between the share of non-farm income in total household income, Reardon's (1997) review found that RNF income was

more important to the higher income households, however there were also examples where opposite was true, indicating comparable importance of RNF income to total income to both the poorest and the least poor households (e.g. Northern Nigeria). Although statistics on poverty level of women in Kajuru local Government Area is not only lacking, the roles played by these non-farm activities will provide necessary data on which poverty reduction through non-farm endeavours can be built on.

Therefore an attempt is being made to establish the quantitative importance of this sector and to ask the question: whether these activities are productive enough to ensure the women a decent income and level of living; or are non-farm activities of a mere residual nature to which women turn merely as a last resort? It is also relevant with respect to the growing body of research which seeks to replace earlier, simplistic structural adjustment programmes with more sustainable livelihood approaches.

III. MATERIALS AND METHODS

a) Study Area

Kajuru LGA is located in Kaduna State of Northern Nigeria, carved out of chikun local government area kajuru is located between latitude 9059' and 10035' North of the Equator and Longitude 7034' and 8013' east of the Greenwich Meridian (Kajuru, 2010). The study area is predominantly rural with a population of about 110868(NPC, 2007), the people in the area therefore are traditionally small scale farmers.

b) Data Sources and Sampling Techniques

The sources of data are mainly from primary sources using structured questionnaire, field observations and interviews. The primary data are complimented by secondary information from journals, conference papers and existing literature on subject matter.

The population of women in the LGA is about 55,304 and Based on the sample size table by Krejcie and Morgan (1970), 382 women were selected from 55,304 women population as adequate representation. 10 settlements were purposively selected and 38 questionnaires were administered systematically at intervals of three in each settlement.

Table 1: Settlements and Corresponding Sample Size.

Settlements	Corresponding sample size
Afogo	38
Budah	38
Dutsengaiya	38
Idon	38
Kajuru	40
Kallah	38

Kasuwa-mageni	38
Kemara	38
Kufana	38
Rimau	38
Total	382

Source: Authors Survey

However additional 2 questionnaires were added to kajuru as the local government headquarters in order to make-up the sample size giving a total of 382 respondents; this is because figures for women population by settlement in the study area are yet to be published. The respondents were stratified into two: Regime 1: women who generate both non-farm income and farm income; Regime 2: women who generate only farm income, giving 191 respondents on each side

c) Analytical Technique

Both descriptive and inferential statistics is used in analyzing data, including simple percentages, tables and graphs. The Foster Greer Thorbecke (FGT) (1984) weighted poverty measure is used to examine the incidence of poverty among the women, adopting the relative poverty line, using the formula:

$$P\alpha = 1N_i = 1nZ \cdot Y_i Z^{\alpha}$$

IV. RESULTS AND DISCUSSION

a) Socio-economic Characteristics of Respondents

The socio-economic characteristics of the respondents in the study area are shown in Table 2.

Table 2: Socio-economic Characteristics of Respondents

Age	Frequency (N=383)	Percentage (%)
20-29	90	23.5
30-39	147	38.5
40-49	123	32.2
50 and above	22	5.8
Marital Status		
Never Married	24	6.5
Married	308	80.4
Separated	11	2.9
Divorced	7	1.8
Widowed	31	8.1
Educational Qualification		
No formal education	31	8.1
Qu'aranic education	44	11.5
Primary education	74	19.3
Adult education	40	10.4
Secondary education	141	36.8
Tertiary	52	13.6
Primary Occupation		
Farming only	191	50
Farming and non-farming	191	50

Source: Author's survey

Age 30-39 years constitute the highest proportion of respondents, while age 50 and above ranked least. This may be because the younger women understood the reason for the survey and were more akin to respond to the questions.

Majority of the respondents (80.4%) were married, with the resultant effect on increased number of household size which is needful both for farm and non-farm labour. A small proportion of 6.5% never married. On the educational attainment of the respondents also on table 4.1 the highest number of the respondents had secondary education and this may be attributed to the unavailability of higher education institutions in the area.

b) Activities of Women

Table 3 X-rays the nature of crop production among the two income groups focused in this study. It can be deduced that major disparities occur in all the factors considered, between women who take up both farm and non-farm activities and women who engage in farming alone.

Table 3: Nature of Crop Production of Respondents

Factor	Primary Occupation			
	Farm and non-farm		Farming Only	
Number of Crops Grown	Frequency	(%)	Frequency	%
One crop only	33	49.3	34	50.7
Two crops	90	46.4	104	53.6
More than two crops	15	12.4	106	87.6
Production Level				
Subsistence	50	89.3	6	10.7
Commercial	137	42	189	57.9
Time for Selling Crops				
Before harvest	6	-	-	-
After harvest	12	3.8	300	96.2
Months after harvest	54	84.4	10	15.6

Source: Author's survey

In the number of crops cultivated, the women in farming activities only had the highest frequencies perhaps because they may have some comparative advantage in that they focus their energy and resource to the farms alone without divided attention, unlike women who combine the two occupations with the attendant fluctuation that may arise, from sourcing of inputs. In the case of production level, the frequencies of women at commercial level of production were more among those in farming alone. The women in their response during interview attributed it to the fact that since farming was their only source of income they believe that the larger the scale, the more the income. But coming to the time of sale of produce, the majority of the women engaged in farm and non-farm activities sold their produce months after harvest, thereby earning more income because field observation show that prizes of produce tend to be higher months after harvest. This is in tandem with the findings of Mwabu and Thorbecke (2011), that non-farm earning increases household income. On the other hand majority of respondents in farming alone sell their crops immediately after harvest, which may be attributed to the level of monetary need and poverty which compel farmers to sale their produce immediately after harvest to satisfy basic needs.

c) Non-farm activities and income

Non-farm activities have become an important alternative income source for rural households in most developing countries like Nigeria.

Table 4 presents the non-farm activities engaged in by respondents in the study area, supporting the views of Oladeji, Olujide, and Oyesola, (2006) that even though farming was the predominant

activity in most rural areas, farmers including women usually engage in supplementary activities.

The types of non-farm activities engaged in by respondents include; tailoring; trading; Basketry-weaving; potter; rope-making; restaurant and food-vending, sales of GSM airtime vouchers, poultry keeping and hairdressing, corroborating the views of Haggblade *et al* (2007) that as far as nonfarm income is concerned, women participate to a greater degree in wholesale or retail trade or in local crafts, than in other sectors, there is also the fact of fewer entry barriers faced. Ranking the least is Rope-making, with only 1.0%, it was observed in the area that rope-making was a male dominated trade.

Table 4: Non-farming activity and Income Contribution

Non-farm activity	Average yearly income					Freq	Percentage (%)
	2012	2013	2014	2015	2016		
Tailoring	31481.48	37379.31	30827.59	39068.97	33637.93	33	11.75
Hair dressing	23281.25	37343.75	24055.56	36500.00	30777.78	15	10.36
Trading	27331.25	35375.00	30625.00	36931.25	38046.20	60	11.47
Basketry	10000.00	25250.00	30250.00	35500.00	37750.00	4	9.46
R/food vending	27592.60	33046.30	31379.63	33129.63	33342.59	38	10.80
Rope making	10000.00	25250.00	15250.00	15250.00	42750.00	2	7.39
Pottery	22333.33	23444.44	23444.44	32111.11	33722.22	8	9.20
Sales of airtime	23000.00	35035.71	20750.00	36533.33	27066.67	7	9.70
Poultry keeping	28454.54	33923.08	29730.77	40153.85	38884.62	18	11.66
Others	20000.00	21750.00	23416.67	25166.67	30083.33	6	8.21
Total							100.0

Source: Authors Survey

d) Reasons for engaging in non-farm activities

The results of the reasons adduced by the respondents, as to why they take up non-farm activities are presented in table 5.

Majority of the respondents (79.6%) engaged in non-farm activities to generate more income, 18.3% represents those who do so to cope with farming related shocks. This agreed with Ellis and Freeman (2004) that the reason for income diversification includes declining farm income and the desire to insure against agricultural production and market risks.

The source of start-up capital for non-farm activities as revealed by the women is largely between loan from family and friends and income from farm produce with 52.9% and 36.1% respectively. This may

be because these two sources do not require documented collaterals.

As regards the amount of initial startup capital, the highest number of respondents representing about 44% started their businesses with less than eleven thousand naira (#11,000), underlying the fact that women have limited access to credits, especially in the rural areas, and highlights the importance of informal sources of funds available from family and friends. These are however inadequate, since household expenditure follows a similar pattern in rural areas, with everyone's need to be satisfied at the same time, i.e. when food supplies are running low and the next crop is not yet ready for harvesting. 19.9% started with above #20,000, while 24.6% started with less than #16,000.

Table 5: Reasons for Engaging in Non-farm Activities

Reasons	Frequency	Percentage (%)
To cope with farming related shocks	35	18.3
To generate more income	152	79.6
Leisure	-	-
Others	4	2.1
Source of start-up fund		
Income from farm produce	69	36.1
Money lender	11	5.8
Loan from family and friends	101	52.9
Others	10	5.2
Amount for Initial investment		
5,000-10,000	84	44
11,000-15,000	47	24.6
16,000-20,000	19	9.9
Above 20,000	38	19.9
Others	3	1.6
Barrier to non-farming activities		
Inadequate capital	118	61.8
Competition from external market	39	20.4
None	30	15.7
Others	4	2.1

Source: Authors Survey

Table 5 also indicate that 68.1% of the respondents find inadequate capital to be the most

challenging barrier of engaging in non-farming activities, while 20.4% were of the view that competition from

external market was their main problem. Overall this reflects the incidence of poverty in the area and the small scale nature of non-farming activities engaged by women in the study area.

e) *Incidence of Poverty among Women*

While the rural sector carries over 50% of the country's population and the bulk of its natural resources (NBS, 2018), its communities are subsisting under poor conditions devoid of opportunities and options within environments lacking in basic facilities such as roads, water supply and sanitation, energy and communication. In Nigeria, non-farm incomes represent an important element in the livelihood of the poor. In several areas the depletion of natural resources are such that agriculture cannot possibly remain the only, or even the main source of income. It is a universally accepted fact that agricultural sector is incapable of creating sufficient gainful employment opportunities amidst of increasing population in the developing countries.. Despite poverty-reduction strategies adopted in Nigeria, the incidence of poverty in rural areas still remains high (NBS, 2018).

f) *Distribution of Women Income (2012-2016)*

Table 6 shows the income generated by the rural women from both Regimes in the years under study. Regime 1 (farm and non-farm activities income); Regime 2 (farm activities income).

The paired sample statistics shown in Table 6 reveals that in 2014 the, rural women recorded the highest mean income. Many of the women acknowledged that this was due to favourable climatic conditions, citing that both the onset and cessation of the rain happened in good time, and because agriculture in the area was largely rain fed it led to bumper harvest.

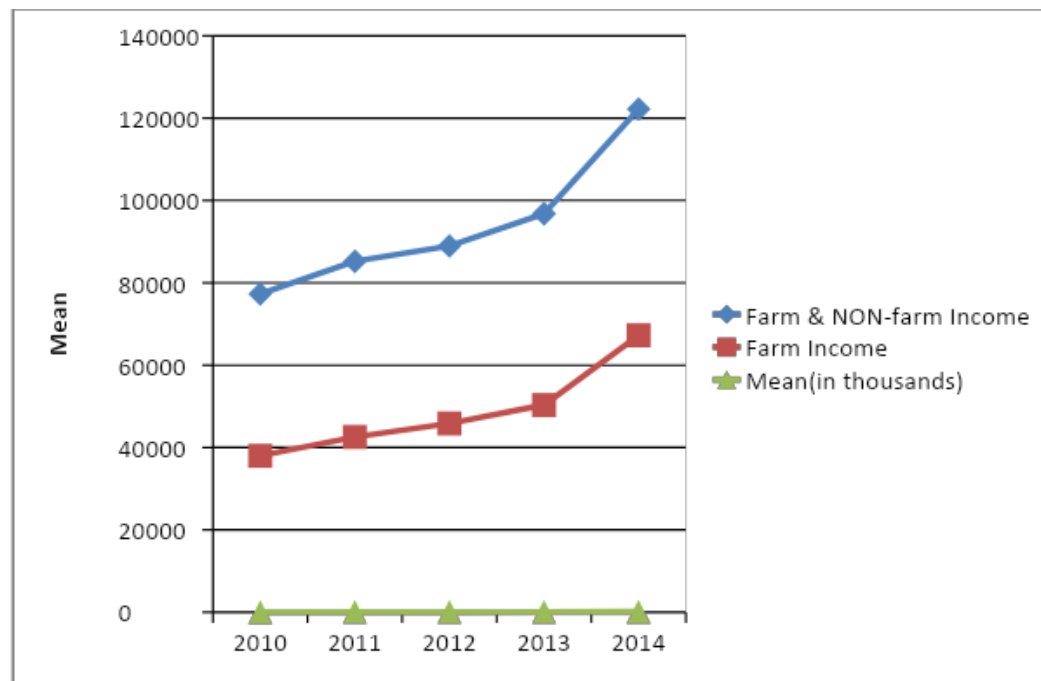
Others attributed it to the increased demand due to increased population witnessed in the area, as many indigenes residing outside the area returned home to escape any undesirable aftermath that may arise due to the general elections scheduled in 2015 which usually escalates in towns and cities more than in the rural areas.

Table 6: Mean Annual Income of Respondents (2012-2016)

Year	Type of Income	Mean	in Naira %	Standard Deviation
Year 2012	Farm and N/F	77.3053	67.0	30.43201
	Farm only	38.0000	33.0	13.10115
Year 2013	Farm and N/F	85.2316	66.6	36.31052
	Farm only	42.5737	33.4	16.56995
Year 2014	Farm and N/F	88.9474	65.9	38.42394
	Farm only	45.8526	34.1	20.22700
Year 2015	Farm and N/F	96.7737	65.7	48.33532
	Farm only	50.3263	34.3	32.18036
Year 2016	Farm and N/F	122.2211	64.5	60.95947
	Farm only	67.2632	35.5	52.69343

Source: Authors Survey

However in the duration of study (2012-2016) the average mean income of women in farm and non-farm activities was seen to be higher in all the years, which agrees with the findings of Mwabu and Thorbecke (2001) that rural non-farm earnings increases total income.



Source: Authors computation

Figure 4.3: Mean income of respondents (2010-2014)

g) Poverty incidence by type of employment

In an attempt to answer whether the movement to rural non-farm activity is poverty reducing, we drew upon the results from the tables above to show how participation in non-farm activities contributed to the income of the rural women. The standard Foster-Greer-Thorbecke (FGT) (1984) ratios were estimated for each of the two income groups. Here attention was given primarily to the comparison of poverty in the two income

groups over the study period. The Table 7 represents the income of the respondents from the two regimes. On average women make up 43% of farming labour in developing countries, including Nigeria (Ayevbuomwam *et al*, 2017). In the rural areas, households involved in agricultural activities are more likely to be poor, mostly due to lack of access to productive assets Table 4.11 shows the annual income generated by the rural women.

Table 7: Descriptive statistics of women income

Year	Farm & Non-farm Income		Farm Income	
	Minimum	Maximum	Minimum	Maximum
2012	25000	430000	5000	95000
2013	25000	440000	10000	150000
2014	25000	600000	12000	600000
2015	25000	570000	5000	300000
2016	21000	360000	10000	80000

Source: Author's computation

Table 7 reveals that the highest minimum income in farming activities, of ₦12,000 was got in the year 2014, while the least was in 2016, amounting to ₦4000. This is however lower than the national average of ₦45,250 in Nigeria (NBS, 2010), but is a representative figure for households located in rural areas of Nigeria

The lowest minimum income of women, adopting both farming and non-farming activities as their source of income, according to the above table were recorded in 2016, while the highest maximum was in 2014. The reason for the lowest maximum income in

2016 may not be far from the recession witnessed in the country in 2016, while the highest was in 2014. This may be because as the years go by women improved in the activities they were engaged in. there was also a wide recognition among the women of a significant improvement in the access to inputs like fertilizer among the farmers, and increased opportunities for acquisition of skills and training by both the public and private organizations.

h) Values of Incidence of poverty by Occupation

Previous poverty studies in Nigeria have used a relative measure of poverty. The relative poverty line was based on two-thirds of the mean income.

Table 8: Distribution of poverty by occupation

Occupation	Total Population	Mean Income (#)	2/3 Of Mean Income
Farm and Non-farm (Regime 1)	191	940958	627305
Farming only (Regime 2)	191	488032	325354

Regime 1: $Po1 \frac{n}{N}$ this gives a poverty incidence of 77.5%

Regime 2: $Po2 \frac{n}{N}$ this gives a poverty incidence of 80%

V. CONCLUSION

The idea that rural areas are synonymous with agriculture is widespread; however there is a growing recognition that the rural non-farm activities play a vital role in the economies of rural dwellers, because agriculture alone cannot bear the burden of poverty reduction in rural areas. The seasonality of agricultural activities and the resultant migration of labour give rise to the need for non-farm activities. Field observations show that women farmers face a constant struggle for reasons of differential in prevalent land tenure systems, long absence from the farm due to maternal activities, unremunerated domestic activities like fetching of water and firewood among others.

In assessing the contribution of non-farm income generating activities to women income towards reduction of poverty, it was found indeed that non-farm activities generate more income for the women helping in coping with shocks which usually emanate from poor yields and natural disasters and leading to poverty reduction.

VI. RECOMMENDATIONS

The rural poor who are mostly women experience challenging entry barriers to non-farm income generating activities which further compound their poverty. This paper suggests that if income from non-farm activities could be increased through expansion of women's access to credits and other financial resources to enable them expand the base of their non-farm income generating activity, it could help in further reducing poverty among the women. This paper further recommends that increased investments in education of the women especially in skills acquisition will improve and expand their participation in high income return non-farm activity like tailoring.

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