ISSN: 2736-0040 (Online)
ISSN: 2695-1975 (Print)
AKSUJAEERD 3 (1): 66 – 76, 2020 AKSU Journal of Agricultural Economics, Extension and Rural Development

OFF-FARM INCOME DIVERSIFICATION AMONG CASSAVA- BASED FARMERS IN UYO AGRICULTURAL ZONE, AKWA IBOM STATE, NIGERIA

Bassey, Nsikan Edet[1], Oboh, Nsikan Godwin[1] and Onyia, C.C[2].
[1]Department of Agricultural Economics and Extension,Akwa Ibom State University, Ikot Akpaden, Mkpat-Enin, P.M.B. 1167, Uyo, Nigeria
[2]Department of Agricultural Economics, University of Nigeria, Nsukka, Enugu State
Corresponding: chukwuemeka.onyia@unn.edu.ng

Abstract
This study examined off-farm income and diversification among cassava-based farmers in Uyo agricultural zone of Akwa Ibom State, Nigeria. Data were collected from one hundred and fifty respondents through a multistage sampling technique and analyzed using simple-descriptive statistics, Simpson's index of diversity and multiple regression analysis. Result revealed that majority (53.3percent) of the respondents were married, about (86.7percent) were educated with a mean academic experience of 14years, and were mostly between the mean age and household size of 43 years and 6 persons. The result also showed that majority (40percent) of the respondents had a farming experience of about 11-15years with a mean farming experience of 11 years, majority (55.3percent) of the respondents were female and were members of farmers union, as well as having low access to credits with poor extension visits. Findings further revealed that non- farm income sources (non- agricultural wage and self- employment) accounted for ₦ 14,646,611.554 (80. 48 percent) while Agricultural wage sources accounted for ₦3, 552,458.464 (19.52%) of total income earned. by respondents. The results of Simpson's index of diversity revealed a high income diversification value of 0.8046, among respondents in the study area. The results of multiple regression analysis showed that, age, farm income and access to credit negatively and significantly influences income diversification while household size, acquisitions of technical skills, educational qualifications and farming experience positively and significantly influence income diversification.
Keywords: Off-farm income; income diversification and cassava-based farmers

Introduction

The need to boost farm and household income has been reiterated in the literature as several empirical studies have reported that numerous farm families are poor (Rural poverty profile 2012, Asogwa*et al* 2007) and are characterized by low and fluctuating income that are unevenly distributed (.Adebayo; Akogwu and Yisa 2012; Oseghale, Ogali, Sadiq, Bako, Sari and Akpan 2016; Oyinbo and Olaleye 2016; and Adepoju and Oyewole 2014). Empirical studies by (Bassey, Agom and Edet, 2015; Glory and Nsikak, 2018; Umoh, Offiong, Yta and Enya, 2015, Okon, Enete and Okorji, 2016; and Frank, Agom and Okon 2017) also attest to the low and fluctuating income characterizing farm families in the study area.

Undoubtedly cassava-based farmers are major components of farming households affected by this low, fluctuating and sparsely distributed income. As a result, majority of these poor farming households resort to off-farm work through which they generate multiple stream of income. These various sources of income accruing to farm families in addition to farm income are termed income diversification.

Empirical studies by (Bassey, Edet and Okeke, 2015: Bassey, Agom and Edet, 2013 and Ministry of Niger Delta Affairs, 2011) attest to thewide range of income diversification in the study area. These sources of income can either be generated on or off-farm. While, farm income sources refer to those generated from the various enterprises within the farm, off-farm income refers to that portion of household income generated from other activities outside the farm (Bassey, Edet and Okeke, 2016). Several empirical studies have reported that income

from off-farm sources accounts for a substantial part of farm household's income, globally. In US, for instance Briggerman (2010) reported that income from off-farm sources accounts for 90% of farm operator's household income. In Bolivia, Jemenez *et al.*, (2013) reported a higher contribution of off-farm income sources to total household income. In Ghana, Joliffe (2000) reported that approximately 74 percent of farming households are engaged in some form of off-farm work through which they earn income.

In Taiwan, statistics summarized from the Agricultural census in 2001 showed that about 75 percent of farming household reported income from off-farm sources. In developing countries, Haggblade, Hazel & Reardon (1997) reported that local non-farming income contributes between 30-40 percent to rural household income. In Nigeria, a number of recent studies (DFID, 2014, Adebayo, Akogwu and Yisa 2012), reported that as much as 60 percent of an average Nigerian farming household's cash income were derived from non-farm activities with an average of 36 percent adult working hours devoted to non-farm-activities. In the study area, Bassey, Agom and Edet (2015) reported that about 68.57 percent of farming households earns income from sources outside the farm. Among the numerous reasons advanced to justify the increased diversification include; boosting of household income (and More chart 2008, Briggerman 2010, Reardon 1997, Lier, Kunteker and Hardeken 2010),, poverty reduction (Largovor 2001 in Ecuador; Adam and Jane ,1995 in Pakistan;, Chen and Ravallion ,1979 in Taiwan ;, Araujo ,2003, in Mexico and *De Janvry, ., Soudoulet, E& Zhu,. (2005*, in Chima and Akpan *et al*., 2017; in the study area).These justify the increased participation of rural farm families in off-farm income generating activities in recent times. Therefore, given low income status, in the study area and the increased participation of cassava farmers in multiple income generating activities in recent time as well as the potential of income diversification in addressing these problems, not much have been done in the study area.

Accordingly, there is need to empirically analyze the trend in off-farm income and income diversification among farming households in the study area. Consequently, this study analyzes off-farm income and income diversification among cassava-based farming households in Uyo Agricultural Zone, Akwa Ibom State, Nigeria.

Methodology

Study area

The study was conducted in Uyo, Agricultural zone. The Zone consists of five (5) Local Government Area; namely; Uyo, Itu, Ibiono-Ibom, Uruan, and Nsit-Atai. Uyo which is the State capital has a population of 305,000 (Federal Government of Nigeria 2009). Located between (112,000ms – 118,000ms) and 604, 00m-610,000mw in the UTM zone. The area is located between latitude 4^{o} 59 and 5^{o} 04' N and longitude 7^{0} 53' 8^{0}00 E..Uyo agricultural zone as a people, have a unique but various traditions and culture. In their mode of dressing, the dominant attire of the Ibibio man is loins cloth "Uwawang ofong isin" and shirts with a hat and staff to go with, while women folks have loins cloth which is called "ndot iba" with a piece of cloth on the head known as head-tie with a blouse to match. The major language of the people is "Ibibio". Also the major occupation of the people in Uyo agricultural zone is farming, craftsmanship and merchant with majority of the rural populace engaging in farming.

Sources and Method of Data Collection

The study made use of primary data that was collected using structured questionnaires and personal interviews. The structured questionnaire was administered to 150 (one hundred and fifty) respondents in the study area.

Sampling Procedures and Data Collection

Data was collected through a multi-stage random sampling. In the first stage, 5 blocks were randomly selected from the existing eight blocks in Uyo Agricultural Zone. These were (Uyo, Itu, Ibiono, Uruan and NsitAtai). In the selection procedure, 8 blank papers each carrying the name of each block was folded into a basket and taken one after the other. The first 5 selections were used as the chosen blocks. In the second stage, the same procedure was adopted to randomly select 5 cells from each of the previous selected blocks making a total of 25 communities. These communities were: Ikot

Oku Ikono, Etoi, Nsukara, Ikot Oku and Ifa-Atai in Uyo block. Itam, Ekit Itam, Mbak Itam, UyoItam and Ikot Obio Atai from Itu block. Ikot Essien, Mbiaakpan, Iko tEbom, Aka Ididep and OkoIta from Ibiono block. NdonEbom, Adadia, IbiakuUruan, Nothern Uruan from Uruan block and other communities from Nsit Atai block. In the third stage, 6 cassava farmers were randomly selected from each of the 25 communities using a list of cassava farmers that have registered with AKADEP making a total of 150 farmers that were used for the study.

Analytical techniques

Descriptive and inferential statistics were used to analyze the data. In addition to simple percentages, mean and standard deviation, data were also analyzed using the following inferential statistics.

Simpson's Index of Diversity

Simpson's Index of Diversity was used to examine the degree of income diversification in the study area. The formula for Simpson's Index of Diversity is specified as follows.

$$Di = \frac{\sum ni(n-1)}{N(N-1)}$$

The value of D ranges between 0 and 1

Where:

N = Total number of income sources available in the study area.

ni = number of income sources an household is engage in

Di = Simpson's diversity index

Multiple regression analysis

This was employed to estimate factors influencing income diversification. The explicit form of the model is stated as

$$Y = b_o + b_1 X_1 + b_2 X_2 \ldots . b_n X_n + e_i \ldots ..$$

Where

Y = Diversification index computed following the method of Adebayo *et, al* (2012), by dividing the number of income sources engaged by respondents by the total number of income sources available in the study area. The value of income diversification index ranges from 0 to 1.

X's are the respective explanatory variables

Where

X_1 = Households size (number);

X_2 = Membership of cooperative (Yes = 1, No = 0);

X_3 = Education (Years);

X_4 = Farming Experience (years);

X_5 = Age (years);

X_6 = Farm income (Naira);

X_7 = Sex (Male 1, Otherwise 0);

X_8 = Farm size (Hectares);

X_9 = Marital Status (Married 1, Otherwise 0);

X_{10} = Acquisition of technical skills (Yes = 1, No = 0);

X_{11} = Availability of off farm work (measure by the distance between respondents home and near by government owned institution in kilometers); and

X_{12} = Access to credit (Yes = 1, No = 0).

Results and Discussion

Socioeconomic characteristics of respondents

Table 1 presents the result of the socio-economic characteristic of the respondents in the study area. From the result, the dominant (51.3percent) household size was 5-10 persons with a mean of 6 persons, followed by less than 5 persons (36.7percent) while 8.7 percent and 3.3 percent had household sizes of 11-15 and above 15 persons, respectively. The implication of the high household sizes is that a substantial part of farm income will be channel into solving domestic problems than for farm expansion. It also implies abundant labour that can be harness for farm work. Bassey, Akpaeti and Umoh (2014) reported a dominance household size of 5-10 persons (48.9percent) among cassava farmers in the study area. The prevalence age group (33.3percent) was 51-60 years with a mean of 43 years. This was followed by 41-50 years (28.7 percent), 31-40 years (16.2percent), above 60 years (12percent) and less than 30 years (9.3percent). The preponderance of farmers within the age bracket of 41-60years (62percent) was an indication that farmers were still in their active youthful age and will impact positively on cassava production. In the study area, Bassey, Akpaeti and Umoh (2014) reported that majority of cassava farmers were within 31-40 years (44.4percent).

The result also showed that farmers were quite experienced with a mean of 11 years' experience. Bassey, Akpaeti and Umoh (2014) reported an average experience of 9.5 years among cassava farmers in the study area. Experienced farmers are believed to have learned through several years of trial and error.

Majority (53.3 percent) of farmers were married, 26.7 percent were single while 13.3 and 6.7 percent were divorcee and widowers, respectively. A study by Bassey, Akpaeti and Umoh (2014) reported that majority of cassava farmers in the study area were married.

Gender wise, a greater part (58.3 percent) of farmers were female while 44.7 percent were male. This is an indication that cassava production in the study area was dominated by women. Bassey, Akpaeti and Umoh (2014) reported that about 68.91 percent of cassava farmers in the study area were female. They attributed the increase in the number of female cassava farmers to increased avocation for women involvement in agriculture.

Educationally, farmers were quite educated with a mean of 14years of educational attainment. About 86.7 percent were able to read and write. A breakdown of this showed that majority (42.7 percent) attended secondary school, 24 percent attended primary school, 11.3 percent had OND/NCE, 6.7 percent had HND/B.Sc, 2 percent had M.Sc/Ph.D while 13.3 percent had no formal education. The high level of education in the study area will contribute positively to cassava production. Bassey, Akpaeti and Umoh (2014) reported that about 75.8 percent of cassava farmers in the study area were educated.

Majority (62 percent) were members of social organization while only 38 percent were not. This is desirable for successful cassava production because farmers union offers a platform for farmers to access a pool of farm management knowledge, production technologies and business contacts which otherwise, would not have been possible. Also, only 15.3 percent of respondents were able to access credit while a greater proportion (84.7 percent) financed their cassava operation through equity. This will not auger well with cassava production in the study area because credit facilitate the adoption of new and improved production technologies. Regarding extension contact, majority (64 percent) had no extension contact while 36 percent had extension contact. This reveals the low use of extension information in the study area.

Income sources of respondents

Table 2 presents the various income sources identified in the study area. These income sources were grouped into three viz: Agricultural wage sources, non-agricultural wage sources and self- employment sources. The agricultural wage sources comprises lumbering (0.95 percent); livestock/crop/fish farming (7.14percent), sellers of farm produce (4.25percent), food processors (5.24percent) and grinding machine owners (1.9percent), while the non-agricultural wage source comprised of welders (0.48percent), civil servants (13.81percent), carpentry (2.86percent), mason (4.76percent), electrician (1.43percent) and health workers (1.90percent). Also, the self-employment sources comprises of shoe menders/cobblers (0.95percent), transporters (6.19percent) tillers (0.48percent) and hired labourers (4.29percent) Trading (9.52percent), iron work (2.38percent), private sector employment (21.43percent), sale of cosmetic (0.95percent). Finding revealed that the major income sources were self-employment and non-agricultural wage source. This furthers evidence of the exodus movement of available labour out of farming sector and the overdependence of farming households on off-form employment sources of income. It is also partly liable for the high labour wages characterizing farming households in the study area.

Further disaggregation of total income earned into the various category of income sources as shown in Table (3) revealed that agricultural wage sources accounted for ₦3,552,458.464 (19.52 percent) of total income, non-agricultural wage sources recounted for ₦4,593,445.25 (25.24 percent) while self- employment sources accounted for ₦10,053,166.27 (55.24 percent) of total income earned by respondents. The highest percentage contribution (80.4percent) of non-agricultural wage sources and private employment sources of income is an indication of the overdependence of farming households on off-farm income sources.

Table 1: Socioeconomic characteristics of respondents

Variable	Frequency	Percentage
Household size		
Less than 5	55	36.7
5 – 10	77	51.3
11 – 15	13	8.7
Above 15	5	3.3
Age		
Less than 30	14	9.3
31 – 40	25	16.7
41 – 50	43	28.7
51 – 60	50	33.3
Above 60yrs	18	12
Farming Experience		
Less than 5	31	20.6
5 – 10	43	28.7
11 – 15	60	40
16-20	12	8
Above 20yrs	4	2.7
Marital Status		
Single	40	26.7
Married	80	53.3
Divorcee	20	13.3
Widow(er)	10	6.7
Sex		
Male	67	44.7
Female	83	55.3
Education		
No formal Education	20	13.3
P/S	36	24
S/S	64	42.7
OND/NCE	17	11.3
B.Sc/HND	10	6.7
MS.C/PH.D	3	2
Farmers Union		
Yes	93	62
No	57	38
Access to Credit		
Yes	2.3	15.3
No	12.7	84.7
Extension Visit		
Yes	54	36
No	96	64

Source: Field survey, 2018

Table 2: Income source in the study area

Income Source	Frequency	Percentage
Agriculture Wage Source	2	0.95
Lumbering		
Livestock/crop/fish fay	15	7.14
Sellers of farm produce	9	4.25
Food processors	11	5.24
Grinding machine	4	1.90
Total	**41**	**19.52**
Non-Agriculture Wage Source		
Welder	1	0.48
Civil Service	29	13.81
Carpenters	6	2.86
Mason	10	4.76
Electrician	3	1.43
Health workers	4	1.90
Total	**53**	**25.24**
Self employment Service		
Shoe mender/Coblers	8	3.81
Salon work	13	6.19
Private sector employment	45	21.43
Trading	20	9.52
Iron work	5	2.38
Sale of cosmetic	2	0.95
Transportation	13	6.19
Tillers	1	0.48
Hired labourer	9	4.29
Total	**116**	**55.24**
Overall Total	**210***	**100**

***Source**: Field Survey, 2018* * signifies multiple responses

Table 3: Analysis of income status of respondents

Income Sources	Income Earned	Income earned as % of total income
Agriculture wage source	3,552,458.464	19.52
Non agric wage income source	4,593,445.27	25.24
Self Employment source	10,053,166.27	55.24
Total	**18,199,070**	**100**
Mean	**121,327.13**	

***Source:** Field Survey, 2018*

Degree of income diversification in the study area

Table 4 which presents the degree of income diversification of respondent. The Table revealed a diversity index of 0.8046. This indicated that income diversification was high in the study area. Presumably as a response to the high income inequality and poverty status of farmers in the study area, as well as the declining and fluctuating farm income which force farm families to pursue several income generating activities through which they earn diverse income (Okon, Enete and Okorji, 2016). The value of Simpson index of diversity (0.8046) was higher than 0.76 reported in Niger State by Oseghale, Ogaji, Sadiq, Bako, Sani and Akpa, (2014).

Table 4: Simpson's Index of Diversity of Respondents

Income Status	Frequency	Proportion y (PI)	(PI^2)
Less than 60,000	35	0.23	0.0529
60,001-100,000	43	0.29	0.0841
100,001-150,000	26	0.17	0.0289
150,001-200,000	19	0.13	0.0169
200,001-250,000	13	0.09	0.0081
250,001-300,000	9	0.06	0.0036
Above 300,000	5	0.03	0.0009
Total	150	1.00	0.1954

Simpson Index of diversity (I-D)= 1-0.1954 = 0.8046

Factors affecting income diversification in the study area

Table 5 presents the result of estimate of the multiple repression analysis of factors influencing income diversification in the study area. Of the three functional forms (linear, semi-log and double log) that were estimated, the linear form was chosen as the lead equation due to the number of significant variables, the conformity of the estimates to apriori expectation and significance of the F statistics. The lead equation yielded R^2 value of 0.756, implying that about 75.6 percent of the variability in income diversification is explained by the explanatory variables. The F statistics (328.176) was significant and denoted the goodness of fit of the estimated model.

Result showed that household size was positive and significantly influence income diversification at 5 percent level of probability. This is in line with theoretical postulation because high household size is often associated with huge domestic commitments, especially where the dependency ratio is high. High domestic commitment will push farm families into embracing other alternative and available income sources so as to be able to cope with unexpected shocks in the family and to augment farm and family income. This findings corroborates those of Sallawu, Tanko, Namdu and Ndatisa (2004) and Ibrahim and Oni (2009), Sanusi, Dipeolu and Momoh (2015).

Education was also found to be positive and significantly related to income diversification at 5 percent probability level. This implies that higher educational attainment will increase income diversification of respondents in the study area. High educational attainment is positively correlated with preference for white collar jobs. It will also enhance farmers chances of migrating from one income source to the other. This finding is consistent with that of Kurosaki (2001) who reported that education had a positive effect on off-farm wage level through diversification. It also support those of Adebayo, Akogwu and Yisa (2012) and Minot, Apprecht, and Trung (2006).

The age coefficient was found to be negative and significantly related to income diversification at 5 percent probability level. The negative sign implies that income diversification will decline with increasing age of farmers. The plausible justification for this is those older farmers do not have the vigor and energy needed to manage many sources of income at ease. This is so because managing several income sources and activities requires energy, mental capacity and active time where only youthful farmers can afford to cope. Also, at early stage, younger farmers requires more fund for their farm investment and to meet up with their farm growth demand and will seek more income diversification so as to meet these demands. This finding support those of Mishra and El-Osita (2002) and Bakalu and Abdi-Khalid (2013), this finding conflicts with those of Abimbola, Adepoju and Olaniyi (2014). It supports Christopher, Sonny and Noble (2014).

Farm income coefficient (-2.919) was negative and significantly related to income diversification at 5 percent level, indicating that income diversification will decrease with increasing farm income. This is expected because, given that one of the cardinal reason

why most farmers pursue other income source is to enhance household income and mobilize fund for farm investment, farmers with high net farm income will always have left-over cash and be liquid enough to meet up with their huge farm investment demand than their low net farm income earning counterparts and will as a result pursue less other income generating activities. This supports those of Sallawu, Tanko, Nmadu and Nndatisa (2014).

The result further showed that availability of off-form work (13.118) was positive and significantly influence income diversification at 1 percent level. This implies that income diversification will increase with increasing availability of off-farm work. Since this was measured in terms of closeness of farmer's residence to government owned institutions, findings showed that farmers who stays closer to government owned institutions like local government headquarters, hospitals, schools etc will most likely, seek off-farm employment in addition to farm work through which they earn additional income. The reverse is the case with those residing in very remote villages with no government projects.

Table 5: Estimates of the determinant of income diversification

Variable	Linear (L)	Semi-log	Double-log
Constant	483142	11.341	-6.214
	(3.116)***	(5.316)*	(8.342)
Household Size	6.334	-18.144	0.167
	(4.204)***	(2.453)**	(1.238)
membership of cooperative	0.0019	-0.0037	
	(0.433)	(-1.426)	-
Education	4.664	10.813	-0.028
	(2.632)**	(1.974)*	(-3142)***
Farming Experience	-1.468	0.4021	0.083
	(-0.104)	(2.114)**	(1.1116)
Age	-7.142	-1.278	-0.546
	-(2.242)**	(0.199)	(0.008)
Farm Income	-2.919**	-1.862	-0.089
	(-2.004)	(-0.049)	(1.862)*
Sex	-0.005	0.0063	-
	(0.3332)	(0.004)	
Farm size	0.088	-1.4512	0.231
	(0.174)	(0.814)	(-1436)
Marital Status	0.0016	0.002	-
	(0.146)	(1.542)	
Acquisition of technical Skill	0.042	-0.053	-
	(0.936)	(-1.073)	
Availability Off-farm work	13.118***	7.125	-0.122
	(3.44)	(2.34)**	(0.914)
Access to credit	-0.071	-0.0038	0.0012
	(-2.223)**	(-1.224)	(-0.119)
R^2	0.756	0.532	0.322
Fstat.	328.174***	204.282***	86.224***

***Source**: Field Survey, (2018). L* signifies lead equation

Access to credit (-0.0071) was found to be negative and significantly decreased income diversification at 5 percent level of probability. This is expected because credit enhances farmer's liquidity position, enable them finance farm operations and also meet up with domestic family needs and unexpected shocks in the family thereby reducing excessive financial pressure that would have pushed them into pursuing other income source. It also enable them acquire tangible farm asset and machineries. Acquisition of such tangible assets

will assist in retaining farmer's interest in farming given that with such tangible farm equipments, farmers will carry out farm operations with ease and accomplish more task within a limited time frame, which will invariably reduce their tendency to pursue other income streams. Beside such tangle assets can easily be mortgage for loans instead of pursuing other income source. This finding lend credence to those of Sallawu, Tanko, Nmadu and Ndatisa (2014) and Demissie (2003).

Conclusion

This study examined the trend in income diversification and estimated its determinants among cassava based farmersin the study area. Various sourcesof income and factors influencing income diversification, have been unraveled. The study has shown that there was high degree of income diversification and that the major sources of income was off-farm sources. Accordingly, the study decry the overdependence of cassava farmers on off-farm income sources as this results in migration of useful productive labour out of farm sector and calls for urgent attention by stakeholders and policy makers directed towards reversing this ugly trend.

Recommendations

The following recommendations were offered by the research.

1. Off-farm income sources was found to be the major sources of income for cassava farmers in the study area. Hence, there is need to pursue policies that will boost farm income as this will reduce migration of productive labour out of the farm sector. Such policies should be tailored towards the provision of subsidy, distribution of basic production inputs, promoting access to land, extension services and low interest credit.
2. To further boost farm income, farmers should be educated on how to enhance their income through processing and value addition as well as adoption of other productivity enhancing technologies such as the use of manure.
3. Findings further revealed that there was high income diversification in the area, hence, policies that will reduce hindrances to income diversification and increase chances of enhancing income should be encouraged.

References

Adams, R. H. and Jane, J. A. (1995). Source of Income, inequality and poverty in Rural Pakistan. Washington D. C. IFPRI Research Report no 102.

Adebayo, C. O., Akogwu, O. G., &Yosa, E. S. (2012) Determinants of income diversification among farm households in Kaduna State, application of Tobit Regression Model. *Production Agriculture and Technology Journal, nte/currentissue.*

Adepoju, A. O. &Oyowole, O. O. (2014) Rural livelihood Diversification and income inequality in in Akinyele local government Area, Ibadan, Oyo State, *Nigeria Journal of Agricultural Sciences, 59(2): 175-186*

Akpan, S. B., and Udoh, E. J. (2016) farmer's decision to participate in Government Agricultural Programmes, in a volatile political environment: A case study of farmers in the south-south region. *Nigeria Russian Journal of Agriculture and Socio-Economic Sciences 5(53), 135-148.*

Araujo, C. (2003). Non-agricultural employment growth and rural poverty reduction in Mexico during the 90's . Working paper. Department of Agriculture and Resource Economics, University of California, Berkeley.

Asogwa, B. C., Umeh, J. C., &Ater, P. I. (2007, August 12-18) Technical efficiency analysis of Nigerian cassava farmers: A guide for food security policy paper presented at 2006 annual meeting of international association of Agricultural Economists, queensland, Australia Retrieved from

http://ageconsearch.umn.edu/hande/25473.

Bakare, A. E. (2012). Meaning the income inequality in Nigeria; the *lovenz curve and Gini coefficient Approach. American* Journal of Economics, 2(1): 47-52.

Bassey, N. E., Agom, D. J., and Edet, M. E. (2015) Off-farm work; a multidimensional tool for poverty reduction and income enhancement among and rural farming households in Akwa-Ibom state, Nigeria . Agricultural Science Research Journal vol. 6(2):56-62.

Bassey, N. E., Akpaeti, A. J., and Udo, U. J., (2014). Labour choice decision among cassava crop farers in AkwaIbom State, Nigeria. *International Journal of food and Agricultural economics, 2(3), 145-156.*

Bassey, N. E., Akpaeti, A. J., and Umoh (2014) Determinants of cassava output among small scale farmers in Nigeria: a survey of Akwa-Ibom State farmers.. Asian Journal of Agricultureal Extension, Economics & Sociology, 3 (4);319-330

Bassey, N. E., Edet, M. E., and Okeke, C. C., (2016) Determinants of off-farm labour supply among farming households in Akwa-Ibom State, Nigeria . Asian Journal of Agricultureal Extension, Economics &Sociology 3,(1) :, 31-40

Bekaru, T. and Abdi-Khalil, E. (2013) Determinants and patters of income diversification among small holder farmers in Akaki District, Ethiopia. *Journal of research in Economics and International Finance, 2(4), 68-78.*

Briggerman, B. C., (2011) and (2010) The importance of off-farm income to servicing farm debt. Economic Review Available online at www.icansascittfed.org.

Chen, S. and Ravallion, M. (1979) the developing world is poorer than we thought, but not less successful in the fight against poverty, *Quarterly Journal of Economics, 125(4) 1577-1625.*

Christopher, E. O., and Noble, J. N., and Sonny, A. N. D. C., (2014): Off-farm diversification among small-scale farmers in North Central Nigeria. Journal of Economics and Sustainable development 5,(13). 136-144

De Janvry, A., Soudoulet, E. & Zhu, N. (2005). The role of non-farm incomes in reducing rural poverty and inequality in China. (CUDARE) working papers series No. 1001. Department of Agricultural and Resource Economics, University of California, Berkeley.

Deninger& Squire (1996) "A New Data set for measuring income inequality World Bank Economic review" 10.

Department for International Development (DFID) (2014) Rural urban development: case study-Nigeria: Oxford Policy Management, June, 2014: 22pp.

Effiong, Ayanam and Umoh (2012) Analysis of performance of co-operative cassava farmers in Uyo Local Government Area of AkwaIbom State, Nigeria. Nigeria *Journal of Agricultural, Food and Environment 8(3):39-46.*

Ekong, E. (2003): Rural Sociology: An introduction and analysis of rural Nigeria. Dove Educational Publication, Uyo, Nigeria.

Ellis, F. (2001): Rural livelihoods, diversity and poverty reduction policies: Uganda, Tanzania, Malaw, and Kenya Ladder working, working paper No. 1.

Frank, N. N., Damian, I. A. and Okon, U.E. (2017) The effects of households on the living standards in Uyo municipality, Akwa-Ibom State, Nigeria: *Asian Journal of Economics, Business and Accounting 5(2): 1-8, 2017;*

Glory, E. and Nsikak-Abasi A. E. (2018). Factor Influencing Rural Livelihood Diversification implications for Poverty Reduction. International *Journal of Agriculture, Forestry and Fisheries .6.(2,): 23-28.*

Haggblade, S. Hazell, P. B. R., Reardon, T. (2007) Transforming the rural non-farm economy. John Hoopkins University Press. Balfomore.

Hazel, P., Syed, S., Zupi, M. &Miyazako, M. (2011). Key issues in promoting increased investment. Technical work shop on policies for promoting investment in agriculture, FAO, 12-13 December, 2011.

Ibrahim, H., and Onuk, E. G., (2009) food security among urban households: A case study of Gwagwelada area council of the federal capital territory, Abuja, Nigeria, Pakistan Journal of Nutrition., 8 (6): 810- 813

Jemenez (2003) IngresosyDesigualded en a area rural de Bolivia, UNIDAD de Analysis de politicassocides y economicas. Analysiseconomico-UDAPE.

Joliffe, D. (2004). The impact of education in rural in Ghana : Examining household labour allocation and returns on and off the farm. *Journal of Development Economics 73(1): 287-317.*

Ministry of Niger Delta Affairs (2011) Federal Republic of Nigeria. http//:www.MNDA.gov/ng/resources/download.resources.

Mishra, A., & El-osta, H. (2002). Risk Management through enterprise diversification: A farm level analysis paper presented at the AAEA meetings in long Beach, CA. July 28-31, 2002 – 23pp.

Nigerian poverty profile (2010), (NPP) report 2010.

Okon, U. E. Enete, A. A. & Okorji, E. C. (2016)**.** An Assessment of Income Generating activities among Urban Farm Households in South-South Nigeria. *American-Eurasian J. of Agric. and Environ. Sci., 16 (7):1347-1357.*

Osaghale, A. I., Ogaji, A., Sadiq, M. S. Bako, R., Sani, A. and Akpa, E. O. (2016): Livelihood Diversification and income inequality of households in minna Niger State. 17th Annual National Conference: Book of Proceeding.

Oyekale, A. S., Adeoti, A. I., Ogunife, T. O., (2004) Sources of income inequality and poverty in rural and urban Nigeria Paper presented at the 3rd Annual workshop of Poverty and Economic Policy (PEP) Network, Daker, Senegal, 11th-20th June 2004.

Oyewole, S. O., Adepogu, S. O., Akintola, A. L. (2015) Analysis of Income diversification strategies among farm households in Oyo State. Journal of Economics and sustainable development. 6,(.15):109-112

Oyinbo, O., and Kehinder, T., O., (2016): Farm household's livelihood Diversification and Poverty Alleviation in Giwa Local Government Area of Kaduna State, Nigeria. Consilience: *The Journal of sustainable Development 15 (1): 219-2312*.

Reardon, T. (1997) Using evidence of households income diversification to inform study of the rural non-farm labour market in Africa *Works Dev. (25)(5): 735-747.*

Sallwawu, H. Ranko, L., Nmadu, J. N,.andNdutisa, E. M. (2014). Determinants of income diversification among farm households in Niger State, Nigeria. Russian Journal of Agriculture ans Socio- Economic. Science., 2 (1): 55- 65

Samuel, E., Tamakuntari, M. K., and Stephen, S. (2014) Determinants of households income poverty in South-South geopolitical Zone of Nigeria. Journal of Studies in Social Science. 9 (1),:. 101-115.

Sanusi, Dipa, Dipeolu, A. O., and Momoh, S., (2016) .Effects of farm and non-farm income on income inequality among rural households in Osun State, Nigeria International Journal of African and Asian Studies, 25 (1) : 1-10.

Umoh, N. E., Offiong, R. A., Ekpe, I. A., Yta, E. M., and Enya, E. A. (2015): Assessment of income poverty among farmers in AkwaIbom State, Nigeria. Journal of Emerging Trends in Economics and Management Sciences (JETEMS) 6(8).: 345-34