INFLUENCE OF LIVELIHOOD DIVERSIFICATION ON INCOME OF SMALL SCALE WOMEN OIL PALM PROCESSORS IN EDO AND DELTA STATES, NIGERIA

JOURNAL OF AGRICULTURAL ECONOMICS, EXTENSION AND SCIENCES (JAEES)
Volume 14 Number 1, June, 2026
ISSN 2545-5176
Page No. 95-103

OSIFO, M.O.*, Onemolease, E.A.
, Igene L, Akagbosu B.E, Idiake-Ochei, O and Okemiri, C.
Nigeria Institute for Oil Palm Research (NIFOR
(GSM 08077034107; Email: osifomercy2@gmail.com).
**Dept of Agricultural Economics & Extension Management,
Ambrose Alli University, Ekpoma, Edo State, Nigeria.
(gsm: 08065321087; email: onemolease@yahoo.com)

Abstract
The study assessed influence of livelihood diversification on women small-scale oil palm processors in Edo and Delta States, Nigeria. Multi-Stage sampling procedure was used to select two hundred and seventy seven (277) women oil palm processors, using questionnaire. Data collected were analysed with descriptive and inferential statistics (ANOVA). The results showed that women processors had a mean age of 46 years, 69.60% were married, 48.02% had mean household size of 5-8 persons, 22.03% had tertiary education and a mean processing experience of 12 years. The average income realized was N469,656. In terms of livelihood diversification, 92.07% of the respondents were engaged in on-farm activities (crop cultivation, livestock rearing, and aquaculture) 90.75% were engaged in off-farm activities (Agricultural labor for others, rural trade, local services) and 79.74% were into non-farm activities (Trading, manufacturing, construction). A good proportion (59.47%) of the respondents fell under the low livelihood diversification status, 39.65% belonged to the moderate status while 0.88% fell in the high livelihood diversification status. ANOVA test revealed that livelihood diversification did not significantly influence the earnings of the women (F = 0.334; P>0.05).In conclusion, the study recommends exposing women to more opportunities to enhance their oil palm processing business such as improving access to credit facilities and trainings.

***Keywords**: livelihood, diversification, income, oil palm, women processors.*

Introduction

The importance attached to palm oil has continued to increase due to limited production capacity and the small nature of holdings of oil palm farms available, due to land shortage in Nigeria. In the mid-60s, Nigeria was the leading producer and exporter of palm oil; exporting as high as 128,000 metric tonns in 1923 and this figure went up to 156,000 metric tonns in 1965 while Indonesia and Malaysia export rose from 7,000 and zero metric tonns to 13,000 and 138,000 metric tonns in 1965, respectively (Biodun *et al.,* 2021; Otto and Ukpere, 2013 and Owutuamor *et al*., 2019). Although the crop is native to Nigeria, its production has remained far less sophisticated and at a much lower scale than in South Asian countries of Indonesia, Malaysia and Thailand. Nigeria still has the largest area of semi-natural and natural oil palm grooves in the world. As in the past, these grooves, still account for a significant fraction of Nigeria's palm oil and palm kernel supply. In contrast to South Asia where the crop was introduced, industrial plantations are still very few in Nigeria (Omoti and Ikuenobe, 2020). However, their production is rarely sufficient as means of livelihood due to the insufficient or limited oil palm fruits and the seasonal nature of the oil palm produce (Ajayi and Solomon, 2010 Bassey, 2016). During the off season, processors will therefore have to stay idle and the implication of this is that their families will be short of enough household basic needs, which require livelihood supports. To ameliorate this problem, there is need for livelihood diversification among women involved in oil palm processing.

The need to diversify livelihood among women is very important because of the high rate of poverty in Nigeria. The National Bureau of Statistics (NBS) recently released the "2019 Poverty and Inequality in Nigeria" report, which highlights that 40 percent of the total population, or almost 83 million people, live below the country's poverty line of 137,430 naira ($381.75) per person per year (World bank, 2018).

At a moment, over 65% of Nigerians are poor and 7 out of 10 every poor people are women (World Bank, 2019). Thus, livelihood diversifications among women may assist in reducing the rate of poverty and enable them to meet up with their domestic requirements. Furthermore, owning to the small land holding among farmers in Nigeria, livelihood diversification is extremely important in the face an increasing vulnerability of agriculture to the associated risks such as weather, post harvests losses, and other unpredictable circumstances that affect Nigerian farmers and oil palm processors. Another important reason for livelihood diversification among oil palm processor is the fact that their production may not be sufficient for the sustenance of their family needs. This is consistent with the findings of Ohimain, Emeti, Izah and Eretinghe (2014) with the submission that in Nigeria, over 80% of oil palm production comes from dispersed smallholders. Livelihood diversification is a necessary and important ingredient to ensuring income, family and economy stability as women have been identified to play significant roles in home management and nation building. This will also inform women who process the oil palm fruits into palm oil to engage in other forms of livelihood strategies to alleviate poverty. This is because women are usually confronted with narrower range of labour markets compared to their men counterparts, and lower wage rates, and female headed households are distinguished with their characteristic poor asset base, lower income and poor or lack of control over productive resources. This makes them poorer than the male-headed households. Livelihood diversification is therefore beyond a mere option for female household heads but a survival strategy (Adesoji *et al*., 2014; Dilruba and Roy, 2012; Yusuf and Adisa, 2011).

Thus, it is necessary for women to develop innovative ways to multiply livelihoods by increasing resource-use intensity and diversity for a guaranteed livelihoods and consequently reduced poverty incidence to a large extent. It has also been observed that small–scale producers engage employees who are mostly women in the oil palm processing value chain (Osei-Amponsah, 2013). These women have been estimated to be over 80% of the agricultural processors and though these women work for several man-hours, they earn relatively low daily wages which may not be sufficient to meet their minimum daily consumption needs. This implies that these women employees may have no savings and therefore likely to be poor and vulnerable to poverty if they do not diversify their source(s) of income.

Furthermore, one may assume that livelihood diversification should contribute positively to income of women; what needs to be answered are, what is the degree and significance of its contribution. However, the extent to which livelihood diversification strategies have impacted the income levels of women oil palm processors in the study area remains poorly understood. Studies on livelihood diversification have been carried out, such as those by Okoror, Ahmadu and Ekomwen (2019) that examined the effect of livelihood diversification on the poverty status of cassava farmers in Edo State, Nigeria, Oyakhilomen and Kehinde (2016) that examined the farm household livelihood diversification and poverty alleviation in Giwa local government area of Kaduna State, Nigeria and Dai, Wu, , Fan, Li, Yang, Nan, and Bi (2019) that considered the characteristics and determinants of livelihood diversification of different household types in far northwestern China. However, these studies did not consider women as unit of analysis neither did they focus on the oil palm sub-sector of the agricultural sector, especially in Nigeria, where oil palm production and processing are viable venture among women. There is, therefore, a dearth of empirical research into women oil palm processors livelihood diversifications in Edo and Delta States that are popularly known as the oil palm belt of Nigeria.

Objectives of the Study

The main aim of this study waste assess influence of livelihood diversification on income of rural women oil palm processors in Edo and Delta States, Nigeria. The specific objectives of the study were to:

a. describe the socio-economic characteristics of women oil palm processors in the study area.
b. determine economic diversification status of women oil palm processors.
c. determine effects of livelihood diversification on the overall income of women oil palm processors.

Methodology

The study was conducted in Delta and Edo States, both in the South-South region of Nigeria. These States were chosen because they are prominent and known for their involvement in oil palm production and processing in the Southern Nigeria. Edo State occupies a land area of approximately 19383.93km^2, stretching from latitudes 5^0.67'N - 7^0.34' North of the equator and longitudes 6.20^0'E - 7.53^0'W of the equator and Greenwich meridian, respectively. The 2021 projected population of Edo State, based on 3.2% annual growth rate, is 5,186,213 (National Population Commission, (2010). Delta State is an oil rich State however, agriculture is a dominant activity engaged in by the inhabitants of the State. The State has a land area of 16,842 square kilometres. The 2021 projected population based on 3.2% annual growth rate for the country is 6,596,227 (National Population Commission (2010). Edo State houses the Nigerian Institute of Oil Palm Research (NIFOR), a government agricultural Institute with the mandates of improving the production of oil palm.

All women oil palm processors in the two States formed the population of the study. Owing to the inability to obtain the registered women oil palm processors in the two States based on the preliminary findings, snowball sampling technique was used to sample the available women oil palm processors from the women population of the oil palm processors in the study area.

Multi- stage sampling procedure was used to select respondents for the study. The first stage was purposive selection of 3 LGAs each with the preponderance of oil palm production in the two States. In Edo State, Ovia Northeast, Ikopoba Okha and Southwest were selected while Aniocha South, Ika South and Ndokwa West LGAs were selected in Delta State. The second stage involved a purposive selection of four (4) villages in each of the chosen LGAs where oil palm production and processing are intensively cultivated and practiced. Thus, 24 villages (12 per Sate) were sampled for the study. At the third stage, owing to the absence of registered list of women oil palm processors, a snowball sampling technique was used to identify women who process oil palm fruits into palm oil and interviewed. The sample collection continued through this method until all available women oil palm processors in all the sampled villages were captured.

Based on the sample size for unknown population, the following formula was used to determine the sample size of women to be sampled across the LGAs of interest:

$$n = \frac{P(1-P)Z^2}{d^2}$$ (Cochran, 1963).

Where:

n = sample size
p = proportion (if unknown, use 0.5)
Z = represents confidence at 95% = Z = 1.96
If confidence at 99% = Z = 2.58
d = degree margin = 0.05

Assuming a population proportion of 50% is used. The proposed sample size was 384. Thus, 384 women oil palm processors were used for the study with at least, 192 respondents per state.

The data for the study were obtained from primary sources i.e., women oil palm processors. The data instrument was validated structured questionnaire and interview schedule for both the literate and non-literate respondents, respectively. Qualitative data tool (Focus Group Discussion

(FGD)) was also used to collect qualitative data. The researcher conducted a total of four (4) FGDs, at the rate of two per State. Information from the FGD was used to complement that to be sourced from the administration of questionnaire. A minimum of 8 and a maximum of 15 women participated in each FGD session.

Data collected for this study were analysed using descriptive statistics and ANOVA. Data from the FGD sessions were transcribed and discussed in line with Yesuf (2014). ANOVA is helpful in making comparison of mean scores against a categorical variable with two or more distributions (Blokdyk, 2018). In this study, it was used to ascertain if there are significant differences in income derived from respondents' livelihoods based on their livelihood status. It thus determines if livelihood diversification contribute significantly to the income of women oil palm processors in the study area.

Results and Discussion

Socio-economic characteristics of respondents

Table 1 shows that majority (63%) of the women oil palm processors interviewed were between 45 - 54 years, with a mean of 46 years. This indicates that the women were middle aged, and may possess the energy to operate the business i.e., process oil palm fruits into palm oil. This finding is in consonance with Biodun *et al.* (2020), who stated that oil palm processors are of average age with a mean age of 44 years and most of them were women who had other sources of income. Similarly, Nwalieji and Ojike (2018) submitted that the average age of the oil palm fruits processors in Anambra State is approximately found as 49 years and women constituted over 85% of the sampled respondents.

Table 1 also shows that majority (69.60%) of the women oil palm processors were married and 10.57% were single. Being married might promote diversification as married people generally have more responsibilities than the single or unmarried (Nwalieji and Ojike, 2018). One of the factors that promote livelihood diversification is the attached responsibilities an individual has to him/herself, especially in caring for the family and community. Women are known for performing these roles in addition to their reproductive role.(Ngwangkfu and Enwg (2021).

Table 1reveals that majority (48.02%) of the processors had between 5 - 8 persons in their household, while 11.45% had 12 persons and above. The average household size was 7, indicating that the respondents have access to family labour for the processing of oil palm fruits into palm oil. For optimal enterprise profitability, family labour is a critical factor, especially in agriculture (Philip and Sophia and Alastair, 2018). Larger size would also implies that they have enough costless labour for farm activities and their increased income generation. (Okedo-okojie and Onemolease, 2009). This will also be beneficial to livelihood diversification strategies.

Table 1 further reveals that 26.87%, 37.89% and 22.03% of the processors had primary, secondary and tertiary education, respectively. This shows that most of the oil palm processors had basic education and reasonable proportion had tertiary education. The implication of this finding is that oil palm processors in the study area have some level of formal education; education has been documented to influence behavior (Banderaq and Dagdag, 2021), and this may likely influence the decisions of oil palm processors toward livelihood diversification.

It was also found that 25.5% of the respondents had between11 and 15 years' experience in oil palm processing. The mean processing experience of the processors was 12 years. The findings show that oil palm fruits processors have a decade experience of processing oil palm fruits into palm oil, which promote production of high quality palm oil for healthy consumption of members of the society. The finding is in consonant with the study of Akaninyene, et al. (2022), who stated that oil palm processing was mainly dominated by women who had an average of 14 years processing experience.

Table 1: Socio-Economic Characteristics of Respondents (n=227)

Variables	Options	Freq	%
Age range (years)	25 & below	4	1.76
	26-34	16	7.05
	35-44	58	25.55
	45-54	143	63.00
	>=55	6	2.64
Marital status	Married	158	69.60
	Separated / Widow(er)	45	19.82
	Single	24	10.57
Household size (range)	1-4	47	20.70
	5-8	109	48.02
	9-12	45	19.82
	>12	26	11.45
Education level	Non formal	30	13.22
	Primary	61	26.87
	Secondary	86	37.89
	Tertiary	50	22.03
Oil palm processing experience (years)	<=5	42	18.50
	6-10	55	24.23
	11-15	58	25.55
	16-20	34	14.98
	>=21	38	16.74

Source, Field survey (2024)

Economic diversification

Income Distribution (Oil Palm Processing)

Table 2 shows that majority (20.26% and 31.28%) earned approximately N200,000 - N400,000 annual income from oil palm processing, respectively. Also, 22.47% and 15.42% earned between N400,001 and N600,000 and N600,001 and N800,000 annually from oil palm processing, respectively. The findings show that most of the women processors earned between NGN200,001 and NGN800,000 annually as income from oil palm processing. The mean annual income was NGN343,274.09 and 588,478.21 in Delta and Edo States, respectively with a pooled mean of 469,656.83.

Indication that oil palm processing is a relatively profitable venture. This supports the earlier submission of Sanusi *et al*. (2022), who stated that oil palm processing is a profitable business. The profitability nature of this business may encourage women, especially the younger ones who are interested in venturing into lucrative businesses to fend for their families and support their spouses..

Table 2(b): Economic diversification from oil palm processing

Level (NGN)	Freq	%	Mean
<=200,000	46	20.26	
200,001-400,000	71	31.28	
400,001-600,000	51	22.47	
600,001-800,000	35	15.42	
>800,000	24	10.57	
Total	227	100.00	***469,656.83***

Income Derived from other Livelihoods. The mean income from other sources was approximately NGN368,502. The findings reveal that apart from the processing of palm oil fruits as the major occupation, women processors also earned income from other livelihoods. This would be an added income to running a home and making income sustainable. This finding is on conformity with the findings of Afodu *et al*. (2019), Adepoju and Obayelu (2013) and Agu (2013), who asserted that rural people do not specialize in a single enterprise as they usually engage in other income generating activities to complement the income from the main livelihood activity.

Table 2 (b): Income from other Occupations

Income (NGN)	Freq	%
<=100,000	3	1.32
100,001-200,000	15	6.61
200,001-300,000	37	16.30
300,001-400,000	54	23.79
>=400,001	118	51.98
Total	227	100.00

Mean (NGN): 368,502

Livelihood Strategies (Diversification)

Three income or livelihood categories were examined in this study namely, on-farm, off-farm, and non-farm livelihood activities. Results reveal the respondents were involved in several livelihood activities. For the ***on-farm activity***, the results revealed that 92.07% of the respondents were involved. In specific terms, the major on-farm activities were crop production (78.41%), 37.44% were involved in animal production while, 7.49% were involved in farm labour services. This shows that the common livelihoods among respondents, apart from their regular oil palm processing, are the production of crops and rearing of animals. On the ***off-farm activities***, the results showed that, overall, 90.75% of the processors were involved in off-farm livelihood options. Specifically, the processors have been into trading/selling of raw farm produce (72.25%), processing of other agricultural produce (25.11%), operations of grinding machines (17.18%), food selling (13.22%) and selling of farm tools and inputs (10.13%).

About 80% or 79.74% of the general respondents are involved in ***non-farm livelihood activities***. The results reveal the specific non-farm activities were trading of non- food products (44.49%), artisanship such as tailoring, hairdressing (22.91%), civil servants with both government and private establishments (13.66%) while 3.08% engaged in manual labour in addition

The findings show that oil palm processors in the study area had wide range of livelihood diversifications, and this would help in ensuring that there is regular flow of household income. The reasons for the numerous livelihood options might have also arisen from the fact that oil palm processing is a seasonal activity and processors would therefore need other livelihood options to keep the income flow during the off-season processing period as opined by Akaninyene *et al.* (2022) and Salihu *et al.* (2017). These authors submitted that scarcity of oil palm fruits at the off seasons may prompt most processors to seek for alternative income generating activities to sustain their household income flow.

Table 3: Livelihood Engagements of Respondents

Livelihood options	Delta		Edo		Total	
	Freq	%	Freq	%	Freq	%
On-Farm Activities	96	87.27	113	96.58	209	92.07
Crop production	85	77.27	93	79.49	178	78.41
Animal production	57	51.82	28	23.93	85	37.44
Farm labour service	12	10.91	5	4.27	17	7.49
Off-Farm Activities	104	94.55	102	87.18	206	90.75
Trading/selling of raw farm produce	95	86.36	69	58.97	164	72.25
Processing of other agricultural produce	40	36.36	17	14.53	57	25.11
Operations of grinding machines	16	14.55	23	19.66	39	17.18
Food selling	24	21.82	6	5.13	30	13.22
Selling farm tools and inputs	16	14.55	7	5.98	23	10.13
Non-Farm Activities	78	70.91	103	88.03	181	79.74
Trading (Non-food)	68	61.82	33	28.21	101	44.49
Artisanship	3	2.73	49	41.88	52	22.91
Civil service	12	10.91	19	16.24	31	13.66
Manual labour	0	0	7	5.98	7	3.08

Average livelihood activities / income sources: 3;

Effect of livelihood diversification on income

The Analysis of Variance (ANOVA) result (*F = 0.33; p>0.05*) shows that there is no significant difference in income across the various or three livelihood diversification status. Respondents with the low diversification status were the majority (n = 135 or 59.47%) and they earned an average of NGN 847,255.6/annum, respondents categorized under the high level of diversification (n = 2 or 0.88%) earned approximately NGN 550,125.00 while those categorized as medium (n = 90) earned an average of NGN830,915.0.

Table 4: Livelihood Diversification and its effect on income of Respondents

Status (index)	Freq	%	Mean Income (NGN)*
Low (0-0.300)	135	59.47	847,255.6
Medium (0.301-0.600)	90	39.65	830,915.0
High (>0.600)	2	0.88	550,125.0
Total	227	100.00	

F value = 0.334 (P> 0.05)

Conclusion and Recommendations

Conclusion

The study was aimed at assessing the livelihood diversification among women oil palm processors and its impact on their welfare. Based on the findings of the study, the study concludes that the level of livelihood diversification among the respondents was low. Diversifying their livelihood contributed positively to the women income; however, this was not significant. Several factors motivated the women to diversify into other economic activities including financial stability, increase income and live above poverty, build up savings, for proper self-caring, support family, food security, and for better medical care. Several factors constrain the women diversification

including insufficient fund, fluctuation in market prices, lack of storage facilities, high cost of inputs and labour, inaccessibility of inputs, inadequate technical knowledge, inadequate labour, bad road network, poor government policy and lack of market. Access to credit, training attendance, membership of associations, and frequency of contact with extension workers were the determinants of livelihood diversification index among the women oil palm processors.

Recommendations

Based on the above findings, the following recommendations were put made:

1. Relevant agencies and bodies should encourage and empower oil palm women processors to diversify livelihoods, especially during the off-season with the view remaining economically active during the period.
2. Information on potential external markets, outside the immediate markets of the processors, should be delivered to the women. They should be encouraged to take advantage of these markets through establishing associations or pooling their products of sale in other markets.
3. The women should be continuously exposed to trainings on better processing methods to enhance their production.
4. Private actors should be encouraged to embark on agricultural storage services. With this in place, women processors can patronize these services, and store their palm oil at a price to take advantage of off-season scarcity of the product.
5. More investment should be made on the oil palm production by the government in order to make oil palm processing all year round.

References

Adesoji, S. A., Olanrewaju K. O. and Kolawole O. F (2014). Livelihood Diversification Sources of Female Household Heads in Rural Communities of Osun State. *Journal of Agricultural Extension,* 18 (2), 10-2

Adem, M., and Tesafa, F. (2020). Intensity of income diversification among smallholder farmers in Asayita Woreda, Afar Region. *Cogent Economics and Finance*, *8*(1), 1–15. https://doi.org/10.1080/23322 039.2020.1759394

agric. sci. 18 (1), 1-8

Adepoju, A. O., and Obayelu (2013). Livelihood Diversification and Welfare of Rural Households in Ondo State, Nigeria. *Journal of Development and Agricultural Economics* 5(12), 482-489.

African Women and Rural Environment OAU Ile-Ife (2011). British Council/DFID DELPHE PROJECT 643: Flyer Series 1: Palm Oil Processing and Marketing Postharvest Technology Research Group, Obafemi Awolowo University, Ile-Ife Nigeria. April 2011

African Women and Rural Environment OAU Ile-Ife (2011). British Council/DFID DELPHE PROJECT 643: Flyer Series 1: Palm Oil Processing and Marketing Postharvest Technology Research Group, Obafemi Awolowo University, Ile-Ife Nigeria. April 2011

Akaninyene Akhtar, S., Li, G. C., Nazir, A., Razzaq, A., Ullah, R., Faisal, M., Naseer, M. A. U. R., and Raza, M. H. (2019). Maize production under risk: The simultaneous adoption of off-farm income diversification and agricultural credit to manage risk. *Journal of Integrative Agriculture*, 18(2), 460–470. https://doi.org/10.1016/S2095-3119(18)61968-9

.

Ajayi, M.T. and Solomon, O. (2010). Influence of extension contact and farmers' socio-economic characteristics on adoption of oil palm technologies in Aniocha North Local Government, Delta State. *JAGST* 12(2), 35-46.

Bandera, M. M. D and Dagdag, J. D. (2021). Understanding the Factors that Influence Students' Behavior: Key Towards an Effective Teaching, Pedagogi, 21 (2), 44-148.

Biodun, M. B, Akinlabi, E.T., and Okokpujie, F.O.S.I. (2021). An overview of palm oil production and processing in Nigeria: A case study of Ilashe. *International Conference on Engineering for Sustainable World*, 1107, 1 – 12

Cameron, A. C., and Trivedi, P. K. (2010). Micro-econometrics using Stata, Revised Edition. Stata Press

.Dilruba K. and B.C Roy (2012). Rural Livelihood Diversification in West Bengal: Determinants and Constraints. *Agricultural Economics Research Review* 25(1), 115- 124

Ersado, L. (2006). Income diversification in Zimbabwe: Welfare implications from urban and rural areas. Policy Research Working Paper 3964. Washington, DC: The World Bank.

Sahal, B. and Baha, R (2010). Livelihood diversification pursued by farmers in West Bengal. *Indian Research Journal of Extension Education* 10 (2): 212 – 220

Sudan, F. K. (2021). Livelihood Diversification and Women Empowerment through Self-HelpMicro Credit Programme: Evidence from Jammu and Kashmir. *Indus Journal of Management & Social Sciences*

.Getahun, W., Haji, J., Mehare, A., and Zemedu, L. (2023). Drivers of income diversification among rural households in the Ethiopian central highlands. *Food and Energy Security*, *12*, e443. https://doi.org/10.1002/fes3.443

Mentamo, M, and Geda, N (2016). Livelihood diversifcation under severe food insecurity scenario among smallholder farmers in Kadida Gamela District, Southern Ethiopia. *Kontakt* 18(4):289-295.http://dx.doi.org/10.1016/j.kontakt.2016.09.003

Ngwangkfu, Y. B, Enwgali, F. D, and Engha, T. N (2021). Smallholders socio-economic characteristics of oil palm value chain: Constraints and prospects. International Journal of Agronomy and Agricultural Research (IJAAR), 19 (1), 31 – 39.

Nwalieji, H.U and Ojike, H.U (2018). Characteristics of Small-Scale Palm Oil Production Enterprise in Anambra State, Nigeria. Journal of Agricultural Extension, 22 (1), 22 – 34

Okoedo-okojie, D.U. and Onemolease, E.A.(2009). Factors affecting the adoption of yam storage technologies in the Northern ecological zone of Edo state, Nigeria. *Journal of Human Ecology* 27 (2): 155-160..

lead. World Bank Publication. Accessed on June 27th 2023

Ohimain1, E. I, Emeti, C. I, Izah1, C. I. and Eretinghe, D. A (2014). Small-Scale Palm Oil Processing Business in Nigeria: A Feasibility Study. *Greener Journal of Business and Management Studies,* 4 (3), 070-082

Okoror, O. T, Ahmadu, J and Ekomwen, B. E (2019). Effects of Livelihood Diversification on the Poverty Status of Cassava Farmers in Edo South, Edo State, Nigeria. *Albanian j.*

Omoti, U. and Ikuenobe, C.I. (2020) from Natural Groves to industrial Plantations: An Account of the Evolution, Analysis, Performance and prospects of the Nigerian Oil Palm Industry

1900 – 2010. Fortune and Temperance Company: Education Publishing. Benin City, Nigeria.

Osei-Amponsah, C. (2013). Improving the quality of crude palm oil: Transdisciplinary research on artisanal processing in Kwaebibirem District, Ghana. PhD thesis, Wageningen School of Social Sciences. Retrieved from http://www.edopot.wur.nl/283402

Otto, G. and Ukpere, W. (2013). Exports and Economic growth in Nigeria. *Annals of Spiru Haret* 13 (2), 22-29. University Economic Series,

Sahal, B, and Baha, R. (2010). Livelihood diversification pursued by farmers in West Bengal. *Indian Research Journal of Extension Education* 10 (2): 212 – 220.

Sanusi, M., Idowu, S.D., Akerele, D., and Olabode, T. (2022). Economic analysis of palm oil processing in Odogbolu Local Government Area, Ogun State, Nigeria. *Agro-Science*.

World bank (2018). Poverty rate. https://www.worldbank.org/en/programs/lsms/brief/nigeria-releases-new-report-on-poverty-and-inequality-in-country.

World Bank (2019). Nigeria's poverty exceeds World Bank projection, five states

Yusuf, O.J. and Adisa, B.O. (2011) Gender analysis of accessibility to productive resources by heads of rural households in Osun state, Nigeria. *Journal of agriculture and development* 7:1-12.