International Journal of Food and Agricultural Economics
ISSN 2147-8988, E-ISSN: 2149-3766
Vol. 9, No. 4, 2021, pp. 309-318

COMPARATIVE ANALYSIS OF FADAMA III BENEFICIARIES AND NONE-BENEFICIARIES' POVERTY STATUS: A FOSTER, GREER, AND THORBECKE DECOMPOSITION APPROACH.

Wasiu Adekunle Sanusi
Ladoke Akintola University of Technology, Department of Agricultural Economics, Ogbomoso, Nigeria

Gbenga Emmanuel Fanifosi
Department of Agricultural Economics and Extension, Ajayi Crowther University Oyo Nigeria, ORCID ID:/0000-0002-3659-1442

Titilayo Damilola Oladayo
Ladoke Akintola University of Technology, Department of Agricultural Economics, Ogbomoso, Nigeria

Olabisi Benedicta Otunola
University of Fort Hare, Department of Agricultural Economics and Extension, Alice, 5700, South Africa, ORCID ID:0000-0002-5615-1487

Olusegun Jeremiah Ijila
University of Fort Hare, Department of Agricultural Economics and Extension, Alice, 5700, South Africa, Email: ijilaolu@gmail.com
ORCID ID: 0000-0001-9174-0140

Abstract

The third National Fadama Development Scheme, which is a World Bank aided project was launched in Nigeria to reduce poverty, lessen food insecurity, and increase agricultural productivity. However, while many believed the project has been effective in addressing the challenges faced by rural households, some think the opposite due to the poor economic state of the farmers. Hence, this research investigates the poverty situation of the Fadama III beneficiaries and non-beneficiaries in Kwara State, Nigeria, in the realization of the Sustainable Development Goals (SDGs) 1 and 2. The study randomly selects 120 Fadama III beneficiaries and 116 non-beneficiaries using a multistage sampling procedure. Data collected were analyzed using descriptive statistics, Foster, Greer, and Thorbecke (FGT) poverty measure and logit regression model. The findings show that poverty was more pronounced amongst non-beneficiaries of the scheme compared to the beneficiaries, indicating that the program has a considerable effect on the livelihood of the beneficiaries. Sex of the household head, household size, farm size, off-farm income, and access to extension contact are significant variables influencing poverty amongst the beneficiaries. Thus, the study encourages an increase in the number of participants of the program (Fadama III) for improved wellbeing.

Keywords*: Fadama III, Foster, Greer, and Thorbecke (FGT), Livelihood, Poverty.*

1. Introduction

Nigeria is a country blessed with a lot of natural resources, but the poverty level of the citizenry has proven otherwise. The country is considered the most populous country on the continent of Africa, with a population of about 201 million inhabitants according to the Poverty and Equity Data Portal of the World Bank (2019a). This signifies that the number of people living in the country constitutes about half of West Africa's population. Furthermore, Nigeria is one of the World's highest economies with an average growth rate of 7.4% (World Bank, 2018), but this has not translated into poverty reduction in the country. Agriculture is the largest sector of the country's economy, accounting for about 30% of the gross domestic product and providing employment for over 40% of the labor force and 90% in rural areas (TAfrican Continental Free Trade Area, 2020). Notwithstanding, most farming households still suffer from the threat of poverty and food insufficiency (Food and Agricultural Organization, 2017). The most tedious challenge confronting Nigeria and its inhabitant in the pursue of sustainable socio-economic growth is the issue of poverty reduction (Olarinde *et al*. 2020).

The United Nations (UN) inaugurated a new developmental agenda called the SDGs in the year 2015. The program was agreed upon by 193 countries with 17 goals and 169 targets, having poverty eradication at the top of the framework while other goals evolve around it. Despite the implementation of various poverty reduction schemes to mitigate the effects of poverty and inequality, the rate at which this menace is increasing has become astonishing, depicting the failure of most of the policies. Globally, extreme poverty continues to be a rural phenomenon despite the increasing urbanization in which 75.0 percent out of the 1.2 billion poor people in the world live in rural areas and largely depend on agriculture, forestry, fisheries, and related activities for survival. Seemingly, rural poverty and underdevelopment have persisted in most countries, including Nigeria, because it is not easy to disassemble all structures with the tendency to prevent rural inhabitants from the full realization of their potentials (Moses, 2017). To break this cycle and improve farming output in Nigeria, the government introduced and implemented several economic programs. Part of such a program is the National Fadama Development Project (NFDP), put in place in the early 1990s (Apata & Saliu, 2015). This program was conceived to assist the eligible states, particularly in the Northern part of the federation, through the World Bank-supported Agricultural Development Project (ADP) (Oladoja & Adeokun, 2009). The scheme was expected to finance the provision of wash bores, construction of Fadama infrastructures, organizing Fadama farmers for irrigation management, cost recovery, and improved access to finance. The Fadama project was also projected for better marketing of the agricultural goods and services, provision of transportation facilities, purchase of pumps, and other farming equipment. Thus, after a careful evaluation of accomplishments of the first and second phase of the scheme (Fadama I and II), the financing partners are convinced that a third phase is necessary, and Fadama III was introduced and implemented in all the 36 states, including the FCT (Dimelu *et al*. 2014).

Poverty is deadly in the country, and it has become a major threat for policy makers and even societal scientist (Chani *et al.,* 2011). Extreme poverty has continued to increase despite the combined efforts by the government and other private agencies. These have manifested in the high rate of joblessness, over-indebtedness, economic dependency, lack of freedom, inability to provide the basic needs or own basic comforts. The poverty rate was high and more than 60% of the Nigerian population lives below poverty line (Kale 2012). With the country ranked 158th of 177 countries, it means that it is one of the poorest countries in the world (World Bank, 2019b). In fact, the World Poverty Clock (2019) rated Nigeria as the world's poverty headquarters. Many studies have reiterated the impact of the Fadama program on poverty reduction (Girei *et al.* 2017; Ike, 2012; Yunana *et al.* 2013). These studies observe the influence of some selected socio-demographic variables, farm specific variable and other

productive assets influencing poverty. However, the current economic realities, as well as the farmer's wellbeing, have shown the exact opposite. Many even believe the program is not helpful as it has not transmuted to wealth, prosperity, and increased output for the rural families. This scenario has left many researchers and policymakers perplexed, hence, the motivation for the research on the poverty status of the Fadama III beneficiaries and non-beneficiaries as well as the factors influencing the poverty profile of the beneficiaries of the scheme in Kwara State, Nigeria.

2. Methodology

The study was carried out in Kwara State, Nigeria. The state was divided into four Agricultural Zones (A-D) by the Kwara State Agricultural Development Project (KWADP) in consonance with ecological characteristics, cultural practices, and project's administrative convenience (Figure 1). A multi-stage random sampling technique was used to sample the respondents. In the first stage, the purposive selection of agricultural zone C of the state was done because of its involvement in the Fadama III program. Adding to that, the second stage involves the random selection of two Fadama villages each from the cells. The last stage is the selection of 120 beneficiaries and 116 non-beneficiaries of the Fadama III scheme. Afterward, a well-structured questionnaire and interview schedule was employed after a preliminary test to obtain data on socio-economic characteristics of respondents, income, and expenditure of respondents, as well as constraints encountered during the course of the program.

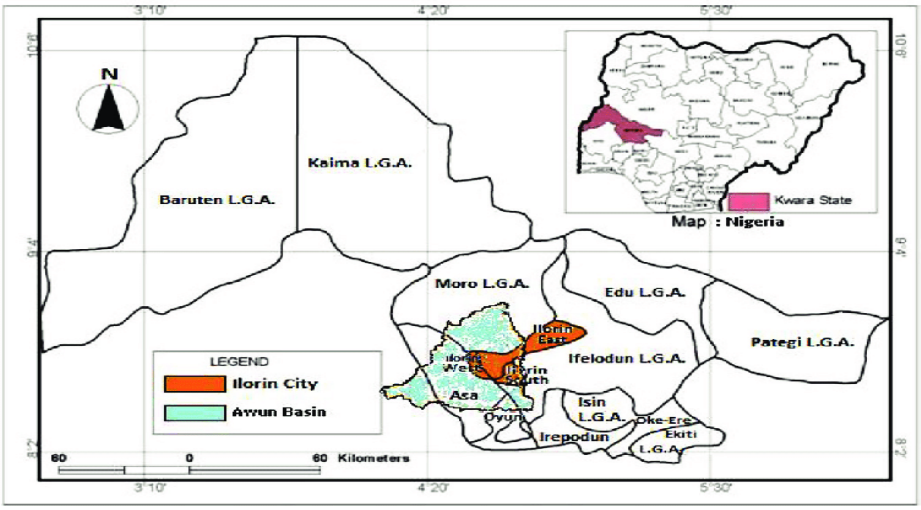

Figure 1. Map of Kwara State Showing The Study Area

The data gathered was subjected to test due to limitations like incomplete information and missing values found while collating the datasets. It was tested for normality using the Shapiro-Wilk test for normality as well as heteroscedasticity test and outliers.

2.1. Analytical Techniques

Foster, Greer, and Thorbecke (FGT, 1984) poverty measure, which is often referred to as the class of poverty measure was adopted in order to generate the poverty profile of the respondents. However, to satisfy the criteria mentioned above. The FGT takes the form:

$$P\alpha = \frac{1}{n}\sum_{i=1}^{n} q\left[\frac{z-Ypi}{z}\right]\alpha \quad (1)$$

where:

α = Foster, Greer and Thorbecke (FGT) Index that takes values 0,1, 2 (0≤ P≥1)

N = Total number of individuals in the reference population

Z = The poverty line

Z – Yi= The ^{i}th household's poverty gap

q = Sum of individuals living below the poverty line

Y_{pi} = The ^{i}th household's per capita income

Z – Yi/ Z = The poverty gap ratio

This is flexible in two ways. The first way is α, which is the policy parameter that can be varied and approximately reflect poverty aversion. The second is the p_α class of poverty indices which is the sub- group decomposable.

When $\alpha = 0$

$$P_0 = 1/n\ (q) = q/n = H \quad (2)$$

In the population, the headcount is the number of people who are poor while the headcount ratio (H) is the fraction of the population who are poor. The poverty gap measures the total amount of money required to raise everyone who is below the poverty line out of poverty. When α = 1, the poverty measures become the Poverty Gap Index (PG):

$$P_{\alpha\text{-}1} = PG = \frac{1}{n}\sum_{i=1}^{o} q_1\left(\frac{Z-Yp_1}{Z}\right) i \quad (3)$$

The expenditure gap ratio is I which is the mean of poverty gap expressed as a portion of poverty line and it is not sensitive to income distribution among the poor. The use of P_α measure is increasing as a standard poverty assessment by the World Bank, numerous United Nation's agencies and other the regional development banks. It is being used in the empirical research on poverty because of its sensitivity to the depth and severity of poverty. While the incidence is measured by the amount of the people in the total population who live below the poverty line and the poverty intensity is mirrored in the extent to which the incomes of the poor fall below the poverty line. Further advantage of the P_α measure is that it is decomposable by population subgroups. That is:

$$P_\alpha = \sum_{i=1}^{m} KiP \propto \quad (4)$$

Where, j = 1, 2, 3, ….m, k is the population share of each group is the poverty measure of group j. The contribution of each group C i to overall poverty can be calculated as follows:

$$C_i = \frac{KiP\propto j}{P\propto} \quad (5)$$

the poverty index implies that when any group becomes poor, the aggregate will increase. Hence this can be disaggregated by subgroups such as gender and region.

Logit regression model: This model was used to identify the determinants of poverty among the respondents. It is a binary choice model that considers a dichotomous response variable as the dependent variable. The logit model was used, following the recommendation of Gujarati (1995), that the model guarantees that the estimated probabilities lie in the 0-1 range and that they are not linearly related to the explanatory variables. The explanatory

variables considered in the model are age of household head, gender, years spent in school, farming experience, household size, farm size, off farm income, membership of organisation, extension contact. Thus, the logistic prediction equation use is:

$$lnY = ln\left(\frac{M}{1-M}\right) \quad (6)$$

$$lnY = ln\left(\frac{M}{1-M}\right) = \beta 0 + \beta 1X1 + \cdots + \beta 9X9 \ldots + U \quad (7)$$

Where Y = 1 for non-poor and 0 = otherwise.
M = Probability of an individual being non-poor.
1-M = Probability of an individual being non-poor.
In = Natural Logarithm Function.
$\beta 0$ = Constant and $\beta 1 - \beta 9$= Regression Coefficients.
X_1 = Age of household head
X_2 = Gender
X_3 = Years spent in school
X_4 = Farming experience
X_5 = Household size
X_6 = Farm size
X_7 = Off farm income
X_8 = Membership of organisation
X_9 = Extension contacts.

3. Results and Discussion

3.1. Analysis of poverty status of the respondents using FGT Poverty Index

The poverty line is 2/3 of the mean per capita income of the households and is estimated as ₦9469.23 and ₦8904.72, respectively. With this, households whose income falls below the amount in the poverty line is categorized as being poor, while the households with income above or equal to the poverty line are described as non-poor. Hence, the headcount ratio or poverty incidence (P_0) as shown in Table 1 was estimated at 0.411 and 0.436. This implies that 41.1% and 43.6% of the respondents (beneficiaries and non-beneficiaries) in the study area were living below the poverty line and were relatively poor. This was in line with the findings of Fanifosi *et al.* (2021). The poverty depth or gap (P_1) was 0.06 and 0.14. These values indicate that 6% and 14% of the respondents were below the poverty line and therefore required an improvement in their income to reach the poverty line. The poverty severity or intensity (P_2) was 0.04 and 0.06 which indicated that 4% and 6% of the respondents in the study were severely poor.

Table 1. Summary of the Poverty Indices for the Respondents in the Study Area.

FGT poverty class	Beneficiaries Index	Non-Beneficiaries Index
P0	0.411	0.436
P1	0.060	0.140
P2	0.040	0.060

Source: Field Survey, 2017

Table 2. Distribution of Socioeconomic Characteristics of Respondents by Poverty Profile

		Beneficiary			Non- beneficiary		
Characteristics		**P_0**	**P_1**	**P_2**	**P_0**	**P_1**	**P_2**
Age group	≤30	0.481	0.194	0.101	0.593	0.295	0.180
	31 – 40	0.550	0.145	0.053	0.700	0.304	0.148
	41 – 50	0.500	0.186	0.087	0.731	0.317	0.175
	51 – 60	0.117	0.024	0.007	0.353	0.090	0.033
	>60	0.016	0.001	0.000	0.025	0.007	0.002
Gender	Male	0.462	0.135	0.057	0.520	0.265	0.135
	Female	0.400	0.165	0.081	0.648	0.263	0.154
Household size	1 – 5	0.054	0.006	0.001	0.189	0.045	0.013
	6 – 10	0.538	0.162	0.069	0.731	0.308	0.160
	>10	0.154	0.054	0.025	0.189	0.091	0.051
Farm experience	≤5	0.345	0.121	0.058	0.483	0.211	0.116
	6 – 15	0.588	0.192	0.085	0.706	0.346	0.187
	16 – 25	0.474	0.129	0.053	0.711	0.269	0.132
	26 – 35	0.267	0.097	0.043	0.467	0.176	0.092
Marital status	Single	0.000	0.000	0.000	0.000	0.000	0.000
	Married	0.467	0.156	0.071	0.641	0.282	0.152
	Divorce	0.143	0.039	0.011	0.571	0.132	0.047
	Widowed	0.538	0.114	0.038	0.615	.254	0.119
	Separated	0.333	0.100	0.030	0.333	0.172	0.089
Farm size	≤ 5	0.563	0.261	0.134	0.688	0.359	0.230
	6 – 10	0.515	0.162	0.070	0.691	0.307	0.160
	> 11	0.054	0.008	0.002	0.095	0.028	0.010
Educational qualification	Non formal education	0.526	0.145	0.053	0.593	0.230	0.113
	Primary education	0.429	0.134	0.062	0.531	0.189	0.089
	Secondary education	0.468	0.168	0.078	0.482	0.184	0.090
	Tertiary education	0.333	0.072	0.024	0.419	0.132	0.055

Source: Field Survey, 2017

3.2. Foster, Greer and Thorbecke profiling of Demographic Characteristics

The decomposition of the FGT poverty index by respondents' socioeconomic characteristics is presented in Table 2. The table shows that poverty incidence was higher (P_0 =0.55) among beneficiaries of the age group of 31-40, age group 41-50 (P_0=0.50). Likewise, the poverty incidence was highest (P_0 =0.73) among the non-beneficiaries age group 41-50 years and 31-40 (P_0 =0.70). These give a strong indication that most of the beneficiaries and non-beneficiaries in the active age group were poor. Furthermore, 0.462% of the male-headed household beneficiaries are poor, while 40.0% of the female-headed beneficiaries' households are poor. This may be a result of the difference in terms of proportion between the number of poor males and female headed Fadama III beneficiary households. However, in the case of the non-beneficiaries, 52.0% of the male-headed are poor, while 64.8% of those with female--

headed non-beneficiary were poor. This indicates that non-beneficiary female-headed households may be poorer than the male-headed non-beneficiary households. These might be a result of the incapability of female farmers having access to productive assets. This indicates that non-beneficiary female-headed households may be poorer than the male-headed non-beneficiary households. These might be a result of the incapability of female farmers having access to productive assets. The poverty incidence for households with household size between 6 and 10 members was higher for both beneficiaries ($P_1 = 0.538$) and non-beneficiaries ($P_1 = 0.731$). Also, the poverty depth and severity were higher for this age group ($P_1 = 0.162$ and $P_1 = 0.308$, respectively) compared to other groups. This result implies that larger household sizes may lead to a higher level of poverty in households. Furthermore, poverty incidence was found to be higher for Fadama III beneficiaries with farming experience between 6 – 15 years having ($P_0 = 0.588$), while between 16 - 25 years of experience is ($P_1 = 0.474$).

Similarly, among the non-beneficiaries, farmers with 16-25 years of farming experience had the highest poverty incidence, while 6-15 years of farming experience shows ($P_0 = 0.706$). This result indicated that poverty is more prominent among the more experienced farmers. The widowed ($P_0 = 0.538$) among the beneficiaries have a worse poverty condition in comparison with the married ($P_0 = 0.467$), separated ($P_0 = 0.333$), divorced ($P_0 = 0.143$) and single ($P_0 = 0.000$) beneficiaries. Likewise, the same pattern was exhibited among the non-beneficiaries. Poverty is prominent among beneficiaries with not more than 5acres farmland ($P_0 = 0.563$) and non-beneficiaries with not more than 10 acres of farmland ($P_0 = 0.69$). These indicated that smallholder respondent farmers and were poor because of the probability that inefficiency exists in their productivity activity which might be the cause of the high incidence of poverty among them. Lastly, the poverty incidence was most prominent among respondents with no formal education (P0 = 0.526 for beneficiaries and P0 = 0.593 for non-beneficiaries). These indicated that poverty might have a strong relationship with the farmer's level of education as education is expected to reduce poverty prevalence among the respondents.

3.3. Factors influencing the Poverty Profile of the beneficiaries of the scheme.

Table 3 presents the result of the factors influencing the poverty status of Fadama III beneficiaries in the study area. The Log Pseudo likelihood is -57.665, Pseudo R^2 of 0.2781, and Wald (Chi-square) of 34.96 ($p < 0.01$). This implies that the fitted model is good, and the explanatory variables used in the model were collectively able to explain the correlation of the factors influencing poverty among the Fadama III beneficiaries in Kwara State, Nigeria.

The beneficiaries whose households were headed by male are less likely to be poor compared with the female-headed households (male=1, female= 0). This is because sex of the household head is significant at 5% and shows a positive coefficient ($\beta = 0.7163$, $p < 0.021$). The marginal effect analysis reveals that every unit increase in the number of males headed household benefiting from the scheme will increase the poverty profile of the household by 20%. This negates the findings of Ijila & Sanusi (2020) and that of Oni & Olaniran (2008) who found that female headed households boosts the poverty profile of the household.

Furthermore, the result revealed that household size is significant at 1% but with a negative coefficient. This shows the variable decreases the poverty level of the households that participates in the Fadama III project ($\beta = -0.2699$, $P < 0.000$). This further signifies that a unit increase in the number of household members will lead to a reduction in the chances of the household being poor by 9.9%. This result negated the findings of Fanifosi & Amao (2016). This is not unexpected as members of the household are expected to combine resources together for improved agricultural activities which will in turn boost the poverty profile of the household. The farm size increased the probability of the household being poor ($\beta = 0.2159$, $p< 0.003$) because the variable has a positive and significant value. This result implies that an increase in the farm plot size of the beneficiaries by 1 acre, will increase the likelihood of the

household being poor by 7.8%. This negates the a-*priori* expectation that an increase in farm plot size will enhance the productivity of the farmers which will eventually reflect on their income (Borko, 2017). Also, Off-farm income (β = -0.000, p< 0.085) and access to extension contact (β = -0.213, p< 0.079) shows the potential of decreasing the poverty situation of the household with both having a negative and 10% level of significant each. This finding further tells that a unit increase in the income made from off-farm activities and access to extension contacts will lessen the probability of the Fadama III program beneficiaries being poor by 0.000% and 2.3% respectively.

Table 3. Factors Influencing Poverty among Fadama III Beneficiaries

Variables	**Coefficient**	**Std. Err**	**Prob/t/**	**(dy/dx)**
Age	-0.023	0.011	0.471	-0.008
Sex of the household head	0.716**	0.105	0.021	0.202*
Years of schooling	-0.027	0.010	0.359	0.010
Farm experience	-0.008	0.009	0.744	-0.000
Household size	-0.270***	0.022	0.000	0.099***
Farm size	0.216***	0.027	0.003	0.079***
Off farm income	-0.000*	0.000	0.085	0.000*
Membership of org.	-0.213	0.114	0.485	0.079
Extension contacts	-0.558*	0.101	0.055	0.233*
Constant	3.181	1.085	2.93	
Diagnostic test: No of Observations 120 Log Pseudolikelihood -57.665 Wald Chi2(9) 34.960 Chi2 0.000 Pseudo R2 0.278				

Note:*** Significant at 1%, ** Significant at 5% *Significant at 10%

4. Conclusion and Recommendation

From the result of the study, poverty is more pronounced amongst non-beneficiaries of the Fadama III program compared with those who benefit from the scheme. The finding reflects an increase in the number of poor people in the study area in both categories. Furthermore, respondents within the age group that is older than 30 years of age demonstrate the tendency to be poor. The result pinpoints that female-headed household, sex of the household head, farm size, off-farm income, household size, and access to extension contact have significantly influenced poverty in the study area. Therefore, the study encourages the government to continue the Fadama program even when the World Bank stopped its funding. Also, an increase in the number beneficiaries is recommended to reduce the number of impoverished and vulnerable in the study area. Adding to that, adults should be encouraged and supported to benefit from the Fadama III Scheme, while the enrollment of female participants should be prioritized. The government through the extension contacts should rollout enlightenment programs on the need for the farmers to make judicious use of their farmland to avoid wastage of resources and input.

Acknowledgments

The authors like to express their warm appreciation to all the farmers (Fadama III Scheme beneficiaries and non-beneficiaries) in the study area for their positive responses as well as giving precious time, during data collection.

References

African Continental Free Trade Area (AfCFTA), 2020. Current State of Nigeria Agriculture and Agribusiness Sector Available online https://www.pwc.com/ng/en/assets/pdf/afcfta-agribusiness-current-state-nigeria-agriculture-sector.pdf (Accessed, June 2020).

Anríquez, G., & Stamoulis, K. (2007). Rural development and poverty reduction: is agriculture still the key? Available online: https://ageconsearch.umn.edu/record/289048/ (Accessed, June 2020).

Apata, O. M., & Saliu, O. J. (2016). Impact Assessment of Fadama Project on Agricultural Development in Kwara State, Nigeria. *Journal of Experimental Agriculture International*, 1-7.

Bature, Y. M., Sanni, A. A., & Adebayo, F. O. (2013). Analysis of impact of National Fadama Development Projects on beneficiaries' income and wealth in FCT, Nigeria. *Journal of agricultural Economics and Sustainable Development*, *4*(17), 11-24.

Borko, Z. P. (2017). Determinants of Poverty in Rural Households (The Case of Damot Gale District in Wolaita Zone) A Household Level Analysis. *International Journal of African and Asian Studies*, *29*, 68-75.

Chani, M. I., Pervaiz, Z., Jan, S. A., Ali, A., and Chaudhary, A. R. (2011). Poverty, Inflation sand Economic Growth: Empirical Evidence from Pakistan. *World Applied Sciences Journal*, 14(7), 1058-1063.

Dimelu, M. U., Emodi, A. I., & Okeke, C. A. (2014). Factors affecting performance of facilitators in the Fadama 111 Development Project in Enugu State, Nigeria. *Journal of Agricultural Extension*, *18*(2), 57-67.

Fanifosi, G.E & Amao, J.O. (2016) Analysis of the determinants of food insecurity and poverty status among farming households in Osun State, Nigeria. *Journal of Advances in Agriculture. 5*(3), 729-739

Fanifosi, G.E., Ogunniyi, L.T., Aregbesola, O.V., Olaoye, T.A., Oladiran, J.O., & Ajao, O.A (2021): Evaluating Poverty and Risk Attitude of Maize Farmers in Surulere Local Government Area of Oyo State, Nigeria: A Safety First Analysis Approach, *International Journal of Scientific Research in Multidisciplinary Studies*, 7(6), pp.86-90.

(Food and Agricultural Organization, 2017). The future of food and agriculture – Trends and challenges. Rome.

Foster, J. E, Greer, J. & Theobecke, E. (1984). A class of decomposable poverty measure. *Econometrica*. 52: 761-766.

Girei, A. A., Saingbe, N. D., Bitrus, M. A., & Bassey, I. H. (2017). Revealing the impact of Fadama III Project on the income level of beneficiary farmers in Plateau State, Nigeria. *European Journal of Academic Essays 4 (2): 26, 38.*

Ijila, O. J., & Sanusi, W. A. (2020). Household Endowment and Poverty Reduction. *J Hum Ecol*, *72*(1-3), 88-96.

Ike, P. C. (2012). An analysis of the impact of Fadama III project on poverty alleviation in Delta State, Nigeria. *Asian Journal of Agricultural Sciences*, *4*(2), 158-164.

Kale, Y. (2012). 112.5 million Nigerians live in poverty. Available online: www.punchng.com/business-economy/112..5-million-Nigerians-Live-in-Poverty-nbs/ (Accessed, June 2019).

Moses, J. D. (2017). The impact of Fadama III on the poverty status of food crop farmers in

Yobe State, Nigeria. *Sky Journal of Agricultural Research*, *6*(4), 78-84.
Oladoja, M. A., & Adeokun, O. A. (2009). An Appraisal of the national Fadama development project (NFDP) in Ogun state, *Nigeria. Agricultural Journal*, *4*(3), 124-129.
Olarinde, L. O., Abass, A. B., Abdoulaye, T., Adepoju, A. A., Fanifosi, E. G., Adio, M. O., ... & Wasiu, A. (2020). Estimating multidimensional poverty among cassava producers in Nigeria: patterns and socioeconomic determinants. *Sustainability*, *12*(13), 5366.
Oni, O. A., & Olaniran, O. T. (2008). An analysis of poverty status of Fadama II and non Fadama II beneficiaries in rural Oyo state, Nigeria. *Journal of Rural Economics and Development*, *17*(1623-2016-134895), 45-61.
World Bank (2018). Macro Poverty Outlook: Sub-Saharan Africa. World Bank: 266–277. (Accessed, April 2020).
World Bank (2019a). Poverty and Equity Data Portal. Available online http://povertydata.worldbank.org/poverty/country/NGA. (Accessed, April 2020).
World Bank (2019b). World Bank Group Database. https://www.worldbank.org (Accessed, January 2020).
World Poverty Clock 2019. The Poverty Situation in Nigeria Available online: <https://www.world poverty.io/index.html.> (Accessed, June 2021).