Effect of Small Scale Rice Farming On the Internally Generated Revenue in Argungu Local Government Areas of Kebbi State, Nigeria

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Abstract- Despite small-scale rice farming been seen as an integral part of Kebbi Economy, however, the extent to which small-scale rice farming affect the internally generated revenue in Argungu LGA of Kebbi State, is yet to be empirically examined. Low internally generated revenue as resulted to array of economic problems such as low level of employment generation, low per capital income, poverty and underdevelopment of the rural area etc., Thus, this study examines the effect of small scale rice farming on the internally generated revenue in Argungu LGA of Kebbi State. Econometric technique of logist regression analysis was employed to analyze the primary data sourced from field survey on this subject matter. The result shown that estimated coefficients of small-scale rice farming is 0.319 which implies that if the SSRF goes up by an infinitesimal amount, the probability for the variable IGR taking the value one rises by 0.319 is approximately 39 %. Thus, it can be concluded that small scale rice farming has positive and significant effects on the internally generated revenue. Also, the findings revealed that small-scale farmers' income, rice production output, and rice value chain have significant relationship with internally generated revenue in Argungu LGA of Kebbi State. Thus, this study recommended as follows, that Local and State government, as well as stakeholders in rice industry should encourage small scale rice farming to continue thrive through provisions of rice farming inputs such as, quality seedling, fertilizer, and microcredit to small-scale farmers who may be willing to engage in small-scale rice farming.

Index Terms- Small-Scale Rice Farming, Farmers' Income, Rice Production Output, Rice Value Chain and Internally Generated Revenue

I. INTRODUCTION

The importance of rice industry in the Nigerian economy cannot be overemphasized. It has traditionally been an important basic food commodity for certain populations in Sub-Saharan Africa, and West Africa in particular. Hence, the needs for increase cultivation of rice farming especially at small scale level. The demand for rice in Nigeria has been soaring; rising demand was partly as a result of population growth, increased income levels, rapid urbanization, and change in family taste, preference and associated changes in family occupational structures (Adesina, 2013; Central Bank of Nigeria, 2017)

However, federal government policy on rice production which includes; fertilizer subsidies, seedling, and various intervention programmes such as, FADAMA and Anchor Borrower Programme, seem to have encouraged domestic rice production. More so, government policy discouraging rice importation through the high tariff and outright ban on rice importation through the land border have led to increase in demand for home grown rice, and this has encouraged increase in rice farming across states in Nigeria (Asiru, Iye & Olaoluwa, 2018). According to the President, Rice Farmers Association of Nigeria, Aminu Goronyo, sannual rice production in Nigeria has increased from 5.5 million tonnes in 2015 to 5.8 million tonnes in 2017; and in 2015, Nigerians spent about N1bn on rice consumption. While spending on rice purchase had drastically reduced, however consumption had increased because of the increased local production of the commodity. The consumption rate currently stands at 7.9 million tonnes and the production rate has increased to 5.8 tonnes per annum. This increase was as a result of the CBN's Anchor Borrowers Programme with a total of 12 million rice producers and four million hectares of FADAMA rice land. ABP since inception had created economic linkage between Small Holder Farmers and reputable large-scale processors, thereby increasing agricultural outputs and significantly improving capacity utilization of processors. While it appears that government expenditure has resulted to increase in local rice production it is also reasonable to assume that this increase in local rice production has a multiplier effect on the revenue accrued to Nigerian government who have been able to reduce millions of naira spent on importation of rice and consequently increase foreign reserve base.

However, in Kebbi State, like other states in Nigeria rice farming by the small-scale farmer has been seen as an integral part of Kebbi economy (Ohen & Ajah, 2015). These small-scale farmers are the major actors in rice production in Kebbi State contributing their own quota to the Kebbi economy through employment generation, food security, and rice export to other states in Nigeria and abroad among other. At the local government level, the activities of small scale rice farming from the onset of rice cultivation, processing, storage, distribution, and marketing is expected to contribute to internally generated revenue directly or indirectly.

Nevertheless, despite small-scale rice farming has been seen as an integral part of Kebbi economy the extent to which small-scale rice farming, through small-scale farmers' income,

rice production output, and rice value chain affect the internally generated revenue in Argungu LGA of Kebbi State, is yet to be empirically examined. There is no empirical evidence to show that small scale farming in the area has contributed significantly to internally generated revenue.

In the meantime, according to Adi, Yakubu, Ibrahim and Eche, (2015), internally generated revenue has over the year remained the main focus of all the local government in Nigeria indeed the entire administration of local government is informed by the important role played by internal revenue generation in their locality. This is due to the issue of low finance that has been the major problem, which local governments in Nigeria are grappling with in recent times. More so, inability of local government to generate sufficient internal revenue to support the growth of local government area has leads to arrays of problems such as, unemployment rate, low per capital income, underdevelopment as well as increase in poverty especially in the rural area which is within the local government administration.

Therefore, there is need to examine the effect of small-scale rice farming on the internally generated revenue in Argungu LGA of Kebbi State. Meanwhile, previous studies related to small-scale rice farming in Nigeria and elsewhere so far reviewed, have given much weight to the technical efficiency in rice production, socio-economic determinants of small-scale rice farming as it affects rice output, challenges of small-scale rice farming in Nigeria which bothered on the constraints of rice farmers in achieving greater output and impacts of rice importation on Nigeria's economy. without considering the effect of small-scale rice farming on the internally generation revenue in Argungu LGA of Kebbi State (see, Agbamu & Fabusoro, 2015; Asiru, Iye & Olaoluwa, 2018; Igboji, Anozie & Nneji, 2015; Nwele, 2016; Unggul, Rudi, Tri, & Primanthi, 2015; Sokvibol-Li, & Pich, 2016) thereby created gap in the contextual literature.

While, some empirical findings like; Mbaye, Bèye, Guèye, Lokonon, and Ndione, (2018); Ohen and Ajah, (2015) concluded that small-scale rice farming has a positive and significant impact on the economy of Nigeria. Others like; Ajah and Ajah, (2014); Igboji, Anozie, and Nneji (2015) posited that small-scale rice farming contribution to the Nigeria economy is statistically insignificant due to technical inefficiency resulting to low rice output and subsequently low small-scale rice farmer income. The mixed results and inconclusive debate on the effect of small-scale rice farming on the Nigerian economy necessitate this empirical research.

More so, unfortunately, little or no studies have examined the effects of small-scale rice farming on the internally generated revenue in Argungu LGA of Kebbi State. Therefore, the objective of this study is to examine the effect small-scale rice farming has on the internally generated revenue in Argungu LGA of Kebbi State. Also, to establish the nexus between small-scale farmers' income, rice production output, rice value chain and internal generation revenue in Argungu LGA of Kebbi State. Thus, this study proposes the following research hypotheses.

i. Small-scale rice farming does not have any effect on internally generated revenue in Argungu LGA of Kebbi State
ii. Small-scale farmers' income, rice production output, and rice value chain does not have any relationship with internally generated revenue in Argungu LGA of Kebbi State.

The rest of this study is organized as follows; the second section deals with relevant theoretical, conceptual issues and empirical literature, particularly as they relate to the variables understudy. Section three states the methodology of the study, while section four covers the result and discussion of the data analysis. Five sections present conclusion and recommendation

II. Literature Review

Small-scale rice farming is the set of small-scale farmers engaging in rice farming in a piece of land or marginal land (Lashiola, 2012). On the other hand, Akpan (2013) defined internally generated revenue as those revenues that are derived within the state from various sources such as taxes (pay as you earn, direct assessment, capital gain taxes, etc), and motor vehicle license, among others. According to the Business dictionary, (2018) internally generated revenue are the monies collected by a government through the imposition of levies and taxes on facilities, incomes, sale of goods and services, transfers of properties, and other domestic transactions, as opposed to monies collected from duties imposed on imports and other international transactions. The internally generated revenue as the name implies is the revenue that the local government generates internally within the area of its jurisdiction (Olusola, & Siyanbola, 2014). According to Adi, Yakubu, and Eche, (2015).internally generated revenue (which is the revenue generated within the local government area of administration and it entails local tax or community tax, poll tax, or tenement rates, user fees and loans)

This study, anchored on the classic Johnston and Mellor (1961) micro impact of agricultural growth which concludes that economic policy ought to favor agriculture as a vehicle for starting growth in poor economies such as those of sub-Saharan Africa, Nigeria inclusive. Meanwhile, farmers, processors, input suppliers, and a range of other private actors will respond to public policies such as the policy of revenue generation. Johnston and Mellor (1961) provided a neat framework for thinking about consumption and production linkages from agriculture. The basic idea of the theory was that agricultural productivity growth would, in a closed economy, simultaneously lead to (a) higher rural incomes; (b) lower food prices in urban areas; (c) increased savings in rural areas, allowing for mobilization of capital for domestic industry; (d) expanded domestic markets for non-agricultural goods. An additional benefit was seen for the case of an open economy: by reducing food prices in urban areas, agricultural productivity gains would allow for nominal wages in manufacturing to remain low, making non-agricultural exports more competitive. The Johnston-Mellor model provided a strong narrative and conceptual argument for agriculture's role in growth. However, this study considered this theory relevant because any public policy targeting agricultural growth consequently is likely to have a multiplier effect on internally generated revenue. But the extent to which this theory is applicable in Nigeria context is subject to debate.

Empirically, Okodua, (2019) assesses the potential impact of the rice policy reforms on income mobility of households in Nigeria. The study probes into the potential of the new policy on rice production to produce considerable employment gains for

rural households in Nigeria given that local rice production will displace imported rice. The study employed a static Computable General Equilibrium (CGE) framework to investigate the potential additional income benefits or losses for Nigerian households stemming from the government's current initiative of increased domestic rice production. The findings reveal that the implementation of the new policy on domestic rice production will produce considerable employment gains for all households and for most sectors of the economy. The study only focuses on policy reform on overall income gain for both rural and urban households without examining the effect of small-scale rice farming on internally generation revenue.

Mbaye, Bèye, Guèye, Lokonon, and Ndione, (2018) uses a case study approach to investigate the patterns of employment and income generation in cotton and rice value chains in Senegal and Benin. The study combined quantitative and qualitative data to identify direct and indirect value chains' effects on employment and income, paying special attention to vulnerable groups such as youth, women, and informal employees. Surveys data, as well as Social Accounting Matrix, was used to assess the effects of these value chains on employment and income. The findings of the study revealed strong and positive relationships between rice value chains and jobs creation as well as income patterns. However, the scope of the study did not examine the effect of small-scale rice farmer income, rice farming production output, and rice value chain on internally generation revenue.

Samuel (2016) examines policies on the technical and cost efficiency levels of paddy rice farm households in Nigeria. Data were collected from a cross-section of 300 paddy rice farmers drawn from 3 states in Nigeria. The study used 2 estimation techniques: parametric technique (SF) and the non-parametric technique (DEA). The results showed that paddy rice production in Nigeria was still profitable but low and the estimated average technical and cost efficiency levels from the DEA approach were 0.721 and 0.295, respectively. Nevertheless, the study did not consider the effect of small-scale rice farmer income, rice farming production output, and rice value chain on internally generation revenue

Ohen and Ajah (2015) examine the cost and return analysis in small-scale rice production in Cross River State. Data collected were analyzed using descriptive and inferential statistics. The findings of the study reveal that small-scale rice production in the area was profitable; Age of the farmer, farm size, education and cost of seed were the significant factors that affected rice production in the study area. However, the extent to which small-scale rice farming affect the internal generation revenue was not mentioned.

Igboji, Anozie, and Nneji (2015) investigate socio-economic factors and profitability of rice production among small-scale farmers in Ebonyi state. The study adopted a descriptive technique and multiple regression analysis and factor analysis. The findings revealed that socio-economic factors have a significant impact on the profitability of rice production among small-scale farmers in Ebonyi state, Nigeria. Meanwhile, the study failed to examine the effect of small scale rice farming on, small-scale rice farmer income, rice farming production output, and rice value chain on internally generation revenue.

III. METHODOLOGY

The study adopts a survey research design. The study collected cross-sectional data from Argungu LGA of Kebbi State in order to describe and interprets what exists at present. Primary data was sourced via questionnaire instrument, semi-structured interview and focus group discussion on the effect of small-scale rice farming on the internally generated revenue in Argungu local government area of Kebbi State, Nigeria, while secondary information was sourced from relevant published and unpublished literature, textbook, newspapers among other. Thereafter, both quantitative and qualitative data are triangulated for better research results. The primary data collected was measured on various scale ranges from nominal, ordinal and interval scale. The test employed in this study is logist it regressions. However, the target population of this study comprises the entire categories of classified small scale rice farming operating in the area (that is small scale farmer with less than ten household workers or whose investment in machinery and equipment does not exceed six hundred thousand naira) However, due to the unknown population figure of these sets of people which population may not be correctly defined in order to do thorough and realistic study Godden (2004) suggested that probability sampling size determination is appropriately, it argued that such unknown population could be regard as infinite. Thus, following Godden (2004), this sample size was determined by using a formula for an infinite population as suggested by Godden (2004) as:

$$S = \frac{Z^2\, p(1-p)}{C^2}$$

Where: S= the sample size, P = Percentage of success, C =Confidence interval and Z = Confidence level. With 95% level of confidence (corresponding value of 1.96) and a confidence interval of 0.05(5%) and Percentage of success is 50%, the sample size is calculated thus:

$$S = \frac{(1.96)^2\ x\ 0.5\ x\ 0.5}{(0.05)^2}$$

= 384.16 ≈ Three hundred and eight four (384) targeted population.

Subsequently, 384 questionnaires were proportionate apportioned in various farm settlement based on the concentration of small scale rice farmers in the area. In carrying out this survey research, the multi-stage sampling technique was adopted, in the first stage, all the rice farm settlement were identified and listed thereafter; following the sampling size determined above the entire rice farm settlement were group into 8 areas at least each of area of rice farm settlement have not less than 48 questionnaires.

In the second stage, convenient sampling technique was employed to select the respondents who could provide information on the impact of small scale rice farming on internally generated revenue accrued for the Argungu LGA of Kebbi State, Nigeria. This suitable sampling method was achieved through the help of the head of the household family in the study areas that graciously voluntarily provide information on the payment of the levy to LGA. The mass qualitative primary data collected were subjected to a series of treatment; coded, translated, analyzed and tested using logit regression. They are presented, for simplicity, using appropriate tables, charts, graphs as well as texts with the aid of

Eview version 10. Logit model measures the relationship between the strength of a stimulus and the proportion of cases exhibiting a certain response to the stimulus.

It is useful for situations where you have a dichotomous output that is thought to be influenced or caused by levels of some independent variable(s) and is particularly well suited to experimental survey data.

The variable of interest Y (IGR) is binary. The two possible outcomes are labeled as 0 and 1. Where Y = set of "Yes" = (1) responses that agreed that the internally generated revenue is a function of small scale rice farming or Y = set of "No" = (0) responses that disagreed that internally generated revenue is not a function of small scale rice farming. The study model Y as a function of explanatory i.e., X = (X1,....., Xp).

Where, X1, = SSRF stand for small scale rice farming which is measured by the size of a hectare of farmland and monetary values of other factors input.

X2, = RFY represent small scale rice farmer income which is measured by total monetary sale value of the quantity of bags of rice produced and sold within a period of one year

X3, = RPO symbolize small scale rice farming production output which is measured by the total quantity of bags of rice produced within a period of one year

X4, = RVC represent small scale rice value chain which is measured by the average value of the quantity of bags of rice produced but not sold directly to market but passes through intermediary within a period of one year

The Binary regression models are specified in line with Spector and Mazzeo, (1980) as follows;

$P(Y = 1/X) = F(\beta_0 + \beta 1X_i + \ldots + \beta pXp)$

With

(a) $F(u) = \frac{1}{1+\exp(-(u)}$ *or* $L_i = In(\frac{Pi}{(1-Pi)}) = \beta_i + \beta 2X_i + u_i$ *Logit*

(b) $0 < F(u) < 1$ and F increasing

Interpretation of parameters

$$\frac{dP(Y = 1/X)}{dX_1} = \beta_1 f(\beta_0 + \beta_1 X_i + \ldots + \beta pXp)$$

With f = F' always positive.

i. Marginal effects are non constant, different for each value of X.
ii. Sign of β_1 = Sign of marginal effect
iii. Marginal effects can be summarized by evaluating at the average value $X = X$.

At *Logit model*: interpretation in terms of Odds-Ratio

$$\log OR = \log \left(\frac{P(Y = 1/X)}{P(Y = 0/X)} \right) = \beta_0 + \beta_1 X_i + \ldots + \beta pXp$$

Prediction

For an observation $x_i = (x_{i1},\ldots,x_{ip})$ we predict the probability of success as

$P(Y = 1/X = x_i) = F(\beta_0 + \beta_1 x_{i1} + \ldots + \beta p x_{1p})$. ^

Set $y_i = 1$ if $P(Y = 1 \backslash X = \hat{x}_i) > 0.5$ and zero otherwise.
(Other cut-off values than 0.5=50% are sometimes taken)

In explicit mathematical functional equation terms

IGR = f (SSRF)…… (1)

Where;

IGR; symbolize change in internally generated revenue as a result of marginal effect of small scale rice farming. This is measured qualitatively through dichotomous responses on whether small scale rice farming influences changes in IGR in terms of increase in rice farmer income (RFY), rice production output (RPO), and rice value chain (RVC) the study areas

Thus, SSRF determine the farmer income (RFY), rice production output (RPO), and rice value chain (RVC) i.e.,

SSRF = RFY + RPO + RVC

Whereas,

SSRF, RFY, RPO and RVC earlier defined

IGR = f (RFY, RPO, RVC) ……..…… (2)

$$\frac{dP(IGR = 1/X)}{dX_{1\ldots j}} \Longrightarrow = \beta_1 f(\beta_0 + \beta_1 RFY + \beta_2 RPO + \beta_3 RVC)\ldots\ldots$$

α = intercept β_1, β_2, and β_3 are the parameters estimate ε = Measurement error.

A prior expectation, β_1, β_2, and $\beta_3 > 0$

IV. Data Analysis and Results Presentation

This section discussed the data analysis and result presentation at request the set of coded data used for the study is available. The data analysis and result is presented in the following tables as follows,

Table 1
Descriptive Statistic

	IGR	SSRF	RFY	RPO	RVC
Mean	0.974286	21.81429	18.57143	18.25714	20.92857
Median	1.000000	20.00000	20.00000	20.00000	20.00000
Maximum	1.000000	25.00000	25.00000	25.00000	25.00000
Minimum	0.000000	10.00000	10.00000	10.00000	10.00000
Std. Dev.	0.158508	2.967314	4.310883	4.107041	4.014021
Skewness	-5.992936	-0.734813	-0.409528	-0.118761	-1.145544
Kurtosis	36.91528	4.714601	2.590107	2.481879	4.368569
Jarque-Bera	18869.48	74.36997	12.23342	4.737624	103.8634
Probability	0.000000	0.000000	0.002206	0.093592	0.000000
Sum	341.0000	7635.000	6500.000	6390.000	7325.000
Sum Sq. Dev.	8.768571	3072.929	6485.714	5886.857	5623.214
Observations	350	350	350	350	350

Source: Researchers computation, using E-view 10 software

Table 1 described the basic features of the data used in the study. The study observation is 350. The minimum of 0 and maximum of 1 are the option available for the respondents' on the effect of small scale rice farming on the internally generated revenue while a minimum of 10 and maximum of 25 are the score allotted for responses on the effect of the explanatory variables on the dependent variable as stated in the model. SSRF has the highest mean value of 21.81 with the lowest standard deviation of 2.9.

The skewness which measures the degree of asymmetric of the series shows that both the dependent variable (IGR) and all the explanatory variables mirror negative that is long-left tail as well as normal skewness and platykurtosis because all the values of explanatory variables were within the range of 2 to 4 exception of SSRF. The Jarque- Bera is the test statistic which measure the difference of the skewness and kurtosis of the series with those from the normal distribution while, probability is the probability that a Jarque-Bera statistic exceeds (in absolute value) the observed value under the null hypothesis- a small probability value leads to the rejection of the null hypothesis of a normal distribution.

Logit Regression Result

Table 2
Impact of small-scale rice farming on Internal Generated Revenue in Argungu LGA
Dependent Variable: IGR

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-2.819578	1.602994	-1.758944	0.0786
SSRF	0.319117	0.084125	3.793372	0.0001

McFadden R-squared	0.153906	Mean dependent var	0.974286
S.D. dependent var	0.158508	S.E. of regression	0.142752
Akaike info criterion	0.213667	Sum squared resid	7.091570
Schwarz criterion	0.235713	Log likelihood	-35.39181
Hannan-Quinn criter.	0.222442	Deviance	70.78361
Restr. Deviance	83.65932	Restr. log likelihood	-41.82966
LR statistic	12.87570	Avg. log likelihood	-0.101119
Prob(LR statistic)	0.000333		

Obs with Dep=0	9	Total obs	350
Obs with Dep=1	341		

Source: Researchers computation, using E-view 10 software

Table 2 present the logit regression. Parameters were obtained by maximization of the log-likelihood function. Convergence achieved after 8 iterations to find the maximum of the log-likelihood function -35.39. The estimated coefficients parameter of the latent model is 0.319 which implies that if the SSRF goes up by an infinitesimal amount, the probability for the variable IGR taking the value one rises by 0.319 is approximately

39 %. The overall model is significant given LR stat = 12.87570 with Prob(LR statistic) = 0.000333, P<0.001). The McFadden R-squared is pretty low (R^2 = 0.15).

In addition, Goodness-of-Fit Evaluation for Binary Specification using Andrews and Hosmer-Lemeshow Tests the H-L and Andrews Statistic values is 78.8423 and 283.6791 respectively with the Probability Chi-Square value of 0.0000 which is less than 0.05% level of significant suggest that the overall model is significant refers to Appendix for the detailed outcome. More so, for predictive accuracy the expectation-prediction table result shows that 98% is correctly classified, with a sensitivity of only 33.3% and a specificity of 100%. The gain is only 0.86 percentage points w.r.t. a majority forecast (i.e. `all applications are accepted'). The test of hypothesis is based on the p-value of Likelihood Ratio (LR) statistic and the p-value of coefficient parameter; reject H0 for a large value of LR; if p-value < 0.05 otherwise accept. The LR statistic is 12.88 while, Prob(LR statistic) is 0.00. Also, the p-value of SSRF is 0.00 < 0.05 level of significant. Therefore, the null hypothesis one which stated that small scale rice farming does not have any effect on the internally generated revenue in Argungu LGA of Kebbi State, Nigeria is rejected and the alternative hypothesis is accepted; the study concluded that small scale rice farming has a significant effect on the internally generated revenue.

Table 3

Nexus between Farmer Income, Output, Value Chain and Internal Generated Revenue

Dependent Variable: IGR
Method: ML - Binary Logit (Quadratic hill climbing)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-3.998319	2.505965	-1.595521	0.1106
RFY	0.125643	0.081392	1.543684	0.1227
RPO	0.094103	0.094405	0.996803	0.3189
RVC	0.200795	0.069222	2.900747	0.0037

McFadden R-squared	0.139790	Mean dependent var	0.974286
S.D. dependent var	0.158508	S.E. of regression	0.156283
Akaike info criterion	0.228470	Sum squared resid	8.450800
Schwarz criterion	0.272561	Log likelihood	-35.98231
Hannan-Quinn criter.	0.246020	Deviance	71.96461
Restr. Deviance	83.65932	Restr. log likelihood	-41.82966
LR statistic	11.69470	Avg. log likelihood	-0.102807
Prob(LR statistic)	0.008506		

Obs with Dep=0	9	Total obs	350
Obs with Dep=1	341		

Source: Researchers computation, using E-view 10 software

Table 3 presents the relationship between farmer incomes', (RFY), rice output (RPO), rice value chain (RVC) and as well as internal generated revenue (IGR). The constant (C) also known as the intercept is the value of IGR when other independent variables have a value of zero. The result as revealed that the constant (C) is -3.998319 and it is insignificant at 5% level of significance (i.e. 0.1106 > 0.05). This implies that IGR will decrease by approximately -3.99% when other independent variables in the model are zero. Furthermore, the results show that coefficient of RFY, RPO and RVC are 0.125, 0.094 and 0.200 with positive sign; this result suggests that both the dependent and independent variables are moving in the same direction. However, RFY and RPO relationship with IGR are statistically insignificant at 5% level of significance because the associated p-values = 0.122 and 0.318 > 0.05) while that of RVC is statistically significant with the p-value = 0.003 < 0.05 level of significance. The test of hypothesis is based on the p-value of Likelihood Ratio (LR) statistic; reject H0 for a large value of LR; if p-value < 0.05 otherwise accept H0. The LR statistic is 11.69470 while, Prob(LR statistic) is 0.00 < 0.05 level of significance Therefore, the null hypothesis two which that stated that Small-scale farmers' income, rice production output, and rice value chain does not have any relationship with internally generated revenue in Argungu LGA of Kebbi State is rejected and the alternative hypothesis is accepted; the study concluded that Small-scale farmers' income, rice production output, and rice value chain have significant relationship with internally generated revenue in Argungu LGA of Kebbi State. The finding of this study is in agreement with studied carried out by Mbaye, Bèye, Guèye, Lokonon, and Ndione, (2018); Ogbalubi and Wokocha (2013) which found a positive relationship between rice value chain and Nigerian economy.

V. Conclusion and Recommendations

This study examines the effect of small scale rice farming on the internally generated revenue in Argungu LGA of Kebbi

State. In-depth understanding of the effect of small scale rice farming on the internally generated revenue in relation to small scale rice farmer income, rice production output, and rice value chain will enable local and State government, as well as stakeholders in agricultural sector such as; Small scale rice farmers, Rice processor and Market men/women to be well informed on the significant effect of small scale rice farming on the internally generated revenue particularly in Argungu LGA of Kebbi State, Nigeria where the study is been carried out.

However, econometric approach of logist regression analysis was employed to analyzed primary data sourced from field survey. The result analysis has shown that small scale rice farming has positive and significant effects on the internally generated revenue. Also, the findings revealed that small-scale farmers' income, rice production output, and rice value chain have significant relationship with internally generated revenue in Argungu LGA of Kebbi State. Consequently, since small-scale farmers' income, rice production output, and rice value chain are germane to internal generated revenue; thus, this study recommended as follows, that Local and State government, as well as stakeholders in rice industry should encourage small scale rice farming to continue thrive through provisions of rice farming inputs such as, quality seedling, fertilizer, and microcredit to small-scale farmers who may be willing to engage in small-scale rice farming.

REFERENCES

[1] Adesina, A (2013). Rice consumption importation in Nigeria, no solution and insight. http://www.vanguardngr.com/2013/12/rice-consumption-importation-nigeria-solution-sight/

[2] Adi, A,, Yakubu, M.I and Eche, E.(2015). Internal revenue generation in the Taraba State, Nigeria: problems and prospects. *International Journal of Economics, Commerce and management. 3(2); ISSN 2348 0386*

[3] Agbamu, J and Fabusoro, E. (2015). Economic analysis of rice farming in Ogun state of Nigeria and the implications for agricultural extension service. ***J*ournal of Agricultural Extension,** *5(3),2408-6851. http://aesonnigeria.org*

[4] Ajah, J and Ajah, F.C. (2014).Socio-economic determinants of small-scale rice farmers' output in Abuja, Nigeria. *Asian Journal of Rural Development, 4(1),16-24.*

[5] Akpan, S. (2013). Internally Generated Revenue (IGR) and Infrastructural Development in Akwa Ibom State. European Journal of Business and Management. 5 (31); 164-172. ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)

[6] Asiru, M.A, Iye, G.A and Olaoluwa, K. (2018). Impacts of rice importation on Nigeria's economy.*Journal of Scientific Agriculture, 2018(2),71-75*

[7] Central Bank of Nigeria. (2017). Annual report and statement of accounts December. Abuja. Nigeria.

[8] Igboji. C.; Anozie, R.O and Nneji, C.P.(2015).Analysis of socio-economic factors and profitability of rice production among small scale farmers in Ebonyi state.*Journal of Agriculture and Veterinary Science, 8(2), 20-27. (iosr-JAVS) e-ISSN: 2319-2380, p-ISSN: 2319-2372. www.iosrjournals.org.*

[9] Johnston, B.F. and Mellor, J.W. (1961), *The Role of Agriculture in Economic Development,* American Economic Review, 11(4)

[10] **Lashiola, K. (2012). Small-scale agricultural farming, food security. Newsflashes,** presentations made at a seminar hosted by Afesis-corplan on small scale/holder agriculture in November 2011

[11] Mbaye, A.A., Bèye, A., Guèye, A., Lokonon, B. and Ndione, Y.(2018). Generating employment and increasing income in agricultural value chains and thereby fostering food security: Case studies of rice and cotton in Benin and Senegal, *Center for Development Research, Bonn, ZEF –Discussion Papers on Development Policy No. 254, 46.ISSN: 1436-9931*

[12] Nwele, J.O. (2016).Economics of rice production and marketing in Nigeria: A study of Ebonyi state. *International Journal for Research in Business, Management and Accounting, 2(5), ISSN: 2455-6114.*

[13] Ogbalubi, L.N and Wokocha,C.C. (2013). Agricultural development and employment generation: The Nigeria experience. IOSR Journal of Agriculture and Veterinary Science, 2(2),60-69 ISSN:2319-2380, p-ISSN:2319-2372. www.iosrjournals.org

[14] Ohen, S.B and Ajah, E. A. (2015).Cost and return analysis in small scale rice production in Cross River State, Nigeria.*International Research Journal of Agricultural Science and Soil Science, 5(1), 22-27. (ISSN: 2251-0044)*

[15] **Okodua, H. (2019).** Assessing the Impact of Rice Sector Policy Reforms on the Income Mobility of Rural Households in Nigeria. *The Open Agriculture Journal, 13 (), 2019 ISSN: 1874-3315*

[16] Olusola, O.O and Siyanbola, T.T.(2014). The role f internally generated revenue in local government administration in Nigeria *Journal of Business Management & Social Sciences Research, 3,(5), ISSN: 2319-5614,*

[17] Samuel, C.R. (2016).Evaluating the Impact of Policies on Production Efficiency of Nigeria's Rice Economy. *A dissertations submitted to* Walden University

[18] Sokvibol, K.; Li, H and Pich, L. (2016). Technical efficiency and its determinants of rice production in Cambodia. *Economies, (4),22 doi:10.3390/economies4040022 www.mdpi.com/journal/economies*

[19] Terwase, I.T and Madu, A.Y. (2014). The impact of rice production, consumption and importation in Nigeria: The political economy perspectives. *International Journal of Sustainable Development & World Policy,3(4), 90-*99

[20] Unggul, H; Rudi, P; Tri, H and Primanthi,M.R. (2015).An analysis of technical efficiency of rice production in Indonesia. *Asian Social Science; 11(3), 1911-2017 E-ISSN 1911-2025* Published by Canadian Center of Science and Education.

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