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# The role of small scale rice farmers in diversification programme in Lau local government area of Taraba, Nigeria

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**Abstract**
The study examines role of small scale rice farmers in Nigeria's economic diversification programme. Primary data were used for this study and data were collected with the aid of structured questionnaires administered to one hundred and fifty (150) small scale rice farmers in Lau local government area of Taraba State Nigeria. Out of the eight (8) independent variables ($X_1$ to $X_8$) used four (4) of them are significant. These are farm size in Ha($X_3$) transport costs ($X_5$) seed quality in Kg ($X_6$) and quality of fertilizer in Kg($X_7$). However $X_3$ and $X_3$ were significant at 10% level each. They positively affected the output of rice; indicating that the more the farm size the more the output The higher the output, the higher the cost of transportation. The regression model is highly significant at 1% levels as shown by the F-statistics. The $R^2$ of 55 indicated that 55% of the variability in rice output is accounted for by the various independent variables used. In view of these results, through improved extension services should be provided to rice increase productivity; thereby providing more food, income and uplifting farmer's standard of living. Related xxxxx sectors will have sufficient raw materials for value addition, etc.

**Keywords:** small scale, rice farmers, economic diversification

## Introduction
Most food crops produced in Nigeria comes from the efforts of the small scale resource poor farmers who depend largely on traditional training farming systems for their agricultural inputs and output. (Ogunbameru et al 1999) [6] Over the years, crops output has been generally low with dry grain products in range of 200 to 300 1000Kg/ha from estimated 350,000ha of upland crops cultivated annually. Recurrent food crisis have occurred among rural communities partly due to low food production advice, high rate of population growth. Some attributed this low food crop production to lack of improvement in traditional farming system In Nigeria. To attain sustainable agricultural development, control in use of land recourses, environmental friendly practices raise standard of living, and intergenerational improvement, agricultural development programs should be diversified to produce more good jobs, food and revenue.

## Statement of The Problem
Recent mono-economic nature of Nigeria through dependence on petroleum sector makes the country decline in her agricultural production activities and decline to importation of goods. Agricultural research institutes lack fund, promotion and injection their finding to intended beneficiaries. Worse affected are small scale farmers who access to land, fund and other agricultural inputs were either restricted by law or lack of modern technologies to small from size and dimiasing output as well as their income. It is anticipated that this paper will look into these problems with views to finding problem realistic solution to mall scale farming in Nigeria is worse than the national's economy.

## Significance of the study
The small scale farmer can be described as any category of farm producer whose area of farm holding ranges between 1-5ha of land.

## Research Methodology
### The study area
The Study was conducted in Lau local government area of Taraba state. The area located between latitude 8°5' and 9°25' north and longitude 11°5'- 11°47 east of the equator. It relies within the leme valley and has a:

- Tropical savannah climate with wet dry seasons (Adebayo, 1997) [2]
- The dry season kick off November and terminate in April (six months) while the wet seasons spread from May to October (six months).

### Source of data and sampling procedure
- Primary data were used for this study and the data were collected with the aid of structured questionnaires which were randomly administered to one hundred and fifty (150) small scale rice farmers in Lau local government area of Taraba state.

### Method of data analysis
In analyzing the data for this study; both descriptive and inferential statistics were employed. The socio-economic characteristic of the farmers such an education level, age, marital status, capital etc were analyzed and presented in percentages. The influence of various inputs on output of rice

farmers were examined by the use of multiple regression analysis. In regression analysis model, four functional forms were used. These include linear, exponential, semi-log function. The general forms of the equations are as shown below:

**1. Linear function**

$Y=b_0+6_1x, + 6_1X, + B_2x_3+ B_8x_8+ui$

**2. Exponential function**

$Lny = b_0+b_1x+6_2x_2+b_3x_3+..... +b_8x_8+ ui$

**3. Semi-log function**

$Y=lnb0+b1lnx1b2lnx2b3lnX3+... +B8lnX8-i-ui$

**4. Double-logarithm function**

$Lny=lnb_0b_1lnx_1+b_2lnx_2lnx+b_3lnX_3+...b_8lnX_8+ ui$

Where,
Y=output of rice (in 100Kg bags)
$X_1$= age of farmers (in years)
$X_2$= number of people in household
$X_3$= farm size (in hectare)
$X_4$= farming experience (in years)
$X_5$= transport cost (in naira)
$X_6$= quantity of rice seed used (in Kg)
$X_7$= quantity of fertilizer used (in Kg)
$X_3$= amount spend on hire labour (in M)

## Results and Discussion

### Socio-economic and cultural characteristics of rice farmers.

The socio-economic factor of the respondents may contribute to, or affect the level of production of small scale rice farmers. This section examines some of these features which include Age, literacy level, number of people in household, farming experience and land ownership methods (see tablel).

**Table 1:** Distribution of respondents according to age, literacy level and number in household, framing experience and land ownership methods.

| S/N | Distribution Age | No. of Respondents | Perge. (%) |
|---|---|---|---|
| 1. | 25-35 | 52 | 35 |
| | 26-45 | 62 | 41 |
| | 46-55 | 21 | 14 |
| | Above 55 | 15 | 10 |
| 2. | Literacy level | | |
| | No formal education | 35 | 23 |
| | Primary education | 40 | 27 |
| | Secondary education | 25 | 17 |
| | Post-secondary education | 50 | 33 |
| 3. | Number of people in the | | |
| | Household | | |
| | 1-5 people | 30 | 20 |
| | 6-8 people | 46 | 31 |
| | More than 8 people | 74 | 49 |
| 4. | Farming expenses | | |
| | 1-5 years | 62 | 41 |
| | 6-10 years | 50 | 33 |
| | 11-15 years | 27 | 18 |
| | More than 15 years | 11 | 7 |
| 5. | Land acquisition | | |
| | Inheritance | 34 | 23 |
| | Borrowing | 80 | 53 |
| | Land from husband | 9 | 6 |
| | Pledge | 15 | 10 |
| | Others | 12 | 8 |
| | Total | 150 | 100 |

**Source:** *Felid survey.*

From the table 1, it can be seen that 52 respondents (35%) fail with the age bracket 25-35 years while majority (41%) belong to the age range 26-45 years. Also 21 of the respondents (31%) fail within the age brackets og 46-55. Aged farmers (above 55 years) form only 10% of the respondents. The above analysis indicated that majority of-the respondents are youths and are expected to be energetic and carry farm activities vigorously. Jibowo (1980) reported that vigor, interest and enthusiasm act as impetus to youth in undertaking agricultural activities. The literacy level distribution potrayed that 23% of the respondents had no formal education, 27% and 17% obtained primary and secondary school education respectively while many (33%) of respondents are literate and it is adventurous in the area for effective farm management and adoption of innovations. The distribution per number of people in a household indicates that majority of the respondents (74) which form 49% had more than 8 people in their household while 20% of the respondents had between 1-5 people and 31% had between 6-8 people in their household. This means that family labour instead of hired labour is being

utilized in that area. More so the table shows that in the areas of land ownership/acquisition, inheritance is 23%, borrowing 53%, land obtained from husband 6% and 15 respondents (10%) obtained their farm lands through pledges. Since majority operate on borrowed land, it means that the planning horizon for most farmers in the study area is short because they do not own the lands perhaps due to land tenure inhibition. Abdullahi (1981) B said that land tenure system and ethnic boundaries make it difficult for Nigerians to easily acquire land for agricultural purposes outside their ethnic and cultural locations. Apart from the respondent socio-economic/cultural characteristics, the study found out that other factors affect productivity negatively or positively. These factors include inputs such as seed variety used, farm size under cultivation, labour, capital and accessibility to extension services (see table 2)

**Table 2:** Distribution of respondents according to seed variety, sources of seeds, farm size, sources of farm labour, capital and contact with extension service.

| SIN | Distribution | No. of Respondents Perc. (%) | |
|---|---|---|---|
| 1. | Variety of rice seed planted | | |
| | Local | 80 | 53 |
| | Improved | 30 | 20 |
| | Others | 40 | 27 |
| 2. | Source of rice seed | | |
| | ADP | 36 | 24 |
| | Previous market | 80 | 53 |
| | Market | 34 | 23 |
| 3. | Farm size | | |
| | 1-5ha | 116 | 77 |
| | 6-10ha | 23 | 15 |
| | Above 10ha | 11 | 7 |
| 4. | Source of farm Labour | | |
| | Family | 40 | 27 |
| | Hired | 42 | 28 |
| | Both family & hired | 53 | 35 |
| | Group contribution | 08 | 5 |
| | Others | 3 | 4 |
| 5. | Source or capital | | |
| | Personal savings | 108 | 72 |
| | Loan from friends | 12 | 8 |
| | Loans from adashi | 25 | 17 |
| | Loans from bank | 2 | 1 |
| | Others | 3 | 2 |
| 6. | Contact with Extension | | |
| | Yes | 25 | 17 |
| | No contact | 125 | 83 |
| | Total | 150 | 100 |

The distribution of respondents, based on seed variety planted revealed that 80% of the respondents (52%) used local variety while 30 farmers (200/n) used the improved variety. This means that farmers found it difficult to have access to improved variety owing to its relative scarcity and high lost. The use of local variety of seed can retard productivity (Joshua and Sing, 1981) as cited by Adebayo and Onu (1999) [3] said that the type of seed planted can put limitations to the performance of other expensive inputs e.g fertilizers, chemicals, management etc. Table 2 also indicate that 8-0 respondents (53%) got their seeds from previous harvest, 24 from Taraba ADP and 23% from open markets. The use of stored seeds from previous harvest has dual benefits: it guides against expenses on seed procurement and ensure the quality of planting materials. However, genetic segregation may arise if a stock of seed 19s used continuously over time and this will adversely affect the quality and quantity of yield.

Majority of respondents (77%) cultivate areas of land ranging from hectares, while 15% cultivate between 6 and 10 hectares. This distribution dearly shows that the respondents are mainly small-scale farmers. The source of farm labour shows that many (35%) employed both hired land family labour respectively. Only 5% use group contribution as source of labour on their farms.

As for the capital base distribution, majority of the respondents (72%) source capital through personal savings, 17% through loans from "adashi", 8% from friends and only 1% obtained capital from bank in the areas and lack of collateral by farmers. Majority of the respondents (83%) had no access to agricultural extension service while only 17% indicated having contact with extension, thus farmers in the area .may not have been benefiting from practices.

**The Regression Analysis**

The result of the regression analysis (see table 3) indicated that the linear function is the best of the four functional forms tried based on the statistical, economic criteria. Out of the 8 independent variables ($X_1$-$X_8$) used 4of them were significant. There are $X_3$ (farm size in ha), $X_5$ (transportation costs), $X_6$ (seed quantity in kg) and $X_7$ (quantity of fertilizer in kg). However $X_3$ and $X_5$ were significant at 10% level each hence they positively affect the output and the higher the cost of transportation.

The variable $X_7$ is significant at 5% level where as $X_6$ is the most significant of all variables because it was significant at 1% and if positively affects rice output signifying that the more the quantity of seed planted the more the output since if affects the plant population.

The regression model is highly significant at 1% level as shown by the F- statistic. This signifies that the whole equation is at best fit. The $R^2$ of 0.55 indicated that 55% of the variable in rice output is accounted for by the various independent variables used. Table 3 below gives the result of the regression analysis.

**Table 3:** Result of the regression analysis

| **Functional form dependent variable constant: X1, X2, X3, X4, X5, X6, X7, X8, $R^2$, F** |
|---|
| Stat |
| Linear |

| | | | | | |
|---|---|---|---|---|---|
| 6.458 | -0102 | -0213 | 2.440 | 0.024 | 0.019 |
| 0.051 | 0.0003 | 0.0008 | 0.55 | *** | |
| (1.0) | (0.85) | * | * | *** | *** |
| (1.77) | (1.4) | (1.82) | (5.53) | | |
| (1.92) | (0.071) | | | | |

**Source:** field survey.
Figure in parenthesis are t-value
*** - means significant at 1% level
** - means significant at 5% level
* - means significant at 10% level

**Recommendations**

Based on the findings, researchers hereby put forward following suggestions:

1. Government should extend credit facilities to farmers at low intrest rate with light collaterals.
2. Essential inputs e.g fertilizers, improved seed, chemicals etc should be made available and affordable to small scale farmers.
3. Extension package should be redesigned and targeted at rural rice farmers.

**Conclusion**

The study was on economic analysis of rice production in Lau LGA of Taraba state, Nigeria. Findings revealed that quantity of seed planted, quantity of fertilizers used, the farm sizes under cultivation and transportation cost affect rice output significantly.

From the foregoing, it is true that if the government of Nigeria can improve the aforementioned factors, rice can be produced at optimum level in the study area and other similar areas such that Nigeria can be among the comity of rice export nations. Once this is achieved it will go a long way in diversifying the country's economy by improving revenue generation, standard of living, etc.

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