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# ASSESSMENT OF THE PROFITABILITY OF PADDY PRODUCTION IN EDU LOCAL GOVERNMENT AREA OF KWARA STATE, NIGERIA

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## Abstract

Despite the concerted efforts to make Nigeria self-sufficient in rice production, the achievement of the policy objective has remained elusive. There is therefore need to examine the various factors influencing the local rice production with a view to re-direct efforts towards the achievement of the policy objective of becoming self-reliant in rice production. This study is therefore designed to assess the profitability of paddy rice production in Edu local government area of Kwara State, Nigeria. 90 paddy rice farmers in Edu local government area of Kwara State, Nigeria were randomly sampled using a structured questionnaire. Descriptive statistics was used to analyze the socio-economic characteristics of the respondents, Net farm income, gross margin and net profit was also examined for paddy rice enterprises and lastly, a regression analysis was used to examine the factors influencing the cost of paddy rice production in the study area. 34.7% were between the age range of 21-40 years old, while 31.1% were 41-60 years old. Also 66.7 % of the respondents had no formal education, 12.2 % had only primary school education, 17.8 had secondary school education while only 3.3% had tertiary level of education. Farm budget result shows that the average gross margin per farmer was ₦213,922.2 per year while the net farm profit was estimated at ₦126,690.4. Cost of controlling for damage and household size were significant at 1%, cost of plant the seeds years of rice farming experience were both significant at 10% and quantity of output was significant at 5%. The result showed that rice production is a profitable venture, implying that if the farmers are assisted, their income and livelihood will be further enhanced.

**Keywords:** Profitability, Paddy, Kwara State, Shonga and Nigeria

## INTRODUCTION

Rice is the world's most important food product (Opeyemi *et al.*,2015). Rice is the world`s most important staple food crop consumed by more than half of the world over 4.8 billion people in 176 countries with over 2.89 billion people in Asia, over 150.3 million people in Africa (Opeyemi *et al.*,2015). Rice (Oryza sativa L.) is the second cereal crop and a staple food for about 2/3 of the world population. It is a major source of energy, is hypoallergenic and easily digested,

and provides protein with high nutritional quality. Rice is harvested as paddy or rough rice grain in the field. A paddy grain is 20% husk, 8-12% bran and embryo, and 70-72% endosperm, depending on the degree of milling (Firouzi, 2014). Furthermore, Rice (Oryza sativa) is a major staple food for millions of people in West Africa and the fastest growing commodity in Nigeria's food basket. The demand for rice has been increasing at much faster rate in Nigeria than in other West African countries since the mid-1970s (Umeh *et al.*, undated). Nigeria is the largest rice producing country in West Africa, but is also the second largest importer of rice in the World. Current policy initiatives aim at prioritizing the rice sector and decreasing dependence from international imports, fostering production and supplying agricultural inputs (Cadoni *et al.*,2013). Rice is cultivated in virtually all the agro-ecological zones in Nigeria. Despite this, the area cultivated to rice still appears small.

Since the early 1960's, the West Africa Rice Development Association (WARDA) had made several efforts aimed at achieving self-sufficiency in rice production in West Africa and thus focused on eliminating dependence in rice import from outside the region despite effort by WARDA and several agencies in Nigeria, a wide gap continue to exist between domestic rice supply and demand in region (WARDA, 2000). According to Fakayode *et al,* (2010), Nigeria Government established the Federal Rice Research Station (FRRS) at Badeggi in1970 and the National Cereal Research Institute (NCRI) in 1974. Also established were the National Seed Service (NSS) with the assistance of the Food and Agriculture Organization (FAO) in 1975, and Operation Feed the Nation (OFN) in 1976. Other government programmes were the River Basin Development Authority (RDBA), Agricultural Development Projects(ADP), the National Grain Production Programmes (NGPP), the Structural Adjustment Programmes (SAP), and the Presidential Initiative on Increased Rice Production, Processing and Export. The above mentioned programmes, with the last, which was the latest, was aimed at addressing the ever widening demand-supply gap for rice and stimulating surplus rice harvest for export by the year 2007.

Rice is grown in Nigeria on 1.77 million hectares, ranks fifth after sorghum (4.0m ha), millet (3.5m ha.) cassava (2.0m ha) and yam (2.0mha), but if placed on a social scale, it can well be ranked first because it is no longer just a mere festival meal as in the past, but the staple of most homes in urban, and rural area (Longtau, 2003). It has been an important food commodity for most people in sub-Saharan Africa particularly west Africa where the consumption of cereals mainly sorghum and millet has decreased from 61% in the early1970`s to 49% in the early 1990`s while that of rice has increased from 15-26% over the same period (Erhabor *et al.*,2011). Rice is an important annual crop in Nigeria. It is one of the major staples, which can provide a nation's population with the nationally required food security minimum of 2,400 calories per person per day. The foregoing therefore raises pertinent questions regarding the place of local Nigerian rice production in the nation's supply. As opposed to the high degree of importance and value associated with their produce, farmers

in Nigeria are generally regarded as poor. For rice, the production resources are expensive and inadequately available to support rice production in commercial quantity. Consequently, the farmers operate small farm sizes and are unable to apply optimally farm inputs as required to reach the optimum production levels and corresponding returns (Adenuga *et al.*,2013). It is against this background that this study seeks to examine the profitability of paddy rice farmers in Edu local government Area, Kwara State. The outcome of the study could therefore serve as a pointer to policy options that could be adopted by stake-holders in the domestic rice industry, to raise the production for local rice thereby raising the nation's rice production at the local farm level. This in turn will reduce Nigeria's import dependency on rice. The main objective of this study is to assess the profitability of paddy rice production in Edu local government area, Kwara State, Nigeria. The specific objectives of the study are to:

(i). Identify the socio-economic characteristics of paddy rice farmers in the study area;

(ii). Examine the factors influencing the cost of production.

(iii) Assess the profitability level of paddy rice production in the study area.

## METHODOLOGY

### Study Area

The study was conducted in Kwara State, Nigeria. The state consists of sixteen (16) Local Government Areas including Edu Local Government Area where the study was specifically carried out being the area where the foreign commercial farmers are situated. The state is located in the Mid-north – western part of the country within latitude $7^0$45'N-$9^0$30'N and longitude $2^0$30'E-$6^0$ 25'E. The state shares boundaries with Oyo, Osun and Ondo to the south, Kebbi and Niger to the North, Kogi to the East and Republic of Benin to the West. The population of the state is put at 2,371,089 and covers an estimated land area of 32,500km$^2$ out of which75.3% is cultivable and found suitable for almost all forms of food crops (Omotesho et al.,2012, Bukola, 2008). The state has two main climatic seasons, the dry and wet season. Annual rainfall ranges between 1000 to 1500mm while the average temperature lies between 30ºc and 35ºc. It also has an estimated figure of 203,833 farm families with the majority living in rural areas. The State is divided into four zones by the Kwara State Agricultural Development Project (KWADP) in consonance with ecological characteristics, cultural practices and project's administrative convenience. These are: Baruteen and Kaima Local Government Areas (Zone A); Edu and Patigi Local Government Areas( B); Asa, Ilorin East, Ilorin South, Ilorin West and Moro Local Government Areas(Zone C); and Ekiti, Ifelodun, Irepodun, Offa, Oyun, Isin and Oke-Ero Local Government Areas (Zone D).

### Source of data and Sampling Instrument

The data was collected using structured questionnaire. The samples were drawn from Shonga community in Kwara State, Nigeria. The data for the study were primary. The primary data was gotten through the administration of a well-structured questionnaire administered to the farmers sampled. Information was also gotten from the following sources; journal

publications, bulletins, and surfing of the internet.

**Sampling Technique**

The study area was purposively selected due to it prominence in rice production in Kwara State. Thereafter, a list of rice farmers was collected from their association and simple random technique was used to select the respondent from the farming community (Shonga community). A well-structured questionnaire was administered to the respondents to collect data on the socio-economic characteristic of the paddy rice farmers as well as the data used to compute the profitability of paddy rice production in the study area.

**Analytical Technique**

The data collected for this study were analyzed using a number of analytical tools. Descriptive statistics was used to present the socio-economic characteristics of the respondents. Aspects of descriptive statistics which were used included frequency percentages and tables, while the profitability of paddy rice enterprises was determined by employing farm budget analysis (Okoruwa, 2005). Net Farm Income (NFI) was calculated by subtracting the production costs from the gross production value and regression analysis was used to examine factors influencing production of paddy rice production in the study area. Computing the net income enables one to determine the profit level of a firm when the fixed cost can be calculated (Umar et al., 2008).

$$NFI = \sum P_i Y_i - \sum P_{xi} X_j - \sum Z_k \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

Where:

**NFI = Net Farm Income for the paddy rice production.**

$P_i$ = price of paddy rice

$Y_i$ = Quantity of paddy rice

$P_{xi}$ = Price of variable inputs used in paddy rice production

$X_j$ = vector of variable input used

$Z_k$ = The cost of the $k^{th}$ fixed inputs

$\sum$ = The summation sign.

The regression model is implicitly stated as follows:

**Model Specification**

$$Yi = f(X_1, X_2, X_3, X_4, X_5, X_6, U,) \quad \ldots\ldots\ldots(2)$$

Where,

$X_1$ = Age (Years)

$X_2$ = Level of education (dummy variable)

$X_3$ = Household size (actual household Numbers)

$X_4$ = Size of farm (ha)

$X_5$ = Estimated cost of chemicals (Naira)

$X_6$ = Cost of planting materials (Naira)

U = Error term

## RESULTS AND DISCUSSION

### SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

The major socio-economic characteristics of the respondents covered in the survey were presented.

Analysis of the socioeconomic characteristics of the paddy rice farm households as shown in Table 1. The distribution of the farmers shows that 34.7% were between the age range of 21-40 years old, while 31.1% were 41-60 years old. Only

13.2% of the respondents were 61-80 years old. The mean distribution of the age of the respondents was 40 years. The results show that majority of the farmers are in their energetic years of age. This was close to the research finding of Okoruwa and Ogundele (2003) which put the average of Nigerian rice farmers at 42 years.

Result shows that 60% of the respondents were male while 40 % of the sampled respondents were females. The result shows that males were more involved in paddy rice farming. This agrees with Umeh et al, (undated), which indicated in a study that rice producers in the survey are dominated by the male, indicating that men who naturally are the stronger gender carry out most of the activities on the farms.

Also 66.7 % of the respondents had no formal education, 12.2 % had only primary school education, 17.8 had secondary school education while only 3.3% had tertiary level of education. Aseyehegn *et al* (2012) in his study said education plays a key role for household decision in technology adoption. It creates awareness and helps for better innovation and invention. Farmers with little education are often insufficiently prepared for either irrigation tasks or land management. Table 1 shows that the married respondents had the modal distribution with 73.3 %, 13.3 % of the respondents were still single (i.e. not married), 5.6% and 4.4% were widow and widower respectively.

Table 1, shows the distribution of the average annual farm income of respondents. The result shows the income range with the highest frequency of occurrence was ≤ ₦ 100,000. The respondents had 53.3 % , while 26.6% and 14.4 % had an average farm income range of ₦101,000 – ₦ 200,000 and ₦ 201,000 – ₦300,000 respectively. 4.4 % of the respondents had an average farm income range of ₦ 301,000 – ₦400,000, only 1.1% of the respondents had an average income range of ₦401,000 - ₦500,000. The income from rice production in in the study area is very encouraging; government can adopt it as a measure for employment or combating poverty. Most of the farmers practice farming at subsistence level, as an overall of 57.8 % had farm size of 1 - 3 hectares. 42.2 % cultivated 4-6 hectares. This result agrees with (Umeh *et al.*, undated), that puts average farm size per farm family to 2.26 hectares in a separate study. Farmers should be assisted with input to enhance their farming activities, since land access appears not to be a problem.

16.7% of the respondents had civil service as their secondary occupation, majority of the respondents 80.0 % engaged in trading as their secondary occupation and only 3.3 % does other things. Table 1 results shows that 62.2% had a farm household size of ≤ 10, 28.9% had a farm household size of 11-20, and 8.9% has a farm household size of between 21-30. This result suggests that there would be adequate supply of family labour in the study area. However, Oni *et al.*(2011) reveal that as household size increases, it puts pressure on available food for the household to be food secured.

Table 2 shows the result of the respondent's distribution according to the constraints facing the paddy rice farmers. Result shows that 90% of the respondents had financial problem as their major constraints while 7.8% and 2.2% problem of weed and theft

respectively as their major constraints. The results showing the extent of damage by the respondents indicates that 74.4% of the respondents indicated that their farms and produce were very severely affected, 21.1% of the respondents were severely affected and 4.4% were moderately affected. Results shows that 96.7% of the respondents spent ≤ ₦10,000 cost of control of weeds/pests while ₦11,000 – ₦20,000 representing 3.3% was spent on control.

Farm budget analysis was carried out to assess the profitability of paddy rice production enterprises as presented in Table 4. The average profit per hectare was ₦ 66,679 while the net farm profit per farm unit was estimated at ₦ 126,690

Regression results in table 4, was used to examine factors influencing revenue from paddy production in the study area. In the regression, age, level of education, household size and size of farm contributes significantly to the revenue from paddy production at 5%, 5%, 10% and 1% respectively.

The negative sign associated with age of the farmers, cost of chemical and cost of planting materials, implies that the lesser their values, the higher the level of estimated revenue. On the other hand, the positive sign associated with education level, household size, and size of farm, implies that the higher their values, the higher the level of estimated revenue.

## CONCLUSION AND RECOMMENDATION

The analysis of paddy rice production in the study area revealed that majority of the farmers realized a positive net income. The result of the study shows that rice production is a profitable business. People should be encouraged to go into rice production in the study area. If paddy rice production are promoted and supported, they will have greater impact on the incomes and livelihood of the farmers as well as help to achieving paddy rice sufficiency in Nigeria. Since rice production is profitable, expanding and promoting rice production policy to the other parts of the country would help to revolutionize rice production subsector of agricultural.

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Table 1**:** Socio-economic Distribution of Respondents

| **Variable** | **Frequency** | **Percentage** |
|---|---|---|

| | | |
|---|---|---|
| **Age** | | |
| <=20 | 19 | 21.1 |
| 21-40 | 31 | 34.4 |
| 41-60 | 28 | 31.1 |
| 61-80 | 12 | 13.3 |
| | | |
| **Sex** | | |
| Male | 54 | 60 |
| Female | 36 | 40 |
| | | |
| **Educational Level** | | |
| Non-formal education | 60 | 66.7 |
| Primary | 11 | 12.2 |
| Secondary | 16 | 17.8 |
| Tertiary | 3 | 3.3 |
| | | |
| **Marital status** | | |
| Single | 12 | 13.3 |
| Married | 66 | 73.3 |
| Divorced | 3 | 3.3 |
| Widow | 5 | 5.6 |
| Widower | 4 | 4.4 |
| | | |
| **Farming experience** | | |
| <=20 | 61 | 67.7 |
| 21-40 | 21 | 23.3 |
| 41-60 | 8 | 8.9 |
| | | |
| **Secondary occupation** | | |
| Civil servant | 15 | 16.7 |
| Trader | 72 | 80.0 |
| Other | 3 | 3.3 |
| | | |
| **Household size** | | |
| <=10 | 56 | 62.2 |
| 11-20 | 26 | 28.9 |
| 21-30 | 8 | 8.9 |
| | | |
| **Total farm income** | | |
| <=100,000 | 48 | 53.3 |
| 101,000-200,000 | 24 | 26.7 |
| 201,000-300,000 | 13 | 14.4 |
| 301,000-400,000 | 4 | 4.4 |
| 401,000-500,000 | 1 | 1.1 |

| | | |
|---|---|---|
| **Source of land** | | |
| 1. Gift | 13 | 14.4 |
| 2. Rented | 24 | 26.7 |
| 3. Inherited | 53 | 58.9 |
| **Farm size** | | |
| 1- 3 | 52 | 57.8 |
| 4 – 6 | 38 | 42.2 |

Source: Field survey (2014)

Table 2: Distribution of respondents by constraints affecting Paddy rice production

| **Variable** | **Frequency** | **Percentage** |
|---|---|---|
| **Problem encountered** | | |
| Inadequate Finance | 81 | 90 |
| Weed Infested | 7 | 7.8 |
| Theft of farm produce | 2 | 2.2 |
| **Extent of damage** | | |
| Severe | 19 | 21.1 |
| Very severe | 67 | 74.4 |
| Moderate | 4 | 4.4 |
| **Cost of control pest /weed** | | |
| <= ₦ 10,000 | 87 | 96.7 |
| ₦11,000-20,000 | 3 | 3.3 |

Source: Field survey (2014)

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| | | |
| **Cost of control pest /weed** | | |
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| ₦11,000-20,000 | 3 | 3.3 |

Source: Field survey (2014)

Table 3**:** Summary of costs, revenue and benefit of paddy rice farmers (n =90)

| S/No. | Variable | Total (₦) | Benefit per farmer ₦ |
|---|---|---|---|
| **1.** | Total Variable cost | 22,085,500 | |
| 2. | Total Fixed cost | 7,850,861 | |
| 3. | Total Cost (1+2) | 29,936,361 | |
| 4. | Total Revenue | 41,338,500 | 459,316.7 |
| **5.** | Gross margin (4-1) | 33,253,000 | 213,922.2 |
| 6. | Net farm profit (4-3) | 28,167,139 | 126,690.4 |
| 7. | Profit per hectare | | 66,679.15 |

Source: field survey,2014

Table 4: Outcome of Regression analysis

| Variables | Co-efficient | Exp(B) | Significance |
|---|---|---|---|
| Age | -32.601 | 6.192 | .020 |
| Level of Education | 642.512 | 2.361 | .047 |

| | | | |
|---|---|---|---|
| Household size | 132.231 | 1.031 | .083 |
| Size of farm | 21.786 | 5.433 | .000 |
| Cost of chemicals | -41.234 | 3.330 | .346 |
| Cost of planting materials | -75.113 | .823 | .736 |
| Constant | 184.306 | .446 | .111 |
| R Squared ($R^2$) | .621 | | |
| Adjusted R Squared ($R^{-2}$) | .576 | | |

Source: Survey (2014)

Dependent variable: estimated revenue from paddy production.

*Insignificant at 1% level

**Insignificant at 5% level

***Insignificant at 10% level