

Challenges of Rice Production among Members of Rice Farmers Cooperative Societies in Anambra State, Nigeria

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ABSTRACT

This study examined the effect of International Fund for Agricultural Development on the output of members of rice farmers' cooperative societies in Anambra State, Nigeria. The specific objectives are to examine the extent to which funding, market participation and environmental sustainability has enhanced the productive capacities Members of Rice Farmers Cooperative Societies in Anambra State, Nigeria. The population of the study consists of 613 registered rice farmers cooperative with membership strength of 7255 famers. A sample of 379 was determined using Taro Yamani formula. Data collected for the study were analyzed using descriptive statistics (frequencies and percentages) and the inferential statistics such as test statistics and the linear regression model. From the analysis of the study, findings revealed that funding, market participation and environmental sustainability were found to be statistically significant in influencing output of members of rice farmers' cooperative societies in Anambra State. Based on the findings of this study, the following recommendations are made: To enhance the output of members of rice farmers' cooperative societies in Anambra State, the government should initiate a supervised credit scheme that will improve the capital base of the rice farmers and income by extension. The government should ensure that beneficiaries adhere strictly to market participation arrangement to avail the farmers the opportunity for a better bargain for their output. Critical infrastructure should be put in place by the government to enhance environmental sustainability in agricultural production.

KEYWORDS: *Rice Farmers, funding, market participation, environmental sustainability*

INTRODUCTION

Rice is one of the main products produced by most farmers in Anambra State. It is a basic food that is used to fight hunger and thus it has become a basic need for the inhabitant of the state. Consequently, the government of Anambra State has stressed the need for farmers to step-up rice production to achieve food self-sufficiency and also create employment for the teeming population of the state. Government encouragement for the production of rice of rice is necessitated by the great agricultural potentials for the production of rice in the state. The state has four agricultural zones which include: Aguata, Onitsha, Anambra and Awka agricultural zones and three - Aguata, Onitsha and Anambra - of the four

agricultural zones has great potentials for rice production. However, doubts have been raised about the effectiveness of the government in encouraging the production of rice in the state as the state still experiences wide gap between the demand and supply of rice. Most of the government programmes in achieving the overarching goal of rice production and promoting household welfare have not been sustained, as the state still experiences soaring and wide-spread food supply deficit and rising cost of food stuff in the markets. A close inspection of the government programmes for rice production reveals priority misplacement (Otaokpukpu, 2021; Anigbogu, Agbasi & Okoli, 2015). Anigbogu, Agbasi and Okoli

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(2015) posit that the cooperative, more precisely the agricultural cooperative has been publicized as a veritable instrument for fighting poverty, improving food production and income. This could be possible if there are available and adequate access to various factors of production that can enhance the productivity and income of the farmer.

Perceptibly, rice farmers in Anambra State face the challenges of funding, market participation and environmental sustainability. Providing the needed funding, market participation and environmental sustainability activities among rice farmers has remained a critical concern. This concern has affected the production capacity and efficiency of farmers particularly rice farmers. The government and donor agencies have made concerted efforts at providing the needed funding, market participation and environmental sustainability activities among rice farmers by initiating a number of poverty reduction programmes which arguably have not yielded the required result ((Akatugba, Oniore & Akekere, 2017; Anigbogu, Agbasi & Okoli, 2015). The rice farmers are expected to benefit from a lot of varieties of agricultural production activities provided by government programmes. The Activities are focused interventions that fit within the government programme's mandate of combating poverty of the most disadvantaged groups in difficult rural areas, and include the provision of rural financial services, development of small-scale irrigation infrastructure, assistance to the development of agricultural support services and the development of grassroots beneficiary organizations for the empowerment of the poor.

Statement of the Problem

Increasing the production capacity of farmers particularly rice farmers to help bridge the food demand and supply gap has been a major issue confronting both the farmers and the government. Some of the critical impediments affecting farmers production capacity identified in the literature include the challenges of funding, market participation and environmental sustainability (Akatugba, Oniore & Akekere, 2017; Dimelu, Enwelu, Attah & Emodi, 2014; Tasie, 2013). The finance constraint of rice farmers in Anambra State has affected their production capacity and also affected their capacity to economically engage in market participation and environmental sustainability activities that will enhance their performance. This is evident in widening gap in the supply and demand of rice in the market and the attendant hike in the price of rice. However, the government and donor agencies have partnered in various fronts to address the challenges

of rice production rice farmers with the aim of improving the production of rice yet not much has been achieved as there are still public outcry about the rising cost of the food rice and its affordability by the market by the common man. A number of researches have been carried out in this study area but none of them have critically examined the challenges of rice production among rice farmers with. This study therefore examined the challenges of rice production among members of rice farmers' cooperative societies with respect to funding, market participation and environmental sustainability activities that could enhance the farmers' productive capacities.

Objectives of the study

The main objective of this study is to examine the effect of International Fund for Agricultural Development on the output of members of rice farmers cooperative societies in Anambra State, Nigeria. The specific objectives are to:

1. examine the extent to which funding has enhanced the productive capacities Members of Rice Farmers Cooperative Societies in Anambra State, Nigeria
2. determine the extent to which market participation has enhanced the productive capacities Members of Rice Farmers Cooperative Societies in Anambra State, Nigeria
3. ascertain the extent to which environmental sustainability has enhanced the productive capacities Members of Rice Farmers Cooperative Societies in Anambra State, Nigeria

Research Questions

1. To what extent has funding enhanced the productive capacities Members of Rice Farmers Cooperative Societies in Anambra State, Nigeria?
2. To what extent has market participation enhanced the productive capacities Members of Rice Farmers Cooperative Societies in Anambra State, Nigeria?
3. To what extent has environmental sustainability enhanced the productive capacities Members of Rice Farmers Cooperative Societies in Anambra State, Nigeria?

Hypotheses of the Study

Ho₁: Funding has no significant effect on the productive capacities Members of Rice Farmers Cooperative Societies in Anambra State, Nigeria.

Ho₂: Market participation has no significant effect on the productive capacities Members of Rice Farmers Cooperative Societies in Anambra State, Nigeria.

Ho₃: Environmental sustainability has no significant effect on the productive capacities Members of Rice

Farmers Cooperative Societies in Anambra State, Nigeria.

EMPIRICAL REVIEW

Bamidele, Olayide and Onigbinde (2019) carried out an assessment IFAD - Value Chain Development Programme on productivity and income of smallholder farmers in Obafemi-Owode and Yewa North Local Government Areas of Ogun State, Nigeria using descriptive and inferential statistics on a sample of 329 respondents made up of 227 farming households in Obafemi-Owode and 102 farming households in Yewa North local governments areas of Ogun State. The results revealed that the VCDP has contributed significantly to the productivity growth and income of smallholder farmers in Obafemi-Owode and Yewa North LGAs of Ogun State, Nigeria. It also led to enterprise development, value addition and marketable surpluses. The IFAD Value Chain Development Programme has also improved the productivity, income level, and market access, increased infrastructures accessible for farmers and also empowered the women in farming in the study area.

Nefale (2016) examined the role of agricultural cooperatives in poverty reduction: a case study of selected cooperatives in the four local municipalities of Vhembe District Municipality, Limpopo Province, South. Africa using descriptive and Binary logistic regression modeling. The study revealed that socio-economic characteristics of respondents have an impact on the role agricultural cooperatives play in reducing poverty. The study further showed that agricultural cooperatives play a significant role in reducing poverty and ensuring food security to members' households. The respondents showed a positive response in the effectiveness of cooperatives in poverty reduction. The study also showed that cooperatives have a significant role in creating employment opportunities. Cooperatives were also faced with various challenges which hinder their success in poverty reduction. Some of the challenges include; market access, lack of funding, conflicts within cooperatives and high electricity costs.

Abdullahi (2015) examined the impact of IFAD community based agriculture and rural development project on the livelihood of small holder crop farmers in Katsina State, Nigeria using descriptive statistical analysis, logistic regression analysis, chow and z-test statistics. Findings revealed that the average ages of the participating and non-participating farmers were 46 and 48 years respectively. Majority (91%) and (99%) of the participating and non-participating farmers respectively were males. On the level of involvement of the participating farmers in the

project, findings revealed that very few participating farmers (9%, 15% and 19%) collaborated in development of local plans, conducting need assessment and identification of priority public infrastructure respectively. The result also revealed that level of education (-0.309), sex (-0.283) and household size (-0.041) had negative co-efficients and were significant at 1% level, while farm size (0.801), membership of cooperative (0.547) and extension contact (0.583) had positive co-efficients and were significant at 1% level of probability. Findings revealed that 87.2%, 83% and 82.73% of the respondents respectively adopted the use of recommended fertilizer, method and dosage of fertilizer application and the use of seed dressing chemicals. Findings also revealed that the project had a positive impact on the yield of participating farmers with a yield differential of 84.44% over that of the non-participating farmers. Finding further showed that the project had a positive impact on the income of the participating farmers with a mean difference of N 27,556.22 over that of the non-participating farmers. Findings also showed that 16.9%, 15.2% and 14.6% of the respondents respectively identified low counterpart funding, untimely disbursement of funds and inadequate mobility of extension staff as the major constraints to the effective implementation of the programme. The study also found that 16.1%, 16.0% and 15.7% of the respondents respectively identified inadequate capital, inadequate agricultural credit and inadequate storage facilities as the major constraints to the effective participation in the programme by the participating farmers.

Kumar, Wankhede and Gena (2015) examined the role of cooperatives in improving livelihood of farmers on sustainable basis using descriptive statistics. Findings revealed that IFFCO (Indian Farmers Fertiliser Cooperative Ltd.) and KRIBHCO (Krishak Bharti Fertiliser Cooperative Ltd.) in the fertiliser sector, the Institution like AMUL in Dairy Sector and Self Help Groups (SHGs) formed by various Institutions have immensely benefitted farmer members in increasing crop productivity and overall income by generating support in various programmes related with agriculture. They are also provided with the necessary technical, financial, capacity building, networking, marketing and resource mobilisation inputs. As a result of its intervention, green cover has not only been improved in more than 500 villages, but 28,452 hectares degraded lands have also been restored as green forests having 130.99 lakh multi-purpose trees in Uttar Pradesh, Madhya Pradesh, Rajasthan and Uttarakhand. Economic returns from existing forests, presently restricted to selective felling, grasses and Minor Forest Produce (MFPs) etc.

Most of the farmers in the country have little or no access to improved seed and continue to recycle seed that has been exhausted after generation of cultivation. Crop Yields have remained poor, resulting in persistent food insecurity. Lack of timely availability of quality seed is one of the problems for dwindling agriculture productivity and shrinking food availability.

Uzonwanne (2015) examined co-operative organizations as a means of poverty alleviation and rural community development in Nigeria using descriptive statistics on a sample 300 respondents. Findings revealed that establishment of more cooperative organization in ideato local government will alleviate poverty and development in their rural community. Cooperative percentage contribution to vocational and skills training which is supposed to be one of their main objective is not encouraging, Highest factor that affects productivity or growth of cooperative in Ideato LGA is finance/lack of credit facilities, followed by government negligence with 17%, illiteracy with 13.6% and political instability with 12%. The smallest factor is poor management of resources. 94% of the respondent strongly agreed that establishment of more cooperative organization in Ideato LGA will bring about a change in the economy while 2% have no option and 4% of the respondents strongly disagreed. This implies that majority of the respondent strongly agreed that through cooperatives organizations, poverty will be alleviated in rural community, development will set and this will at last translate into economic benefits for the entire nation.

Awotide, Awoyemi and Fashogbon (2015) examined factors Influencing Smallholder rice Farmers' Participation in Cooperative Organization in Rural Nigeria using a probit regression model on a sample of 341 respondents. The results reveal among many others that cooperative members have higher income per hectare than the non-cooperative members. Younger and male farmers are more likely to participate in cooperative organization. Farmers with small farm size have the highest probability of participation than those with large farm size. Contact with extension agents and education positively influence the probability of participation.

Lie, Rich, Kurwijila and Jervell (2012) examined improving smallholder livelihoods through local value chain development: A case study of goat milk yogurt in Tanzania using a value chain approach as a frame-work to identify the possibilities for upgrading and the determinants of competitiveness in value chains in which smallholder farmers can participate. Results highlight that by pooling the resources of individual farmers and with support from a network

of universities, organizations and extension officers, it is possible for stallholders themselves to establish and run a semi-formal local dairy value chain. The nearby university, SUA, played an important role in enhancing farmer assets by introducing dairy goats and creating new opportunities for adding value to goat milk. The major challenges to further develop Twawose's value chain include the following: Unstable milk supply; Limited local market demand; The lack of adequate quality assurance and packaging; Limited access to cooling systems, given sporadic to no access to electricity and Limited access to information, particularly on new marketing opportunities. At the same time, constraints such as poor infrastructure and limited access to information and services that are common in rural areas are present in this case study.

This study has reviewed a number of literatures that investigated the challenges of rice production among members of rice farmers' cooperative societies. Available literature revealed a literature gap that informed this study. A number of studies related to the challenges of rice production among rice farmers have been carried out but very were carried out among members of farmers' cooperative societies particularly in Anambra State. This study therefore bridges this literature and knowledge gap.

METHODOLOGY

This chapter presents the methodology used in this study under the following subheadings: research design, area of the study, population, sample size and sampling procedure of the study, data collection, data collection instrument, validation of instrument, and reliability of the instrument, method of data analysis and apriori expectations.

Research Design

This study adopts a descriptive survey research design that involves asking questions, collecting and analyzing data from a supposedly representative members of the population at a single point in time with a view to determine the current situation of that population with respect to one or more variable under investigation (Okeke, Olise & Eze, 2008).

Area of Study

This study was carried out in Anambra State. Anambra State is located in the south central area of south eastern Nigeria. It forms the heartland of Igbo land. It has an estimated population of 7,821,850 million people which stretches over about 60 kilometers between surrounding communities. It is reputed to have the highest population density in Africa with an estimated density of 1500 – 2000 persons per square kilometer. The state is bordered by Delta State to the west, Imo State to the south, Enugu

State to the east and Kogi State to the north. Though its mineral resources remain untapped, Anambra State is rich in natural gas, crude oil, bauxite, ceramics and arable soil. It is located between latitude 5 42 E and 6 47 N and longitude 6 37 E and 7 23E with a land mass of 44.116sq km. Average rainfall is about 430cm. The indigeneous ethnic group in Anambra is Igbo (98% of the population). Anambra is the eight most populated state in the Federal Republic of Nigeria and is rich in natural gas, crude oil, bauxite, ceramics and good arable soil. The main occupations in Anambra state are farming, trading and civil service (Anambra. Org. ng). Anambra State is an inland state with its capital in Awka. The people of the state are warm, hospitable and highly enterprising and could be found engaged in trading all over the country. The state is comprised of 21 local government areas namely Aguata, Anambra, Anambra East, Awka North, Awka South, Anaocha, Ayamelu, Dukunofia, Nnewi North, Nnewi South, Ojoto, Onitsha North, Onitsha South, Ogbaru, Ekwusigo, Njikoka, Idemili North, Idemili South, Orumba North, Orumba South, Anaocha, and Ihiala.

The State was created in 1976 from the old East Central State with its capital at Enugu. A further reorganization of the Nigerian federation in 1991 saw the state divided into two states, Anambra and Enugu states with its new capital at Awka. The state is predominantly occupied by the Igbo ethnic group who by nature are farmers, fishermen, craftsmen and traders. Among crops grown by farmers in the state are yam, palm produce, rice, cassava, cocoyam, vegetables, and different varieties of fruit trees among others. They are also involved in fishing, particularly those living in the riverine areas of the state, while their craftsmanship are nationally and internationally recognized as evident in the iron smiting works of Awka people, the bronze sculptures of Igbo Ukwu etc. The state is renowned for its abundant works of art and this explains the avalanche of art centers and artists found in the state. The state is home to magnificent bronze works, iron works, pottery and artists that place the state in the league of the most cultural endowed states in Nigeria.

Anambra State boasts of undulating landscape with tall trees and rich vegetation that is green all year round. The state experiences two major seasons, the rainy season which starts at the end of the month of March and lasts till end of October and the dry season which starts in the month of November and ends in the month of March. It records about 3,000mm of rain water per annum, this makes the area suitable for agricultural production. Among food crops grown in the state cassava and rice are the major produce

among others. Other important cities and towns include Onitsha, Nnewi, Obosi, Ogidi, Abagana, Alor, Atani, Nneni, Nkpor, Nnobi, Adazi Nnukwu, Adazi Enu, Adazi Ani, Oba, Ukpo, Umudioka, Okija, Awka-Etiti, Ekwulobia, Aguleri, Umuleri, Ihiala, Unubi, Nanka, Agulu, Ozubulu, Oraifite, Isuofia, Igbo-Ukwu, Ichida. The production involves a high level of proficiency and efficiency which is shown by the large number of finished products turned out on daily basis.

Population of the Study

The population of the study consist of all the members of rice farmers' cooperative societies in all the rice farming sites in the three agricultural zones in Anambra State. There are a total of 613 registered rice farmers cooperative with membership strength of 7255 famers. Therefore the population of this study is 7255 members in 613 cooperative societies.

Sample size and Sampling Techniques

To determine the sample size for the study, the researcher applied the Taro Yamani formula to obtain the desired sample size for the study. The formula is as stated as below:

$$n = \frac{N}{1+N(e)^2}$$

Where n is the desired sample size

N= Population

I = Mathematical constant

e= Sampling error (5% in this case).

In this case, n=? (Unknown), N=359, e = 0.05 and I= constant

Substituting the above values into the formula we have;

Substituting in the above formula:

$$\begin{aligned} n &= \frac{7255}{1+ 7255 (0.05)^2} \\ &= \frac{7255}{1+ 7255 (0.0025)} \\ &= \frac{7255}{19.1375} \end{aligned}$$

$$= 287.3$$

$$= 379$$

Sources and Method of Data Collection

Survey data were collected from cooperative farmers registered under the IFAD platform. The study made use of primary data. Primary data were collected using well structured questionnaires to obtain information from the respondents in the study area and through oral interview.

Description of the Research Instrument

The research instrument to be used data collection is the structured questionnaire. It was used to obtain data from members of rice farmers’ cooperative societies in all the rice farming sites in the three agricultural zones in Anambra State. The questionnaire has two sections: Sections A and Section B. Section A seek information on the socio-economic background of respondents while Section B elicited information relating to objectives of the study. Out of the 379 questionnaires distributed only 290 were returned.

Method of Data Analysis

Data collected were analyzed using descriptive statistics (frequencies and percentages) and the inferential statistics such as test statistics and the linear regression model. The demographic profiles were processed using descriptive statistics. Thereafter, the three objectives were processed using descriptive statistics and the regression model of the Ordinary Least Square (OLS). T-test and F-test statistics were used to test the hypotheses of the study and the overall fitness of the model. All the analyses was done using SPSS version 23. Linear regression model of the Ordinary Least Square (OLS) approach was used to analyze the objectives in order to ascertain the influence and also determine the relationship between the independent variables and dependent variable in the conceptualized model of the study. The use of Ordinary Least Square (OLS), is informed by the fact that under normality assumption for α_i , the Ordinary Least Square (OLS) estimator is normally distributed and is said to be best, unbiased linear estimator.

Thus, the model of this study is stated as follows:

The functional form of the model is

$$PRC = f(FUD, MAP, ENS) \dots\dots\dots (1)$$

The mathematical form of the model is

$$PRC = \beta_0 + \beta_1 FUD + \beta_2 MAP + \beta_3 ENS \dots\dots\dots (2)$$

The econometric form of the model is

$$PRC = \beta_0 + \beta_1 FUD + \beta_2 MAP + \beta_3 ENS + \alpha_i \dots\dots (3)$$

- Where; PRC = Productive Capacities
- FUD = Funding
- MAP = Market Participation
- ENS = Environmental Sustainability
- β_0 = Intercept of the model
- $\beta_1 - \beta_3$ = Parameters of the model
- α_i = Stochastic error term

PRESENTATION OF EMPIRICAL RESULTS

This section deals with the presentation and analysis of data collected from the field of study. The aim is to present the data in an interpretable form so that the variables of the study can be well understood.

Demographic Profile of the Respondents

Table 1: Distribution of Respondents According to Gender

Variable	Frequency	Percent (%)	Cumulative (%)
Male	158	54.5	54.5
Female	132	45.5	100
Total	290	100	

Source: Field Survey 2021

Table 1 shows that 54.5% of the respondents are males while 45.5% of the respondents are females.

Table 2: Distribution of Respondents According to Age

Variable	Frequency	Percent (%)	Cumulative (%)
18-32	58	20.0	4.8
31-40	46	15.9	20.7
41-50	84	29.0	49.7
51-60	88	30.3	80.0
61-70	14	4.8	100.0
Total	290	100.0	

Source: Field Survey 2021

As shown in table 2, 4.8% of the respondents are between the ages of 18-32. 15.9% of the respondents, are between the ages of 31-40. 29.0% of the respondents, are between the ages of 41-50. 30.3% of the respondents, between the ages of 51-60, while 20.07% of the respondents, are between the ages of 61-70.

Table 3: Distribution of Respondents According to Marital Status

Variable	Frequency	Percent (%)	Cumulative (%)
Married	237	81.7	81.7
Single	42	14.5	96.2
Widow/ Widower	11	3.8	100.0
Total	290	100.0	

Source: Field Survey 2021

From table 3, 81.7% of the respondents are married. 14.5% of the respondents are single, while 3.8% of the respondents are widow/widower.

Regression Analysis Result**Table 4: Regression Result on effect of International Fund for Agricultural Development on the output of members of rice farmers cooperative societies in Anambra State, Nigeria**

Model	B	Std. error	T	Sig.
Constant(C)	0.175	0.020	7.579	0.000
Funding	0.599	1.933	4.098	0.003
Market Participation	0.316	0.020	14.749	0.000
Environmental Sustainability	0.550	0.014	2.991	0.007
R	0.849			
R²	0.823			
Adj. R²	0.770			
F-statistic	111.321			0.000

Source: Field Survey 2021

Dependent Variable: Productive Capacities proxied by average output of members

From the regression result, all the variables of the regression coefficients (Funding, Market Participation and Environmental Sustainability) have direct and positive relationship with productive capacities proxied by average output of members of rice farmers cooperative societies in Anambra State. The implication is that as funding, market participation and environmental sustainability increases, it increases the Productive Capacities proxied by average output of members of rice farmers cooperative societies in Anambra State. The regression table also revealed that the probability values of the t-test statistics of all the three coefficients of the model significantly influence productive capacities proxied by average output of members of rice farmers cooperative societies in Anambra State, thus concluding that funding, market participation and environmental sustainability have significant effect on output of members of rice farmers cooperative societies in Anambra State.

CONCLUSION AND RECOMMENDATIONS

From the analysis of the study, findings revealed that:

1. Funding has significant effect on output of members of rice farmers cooperative societies in Anambra State.
2. Market Participation was found to be statistically significant in influencing output of members of rice farmers cooperative societies in Anambra State.
3. Environmental Sustainability has significant effect on output of members of rice farmers cooperative societies in Anambra State.

In the final analysis, the findings of the study are robust because of the fitness of the variables that were included in the model of the study. All the variables (funding, market participation and environmental sustainability) exhibited very high influence on output of members of rice farmers cooperative societies in

Anambra State. This is explained by applying the coefficient of determination (R^2) and the F-test. In general, the joint effect of the explanatory variables-independent variables-in the model accounts for 0.770 or 77% of the variations in the on output of members of rice farmers cooperative societies in Anambra State, Nigeria. This implies that 77%% of the variations in the on output of members of rice farmers cooperative societies in Anambra State. This means that only 23% of the variations in income of the traders is attributable to other independent variables not captured in the model. Therefore, it is critically important that the government addresses all matters affecting the Funding, Market Participation and Environmental Sustainability. This will aid in improving output of members of rice farmers cooperative societies in Anambra State, Nigeria.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. To enhance the output of members of rice farmers' cooperative societies in Anambra State, the government should initiate a supervised credit scheme that will improve the capital base of the rice farmers and income by extension.
2. The government should ensure that beneficiaries adhere strictly to market participation arrangement to avail the farmers the opportunity for a better bargain for their output.
3. Critical infrastructure should be put in place by the government to enhance environmental sustainability in agricultural production.

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