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Assessment of Central Bank Intervention on Rice Production in Kwara State, Nigeria: A Case-study of Anchor Borrower's Program

O.E. Ayinde¹; O. Fatigun¹; K. Ogunbiyi¹; K. Ayinde²; Y.O. Ambali³

1: University of Ilorin, Agricultural Economics and Farm Management, Nigeria, 2: Federal University of Technology, Akure,, Statistic, Nigeria, 3: Kwara State University, Agricultural Economics and Extension, Nigeria

Corresponding author email: opeayinde@yahoo.com

Abstract:

Agriculture is a major source of livelihood and the main engine of economic growth in developing countries therefore the development of agricultural production is a public priority but most farmers are poor, hence there is gap in cash resources which blocks the adoption of new technologies innovation and credit is needed to fill the gap in Nigeria .Therefore, this study was carried out to assess anchor borrower's programme a central bank of Nigeria's intervention on rice production in Kwara State, Nigeria. Data for the data were sourced primarily from rice producers with the aid of a structured questionnaire. The findings reveal that 88.1% of the beneficiaries breached the agreement and refuse to deliver their produce to the Anchor Borrowers' Programme due some reasons and their average estimated yield per hectare of paddy rice for all beneficiaries was 3.94 metric tons per hectare. Anchor Borrowers' Programme had a positive effect on the income of the beneficiaries. Therefore the study recommended that the governments must intervene with subsidized lending (seeking no profit, amortizing high transaction costs, spreading the risk on a national basis),since most borrowers in rural areas are small farmers (i.e. poor), low cost credit responds to poverty alleviation considerations .

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ABSTRACT

Agriculture is a major source of livelihood and the main engine of economic growth in developing countries therefore the development of agricultural production is a public priority but most farmers are poor, hence there is a gap in cash resources which blocks the adoption of new technologies innovation and credit is needed to fill the gap in Nigeria .Therefore, this study was carried out to assess anchor borrower's programme a central bank of Nigeria's intervention on rice production in Kwara State, Nigeria. Data for the data were sourced primarily from rice producers with the aid of a structured questionnaire. The findings reveal that 88.1% of the beneficiaries breached the agreement and refuse to deliver their produce to the Anchor Borrowers' Programme due some reasons and their average estimated yield per hectare of paddy rice for all beneficiaries was 3.94 metric tons per hectare. Anchor Borrowers' Programme had a positive effect on the income of the beneficiaries. Therefore the study recommended that the governments must intervene with subsidized lending (seeking no profit, amortizing high transaction costs, spreading the risk on a national basis),since most borrowers in rural areas are small farmers (i.e. poor), low cost credit responds to poverty alleviation considerations .

INTRODUCTION

It was recently revealed that the Nigeria spends over N356 billion on yearly importation of rice, out of which about N1 billion is used per day (Emefiele, 2016). The country is known as a net importer of rice, which had adversely affected local production tantamount to the cabal involved in rice importation (Akinwumi, 2013). Nigeria is running a wasteful consumption pattern in the sense that we are spending billions of Naira everyday importing rice from Thailand and India when we can grow that rice here. Challenges in Nigeria's rice production include some of the issues such as high input costs, imported equipment, agrochemicals due to taxes (legal and illegal), tariffs and duties. There is also the problem of policy instability that makes decision-making and planning highly uncertain and put investments at great risk. Other unattractive

conditions include low technology base (mechanization), decaying infrastructure, high interest rates, weak institutions (such as poorly-funded research institutes, public extension system, and seeds certification), and corruption-ridden fertilizer distribution system and low public sector investments in agriculture. Rice farmers have been discouraged with the scarcity and high input costs. This has led to farmers not using inputs such as fertilizers and other agrochemicals and those who use them use sub – optimal proportions of the inputs resulting in low and poor quality yields. Rice Farmers Association of Nigeria, RIFAN, has the objectives of supporting their members on production, processing and marketing of rice as well as the possibility of supplying inputs at low prices, but these objectives have not seen the light of the day. Access to markets for patronage is at the low side, capacity underutilization of existing small-scale mills. Obsolete and inefficient processing technology have remained a serious challenge in rice production, therefore no value is added to the rice as it has a kind of smell and unappealing. The rice contains pebbles and other hard objects. Poor road network has made it difficult for the conveyance of paddy to the mills or markets. All these combine with on-farm constraints to make rice production in Nigeria uncompetitive. These challenges led to the poor financial status of rice farmers in Nigeria because the production resources are expensive and inadequately available to support rice production in commercial quantity. Consequently, the farmers operate small farm sizes (0.59 hectares/farmer) and are unable to apply optimally farm inputs as recommended by research institutes. This results into low yield and low returns on investment. In addition most commercial banks charged two digits interest rates and emphasized on provision of collateral security before the farmers could access agricultural loan. A condition many farmers could not satisfy. These limiting factors created a very wide gap between local rice production and its consumption.

In an attempt to give a lasting solution to these problems, Anchor Borrowers' Programme (ABP) was initiated and implemented by the Federal Government of Nigeria through the Central bank of Nigeria in some selected states to assist the farmers to; create an Ecosystem to link out-growers (Small Holder Farmers) to local processors, Increase banks' financing to the agricultural sector, Increase capacity utilization of agricultural anchor companies involved in the production of the identified commodities and the productivity/incomes of out-growers/farmers, build capacity of banks, farmers and agricultural entrepreneurs, reduce commodity importation and conserve external reserves, reduce the level of poverty among small holder farmers, Create jobs, assist rural small-holder farmers to grow from subsistence to commercial production levels, facilitate the emergence of a new generation of farmers/entrepreneurs. The Program is designed to reduce cost of farm operations, increase rice production and improve the farmers' standard of living. It is in view of these that the study assessed ABP on rice production in Kwara State. The research intends to provide answers to the following question: How does Anchor Borrowers' Programme operate in the study area?; Does the programme have effect on the income of the beneficiaries in the study area?; What are the factors influencing access to Anchor Borrowers' Programme fund?; What are the constraints limiting the performance of Anchor Borrowers' Programme? . The general objective of the study is assessing the financial industry innovation on rice production in Kwara state, Nigeria: a case study of anchor borrower's programme. The specific objectives are to: describe the operation of Anchor Borrowers' Programme in the study area; determine the effect of the programme on the income of the beneficiaries in the study area; Evaluate the factors influencing access to Anchor Borrowers' Programme fund in the study area and identify the constraints limiting the performance of the programme

LITERATURE REVIEW

RICE PRODUCTION TRENDS IN NIGERIA

Rice production in Nigeria started about 1500BC with the low yield indigenous red grain species “*Oryza glaberima* stued” that was widely grown in the Niger Delta (Ogundele and Okoruwa, 2006). While *Oryza sativa* that has higher yield was introduced in 1980s. Today, rice is grown in almost all the agro-ecological zones in Nigeria but on a relative small scale. Imolehin and Wada (2000) revealed that paddy rice production had increased from 13,400 to 344,000 tonnes in 1970, and area cultivated was 156,000 to 255,000ha. The tremendous increase in area planted, output and productivity in paddy rice production were achieved over the last two decades, and now stand at 66,6000ha, 1.09 million tones and 2.07 tonnes/ha respectively. Nigeria was the largest rice producing country in West Africa and the third largest in Africa after Egypt and Madagasca in 1980 (West Africa Rice Development Association (WARDA) 1996).

In 1990, the country produced 3.4 million tonnes of rice from about 1.2 million ha, this normal production trend would have been sustained if government has steady policy on rice import (Imolehin and Wada 2000). In 1985, rice production was increased and this may be attributed to the ban imposed on rice import and if this is maintained, Nigeria rice farmers would have risen to the challenges of meeting the domestic demand for the commodity. In 2000, Kaduna State was the largest rice producer, accounting for about 22% of the country’s rice output. This was followed by Niger state (16%), Benue state (10%) and Taraba state (7%). Great variations also exist in terms of yield. The average national rice yield during the dry season (3.05 tons/ha) was

higher than that of the wet season (1.85 ton/ha). Nigeria is currently the highest rice producer in West Africa, producing an average of 3.2 million tons of paddy rice or 2.0 million tons of milled rice per annum (Damola 2010). Nevertheless, there is a wide gap between local supply and the ever increasing demand for rice in Nigeria .

Lenis, Gbolagede and Oyeleke (2009) opined that most of the rice grown in the middle belt comes from Benue, Kaduna, Kano, Niger, Kwara and Taraba States, while that grown in the east typically comes from Enugu, Cross River and Ebonyi States. Ekiti and Ogun states are the major rice producing areas in Western Nigeria (Lenis et al 2009). Rice production in Nigeria is still predominantly rain fed with an emphasis on low lands. However, there is a clear gender division of labour in rice production and processing in Nigeria. Oyeleke (2009) opined that rice production is clearly the work of men, whereas rice post harvest activities are clearly the domain of women. Still, participation rates over the various rice production and processing activities vary. Land preparation is mostly male dominated activity. Other field activities such as crop establishment, weeding, fertilization and harvesting are substantial contribution of women. Although men are involved in these operations, women are also involved. Similarly, men are also involved in post-harvest activities (Lenis et al 2009).

Several efforts have been made to improve rice production in Nigeria. One key player was the presidential initiative on rice (2004 – 2007) with the objective of addressing the widening demand – supply gap in rice production and attaining self-sufficiency, as well as reducing the huge import bill on rice. The presidential initiative proposed a national rice project with the following highlights; private sector led, based on an intensification policy, NERICA varieties to be used for upland areas while other varieties adaptable to all agricultural zones of the country

would also be used and the provision of certified rice seeds by the government. In pursuance of rice self-sufficiency policy, federal government released N1.5 billion for multiplication and distribution of certified rice seeds (Lenis et al 2009).Irrespective of these efforts and goals, Nigeria's rice production did not meet its target of food sufficiency in 2007.Efforts to stimulate the Nigeria rice sub sector include the organization of workshops to sensitize rice farmers to form more cooperative group as to enable them participate effectively in the rice initiatives zonal mobilization of farmers to produce selected rice varieties to feed large scale processing mills (Lenis et al,2009) . The demand for rice in Nigeria has been increasing, even at a faster rate than in other West African countries. During the 1960s Nigeria had the lowest per-capital annual consumption of rice in the sub-region (average of 3kg). Since then, Nigeria per – capita consumption levels have grown significantly at 7.3 percent per annum. Damola (2010) attributed the structural increase in rice consumption in Nigeria to various reasons which include urbanization that has shifted consumer preference towards rice. Thus, per – capita consumption during the 1980s averaged 18kg and reached 22kg in 1995 – 1999. Based on an estimated annual rice consumption of 5 million MT in Nigeria, per capita consumption is 32kg per annum with per capita consumption in the urban area higher, averaging 47kg per annum (2008 estimates). With the arrival of the drought tolerant and high yielding rice variety, “NERICA” (new Rice for Africa) and other initiatives by the government of Nigeria has the potential to increase its domestic rice production, thus reducing its import bill and becoming self-sufficient in rice.

RICE POLICIES AND ACTS IN NIGERIA

From historical perspective, rice policies and acts in Nigeria are classified under three periods. These are: Pre-ban period, (1971-1985), Ban period (1986-1995), Post-ban period (1995- date) (Akande, 2002). Pre-ban period are classified into pre-crisis (1971-1980) and crisis period (1981-1985). The Pre-Crisis period was characterized by liberal policies (agricultural policies, programs, projects and institutions) on rice imports. It agrees to various programmes and projects aiming at developing rice production. During the crisis period, more rigorous policies (Input Supply and Distribution Policy, Agricultural Input Subsidy Policy, Water Resources and Irrigation Policy, Agricultural Cooperatives Policy) were put in place; government policies had artificially lowered domestic rice and fertilizer prices relative to the world price level, through massive importation of rice resulting in low price of locally produced rice. Government was involved in rice importation, distribution, and its marketing with non-transfer of actual costs to consumers. There was protection of elite consumers at the expense of farmers, leading to depressed farm gate prices. This eroded the competitiveness of locally produced rice and served as major disincentive to rice framers. Ban period lies between 1986-1995 which was placed on rice import by the introduction of Structural Adjustment Programme (SAP) in 1986. Under SAP, various trade policies (tariff, import restrictions, and outright ban on rice import at various times) were put in place. It was illegal to import rice into the country, though importation of the commodity through the country's porous borders thrived during this period. The Post-ban period lies between 1995 to date when restrictions on rice importation were lifted, with more liberal trade policy put in place. The decline in domestic rice production cannot all be blamed on increasing rice imports. The country's policy on rice has also been inconsistent and has

fluctuated between import tariffs and import restrictions including outright ban. A number of reasons led to the lifting of the ban. There were pressure from the international financial organizations, such as the World Bank, World Trade Organization, and the International Monetary Fund (IMF) who argued that the ban on rice was not in consonance with the liberalization position of the government. On the domestic scene, the government failed in the implementation of the ban on the commodity. This is evidence by the major markets in Nigeria flooded with imported rice despite restrictions. There was also pressure on the government by those who had vested interest in rice importation and the urban elites who had a preference for the consumption of imported rice (Ladebo, 1999).

PROGRAMMES AND AGENCIES IN RICE INNOVATION SYSTEM IN NIGERIA

Attention was not focused on rice during the pre-colonial colonial period. During this period, focus was rather on export crops such as cocoa, groundnut, rubber and palm produce; supported through pricing and marketing board policies. Thus rice and other food crops were left to develop at their own speed with no incentives, in the hands of the peasant farmers (Akpokodge, Lancon, Erenstein, 2001). To attain modest phases in rice production, some actions were taken by some key actors with collaboration of national and international organizations. The following are the summary of the major institutions engaged in rice production with their dates of establishments and obligations:

NATIONAL PROGRAMMES AND AGENCIES

1970 - **Federal Rice Research Station (FRRS)** was established in Nigeria to research into the development of improved varieties of grains. The objectives were achieved through introduction and adaptation by the rice farmers.

1972 - **National Accelerated Food production Program (NAFPP)** was funded with the mandate to effectively design, test and transfer technology package for production of Rice, maize, sorghum, millet and wheat.

1974 - **National Cereals Research Institute (NCRI)** was lunched to carry out research on high yielding rice varieties for farmers, on-farm adaptive research, seed multiplication and training of extension staff.

1976 - **The Operation Feed the Nation (OFN)** was established for self-sufficiency in domestic food supply. There was introduction of land use subsidy Decree, seed and fertilizer supply, credit and mechanization in agriculture.

1978 - **Abakaliki Rice Project** was established for rice production and processing

1987 - **Agricultural Development Project (ADP)** is the main link between research and farmers. It has been a channel through which government policies on rice production were implemented.

1988 - **Nigerian Agricultural and Cooperative Bank (NACB)** was established for special credit schemes to boost rice production and other activities/crops (maize, sorghum).

1999 - **The Presidential Rice Initiative** was launched to address the widening demand supply gap and attain self-sufficiency in rice production.

INTERNATIONAL PROGRAMMES AND AGENCIES:

1971 - **West Africa Rice Development Association (WARDA)** was established to increase the sustainable productivity of intensified rice based cropping systems in a manner that improves the welfare of resource-poor farm families, conserves and enhances their natural resource base

1985 - **International Network for the Genetic Evaluation of Rice (INGER-Africa)**, addresses the needs of National Agricultural Research Station by distribution of rice nurseries tailored to meet the needs of national programmes.

1986 - **Green River Project** is an outfit established by Nigerian Agip Oil Company (NAOC). It launched Burma rice project for the traits, evaluation and identification of the best rice production and management techniques.

1988 - **Germplasm Collection and Conservation-** is for the conservation of rice germplasm for the production of improved rice varieties which are resistant to viruses, pests and diseases.

1998 - **PropCom** is a market driven intervention programme. They facilitate initiatives for production of quality local rice in sufficient quantities. It is to compete with imported rice and benefit the poor stakeholders.

2000 - **Shell Petroleum Development Company (SPDC)** resumed an experimental basis for the distribution of improved varieties of rice to farmers.

2000 - **Multinational New Rice for Africa (NERICA) Rice Dissemination Project (MNRDP)** was established for technology transfer, product support, capacity building and project coordination.

2001 - **The Ibom Rice Project** was established for practical training of local farmers on modern farming technique in rice production.

2016- **Anchor Borrowers' Programme (ABP)**, was created to economic linkages between smallholder farmers and reputable large-scale processors with a view to increasing agricultural output and significantly improving capacity utilization of integrated rice mills.

CONTRIBUTIONS OF FINANCIAL INDUSTRY TO RICE INNOVATION SYSTEM

Financial industry are nowadays concerned with a variety of services including agricultural lending and lending to farm households for non-agricultural production and consumption purposes, loans made to non-farm rural firms, savings deposit services and other financial services such as insurance. The provision of credit in the form of loans allows uneven income and expenditure streams to be smoothed out. However, it is a different type of service to others discussed in this Sourcebook as a loan involves an exchange of access to resources now for an undertaking to repay at some future date. In effect, a property right in current consumption is exchanged for a property right in future consumption. From the lender's point of view this involves two risks, namely, that the borrower will be **unable** to repay (the use made of the funds is less productive than anticipated perhaps due to unfavourable weather or lower market prices (FAO 2006) or that they will be **unwilling** to repay (opportunistic behaviour due to asymmetric information). The lending activity involves Exchange of consumption today for consumption in a latter period; Protection against default risk; Information acquisition regarding characteristics of loan applicants ;Measures to ensure that borrowers take those actions that make repayment more likely; Actions to increase the likelihood of repayment by borrowers who are able to do so.

This risk of non-repayment means that the private sector is usually unwilling to provide credit unless collateral is available or the lender has particular ties to the borrower. The high transaction

costs associated with imperfect information (search, monitoring and enforcement), and risk, increase the costs of credit transactions and lower the effective demand. The dispersed nature of rural populations increases the transaction costs of servicing rural areas compared to urban areas for many credit providers. In principle, the government should be a more willing lender than the private sector as it is less risk-averse and has greater powers of coercion and hence ability to obtain repayment. However, it is generally disadvantaged relative to the private sector in terms of local knowledge and loyalty from borrowers, leaving it exposed to an adverse selection (FAO, 2006) problem and unwillingness by borrowers to repay loans.

THE DEMAND FOR AND SUPPLY OF RURAL FINANCIAL SERVICES

The effective demand for rural credit

Many of the problems relating to financial industry have derived from a misunderstanding of the nature of the effective demand for these services (FAO,2006) . The first misconception was that farmers and other rural dwellers mainly needed credit for agricultural production purposes. In fact, an effective demand for credit, backed up by a willingness and ability to pay, can exist to smooth out a variety of situations where income and consumption streams are poorly phased. Credit for non-agricultural purposes may be as important as agricultural loans. Indeed, for many rural dwellers the most important reason for demanding credit is as a consumption loan to meet the costs of living in the months before the next harvest is due, not to purchase inputs to raise agricultural productivity. The second misconception was that the majority of poor farmers were too poor to pay for credit, that is, there was a **need** for credit but little effective demand. The

evidence now is that poor households are both willing and able to service loans if they borrow for their own perceived needs and are adequately screened and monitored.

THE SUPPLY OF RURAL FINANCIAL SERVICES

FAO/GTZ (1998b) discuss a series of special factors that are likely to influence the supply of agricultural finance. These include: the high financial transaction costs of attending dispersed and small farm households, the seasonality and the importance of opportune timing of on-farm finance for cultivation practices, input application, harvesting (and related output marketing), the heterogeneity in farmers' lending needs (seasonal and term lending) and the relative long duration of agricultural lending contracts, the dependence on sustainable natural resources management and the relative low profitability of on-farm investments, the various weather and other production risks, together with marketing risks related to agriculture, that require appropriate risk management techniques, both for producers and financial intermediaries, the limited availability of conventional bank collateral that farm households can offer, that highlights the need to increase the security of existing loan collateral or develop appropriate collateral substitutes, the reality that farm households are confronted with emergency needs and that their loan repayment capacity is highly dependent on consumption and social security contingencies and the need for adequate training of both bank staff and farmer clients.

METHODOLOGY

The study was conducted in Kwara State. The state was created on 27 May 1967, when the Federal Military Government of Genral Yakubu Gowon broke the four regions that then constituted the Federation of Nigeria into 12 states. At its creation, the state was made up of the former Ilorin and Kabba provinces of the then Northern Region and was initially named the West Central State but later changed to "Kwara", a local name for the River Niger. Kwara State has since 1976 reduced considerably in size as a result of further state creation exercises in Nigeria. On 13 February 1976, the Idah/Dekina part of the state was carved out and merged with a part of the then Benue/Plateau State to form Benue State.

As of 2006, the population of Kwarans was 2.37 million based on the Nigeria 2006 Census. This Population size constitutes about 1.69% of the Nation's total population having relied upon immigration for Population growth and Socio-economic development. Located in North Central Nigeria, Kwara State occupies 36,825 square kilometres. Kwara State is bounded in the north by Niger State, in the south by Oyo, Osun and Ekiti States, in the east by Kogi State and in the west by Benin Republic. Because of its unique geographical position, the State is referred to as the "gateway" between the north and the south of the country. The main ethnic groups are Yoruba, Fulani, Nupe and Barubas. Islam and Christianity are the major religions in the state. Agriculture is the main stay of the economy and the principal cash crops are: cotton, cocoa, coffee, kolanut, tobacco, benseed and palm produce.

Sampling Method

Specifically, Edu and Patigi Local Government Areas (LGAs) of Kwara State were purposively chosen for this study because the two LGAs accounted for over 90 percent of the quantity of rice produced in Kwara State.

The target populations for the study were the beneficiaries and non-beneficiaries of Anchor Borrowers' Programme in the two LGAs in year 2016 planting. Listings of beneficiaries were collected from a financial sector –Central Bank of Nigeria and then through snow ball non beneficiaries were selected. Three-stage sampling technique was used for the study. The first stage involved purposive selection of listing beneficiaries were collected from a financial sector –Central Bank of Nigeria. Second stage involved random selection of four villages from each of the beneficiaries LGAs and the third, involved selection of twenty Anchor Borrowers' Programme participants and non-participants from each village making a total of one hundred and sixty respondents but one hundred and thirty four were found useful for the study.

Sources of Data Collection

Primary data were obtained from rice producers with the aid of a structured questionnaire and interviews.

Analytical Techniques

This study employed a number of analytical tools based on the objective stated earlier. The analytical tools used are descriptive and inferential statistical tool such as percentage and mean, Binary Logistic Regression, Average Treatment Effect and Likert-Type scale.

Binary Logistic Regression

In order to determine the factors influencing access to Anchor Borrowers' Programme fund in the study area, the Binary Logistic Regression modeling technique was used. A Logistic model is a univariate binary model. The dependent variable is a dummy, which takes a value of zero or one depending on whether the farmer is a beneficiary of Anchor Borrowers' Programme fund or not. However, the independent variables were both continuous and discrete. The technique has been used for this kind of a situation (field of social sciences) where prediction of the presence or absence of an outcome based on values of a set of predictor variables is needed. The coefficient of logistic regression can be used to estimate odds ratios for each of the independent variables in the model. The term "logit" refers to the natural logarithm of the odds (log odds) which indicates the probability of falling into one of two categories on some variable of interest

$$Z = \log [P/1-P] = \log Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu$$

Where Z = probability of access to agricultural credit

Access = 1; No access = 0

β = regression coefficient explaining changes caused in Z by changes in the independent variables.

X_1 = Age (in years); X_2 = Household size (in numbers); X_3 = Level of education (in years); X_4 = Farm Size (in hectares); X_5 = Marital status; X_6 = Membership of Co-operative (Member = 1, non-member = 0); X_7 = Number of extension visit (in numbers); X_8 = Income from paddy rice (in naira); μ = Error term

Average Treatment Effect (ATE)

Taking into consideration the relevance of using the Average Treatment Effect (ATE) to correct the problem of selection bias non-compliance, the use of Average Treatment Effect (ATE) was

applied in this study to Assess the effect of Anchor Borrowers Programme on the income of the farmers. In the statistical analysis of observational data, Average Treatment Effect (ATE) is a statistical matching technique that attempts to estimate the effect of a treatment, policy, or other intervention by accounting for the covariates (Pearl, 2009).

Suppose that we have a binary treatment T , an outcome Y , and background variables X , the Average Treatment Effect is defined as the conditional difference of treatment given the background variables.

$$p(x) \text{ def } \Pr (T=1 | X=x)$$

In this study, Average Treatment Effect (ATE) method would be used to determine the effect of Anchor Borrowers' Programme on rice production.

Likert Scale

Likert scale measurement was used to examine the constraints limiting the performance of the programme. A list containing major constraints was provided and the respondents were asked to select their response on Likert scale of 0-4, where 4 = very severe' '3 = severe,' '2 = mildly severe,' '1 = not severe,' and '0 = not a problem at all. This principle measured the people's attitudes by asking them to respond to a series of statements about the constraints, in terms of the extent to which they agree with them, and so tapping into the cognitive and affective components of attitudes.

RESULTS AND DISCUSSION

Socioeconomic Characteristics of Respondents

Table 1 shows gender distribution of the respondents that 73.1% of the household head are male while about 26.9% are female. This finding reveals that female involvement in rice farming is low compared to their male counterparts. This is similar to FAO, 2012 that women make up on average 43% of farmers in developing countries ranging from 20 % to almost 50%. The result also shows that majority (78.4%) of the respondents were married. The results also reveals showed that about 56% of the rice farmers have tertiary education, 16% of the farmers have quranic education , primary education are slightly above 10 %, while 5% have no formal education. There are about 10% of the farmers with secondary education and 3% with adult education. This finding indicates that educational level of the respondents has significant influence on rice farming. It was also revealed that 7.5% of the household head (respondents) were less than 30years of age, 24.6% fell within 30-39 years, 58% of the respondents were between 40-59 years old, 11.9% were found to be 60 years old and above. This confirms ovwigbo and ifie (2009) findings that the average age of farmers in Nigeria exceeds 46years.

The result showed that 17.9% of the respondent have a household of about 1-3, 23.1% have household of about 4-6 people, 24.6% of the respondents have a household size of about 7-9 people and 34.3% of the respondents have a household size of about 10 people and above . Majority (62.7%) of Anchor Borrowers' Programme beneficiaries got information about agriculture from agricultural extension agents while only 14.9% of non-beneficiaries got

information from the same source. However, television is the major source of information for the non-beneficiaries which accounts for 49.3%. The finding confirms Bachhav (2012) that information is an integral part of agricultural sector as it helps to enhance farm productivity of farm households. It was revealed that the paddy rice farmers in the sampled states were largely small holders .The findings agrees with Apata, Folayan, Apata, & Akinlua 2011 that the average paddy rice farm size (land per farm) was 2.61 ha, which was lower than the average farm size of 3 ha for Nigeria. Also Ayinde, Ojehomon, Daramola & Falaki, 2013 confirms the median farm size was 2 ha in which majority of the Nigerian paddy rice farms were operating with small rice. On a consolidated basis, the paddy rice farms in the state ranged from 1 ha to 5 ha per farm. Nevertheless, the average farm size was considered moderate when compared to average farm size of 0.6 ha in China (Adamopoulos & Restuccia, 2011).

Table 1: Distribution of Respondents by their social Economic Characteristics

Gender	Frequency n=134	Percentage%
Male	98	73.1
Female	36	26.9
Marital status		
Single	28	20.9
Married	105	78.4
Divorced	1	0.7
Educational status		

No formal education	7	5.2
Quranic	21	15.7
Primary education	14	10.4
Secondary education	13	9.7
Tertiary education	75	56.0
Adult education	4	3.0

Age in years

<30	10	7.5
30-39	33	24.6
40-49	45	33.6
50-59	30	22.4
60years and above	16	11.9

Household size

1 – 3	24	17.9
4 – 6	31	23.1
7 – 9	33	24.6
10 and above	46	34.3

I n f o r m a t i o n	ABP Beneficiaries		ABP Non-Beneficiaries	
	Frequency	Percentage	Frequency	Percentage
Friends/Relative	22	32.8	14	20.9
Radio	2	3.0	10	14.9
Television	1	1.5	33	49.3
Agricultural Extension Officers	42	62.7	10	14.9
Average farm size in	2.61			
hectares	1.24			
Mean	1			
Standard deviation	5			
Minimum				
Maximum				
Source: Field Survey, 2017				

Operation of Anchor Borrowers' Programme

Table 2 showed that majority (95.5%) of the respondents' (Beneficiaries) rice farms were situated on owned land that is by means of traditional inheritance, 4.5% of the farms were situated in communal land and subsequently attracts not rent. This affirms Michler & Shively, 2015 assertion that the right on land and the resources are related to the improved access to institutional credit, improved investments in agricultural land, higher productivity, and higher farm output and rural incomes .One of the core of management and administration of ABP is

provision of extension services. This necessary to complement training, ensure adherence to good agricultural practices and mitigate side selling. However, the result shows that the beneficiaries were not provided with adequate extension services as the mean value of number of visitation is just 2times. Loans granted to the beneficiaries were to be repaid with the harvested produce which was to be delivered to the Anchor at designated collection centre in line with the provision of the agreement signed. Side selling by farmers is prohibited and attracts applicable sanctions which are; total prohibition from all CBN interventions, blacklisting of the farmer involved on any intervention of CBN, prosecution of the farmer, and payment of the loan by the guarantors and cooperatives. Despite all these, the agreement met its Waterloo as the result shows that 88.1% of the beneficiaries breached the agreement while few of them 11.9 % fulfilled the agreement .The result reveals that the beneficiaries of this programme refused to deliver their produce to the Anchor due some reasons. Majority of the participants 47.5% engaged in side selling because they felt their entitlement would not get to them on time. About 27.1 % attributed their side selling to delay input supply which in turn affected their output while 25.4% claimed that the ABP process is too long.

It was also revealed that the average estimated yield per hectare of paddy rice for all beneficiaries was 3.94 metric tons per hectare of paddy rice farm land. This average yield was above the estimated national average of 2.5 metric tons per hectare and almost the same with the world average yield of 4.1 metric tons per hectare (IRRI, 2013). The average yield per hectare however ranged between 2.5 metric tons and 5.3 metric tons, which implies that there is a slight dispersion in yield among the paddy rice farmers (beneficiaries).Quality of farm inputs affects output and by implication, the level of income of the farmer is in danger (Tiwari et al., 2005;

Sharada, 2000). The rice farmers are faced with many problems including operating small farm size (Ingawa, 2005), low application of fertilizer and other farm inputs (Nwanze, 2005) arising from high cost and availability. Thus rice yield is below the recommended achievable output of 5.4 tons/hectare provided improved seeds and other recommended production recommendations are strictly adhered to. However these problems were taken care of by the programme by providing the beneficiaries with inputs enough to for a hectare of land based on recommendation. Aside the listed inputs in the results below, ₦90, 000 loans were given to each beneficiary to fund their activities such as land clearing and tilling as well as labour costs.

Table 2: Operation of Anchor Borrowers' Programme

Source of Land	Frequency n=67	Percentage%
By inheritance	64	95.5
Communal land	3	4.5
Number of visitation		
1	11	16.4
2	25	37.3
3	31	46.3
Means of Sales		
Government	8	11.9
Non-government	59	88.1
Reasons n=59		
Delayed input supply	16	27.1
Complex protocol	15	25.1

Delay payment 28 47.5

Input	Quantity Supplied	Price per Unit(₦)	Total Cost(₦)
Rice seed (Faro 44)	50 kg	200	10000
Fertilizer (Urea/NPK)	300kg	120	36000
Herbicides	7 litres	1500	10500

(Force up/Amino force)

Average yield per hectare (metric ton)

Mean	3.94
Standard deviation	7.4
Minimum	2.5
Maximum	5.3

Source: Field Survey, 2017

Effect of Anchor Borrowers' Programme on the income of the beneficiaries

Table 3 presents the results which indicate that Anchor Borrowers' Programme had a positive effect on the income of the beneficiaries. This was not only positive but also significant at 1% significant level. The result implies that the effect parameter brought about ₦114,068.60 lead to increase in the income of the beneficiaries because they participated in the programme.

Table 3: Result of Estimated effect of Anchor Borrowers' Programme on Farmers' Income

Variable	PSM Method	Treated	Control	ATT	Standard error	t-test
Income	Radius	67	67	114068.6***	12889.4	2.19

Source: field survey, 2017 note: *** represents 1% significance level

Factors influencing farmers' access to Anchor Borrowers' Programme fund

Table 4: Result of Logistic Regression Model

Variables	β	S.E	Wald Statistic	Expo B
Constant	-6.606	2.327	8.058	0.001
Age	-0.012	0.040	.091	0.988
Household size	0.440***	0.141	9.748	1.552
Level of education	0.137	0.196	.489	1.147
Farm size	1.398***	0.431	10.528	0.247
Marital status	-2.429**	0.962	6.368	0.088
Membership of cooperative	5.187***	1.359	14.561	178.924
Number of extension visit	2.039***	0.495	16.976	7.683
Income	0.000***	0.000	8.782	1.000
-2 Log likelihood				67.877
Cox & Snell R square				0.585
Nagelkerke R square				0.780

Source: field survey, 2017 Note: ** and *** represent 5% and 1% significant levels respectively.

The result of the binary logistic regression in Table 6 shows that at 1% level of significance, the household size, farm size, membership of cooperative society, access to extension Services and income from paddy rice have significant influence on farmers' access to Anchor Borrowers' Programme fund. There was a significant change in -2 log-likelihood. This suggests that there was a significant cause-effect relationship between rice farmers' access to Anchor Borrowers'

Programme fund and the selected explanatory variables. The Cox & Snell R square (coefficient of determination) (R^2) is 0.585. This indicates that 58.5% variation in rice farmers' access to Anchor Borrowers' Programme's funds accounted for by variations in the selected explanatory variables, suggesting that the model has explanatory power on the changes in rice farmers' access to programme's fund. The Nagelkerke R square (adjusted R^2) also supported the claim with a value of 0.780 or 78%. This implies that the selected explanatory variables explain the behavior of rice farmers' access to Anchor Borrowers' Programme fund at 78% level of confidence.

The result in Table 4 reveals that not being married reduces the probability of having access to Anchor Borrowers' Programme fund because it is negatively significant.

The probability of access to Anchor Borrowers' Programme's fund is shown to increase with access to extension services. This suggests that access to extension services imparts on rice farmers the capacity to access government interventions. This is because interaction with extension agents increases the probability of the farmers being aware of the existence of agricultural programmes. Household size has a significant and positive influence on rice farmers' access to Anchor Borrowers' Programme's funds. This suggests that farmers' access to the programme's fund becomes better as their household size increases. This is because increase in household size implies availability of family labour, which could serve as a driving force to seek for government intervention for the purpose of expanding farm production.

Farm size has a significant and positive influence on peasant farmers' access to Anchor Borrowers' Programme's funds. Risk and uncertainty increase with farm size (sales). Such increases in production risk are likely to be somewhat offset by producers' ability to manage risk or their willingness to bear risk as size increases. That is, size is undoubtedly related to

producers' past success in managing the operation. Additionally, risk is somewhat minimized by the marketing strategies utilized by larger producers. For example, larger producers market through wholesalers, road-side markets, processors, and retailers. Smaller producers, on the other hand, often rely entirely upon a single outlet. Since increased diversification and larger size typically require more and better fund, larger producers are expected to have higher drive to seek for more funds and thus have higher access to Anchor Borrowers' Programme's funds.

The result in Table 4 also shows that membership of cooperative society has a significant and positive influence on rice farmers' access to agricultural credit. This suggests that rice farmers' access to Anchor Borrowers' Programme's funds becomes better when they belong to a cooperative society. It can be inferred from this that membership of cooperative society imparts on the rice farmers the capacity to access Anchor Borrowers' Programme's funds. This is because a cooperative society has the capacity to arrange for Anchor Borrowers' Programme's funds for its members.

Farm income has a significant and positive influence on rice farmers' access to agricultural Anchor Borrowers' Programme's fund. This suggests that farmers' access to Anchor Borrowers' Programme's fund becomes better as their farm income increases. It can be inferred from this that farm producers often need government intervention increase their farm income in order to. The implication of this is that the need for financial assistance to acquire sufficient production resources is a critical factor, which could serve as a driving force to seek for agricultural finances for expanding farm production.

Table 5: Results of the constraints of Anchor Borrowers' Programme

Constraint	Not a problem at all	N o t severe	Mildly severe	Severe	V e r y severe	Mean	Ranking
Administration	38 (56.7)	10 (14.9)	11 (16.4)	8 (11.9)	0	0.84	1 st
G e n d e r inequality	44 (65.7)	7 (10.4)	6 (9.0)	8 (11.9)	2 (3.0)	0.76	2 nd
T e c h n i c a l difficulty	15 (22.4)	9 (13.4)	13 (19.4)	12 (17.9)	19 (26.9)	2.13	3 rd
P o l i t i c a l interference	4 (6.0)	16 (23.9)	4 (6.0)	12 (17.9)	31 (46.3)	2.75	4 th
Low service quality	2 (3.0)	13 (19.4)	17 (25.4)	2 (3.0)	33 (49.3)	2.76	5 th
Accessibility	4 (6.0)	2 (3.0)	14 (20.8)	32 (47.8)	15 (22.4)	2.78	6 th
Low equipment quality	0	6 (9.0)	25 (37.3)	11 (16.4)	25 (37.3)	2.82	7 th

Source: Field Survey 2017

Constraints of Anchor Borrowers' Programme

Table 5 revealed the identified problems beneficiaries encountered during the programme. Amongst the problems, low equipment quality was identified as a severe constraint of the beneficiaries with the mean of 2.82. Also accessibility and low service quality fell in the same category but ranked below low equipment quality with the mean of 2.75 and 2.76 respectively. Also technical difficulty was perceived a mild severe problem which has a mean of 2.13 but gender inequality and administration were not severe problems as indicated in table by the beneficiaries. This implies that the programme was in no doubt a success because it improved paddy rice yield and also increased farmers' income. Nevertheless, it also has its shortcomings such as late arrival of inputs,

CONCLUSION AND RECOMMENDATIONS

The study concluded that Anchor Borrowers' Programme was a success because it improved paddy rice yield and also increased farmers' income. Nevertheless, it also has its shortcomings such as late arrival of approval and disbursement of funds. The results therefore calls for governments to bridge the gap between the potential and attainable paddy rice yields by increasing the supply of fertilizer not only for rice cultivation but for the generality of the agriculture sector. The current average yield of about 3.9 tons per hectare according to the results of the study is considered too low will therefore require special and continuous interventions on annual basis by all tiers of government. Also, the disparities in output per hectare among ABP beneficiaries clearly showed the relevance of the differences in intensities of implementation of

rice subsector policies and the presence of technologies gaps among the beneficiaries. To complement the agricultural extension officers, the program should involve the training and distribution agricultural commercial extension agents, who have the mastery of the market conditions both local and international and should be able to disseminate the knowledge to the farmers. The program must intervene with subsidized lending (seeking no profit, amortizing high transaction costs, spreading the risk on a national basis), since most borrowers in rural areas are small farmers (i.e. poor), low cost credit responds to poverty alleviation considerations .

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