The Effect of Anchor Borrower Programme on Poverty Reduction of Smallholder Rice farmers in Lagos and Ogun State, Nigeria

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ABSTRACT

No doubt, smallholder farmers are the major producer of food and equally among the net buyer of grains in Nigeria. Be as it may, poverty is a key factor contributing to the low level of agricultural productivity of farmers. However, this study analyse the effect of Anchor borrowers' programme (ABP) on poverty reduction of smallholder rice farmers in Lagos and Ogun State, Nigeria. Three-stage random sampling techniques were used to select two hundred and forty-seven ABP beneficiaries. A well-designed questionnaire was used to collect necessary information from the respondents and the data were analysed using descriptive statistics, Foster, Greer and Thorbecke (FGT) poverty index and endogenous selection control function. Result showed that most of the respondents were male and married with average household size of 7.67. This indicated a fairly large farming household. Poverty incidence in the study area stood at 34% with poverty depth and severity of 8% and 2% respectively. The result further revealed that land acquisition which was taken as proxy for productive asset was negative and significant while household size was positively related to poverty status of the respondents. Also, the result showed that the marital status of the respondents, labour utilization, farm size, and amount of fertilizer used had positive relationship with rice output. The study therefore suggests policies that can impel reduction of family size; and spurred access to productive asset for large scale production is implemented.

Keywords: Asset, Labor, Poverty, Rice, Smallholder

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INTRODUCTION

Small-scale farmers produce the bulk of the food and fabrics in Nigeria. The farming population constitutes over 60 percent of the country's population. Presently the Nigeria agriculture is characterized by low productivity due to low level of technological adoption, use of inefficient production techniques, insufficient credit for agricultural production, land tenure etc. Agriculture plays a dominant role in the economy of Nigeria, as most of its population who dwells in rural area are predominantly smallholder farmers (Rahji and Fakayode, 2009). The present poor state of Nigerian agriculture is related to farmers' attitudes towards capital in the adoption of new production techniques, risks associated with the production and socio-economic environment as well as limited access to credit facilities (Odoemenem and Obinne, 2010).

It was on this note that, Anchor Borrowers' Programme (ABP) was launched on November, 2015 by the Federal Government of Nigeria. According to Victor (2017), Anchor Borrowers' Programme (ABP) is Central Bank of Nigeria (CBN) policy initiative, the programme was intended to create a linkage between anchor companies involved in the processing and smallholders (SHFs) of the required key agricultural commodities. The thrust of the ABP is provision of farm inputs in kind and cash (for farm labour) to small holders' farmers to boost production of rice, stabilize input supply to agro-processor (Anchor). At harvest, the SHF supplies his/her produce to the Agro-processor who pays the cash equivalent to the farmer's account (Idowu, 2016).

The Programme targeted at creation of jobs, reduction of food imports especially rice, and diversification of our economy from oil (Akanbi 2017). The Programme aims at creating economic linkages between over 600,000 smallholder farmers and reputable large-scale processors with a view to increasing agricultural output and significantly improving capacity utilization of integrated mills. The programme is designed to help local farmers increase production and supply of feedstock to processors, reduce importation and conserve Nigeria's external reserves. Under the Scheme, anchor serve as off-takers in recognition of their track record and experience in working with out-growers involved in production.

Rice is the agricultural commodity with the third-highest worldwide production with a total of 741.5 million tonnes in 2014 after sugarcane which had 1.9 billion tonnes and maize; 1.0 billion tonnes (FAOSTAT 2017). Odusina (2008) discovered that rice, having emerged from being a festive food, provides about 20% of the world's energy supply. Rice, when compared with other world leading crops (maize and wheat), has the highest rate of human consumption. In 2009, the hectares of land harvested for wheat exceeds that of rice but human consumption accounted for 78% of the total production for rice compared with the 64% of wheat (Global Rice Science Partnership, Rice Almanac, 2013). This implies that rice, despite not being the crop with the largest land allocated for its cultivation, still enjoys the highest consumption rate.

Rice is a staple food in many countries of Africa and constitutes a major part of the diet in many other continents. In third world countries, the demand for rice exceeds its supply. This is evident in the Nigerian situation (Ajala and Gana 2015). Indigenous rice production started in Nigeria in 1500BC with the cultivation of the low-yielding indigenous red grain species (*Oryza glaberrima*) widely grown in the Niger Delta area (Oludare, 2014).

Despite being the biggest producer of rice in Africa, Nigeria is also the largest importer of rice. To substantiate this, FAOSTAT database record states, "Of the total demand of 5,330,290 million tonnes in 2013, imports accounted for 2,187370 million tonnes (FAOSTAT 2012). Subsequently, the consumption rate has experienced a dramatic rise and this is acknowledged by Stanley (2016) in one of his articles: The consumption of rice in Nigeria has grown rapidly over the past decade and is currently at an all-time high of 7million metric tonnes. More so, only 2.7 million metric tonnes of rice is produced by the farmers in Nigeria which persistently, leaves a gap of 4.3 million metric tonnes to be cushioned by importing it into the country.

The extent of involvement in farming varies geographically, so that in sub-Saharan Africa smallholders typically account for 77% of the poor, whereas in Asia the comparable figure is less than half (reported by Cox *et al*., 1998). But even when the poor to typically farm, their production is often small: indeed many smallholders even those who grow food crops mainly for their own, many have to buy in food. Income from farming may thus make up only a small fraction of their capital income. Since poverty is a major constraining factor in the farmer's production and socio-economic environments, there is need for a detailed study on the effects of Anchor Borrowers' programme on poverty reduction among smallholder rice farmers in Lagos and Ogun State of Nigeria.

METHODOLOGY

This research work was carried out in Lagos and Ogun State, Nigeria. The two States share the same boundary together. The important crop found in this region is usually cocoa, plantain, palm tree, cassava, cocoyam, rice and variety of vegetable. This is due to the nature of the soil in the area. The vegetation of this area is deep forest due to the heavy rainfall which ranges from late March to September. Primary data were used for the study, interview schedule, or structure questionnaire were used to acquire the data.

Three-stage random sampling techniques (purposive, stratified and random) were used for the study. Two Local government areas (LGA) who the primary occupation of their farmers was rice production were selected from each state for the study. Two villages are considered in each of the selected LGA, and about one-fifth of the ABP beneficiaries in each of these villages were randomly picked and a total of two hundred and forty seven (123) ABP beneficiaries and one hundred and 129 non beneficiaries of ABP were sampled for the study.

Questionnaire was administered and only 240 questionnaires were found useful for the study. In analyzing the data, a number of analytical methods were used and these include descriptive statistics, FGT (1984) poverty index analysis and Endogenous selection control function model.

FGT Model

Adopting the method of estimation of the Foster, Greer and Thorbecke (1984) poverty index, the poverty index was estimated as:

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{q}\left(\frac{Z-yi}{Z}\right)^{\alpha} \quad \text{.....(1)}$$

P_α = Poverty index (α = 0, 1 and 2)

Z = Poverty line (2/3 mean per-capita food and non food expenditure)

q = number of households below the poverty line (poor).

yi = per capita food and non-food expenditure in increasing order for all households

α = is the aversion parameter that takes values of zero, one or two.

N = total number of household in the sample

Endogenous Selection Control function approach

To estimate Rosenbaum and Rubin (1983), introduced the so-called *Conditional Independence Assumption* (CIA), stating that - conditional on the knowledge of x - *y1* and *y0* are independent of *w*. This assumption means that, once the knowledge of the factors affecting the sample selection are taken into account, the condition of randomization is restored. This assumption can be restricted to the so-called *Conditional Mean Independence* (CMI), stating that: E(*y*1 | **x**, *w*) = E(*y1* | **x**) and E(*y*0 | **x**, *w*) = E(*y0* | **x**), that restricts the independence only on the mean. Suppose to modeling the potential outcomes as follows:

(a) $y0 = \mu0 + v0$, $E(v0) = 0$, $\mu0$ = *parameter*

(b) $y1 = \mu1 + v1$, $E(v1) = 0$, $\mu1$ = *parameter*

(c) $y = y0 + w\,(y1 - y0)$

(d) *CMI holds*

By substituting (a) and (b) into (c) we get:

$y = \mu0 + w\,(\mu1 - \mu0) + v0 + w\,(v1 - v0)$

By assuming E(*v*0 | **x**) = g0(**x**) = **x**_0 and E(*v*1 | **x**) = g1(**x**) = **x**_1

RESULTS

The result presented in Table 1 showed that most (63.3%) of the respondents were male and 36.7% were female; this shows that most of the smallholder farmers in the study area were males. About 28% of the respondents are between the age 51 – 60 years while 26.67% of the respondents were between ages 61 – 70 years, 25% are between the ages 41 – 50 years, 16.67% are between the age 31 – 40 years, and only 3.33% of the respondents were between age ≤_30 years.

The mean age of the respondents was 51.68 years which denote that they were already tending towards inactive farming age. Also, the table showed that most (80%) of the respondents were married, 10% of the respondents were divorced, 8.3% of the respondents were widow and only 1.7% of the respondents were single. This indicated that most of farmers were married and had family member which can give assistance to their on their farmland i.e. family labour. About 7% of the respondents had no formal education, 30% of the respondents had primary school education, 38.3 % of the respondents had secondary school education and 25% of the respondents had their education up to Tertiary education. This implies that larger proportion of the respondents are literate, this might influence the rate of adoption of new technological development in agricultural activities.

Furthermore, the result presented on the table revealed that most (86.67%) of the respondents had household size ranging between 6 – 10 and 13.33% of the respondents had household size ranging from 1 - 5. The mean household size was 7.67. Thus, most of the respondents had large family size in the study area; this might raise the dependency ratio and might greatly influence the level of household poverty. The table further showed that majority (58.34%) of the farmers had 20 years or less farming experience while 28.33% of the respondents had 21 – 30 years' experience and 13.33% of the farmers had 31 – 40 years of experience which shows that all the respondents are experience farmers which may go a long way to improve their productivity. Lastly, 18.3% of the respondents had no access to credit while 81.7% had access to credit. Credit accessibility is known to enhance production which will invariably influence the livelihood of the respondents.

Table 1: Socioeconomic characteristics of the respondents

Socioeconomic variables	Frequency	Percentage (%)	
Gender			
Female	88	36.7	
Male	152	63.3	
Age			
≤30	8	3.33	
31 – 40	40	16.67	51.68
41 – 50	60	25	
51 – 60	68	28.33	
61 – 70	64	26.67	
Marital Status			
Single	4	1.7	
Married	192	80	
Divorced	24	10	
Widow	20	8.3	
Education			
No formal education	16	6.7	
Primary education	52	30.0	
Secondary education	92	38.3	
Tertiary	60	25.0	
Household size			
1 – 5	32	13.33	7.67
6 – 10	208	86.67	
Farming Experience			
≤ 20	140	58.34	
21 – 30	68	28.33	18.93
31 – 40	32	13.33	
Extension agent contact			
Forth nightly	192	80	
Quarterly	48	20	
Access to credit			
No access	44	18.3	
Have access	196	81.7	
Total	240	100.0	

Source: Field Survey, 2017.

Analysis of poverty status of the respondents using FGT Poverty Index.

Poverty can be measured by using FGT index and also the use of poverty line. In other to measure poverty appropriately the following basic elements must be considered; head count ratio (P_o), depth of poverty (P_1) and poverty severity (P_2). This is shown on the degree on which the per capita expenditure of the respondents fell below the poverty line. The total per capita expenditure for 115 ABP beneficiaries was ₦1995900.96 and ₦2033270.16 for 125 non-beneficiaries.

The mean per capita for beneficiaries was ₦17335.66 and ₦16226.16 non-beneficiaries per annum. The poverty line was computed as 2/3 of the mean per capita expenditure of the respondents which was ₦11557.11 for beneficiaries and ₦10817.44 for non-beneficiaries. However, any household spending below the amount estimated in the poverty line was described as been poor while any household spending above or the exact amount in the poverty line is described as been non poor.

With a poverty line of ₦11557.11 for beneficiaries and ₦10817.44 for non-beneficiaries, the head count ratio (P_o) was 0.34 for the beneficiaries and 0.41 for non-beneficiaries which indicate 34% and 41% of the ABP beneficiaries and non-beneficiaries in the study area were below the poverty line and were relatively poor respectively. The poverty depth (P_1) for the respondents in the study area was 0.08 and 0.12 for both beneficiaries and non-beneficiaries of ABP respectively. However, these values indicated that the depth of poverty in the study area was 8%, showing that 8% of the total value of resources in the area will be required to bring out those that are poor out of poverty above the poverty line, while the severity of poverty (P_2) was estimated to be 0.02 and 0.08 for both beneficiaries and non-beneficiaries of ABP respectively.

Table 2: FGT Poverty Indices

Poverty	FGT index (ABP Beneficiaries)	FGT index (ABP Non-beneficiaries)
P_o (%)	0.34	0.41
P_1 (%)	0.08	0.12
P_2 (%)	0.02	0.08

Source: - Field Survey, 2017.

Impact of Anchored Borrowers Programme on poverty level of the Beneficiaries

Endogenous Selection Control function approach was used for the study. Land acquisition which was taken as a proxy for access to productive assets; household size and per capital expenditure were used to control poverty status. The result revealed that household size was positively related to poverty status of the respondents in the study area. The result implied that an increase in household size will increase poverty status of the ABP beneficiaries in the study area. Similarly, land acquisition which was taken as proxy for productive asset was negative and significant in the model. This indicated that an increase in productive asset will reduce poverty in the study area. Per capita expenditure of the respondents was positive but insignificant in the model.

The result also showed that the marital status of the respondents, labour utilization, farm size, and amount of fertilizer used had positive relationship with ABP in the study area. While poverty index showed a negative sign with rice output, land acquisition (productive asset) and household size showed a significant relationship with the poverty status of the respondents.

From the table, the result showed that an increase in married respondents will increase rice output in the study area; this might be as a result of multiple helping hands that might speed up the timeliness of each agricultural activity on the farm. Labour utilization was also significantly influence rice output at 1%; this implied that an increase in labour used will raise rice output in the study area. The result indicated the optimum utilization of labour for the farm activities. Also the coefficient of both farm size and amount of fertilizer used for production were significant at 5%; this equally implies optimum use of fertilizer as increase in both farm size and amount of fertilizer used will eventually increase rice output in the study area. The result on showed that an increase in poverty index will decrease rice output in the study area. The result was in consonance with the a-priori expectation since poverty is a sign of low income and deprivation of sometimes productive assets among female-headed households.

Table 3: Maximum likelihood of effect of ABP on poverty reduction

Parameters	Coefficient	Std. Err	z	P>|z|
Age	0.0008987	0.0024043	0.37	0.709
Married	0.2046542	0.0589134	3.47	0.001***
Years spent in school	-0.0398286	0.0329994	-1.21	0.227
Labour	0.011983	0.0032204	3.72	0.000***
Farm experience	-0.0041636	0.00281	-1.48	0.138
Farm size	0.0379369	0.0165029	2.30	0.022**
Amt of fertilizer used	0.0308022	0.0133112	2.31	0.021**
Poverty index	-0.3427176	0.0518342	-6.61	0.000***
Constant	1.634108	0.1079294	15.14	0.000***
Poverty status				
Land acquisition	-0.3663853	0.1075653	-3.41	0.001***
Household size	0.4349861	0.0550398	7.90	0.000***
Per capita expenditure	0.0028721	0.0028935	0.99	0.321
Constant	-3.240885	0.3829729	-8.46	0.000***
Diagnostic				
Wald chi2(8) = 95.48				
Prob > chi2 = 0.0000				
Log likelihood = -117.91111				

Source: Field Survey, 2017.

DISCUSSION

Poverty is one of the most serious manifestations of human deprivation and is inextricably linked to human capital development; it is thus an issue of global concern. Poverty is a plague afflicting people all over the world and it is considered one of the symptoms or manifestation of underdevelopment. Poverty encompasses inadequate income and demand of the basic necessities such as education, health services, clean water and sanitation (World Bank, 2007) which are essential for human survival and productivity. Mafimisebi (2002) defined poverty as a multi-dimensional, socio-economic and cultural situation that transcends economic description and analysis. Hence, the literature is replete with definitions reflecting the peculiar perceptions of various researchers and policy makers, as well as the circumstances prevailing in different regions of the world. According to World Bank, (2000) absolute poverty was termed as a condition of life degraded by disease, deprivation, and squalor. Again, in a relative sense, poverty implies relative deprivation, (Bradshaw, 2006). The deprivation happens to be of a different dimension- including consumption and food security, health, education rights, voice, security, dignity and decent work (Development Assistance Committee [DAC], 2001). Chronic poverty is a long term phenomenon and the causes are largely structural and endemic while transitory poverty is temporary, transient and short-term in nature.

In spite of effort geared in reducing poverty and improving the standard of living of people, about one in five people on the surface of earth lives in abject poverty or what is term penury. Of the world's 6 billion people, 2.8 billion live on less than US$ 2 per day and 1.2billion can spend less than US$ 1 per day. The causes of poverty have been traced in the literature, partly to adverse development on the international scene, world economic recession, foreign debt burden and a series of economic reforms undertaken by the developing countries which make them not to carry out poverty prevention programmes (Okuneye, 2002). Okuneye, (2001) further elucidated that the causes of poverty as he viewed it to be domestically based. These include inadequate production and income, lack of access to employment opportunities, poor quality of labour force, low level of technology, inefficient use of resources, location disadvantage, wars and natural disasters and the lack of access to credits and other productivity resources. In the view of Hertford, (2001), the prime determinants of poverty include conceptually the assets belonging to the poor, their returns, and the variability of those assets and returns. The assets are generally categorized into human, physical, natural, financial, and social assets.

This was further elucidated by Valdés and Mistiaen, (2000), when they exclaimed that "the poor are poor" because they have few assets and also because the productivity of their assets is low. The assets are meager not only in quantity but also in quality (e.g., low levels of schooling are usually combined with the poor quality of schooling). The low productivity of assets results from a combination of government failures and imperfect or incomplete markets".
The most direct contribution of agricultural growth is through generating higher incomes for farmers. Two conditions affect the influence of this on poverty. First, there is the degree to which the poor are engaged in farming. Even, if the majority of the world's poor live in rural areas estimate vary from around 60% (CGIAR, 2000) to 75% or more, (IFAD, 2001) that does not mean they necessarily farm. Jazairy *et al*., (1992) found on-farm production growth and 29% were landless.

CONCLUSION

The result of this study showed that labour utilization, farm size and amount of fertilizer used increases output in the study area. Therefore, policies that will spur access to productive asset for large scale production should be promulgate and implemented. This will give the farmers more access to agricultural land and subsidies on agricultural inputs. In the same manner, ABP is seen to reduce poverty, thus programmes that will help farm families mitigate the intensity of poverty should be impelled such as family size control method and other poverty alleviation programmes.

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