



**IMPACT OF ANCHOR BORROWER'S PROGRAMME ON LIVELIHOOD OF  
SMALLHOLDER RICE FARMERS IN KANO STATE, NIGERIA**

**ABSTRACT**

**<sup>1</sup>Gwadabe, M., <sup>1</sup>Saddiq, M. N., <sup>1</sup>Yusuf, H. O. and <sup>2</sup>Oladimeji, Y. U.**

<sup>1</sup>Department of Agricultural Extension and Rural Development, Faculty of Agriculture, Ahmadu Bello University, Zaria

<sup>2</sup>Department of Agricultural Economic, Faculty of Agriculture, Ahmadu Bello University, Zaria

**Corresponding Author's Email: [gwadabet@yahoo.com](mailto:gwadabet@yahoo.com)**

**GSM: +2348029538922**

**ABSTRACT**

The study was carried out to assess the impact of anchor borrower's program on livelihood of smallholders' rice farmers in Kano State, Nigeria. A Multi-stage sampling technique was employed to 303 beneficiaries and 303 non-beneficiaries. Data were analysed using propensity score matching. The result of Stratified matching shows participants in the ABP experienced significant ( $p < 0.001$ ) increase in their asset of about ₦ 60,347.885 than the non-participants. However, participants in the ABPs experienced insignificant increase in income of about ₦ 93,361.638 than the non-participants. The result of Kernels matching shows that participants in the ABP scheme experienced insignificant decrease in output of about -4.516 (kg/bags) than the non-participants. It was concluded that, ABP have no significant impact on the yield and income of participating rice farmers in the areas. It was recommended that the project should be reviewed by government and come up with a certain policy which will necessitate proper implementation and its sustainability.

**Keyword:** Anchor, Borrower's, Farmers, Livelihood and Smallholders

**INTRODUCTION**

Livelihood cuts across agricultural and non-agricultural activities. It has been established that majority of households especially in developing countries live in rural areas and rely on agriculture for their livelihood (World Bank, 2016). According to Alimi (2017), about two-third of rural households earn their livelihood from subsistence agriculture, either as small-scale farmers or as low-paid farm workers. While, the remaining one-third engage in petty services. Livelihood are thus maintained from a combination of assets, resources and activities which are becoming more complex and diverse, cutting across economic sectors and which many governments and agencies tend to be ill-equipped to support because of the diversity and complexity of the agricultural sector (Ellis, 2021).

The livelihood and well-being of farmers in Nigeria should be among the key considerations of policymakers in the country (Terdoo and Adekola, 2016; Ukamaka *et al.*, 2017). This is because of the proportion of the nation's populace that undertakes farming as a primary occupation and the role agriculture has been playing in the economy of the country since its inception (Balana, 20218; Salami, 2021). Across most developing countries, agricultural development policies have shifted from a focus on boosting food production to environmental issues, poverty reduction, and a variety of livelihood enhancing initiatives (Souvik *et al.*, 2019). Kano State is Nigeria's most populous state, having an estimated population of over eleven million people (National Bureau of Statistics, 2016). The State's history in agriculture and trade has been a phenomenon, currently, the State is second to Lagos in terms of industrialization. However, agriculture has been the source of income and employment for over 75 percent of the rural population (Samuels *et al.*, 2018). The State is among the leading producers of groundnuts, maize, and millet among others. Similarly,



livestock is raised in large numbers, especially goats, sheep, and cattle, sheep, for both consumption and industrial use.

Nigeria is the largest producer of rice in West Africa but the second largest importer of rice in the world, accounting for 25% of the continent's import. Local production is done on 2.8 million hectares of farmland (Central Bank of Nigeria, 2015). Nigeria produces 2.55 million metric tons of the estimated 6.1million metric tons it consumes annually. It was further projected that Nigeria's rice consumption will rise to 35 million metric tonnes by 2050, increasing at the rate of 7% per annum due to estimated population growth (CBN, 2015). Considering the rate at which the country's population increases, there is the need to match the population increase with food production; hence increase in rice production is one way of realizing this dream.

The ABP was established in 2015 by the Central Bank of Nigeria (CBN) in line with its developmental function. This was done in order to curb the high cost been incurred by the government on the importation of food crops or agricultural products that can be produced within the country. Under the intervention, the CBN has set aside the sum of N20billion from the N220billion Micro, Small and Medium Enterprises Development Fund (MSMEDF) for farmers at a single-digit interest rate of 9%. The programme seeks to pursue objectives such as, creation of jobs, reduction in food imports and diversification of the economy. The programme aims at creating linkages between over 600,000 smallholder farmers (out-growers) and reputable large-scale processors (off-takers) with a view to increasing agricultural output and significantly improving capacity utilization of integrated mills (Umeh and Adejo, 2019).

## **MATERIALS AND METHODS**

### **The Study Area**

Kano State is located between Latitudes 10° 3' and 12° 37' North and Longitudes 7° 3' and 9° 54' East of the Greenwich meridian. Kano State is the commercial nerve center of Northern Nigeria. It has a total land area of 20,760 square kilometres with 1,754,200 hectares of fertile agricultural land, of which 86,500 is exclusively Fadama land. Administratively, the State was divided into 44 Local Government Areas. Kano State is the second most populous state in Nigeria with a population of 11,383,682 (NPC, 2011), and the projected population to 2022 is 15,140,297. The major crops grown in the state include rice, millet, maize, cowpea, vegetables and groundnut. The main livelihood of the people is agriculture of which rice is among the most important crop both in production and in consumption (NAERLS, 2012).

### **Sampling Technique**

Multi stage sampling procedure was used in the study. In the first stage, ADP administration three (3) zones was also used. In the second stage, the list of LGAs that are intensively involved in rice production was selected. These LGAs are; Kura and Garin malam in zone 1, Shanono and Bagwai in zone 2 and Dawakin kudu and Warawa in zone 3. Thereafter, two villages were purposively selected in each LGA based on the participation in anchor borrower program, this gave a total of twelve (12) villages. During a reconnaissance survey of the study areas in 2022, the list of benefiting rice farmers in the chosen villages was compiled (554) with the help of the managers of rice farmers association of Nigeria (RIFAN), power analysis software was used to arrive at the accurate sample size of 606 ABP rice farmers with

actual power of 0.95 at two tail test. Based on this power analysis, the farmers were stratified into beneficiaries and non-beneficiaries of ABP.

### Methods of Data Collection

Data were collected through the administration of structured questionnaire. The data collected include socio-economic characteristics of participating and non-participating rice farmers such as age, sex, educational level, farm size, household size and years of experience in rice cultivation, marital status, access to extension visits, access to credit and memberships of Cooperative-group. Yield, income and asset accumulation of the rice farmers.

### Analytical Techniques

Data were analyzed using both descriptive and inferential statistics. Descriptive involved the measures of central tendency such as mean, frequency distribution, percentage, standard deviation, coefficient of variance and the inferential statistics are; propensity score matching (PSM), z- test, and Tobit regression model.

### Propensity score matching model

PSM was used to evaluate the impact of ABP on livelihood, as adopted by Ali and Erenstein (2017). As a non-parametric technique, it was used to estimate average treatment effect, the estimates of the propensity score on the treated (ATT), matches those participated and those not participated In ABP among the rice farmer in the study area. Using PSM for objective v, ABP participant are treatment variable, while livelihood are the outcome variable and socioeconomics characteristics is the treatment independent variable.

$$\tau_{I=1} = E(\tau|I = 1) = E(R_1|I = 1) - E(R_0|I = 1) \quad \dots (1)$$

Where  $\tau$  is the average treatment effect (ATT),  $R_1$  denotes the value of outcome for those that practice ABP,  $R_0$  the value of outcome for those that do not practice ABP,

Thus, PSM can be expressed as;

$$p(Z) = Pr\{I = 1|Z\} = E\{I|Z\} \quad \dots(2)$$

Where  $I$  is the indicator for ABP practiced and  $Z$  is the factor influencing the choice of ABP practiced after estimating the propensity score, the ATT can be estimated as;

$$\tau = E\{R_1 - R_0|I = 1\} = E\{E\{R_1 - R_0|I = 1, P(Z)\} - E\{R_0|I = 0, P(Z)I = 0\} \quad \dots(3)$$

ATT is the difference in the outcome of rice farmers having participate in a particular ABP and similar farmers not having practiced a particular ABP. For estimation different matching algorithm (nearest neighbor matching, radius and kernel-based etc.) were employed. After matching, the matching quality was assessed and the standard errors and treatment effects was also estimated.

## RESULTS AND DISCUSSION

### Impact of ABP on Livelihood of the Beneficiaries

The result in Table 1 presented below shows the estimation of the impact of ABP on asset accumulation of rice farmers. The result shows that ABP scheme had positive outcome and they are all significant. This implies that rice farmers in the ABP have significant and positive impact on their asset. The result of Stratified matching shows that ATT of asset accumulation was estimated as ₦ 60,347.885 and significant at  $p < 0.05$ . This implies that participants in the ABP experienced significant increase in their asset of about ₦ 60,347.885 than the non-participants. The positive impact on the asset accumulation of the participants might have resulted from diversion of the resources for their personal uses. This result also agrees with the findings of Okere *et al.* (2019), who examined effect of Anchor Borrowers



Programme among rice farmers in Benue State, Nigeria reported that anchor Borrowers Programme (ABP) has enhanced the income and farm output of rice farmers in the study area. The rice farmers access to credit was significantly influenced by their socio-economic characteristics.

**Table 1: Impact of ABP on Asset of Participating Farmers**

Matching Algorithms	No of treatment	No of control	ATT	S.E	t-value
Nearest neighbor	303	20	68468.79	10265.960	6.669
Kernels	303	293	60457.242	11555.37	5.232
Stratified	303	293	60347.885	9626.89	6.269

Source: Field Survey, 2024

### Impact of ABP on Income of Participating Farmers

The result presented in Table 2 shows the estimation of the impact of ABP on income of rice farmers. The result shows that ABP scheme had positive value and one had negative outcome and they are all insignificant. This implies that rice farmers in the ABP scheme have an insignificant and negative impact on their income. The result of Stratified matching shows that ATT of income was estimated as ₦ 61,933.638 and insignificant. This implies that participants in the ABPs experienced insignificant increase in income of about ₦ 93,361.638 than the non-participants. The negative impact on the income of the participants might have resulted from subsistence level of the participants. The finding disagreed with that of Fofana (2018) who reported that women access to credits enhance income and food security.

**Table 2: Impact of ABP on Income of Participating Farmers**

Matching Algorithms	Treatment	Control	ATT	S.E	t-value
Nearest neighbor	303	178	-5019.801	98783.67	-0.051
Kernels	303	293	66375.383	83857.67	0.792
Stratified	303	293	93361.638	71050.004	0.872

Source: Field Survey, 2024

### Impact of ABP on Yield of Participating Farmers

The result in Table 3 presented below shows the estimation of the impact of ABP on output of rice farmers. The result shows that ABPs had insignificant negative outcome. This implies that rice farmers in the ABP scheme have an insignificant and negative impact on their output. The result of Kernels matching shows that ATT of output was estimated at -4.516 and insignificant. This implies that participants in the ABP scheme experienced insignificant decrease in output of about -4.516 (kg/bags) than the non-participants. The negative impact on the output of the participants might have resulted from weak agricultural extension services delivery. The finding concurs with the Adebayo *et al.* (2018), who reported that the UNDP micro credit scheme had no significant impact on the food security status of beneficiaries.

**Table 3: Impact of ABP on Yield of Participating Farmers**

Matching Algorithms	Treatment	Control	ATT	S.E	t-value
Nearest neighbor	303	180	-7.221	4.099	-1.762
Kernels	303	293	-4.516	2.852	-1.583
Stratified	303	293	-4.783	2.988	-1.601

Source: Field Survey, 2024



## CONCLUSION AND RECOMMENDATIONS

It can be concluded that ABP scheme have no significant impact on the yield and income of participating rice farmers in the areas. But the findings also indicated that there was a significant impact on the asset accumulation and statistically significant at 1% probability level of the beneficiaries. It was recommended that, the project should be reviewed by government and come up with a certain policy which will necessitate proper implementation and its sustainability.

## REFERENCES

- Adebayo, P. F. (2018). Food Security in Nigeria and Overview. *European Journal of Sustainable Development*, **1**(2):99-222.
- Ali, A. and Erenstein, O. (2017). Assessing farmer use of climate change adaptation practices and impacts on food security and poverty in Pakistan. *Climate Risk Management Journal*, **2**(6):183-194.
- Alimi, S. (2017). Effect of access to credit on agricultural productivity: evidence from cassava farmers in the Afigya-Kwabre district of Ghana. *International Journal of Innovative Research in Social Sciences and Strategic Management Techniques*, **4**(2):55-67.
- Balana, T. R. (2018). Household Food Security: Concepts, Indicators and Measurement: Anchor Borrower's Program. 30<sup>th</sup> international conference of agricultural economics, July 28 - august 2, 2018.
- Central Bank of Nigeria (2015). Performance of the agricultural sub sector of the Nigeria economy in the 3rd quarter. CBN Publication, Abuja, Nigeria.
- Eliss, F. (2021). The determinants of rural livelihood diversification. *The journal of development studies*, **35**(1):1-38.
- Fofana, N. B. (2018). Examined microfinance, food security and women's empowerment in Cote d'Ivoire. UFR economies and management University of Abidjan cocody/Ivorian economics and social Research center (CIRES).
- NAERLS, (2012), National Agricultural Extension and Research Liaising Services.
- NBS, (2016). LSMS Integrated Surveys on Agriculture: Nigeria General Household Survey-Panel Wave 4 2018/2019. Online: <https://microdata.worldbank.org/index.php/catalog>
- Okeke, A. M., Mbanasor, J. A. and Nto, P. O. (2019). Effect of Anchor Borrowers' Programme Access among Rice Farmers in Benue State, Nigeria: Application of Endogenous Switching Regression Model. *International Journal of Agriculture and Earth Science*, **5**(3):31- 47.
- Samuels, F., Maja, G., Caroline, H. and Miguel, N. Z. (2018). Food, finance and fuel: the impacts of the triple F crisis in Nigeria, with a particular focus on women and children: Kano State Focus
- Souvik, G., Verma, H. C., Panda, D. K., Nanda, P. and Kumar, A. (2019). Irrigation, Agriculture, Livelihood and Poverty Linkages in Odisha. *Agricultural Economics Research Review*, **25**(1):99-105.
- Terdoo, F. and Adekola, O. (2016). Assessing the role of climate-smart agriculture in combating climate change, desertification and improving rural livelihood in Northern Nigeria. *Agricultural Economics Research Review*, **9**(1):1180-1191. <https://doi.org/10.5897/AJAR2013.7665>
- Umeh, J. C. and Adejo, M. A. (2019). Assessment of central bank of Nigeria's anchor borrowers' programme effects on rice farmers in Kebbi state, Nigeria. *Invited paper presented at the 6th African Conference of Agricultural Economists*, 23-26, Abuja, Nigeria.
- World Bank, (2016), Poverty and Hanger: Issues and Options in Developing Countries. A World Bank Policy Study, Washington, D.C: World Bank