SHORT COMMUNICATION

FACTORS INFLUENCING MAIZE FARMERS' PARTICIPATION IN ANCHOR BORROWERS' PROGRAMME IN FUNTUA AND DANJA LOCAL GOVERNMENT AREAS OF KATSINA STATE

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ABSTRACT

The study examined the factors influencing maize farmers' participation in the Anchor Borrowers' programme (ABP) in Funtua and Danja Local Government Areas of Katsina State, Nigeria. Data were collected using a purposive and random sampling technique. The data were collected during the 2022 maize farming season using a structured questionnaire and analyzed using descriptive statistics and a Tobit regression model. The results showed that sex, household size, cooperative society, extension contact, farm size, and input cost significantly (p<0.05) influenced the level of maize farmers' participation in the programme. 46 % had moderate ease of access to fertilizer and improved seed varieties, while access to agrochemicals and market linkages was low. However, maize farmers' credit repayment rates are generally low, with over 86 % of farmers reporting low repayment rates. The likelihood index ratio indicated that the specified factors in the model explained 67 % of the total variation in participation. Farmers were constrained by inadequate finance and poor disbursement timing. The government should continue to support

the programme, address the challenges it faces, and expand its reach to more farmers, while also addressing the identified challenges to encourage participation in ABP..

Keywords: Maize farmers, participation, Anchor Borrowers' Programme.

INTRODUCTION

Maize (*Zea mays* L.), also known as corn, is one of the world's major crops. In Nigeria, maize is cultivated across the country, especially in Northern Nigeria. It is the fourth most consumed cereal after sorghum, millet, and rice, and a valuable source of carbohydrates, protein, vitamin B, iron, and other minerals (Girei *et al.*, 2018). Globally, according to the United States Department of Agriculture (USDA), (2022), it was estimated that the total world production of maize was 1,161.86 Million Metric Tons (MMT), against the 1,216.8 MMT estimated in 2021 with a decrease of 55 MMT, In Nigeria, about 12 MMT of maize were produced from 4.8 million hectares, making Nigeria the second highest producer in Africa (FAO, 2022). According to the Mundi Index, maize consumption in Nigeria in 2022 stood at 12.7 MMT. The United States Department of Agriculture's grain report also revealed that Nigeria's midyear maize production in 2023 was 12 MMT, a 0.5 percent increase from the 11.5 MMT forecast in 2019. Yields are still low (i.e., 2.9 MT/ha) in the Nigerian savannas compared to those obtainable in other parts of the world (Osabohien ***et al.***, 2020)**.**

Over the years, Poor economic conditions continue to impair rural households' living standards. In areas where rising population and non-agricultural uses compete for land, the returns to land in terms of output have been declining (Girei *et al.* 2018). Given the importance of maize to Nigeria, efforts are continually made to increase yields per unit area and expand areas where it can be grown to meet the demand for maize from a growing population, for both food and industrial use. A larger proportion of farmers in Nigeria are smallholder farmers who earn their livelihoods through production on small plots of land. For these households, access to inputs and improved production methods is quite critical to their livelihoods. A maize farmer's livelihood may depend on the availability and access to inputs such as seed, agrochemicals, fertilizer, agricultural tools, and cash for labour needed for maize production. Since independence, the governments of Nigeria have formulated numerous programmes and strategies to promote the growth and development of agriculture. These measures included the setting up of large-scale

mechanized farms by the State and Federal Government, the introduction of schemes such as the River Basin Development Authority (RBRDA), National Accelerated Food Production Programme (NAFPP), Operation Feed the Nation (OFN), Green Revolution Programme (GRP), and Directorate of Food, Road, and Rural Infrastructure (DFRRI). National Fadama Development Project (NFDP), National Economic Empowerment Development Strategy (NEEDS), Agricultural Transformation Agenda (ATA), Special Programme for Food Security (SPFS), and National Poverty Eradication Programme (NAPEP). All these were aimed at improving agricultural production, increasing crop output, enhancing the living standards of rural people, and ensuring food security.

The Anchor Borrowers' Programme (ABP) was initiated in 2016 to complement other agricultural programmes in Nigeria. ABP aimed to provide farm inputs to smallholder farmers through loans to produce major agricultural commodities across the country, such as maize, wheat, cotton, roots and tubers, sugarcane, and tree crops, among others (CBN, 2016). For administrative convenience, these farmers are organized into groups/cooperatives of 5 to 20 people, and they are given inputs in the form of seed and fertilizer loans in kind. It is largely driven and coordinated by the private sector (primarily among private financial institutions: Deposit Money Banks, Development Finance Institutions, and Microfinance Banks). The Anchor (private large-scale integrated processors) have agreed to off-take the produce at agreed prices or as may be reviewed, and finally input suppliers (CBN, 2016). In view of this, the study investigated the level of participation and the factors affecting participation in the Anchor Borrowers programme by Funtua and Danja LGA Maize farmers.

METHODOLOGY

The study was conducted in Funtua and Danja Local Government Areas of Katsina State, Nigeria. Both Local Government Areas are among the major maize-producing areas in Katsina State. Funtua Local Government lies between Latitude 11'25N and 11034'N, and Longitudes 7016'E and 7022'E. It covers an estimated land area of 448 square kilometres and has a population of 225,156 people (NPC, 2006), with a population growth rate of 3.7%, projected to reach 402,400 in 2023.

Danja Local Government Area of Katsina State, in the Northern Guinea Savanna agroecological zone of Nigeria. The zone lies between Latitude 11o2'N and 11o1'N, Longitudes 7o30 and 7o40E. It covers an estimated land area of 504.7 square kilometres and has a population of 125,481 (NPC, 2006), with a population growth rate of 3.7%, and a population projection of 224,300 in 2023. The State is predominantly Hausa-speaking communities, and they practice the Islamic religion, with huge populations in and around the towns of Funtua, Bakori, Danja, and Dandume. The Hausa are culturally and historically closest to other Sahelian ethnic groups.

Occupationally, the people of Katsina State are farmers and traders, thereby making food and cash crops flourish and grow in abundance. The most common food staples consist of sorghum, millet, rice, and maize, which are ground into flour for a variety of dishes. The economic activity in Funtua and Danja LGAs is agriculture, and small-scale farmers undertake the bulk of agricultural production.

Primary data were collected using a structured questionnaire and a personal interview. A reconnaissance survey was conducted to locate villages with intensive maize production and Anchor Borrowers Programme activities. Purposive sampling was used to select two Local Government Areas in the State, and maize farmers were identified with the assistance of the Katsina State Agricultural Development Agency (KTARDA) and extension agents in the zone. A simple random sampling technique was used to select 10% of the participating farmers' sample frame, yielding a sample of 271. In comparison, 10% of the total population of non-participating maize farmers were also randomly selected to form a sample of 234, bringing the total sample to 505 participating and non-participating maize farmers to ensure equal chances of selection and interview. Descriptive statistics and the Tobit regression model were used for the analysis.

TOBIT REGRESSION MODEL

This was used to estimate the factors affecting maize farmers' participation in ABP. The regression model was expressed as:

$Yi = f(X_i, \beta) + e_i$

$Yi = \beta_0 + \beta_i X_i + U_i > 0$………………………………………………………..1

$Y_i = 0$ if $\beta_0 + \beta_i X_i + U_i \leq 0$

$Y_i = \beta_0 + \beta_1 + \beta_2 X_1 + \beta_3 + X_2 + \beta_4 X_3 + \beta_5 X_4 + \beta_6 X_5 + \beta_7 X_6 + \beta_8 X_7 + \beta_9 X_8 + \beta_{10} + X_9 + X_{10}.....2$

Where:

Y = Level of farmers participation (Using index of participation i.e level of accessibility each farmers has divided by the total number of the items).

β_0 = constant

$\beta_1 - \beta_{10}$ = Regression coefficients

X_1 = Age of the farmer (in years)

X_2 = Sex of the farmer (Male = 1, Female = 2)

X_3 = Marital status (Married = 1, otherwise 0)

X_6 = Educational level (years of schooling)

X_5 = Household size (Number of Individual)

X_7 = Farming experience (years)

X_8 = Membership of association (years spent)

X_9 = Extension contact (number of extension visits)

X_{10} = Access to credit (actual amount received in naira)

U = error term

RESULTS AND DISCUSSION

The results of the level of maize farmers' participation in the Anchor Borrowers' programme indicated that less than half of the farmers have moderate access to fertilizer and improved seed, with about 46% and 48%, respectively. It further revealed that maize farmers' access to agrochemicals is limited: 45% use some form of agrochemical, while 49% have limited market linkages for their produce. However, maize farmers' credit repayment rates are generally low, with over 86% of farmers reporting low repayment rates. However, Ajibola *et al*. (2020) observed that participation in the ABP was low, with only 44% of respondents participating. This finding is at variance with those of Adebayo e*t al*. (2021), who reported that participation was relatively high, with approximately 60% of maize farmers participating in the programme.

In examining the factors influencing participation in ABP in the study areas, the sigma values for the participants were statistically significant at the 1 % level. The chi-square value indicated

overall model significance at the 1 % level (p < 0.01), suggesting good explanatory power for the specified model's variation. A pseudo-R^2 value of 0.66 indicates that the model explains 66% of the variation in programme participation. The result revealed that of the six variables included in the tobit regression model, sex, household size, cooperative society, extension contact, farm size, and input cost are statistically significant factors that influence the level of maize farmers' participation in the programme.

Table 1: Distribution of farmers based on their level of access in the programme intervention

ABP programme activities	Low		Medium		High		Mean score	Remarks
	Freq.	%	Freq.	%	Freq.	%		
Fertilizers	113	41.7	125	46.1	33	12.2	0.42	Moderate
Improved seed	108	39.9	129	47.6	34	12.5	0.43	Moderate
Agro chemical	122	45	118	43.5	31	11.4	0.411	Low
Access to market	133	49.1	113	41.7	25	9.2	0.391	Low
Repayment of credit	235	86.7	0	0	36	13.3	0.276	Low
Grand Mean score							0.386	

Note: Index: Low (0.00-0.40), medium (0.41- 0.60), high (0.61-1.00)

The coefficient for sex was positive and significant at 10 %, indicating that male farmers participate more than female farmers due to their inability to meet the landholding requirement of 1-2 hectares, as well as cultural norms and traditions that keep women in seclusion (pudda). The marginal effect (0.0587 %) indicates that, with other variables kept constant, the probability of maize farmer participation in ABP will increase by 0.05 % with a unit change in sex. Household size was found to be negative and significant at 5 % level of probability. This implies that the larger the household size, the less the participation in ABP. Households with higher incomes appear less likely to participate in the development programme; those with more labour are more likely to participate (Ngugi *et al.*, 2003). Similarly, the coefficient for extension contact showed a positive and significant relationship with the probability of farmers' participation in ABP at the 5% level. There was a positive and significant (1 %) relationship between membership in a cooperative society and farmers' participation in ABP. This implies that cooperatives could offer

their members financial assistance and capacity-building to take part in opportunities that enhance their livelihoods.

Farm size was positively and significantly associated with 5 %. This reveals that farmers with large farms are more likely to participate in ABP than those with small farm land. However, Audu (2018) observed that larger farms require higher crop yields. There was a negative relationship between input costs and farmers' participation in ABP, which was significant at the 5% level. This implies that any increase in input costs will reduce farmers' involvement in ABP. This finding aligns with Adebayo, Salisu, and Awolabi (2021), who found that the cost of inputs supplied by the ABP remained too high for maize farmers to participate actively.

Table 2: The coefficient of socio-economic and institutional Factors affecting the level of farmers' participation in ABP

Variable	Coefficient	Standard error	T-value	Marginal effects
Constant	0.5898	0.0960	6.141	
Sex	0.0587*	0.0306	1.920	0.0587
Age	-0.0004	0.0018	-0.242	-0.0004
Marital status	-0.0149	0.0276	-0.540	-0.0149
Education	-0.0046	0.0077	-0.605	-0.0046
Household size	-0.0059**	0.0026	-2.270	-0.0059
Farming experience	0.0006	0.0017	0.336	0.0006
Cooperative society	0.1200***	0.0322	3.728	0.1200
Extension contact	0.0748**	0.0328	2.277	0.0748
Farm size	0.0311**	0.0127	2.455	0.0311
Amount of credit received	0.0366	0.0367	0.997	0.0366
Input cost	-0.0307*	0.0166	-1.848	-0.0307
Sigma squared	0.0355***	0.0031		
Log likelihood	67.63			
LR chi^2(11)	35.69			
Prob > chi^2	0.000			
Pseudo R^2	0.657			

*Note: ***, ** and * significant at 1 %, 5 % and 10 % levels of probability*

CONCLUSION AND RECOMMENDATIONS

The overall level of participation in ABP in the study areas was impressive, as the programme intervention showed that participating farmers had moderate access to fertilizer and improved

seed. In contrast, access to agrochemicals, market linkages, and repayment rates was low. It was found that sex, household size, cooperative society, extension contact, farm size, and input cost were the factors that significantly influence the level of farmers' participation in the ABP programme in the study area.

Extension workers should educate farmers on the significance of forming and strengthening farmer groups, as these collectively enhance participation in the Anchor Borrowers' Programme (ABP). The study highlights that cooperative societies positively impact the level of farmer involvement in the ABP, underscoring the role of farmer groups in facilitating access to vital information, inputs, and markets.

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