



POLAC INTERNATIONAL JOURNAL OF ECONS & MGT SCIENCE (PIJEMS)
DEPARTMENT OF ECONOMICS & MANAGEMENT SCIENCE
NIGERIA POLICE ACADEMY, WUDIL-KANO



**THE IMPACT OF ANCHOR BORROWERS' PROGRAMME ON THE PRODUCTIVITY LEVEL
 AMONG SMALLHOLDER RICE FARMERS IN BAUCHI LOCAL GOVERNMENT AREA:
 CHALLENGES AND PROSPECTS**

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Abstract

The Anchor Borrowers Programme (ABP) is a federal government initiative aimed at diversifying Nigeria's economy by fostering a sustainable agricultural sector. The program provides smallholder farmers with agricultural inputs and financial support, linking them with processors (Anchors) through contractual agreements to ensure stable input supply and boost agricultural productivity. This study examines the impact of ABP and its challenges on the productivity level among smallholder rice farmers (SHFs) in Bauchi Local Government Area (BLGA), Bauchi State. Using a quantitative research approach, data were collected from 334 beneficiaries, including 279 male and female farmers, through a structured questionnaire. Descriptive statistical methods were employed for data analysis, utilizing Microsoft Excel and SPSS (Version 25). The findings reveal that ABP has significantly improved SHFs' livelihoods in BLGA by enhancing productivity of rice farmers with significant number of farmers reporting higher yield on harvest season. However, beneficiaries faced challenges such as delays in fund disbursement, late arrival of farm inputs, and substandard agrochemicals and seeds. The study recommends that the federal government, through the Central Bank of Nigeria (CBN), enhance access to finance, improve infrastructure, strengthen market linkages, and provide training, and comprehensive extension services to beneficiaries.

Keywords: ABP, Smallholder farmers, Rice Productivity, Programme Participation, Yield output.

1. Introduction

The anchor borrowers' programme is a form of contract farming initiative of the federal government of Nigeria. The programme aim is to improve small-scale farming by connecting smallholder farmers with large scale processors with a view of improving the activities of farmers in areas such as financing, improve yields, market access and overall agricultural productivity. Smallholder farmers constitute a significant portion of the population globally. These farmers, however, often struggle with limited access to finance, poor agricultural inputs, and lack of market access, which affected their productivity level. It was often debated that smallholder rice farmers if effectively utilized can play a significant role in improving agricultural productivity and

household level of income which are central to reducing the poverty and nutritional challenges face globally (Abraham & Pingali, 2020). In Nigeria, most food crops produce comes from the efforts of small-scale farmers who depend largely on traditional method of farming systems for their agricultural inputs and outputs (Baba & Kolo, 2021).

Smallholder farmer's utilization involves the provision of farm inputs such as fertilizer, improve seedlings, pesticides, and access to modern machines like tractors and other farming equipment. The core objective of the Anchor Borrowers Programme (ABP) is to provide smallholder farmers with both agricultural inputs and financial support, at harvest, the smallholder farmers sell their produce to the processor (Anchor) in exchange for

a cash payment equivalent to the value of the supplied foods. This contractual arrangement is aim to increase the production of agricultural products, ensure a stable supply of inputs to processing companies, and improve the country's food trade balance.

Prior to anchor borrowers programme, Bauchi State government under the state Agricultural Development Programme (BSADP) has played important role in its drive to improve small scale rice farming through provision of farm inputs and extension advisory services to over 10,000 small scale rice farmers (Dailytrust, 2017). The programme support smallholder rice farmers in areas which include provision of agricultural inputs such as seeds and agro chemicals, information on market access, farmer's capacity building and other agricultural extension service. This has no doubt improved the condition of farmers economically and helps improve rice production at a more smaller-scale level. Similarly, smallholder rice farmers in Bauchi state have also received support under the FADAMA I, II, and III initiative. The farmers cultivated rice in over 2500 hectares of land in 2016, with an average of 5 tonnes per hectare. The state is the only beneficiary in the north east region (Msuya, 2003, Aboki et al, 2020).

Meanwhile, several studies in the past have examine the impact of anchor borrowers programme on smallholder rice farmers, for instance, Olarenwaju, Osabohien & Fasakin, (2021) investigated the impact of anchor borrowers' programme on youth rice farmers, Alfa, (2020), investigate anchor borrowers' financial scheme on rice farmers productivity while Umeh & Adejo, (2019), assess the central bank of Nigeria's anchor borrowers programme effect on rice farmers. Furthermore, Osayi, Efeyinwa, and Emekaro, (2023) carried out an empirical study on the impact of anchor borrowers programme on the welfare of rice farming households. However, the study of anchor borrowers' programme in Bauchi LGA has not been well established. Bauchi state's rich savannah vegetation especially in the southern zone made it one of the states in Nigeria that produced rice in large quantity as such one of the beneficiaries of anchor borrower programme. It is based on the above backdrop that it become very imperative to perform a thorough investigation and

determine how well the anchor borrower's programme impacted on smallholder rice farmers in Bauchi LGA.

The objective of this study is to critically examine the impact and challenges of anchor borrower's programme on smallholder rice farmer's productivity in Bauchi LGA. Bauchi State is one of the states in the northern part of Nigeria that span two distinctive vegetation zones, namely, the Sudan Savannah and the Sahel Savannah. Bauchi State has about 4.6 hectares of arable land composite of highly fertile soft loamy alluvial soil; however, only 1.8 million hectares are being cultivated. The four districts of (Chiroma, Miri, Zungur and Galambi) in Bauchi LGA have a combined population of 493,810 according to the 2006 census. BLGA lies between longitude 10.100 N-10.330 N and latitude 9.400 E10.130E. Its altitude is 690.2 m above sea level and occupies an estimated land area of 3,687 km². A 2007 report identified cattle, sheep, and goats as the main productive livestock reared in the area, and the livestock population is estimated to be 1.8 million cattle, 2.8 million sheep, and 3.4 million goats (BSADP).

The rest of the paper is organized into three parts. The first part dwelt in review of related literature, introduces the concept of ABP, how it impacted smallholder rice farmers and the role of smallholder farmers in agricultural development. The second part is the methods of data collection and analysis use in the paper, it is an empirical investigation to understand whether the ABP has impacted smallholder rice farmers' level of productivity in Bauchi LGA. The final part is devoted to the findings of the study, implications and recommendations for future research.

The paper argues that the ABP has had a significant positive impact on productivity level of beneficiary farmers and their overall livelihood and economic conditions farmers in Bauchi LGA. Participants in the ABP reported higher incomes, better access to inputs, and improved market linkages compared to non-participants. The programme also led to a notable increase in productivity, with participating farmers achieving higher yields and adopting more efficient farming practices. However, the study also uncovered several challenges face by smallholder rice farmers in

Bauchi LGA, including limited access to finance, inadequate infrastructure, difficulties in market access, and insufficient extension services. These challenges hinder the full potential of the ABP and overall agricultural development in the region

2. Literature Review

2.1 Concept of (ABP)

The anchor borrowers' program was initiated as part of an economic diversification effort aimed at establishing a robust and sustainable agricultural foundation with a broader range of value chains. Its goals include strengthening food security, reducing the need for imports, and increasing overall productivity. Additionally, it aligns with the government's strategic plans to achieve self-sufficiency in food production, curbing the high import costs associated with wheat, rice, sugar, and fish, and reducing excessive foreign exchange expenditure (CBN, 2016). Nigeria's agricultural sector has been attributed to a significant reliance on oil, and the repercussions of this reliance have been observed multiple times (Falola & Haton, 2008). The emergence of the anchor borrowers' program was a response to addressing issues plaguing the agricultural sector, with financial constraints being a major obstacle. Launched in November 2015, its initial aim was to enhance domestic rice and wheat production, which are among the top four products contributing significantly to the country's food import expenses (Chioma, 2016). The ABP includes the provision of agricultural inputs, both in kind and cash, to support smallholder farmers in increasing the production of specific commodities. When the harvest season arrives, these smallholder farmers deliver their produce to the agro processor, known as the anchor, who then credits the equivalent cash amount to the farmer's account (ABP Guidelines, 2016).

2.1.1 Objectives of Anchor Borrowers Programme (ABP)

- i. **Increase banks' financing for improved agricultural productivity:** The ABP seeks to enhance the level of financial support provided by banks, fostering an ecosystem that encourages value chain financing. This approach

is intended to stimulate increased agricultural productivity.

- ii. **Reduce the nation's food import bill:** The program strives to diminish dependence on imported food items by employing strategies such as import substitution and enhanced domestic value addition. This approach aims to play a pivotal role in reducing the nation's overall food import bill.
- iii. **Create a new generation of farmers:** The ABP aims to support innovative financing mechanisms that facilitate smart agriculture. By doing so, it endeavors to encourage and nurture a new generation of farmers equipped with modern and efficient agricultural practices.
- iv. **Deepen financial inclusion and promote commercial farming:** The program aspires to expand financial inclusion by transitioning smallholder farmers from subsistence farming to commercial agriculture. This involves providing them with the necessary support and resources to engage in farming as a viable business, thereby contributing to the overall economic development of the agricultural sector (CBN, 2021).

2.2 Concept of Smallholder Farming

According to Wolfenson (2013), smallholding or small-scale farming refers to a modest-sized farm engaged in farming activities at a reduced scale. The criteria for defining what qualifies as a smallholder or small-scale farm can vary significantly, encompassing aspects like farm size, agricultural methods or technology, the family's role in labor, and the farm's economic influence. The word "smallholder" is often used synonymously with "small-scale farmer" or "subsistence farmer." The Federal Office of Statistics (1999), described smallholder farmers as those whose land holdings range from 0.1 to 4.99 hectares. These farmers typically engage in subsistence-level agriculture, and practices like intensive farming are not widespread. They often have limited access to advanced modern technologies, and their overall conditions don't always justify substantial investments in capital, inputs, or labor (Dhillon & Moncur, 2023). In Nigeria, farming is

predominantly carried out at a modest scale, with most farmers primarily cultivating for their own families and occasionally producing a small surplus (Umar & Muhammad, 2021). Eastwood et al. (2010) argued that smallholder farming encompasses the economic activities conducted by farming households that typically possess around five hectares of land and primarily rely on agriculture as their main source of livelihood.

According to Fan and Rue (2020), the determination of what constitutes small farms should consider both assets and income, not solely the size of the farm. "In fact, we contend that the idea of "small," as implied by the term "smallholder," can encompass all aspects that define small-scale farming, including labor input, various forms of capital assets (natural, physical, human, financial, and social), access to markets, and market focus."

2.3 Theoretical Framework

Keynesian theory of government intervention propounded by John Maynard Keynes is adopted for this study as a basis for analysis. The theory advocated for government intervention through injection into the economy to boost economic growth. Keynes emphasized that the primary driving force in the economy is aggregate demand, which encompasses the total spending by households, businesses, and the government. He further asserts that government intervention through economic policies has the potential to stabilize the economy, attain full employment, and establish price stability.

Accordingly, The Anchor Borrowers' Programme was initiated with the aim of promoting economic growth by providing assistance to small-scale farmers to increase the production of agricultural goods. This initiative was driven by the revenue shortfall caused by the volatility of crude oil prices, which posed a significant threat to the Nigerian economy. Ayuba et al. (2021). Smallholder farmers' strategic position in the economy places them at the centre of Nigerian food production and overall food security. Rice is the most consumed agricultural commodity in Nigeria, therefore, supporting small-scale rice farming will reduce the high cost of rice importation and thereby improve the economy (CBN, (2020).

2.4 ABP and Smallholder Farming

Smallholder farming in Nigeria is a vital component of the state economy and plays a crucial role in sustaining livelihoods, ensuring food security, and contributing to the agricultural development of the rice sector, ultimately improving the overall economic growth. Smallholder rice farmers often lack access to formal credit facilities due to their limited financial resources and inability to meet the collateral requirements of commercial banks. The ABP addresses this challenge by providing these farmers with access to affordable credit through participating financial institutions (ABP Guidelines, 2016). To enable smallholder rice farmers to obtain the necessary funds to invest in inputs such as seeds, fertilizers, and equipment required for rice cultivation, the ABP serves as a catalyst for smallholder farmers by addressing key challenges such as access to finance and market linkages. By supporting smallholder rice farmers with credit, market access, and capacity-building initiatives, the ABP contributes to the growth and development of the rice sector, ultimately enhancing food security and economic prosperity in Nigeria. (CBN, 2015; Niworu, Musa & Usman, 2024).

Many smallholder farmers in Bauchi State practice subsistence farming, where they grow crops primarily to feed themselves and their families. This farming is characterized by small landholding and limited access to modern inputs and technologies while providing food security at the household level. ABP empowers smallholder rice farmers economically by providing them with opportunities to generate income from rice cultivation. With access to credit and market linkages, farmers can increase their rice production and sell their produce at profitable prices. This, in turn, leads to improved livelihoods, poverty reduction, and economic development in rural communities where rice farming is prevalent (Olanrenwaju, Osabohien, & Fasakin, 2020).

2.5 Challenges face by ABP smallholder rice farmers

Non-access to modern agricultural technology:

Access to advanced modern technologies is quite restricted, and their overall situation doesn't always justify substantial investments in capital, resources, and labor. For small-scale farmers, agricultural technology

should focus on reducing the burdens associated with farm tasks. It should be designed to save labor, enhance labor efficiency, and expand the scope of labor involved in farming (FAO, 2020).

Lack of farm inputs: According to the Nigeria Strategy Support Programme by the International Food Policy Research Institute, the typical smallholder farmer in Nigeria lacks access to an adequate amount of fertilizer for one hectare of land. Achieving higher yields necessitates a combination of factors, including education provided through extension services, availability of suitable and timely inputs, and access to financial resources for acquiring these inputs (IFAD, 2009).

Marketing challenges: Marketing encompasses all the tasks related to the flow of goods from production to consumption. One significant challenge in marketing agricultural products in Nigeria is the rising transportation costs, poor road network among others. Farmers also require information that empowers them to make informed and appropriate decisions, and market information services play a crucial role in gathering, processing, and providing market data in a format that aids decision-making for participants in the market. (Onoja, 2024).

Poor Road Network: Lack of dependable infrastructure services is a prevalent issue in rural African communities, and Nigeria is no exception. The rural population encounters numerous challenges that impede agricultural productivity, encompassing environmental risks, technological limitations, increasing production expenses, insufficient agricultural incentives, and the absence of sustainable rural development initiatives. Furthermore, a significant number of roads connecting their farms to urban areas were in a deteriorated condition (Abiodun, Abeeb & Saidat, 2021).

3. Methodology

3.1 Research Design

This study adopted survey research design. The researcher's decision to use a descriptive survey research design is informed by the fact that it is capable of obtaining information from large samples of the population. This approach is also well suited in

gathering demographic data that describes the composition of research sample.

3.2 Population and sample size

In this paper, the targeted population comprises all the ABP beneficiaries (smallholder rice farmers) in BLGA. According to rice farmers association of Nigeria (RIFAN), there are 2500 rice farmers who benefited from the ABP initiative. Therefore, the estimated population of this study is 2500, which is the total number of anchor borrowers' rice farmer's beneficiaries in the study area. The sample size of 345 beneficiaries of the ABP was arrived at with the aid of the Taro Yamane sample size derivation method, which gives a representative sample of the population. The formula is stated below:

Taro Yamene Formula: $n = \frac{N}{1 + N(e)^2}$

Where: n = sample size required

N = number of people in the population

1 = constant

(e) = error limit (0.05)

Therefore: $n = 2500$

$1 + 2500(0.05)^2$

$n = 2500$

$2501(0.0025) = 2500$

$n = 2500$

$1 + 6.25$

$n = 2500$

$1 + 7.25$

$n = 344.82$

Appx. = 345 basic sample size

3.3 Sampling Technique

Multistage sampling technique was used in selecting the ABP beneficiaries (smallholder rice farmers) in BLGA. The selected beneficiaries were between the ages of 20 and 40 because this is considered the age of adults that can benefit from the program. Firstly, the researcher chooses a purposeful district (Zungur, Galambi, and Miri) in BLGA where ABP has been conducted. A list of beneficiaries with their locations who participated in ABP was obtained from the RIFAN BLGA chapter. With the assistance of the officials, the researcher was able to select the areas where ABP was conducted. The

second stage involves the stratified sampling and selection of three villages in each of the districts. Finally, the researcher used simple random sampling to select the beneficiaries of ABP. The researcher adopted this technique to ensure that every beneficiary of ABP has an equal chance of participation.

3.4 Method of Data Collection

In this study, data was collected from primary and secondary sources. The study used a quantitative approach survey, which involved the use of a structured questionnaire, as the tool in collecting data from the sampled smallholder rice farmers' respondents. The study instrument utilized the Likert scale to collect

quantitative data, with ratings as follows: strongly agreed = 5, agreed = 4, neutral = 3, disagreed = 2, and strongly disagreed = 1.

3.5 Method of Data Analysis

In this paper, descriptive statistics were utilized for the analysis of the study data. Statistical Packages for Social Sciences (SPSS) Version 25 was used to analyze the collected quantitative data. In the domain of arts, management, and social sciences, SPSS is a commonly recognized tool used for statistical analysis of quantitative data generated via the questionnaire (Mangal & Mangal, 2013).

Table 1: Reliability Analysis

Cronbach's Alpha	N of Items	Valid N	%
.809	20	333	100.0

Source: Field Survey, 2024

The reliability analysis in Table 1 shows the internal consistency of the questionnaire used in the survey among beneficiaries of the Anchor Borrower Programme (ABP) in the Bauchi Local Government Area (BLGA). The Cronbach's Alpha value is **0.809**, which indicates a high level of internal consistency among the items in the questionnaire. In social science research, a Cronbach's Alpha value above 0.7 is typically considered acceptable, with values above 0.8 indicating good reliability. Therefore, a value of 0.809 suggests that the questionnaire items reliably measure the intended constructs. Similarly, there are **20 items** in the questionnaire. This number reflects the total questions or statements included in the survey that are used to assess the beneficiaries' perceptions or experiences with the ABP. The **Valid N** is the number of valid responses, which is **333**, which means all the responses collected (at 100%) from participants were valid and included in the reliability analysis. Therefore, Cronbach's Alpha score of 0.809 (80.9%) suggests that the questionnaire used is

reliable, providing confidence that the items consistently measure the experiences and perceptions of ABP beneficiaries in the BLGA.

4. Results and Discussions

4.1 Analysis of Socio-Demographic Data

This subsection presents an analysis of the socio-demographic characteristics of the respondents, which includes smallholder rice farmers who participated in the Anchor Borrowers Program (ABP) in Bauchi LGA. The socio-demographic data provides essential context for understanding the profile of the respondents and how these factors may influence their experiences and responses regarding the ABP. Key variables such as gender, district of residence, and age group are analyzed to identify trends and patterns that could impact the farmers' participation in the program and their perspectives on its effectiveness. This analysis serves as the foundation for interpreting the findings in the subsequent sections of the study.

Table 2: Socio-Demographic Information of the Respondents

Variables	Options	Frequency	Valid Percentage
Gender	Male	279	83.8
	Female	54	16.2
	Total	333	100.0
Age Group	Options	Frequency	Valid Percentage
	20-24 years	30	9.0
	25-29 years	40	12.0
	30-34 years	176	52.9
	35- 39 years	60	18.0
	40 years & above	27	8.1
	Total	333	100.0
Religion	Options	Frequency	Valid Percentage
	Islam	264	79.3
	Christianity	69	20.7
District	Total	333	100.0
	Options	Frequency	Valid Percentage
	Miri	84	25.2
	Galambi	83	24.9
	Zungur	166	49.8
	Total	333	100.0

Source: Field Survey, 2024

The socio-demographic summary in Table 2 provides insight into the characteristics of the beneficiaries of the Anchor Borrower Programme (ABP) in the Bauchi Local Government Area (BLGA). On the gender, the majority of the respondents are male, with 279 participants, making up 83.8% of the total sample; while there are 54 female participants, representing 16.2%. This distribution indicates that the program has a significantly higher male participation rate. Concerning, the age group, the age distribution of respondents reveals that the 30-34 years group is the largest, with 176 respondents, accounting for 52.9% of the total sample. This is followed by the 35-39 years age group, with 60 respondents (18.0%), and the 25-29 years age group, with 40 respondents (12.0%). The youngest group, 20-24 years, has 30 participants (9.0%), while the oldest group, 40 years & above, has 27 respondents (8.1%). These figures suggest that middle-aged individuals, particularly those in their early 30s, constitute the largest group of ABP beneficiaries.

Furthermore, data summarized concerning religion shows that a large majority of respondents identify as

Muslim, with 264 participants, representing 79.3% of the sample. The remaining 69 respondents identify as Christian, making up 20.7%. This distribution reflects the religious composition of the ABP beneficiaries in this area, showing a predominantly Muslim demographic. Concerning the district, respondents are distributed across three districts: Zungur, Miri, and Galambi. Zungur has the highest number of participants, with 166 respondents (49.8%), followed by Miri with 84 participants (25.2%), and Galambi with 83 participants (24.9%). This indicates that nearly half of the ABP beneficiaries in BLGA come from the Zungur district.

Based on the above interoperation, it can be deduced that the socio-demographic profile of the ABP beneficiaries in BLGA shows a majority of male, middle-aged participants (mainly in their early 30s), predominantly Muslim, and nearly half residing in the Zungur district. This distribution provides a foundational understanding of the demographic characteristics of the program's beneficiaries.

Table 3: The Impact of the Anchor Borrowers Program on Smallholder Rice Farmer's Productivity in BLGA

S/N	Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)	Total (%)	Mean Score
1	The ABP has significantly increased my rice yield.	103 (30.9)	90 (27.0)	35 (10.5)	50 (15.0)	55 (16.5)	333 (100%)	3.41
2	Farm inputs such as agrochemicals and fertilizers given to smallholder rice farmers have significantly improved the productivity level of ABP beneficiaries.	99 (29.7)	95 (28.5)	20 (6.0)	69 (20.7)	50 (15.0)	333 (100%)	3.37
3	I have been able to cultivate more land since participating in the ABP.	65 (19.5)	89 (26.7)	36 (10.8)	80 (24.0)	63 (18.9)	333 (100%)	3.04
4	The resources, such as extension services provided by the ABP, have enhanced my farming techniques.	50 (15.0)	48 (14.4)	40 (12.0)	100 (30.0)	95 (28.5)	333 (100%)	2.57

Source: Field Survey, 2024.

Data collected about this study's research question two is analysed and presented in Table 3 above. In other words, Table 3 provides insight into the perceived impact of the Anchor Borrowers Program (ABP) on the productivity of smallholder rice farmers in the Bauchi Local Government Area (BLGA). The data in this table reflects respondents' agreement levels with statements related to productivity gains, resource provision, and land cultivation. The 1st statement in Table 3: "The ABP has significantly increased my rice yield," received strong agreement, with 30.9% of respondents strongly agreeing and 27.0% agreeing, totalling 57.9% in support. In contrast, only 31.5% disagreed to varying degrees. The mean score of 3.41 suggests that the majority of respondents perceive a positive impact of the ABP on rice yields, indicating that the program has contributed significantly to increased productivity levels among beneficiaries.

The second statement addresses the effectiveness of farm inputs such as agrochemicals and fertilizers in enhancing productivity. Here, 29.7% strongly agree and 28.5%

agree, accounting for a substantial 58.2% of respondents. The mean score of 3.37 reinforces the view that farm inputs provided through the ABP have effectively supported productivity gains for rice farmers in BLGA. This finding highlights the importance of these inputs in boosting the productivity of smallholder farmers. For the third statement, regarding the ability to cultivate more land since joining the ABP, the responses were more varied. While 19.5% strongly agree and 26.7% agree, 42.9% of respondents disagreed or strongly disagreed. The mean score of 3.04 indicates a moderate level of agreement that the ABP has facilitated an increase in cultivated land. However, the divided responses suggest that while some beneficiaries have expanded their farming areas, others may face constraints such as limited resources or land access.

The final statement in Table 3, which assesses the impact of resources like extension services on enhancing farming techniques, shows a notable lack of agreement. Only 29.4% of respondents agree while a significant 58.5% disagree or strongly disagree, resulting in a

relatively low mean score of 2.57. This score suggests that the impact of ABP-provided extension services on improving farming techniques is perceived as low, indicating a possible gap in the program's effectiveness in delivering sufficient support in this area.

Based on the above analysis and interpretation and in line with this study's research question two, it can be concluded that the ABP has had a generally positive impact on key aspects of smallholder rice farmers' productivity in BLGA, particularly in increasing rice

yield and enhancing productivity through farm inputs. However, the mixed responses concerning land cultivation and the limited impact of extension services suggest that while the ABP is effective in some productivity areas, there are challenges or unmet needs regarding resource support for expanding land use and improving farming techniques. This insight underscores the potential for further program improvements to fully realize productivity gains across all aspects of smallholder rice farming in BLGA.

Table 4: The Challenges faced by Smallholder Rice Farmers of the Anchor Borrower Program in BLGA

S/N	Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)	Total (%)	Mean Score
1	Inadequate funds are a major setback for smallholder rice farmers' beneficiaries.	57 (17.1)	45 (13.5)	50 (15.0)	100 (30.0)	81 (24.3)	333 (100%)	2.69
2	Distribution of inferior agrochemicals is one of the major challenges faced by smallholder rice farmers.	127 (38.1)	79 (23.7)	20 (6.0)	77 (23.1)	30 (9.0)	333 (100%)	3.59
3	Late arrival of farm inputs has harmed the crop yield of smallholder rice farmers.	90 (27.0)	81 (24.3)	30 (9.0)	72 (21.6)	60 (18.0)	333 (100%)	3.21
4	There are delays in the disbursement of funds from the ABP.	78 (23.4)	95 (28.5)	43 (12.9)	62 (18.6)	55 (16.5)	333 (100%)	3.24

Source: Field Survey, 2024.

Inadequate funds are a major setback for smallholder rice farmers' beneficiaries. This reveals mixed responses. A combined 30.6% of respondents strongly agree or agree, while 54.3% disagree or strongly disagree. This division is further reflected in the mean score of 2.69, which suggests that while some farmers experience funding inadequacy as a challenge, others may find it less problematic. This mixed response might imply that while funding is available, the amount may not fully cover the financial needs of all beneficiaries.

Distribution of inferior agrochemicals is one of the major challenges faced by smallholder rice farmers received substantial agreement from respondents. A

significant 61.8% of the farmers strongly agree or agree, while only 32.1% disagree to some extent. The high mean score of 3.59 indicates a notable level of dissatisfaction with the quality of agrochemicals, suggesting that inferior agrochemical supplies are a widespread issue impacting productivity and crop health among ABP beneficiaries. In response to the statement, "Late arrival of farm inputs has harmed the crop yield of smallholder rice farmers," 51.3% of respondents agreed or strongly agreed, with a mean score of 3.21. This score points to the high impact of delays in the distribution of essential farm inputs on crop yields. Since timely access to inputs is crucial for planting and cultivation, this

challenge can lead to decreased productivity and lower overall yields, affecting the farmers' ability to maximize their outputs.

Delays in the disbursement of funds from the ABP, also received considerable agreement, with 51.9% of respondents indicating that delayed funding is a challenge. This is reflected in the mean score of 3.24, showing that delays in disbursement has significantly hinder smallholder farmers' operations, potentially impacting their capacity to purchase inputs, invest in

resources, or expand their farming activities on time. Based on the afore-mentioned analysis and interpretation and in line with the study's research question three, it can be concluded that while funding inadequacy is only a moderate issue, the quality of agrochemicals, delayed arrival of inputs, and late fund disbursements are significant challenges for smallholder rice farmers participating in the ABP in BLGA. These findings suggest that addressing these issues could enhance the program's effectiveness and the overall productivity of the farmers involved.

Table 5: Solutions to the Challenges faced by Smallholder Rice Farmers that Benefited from Anchor Borrowers' Program in BLGA

S/N	Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)	Total (%)	Mean Score
1	Increasing government budget allocation will significantly improve funding for smallholder rice farmers.	109 (32.7)	121 (36.3)	28 (8.4)	50 (15.0)	25 (7.5)	333 (100%)	3.72
2	Implementing stricter regulations on suppliers will improve the quality of agrochemicals distributed to farmers.	144 (43.2)	99 (29.7)	19 (5.7)	48 (14.4)	23 (6.9)	333 (100%)	3.88
3	Establishing contracts with reliable suppliers will ensure the timely delivery of farm inputs.	149 (44.7)	88 (26.4)	17 (5.1)	41 (12.3)	38 (11.4)	333 (100%)	3.81
4	Increasing transparency in fund allocation will enhance trust and reduce delays in the disbursement of funds.	139 (41.7)	93 (27.9)	20 (6.0)	39 (11.7)	42 (12.6)	333 (100%)	3.74

Source: Field Survey, 2024.

The 1st statement: "Increasing government budget allocation will significantly improve funding for smallholder rice farmers," received considerable agreement, with 32.7% strongly agreeing and 36.3% agreeing. This total of 69% agreement is reflected in the high mean score of 3.72,

The second statement: "Implementing stricter regulations on suppliers will improve the quality of agrochemicals distributed to farmers," had the highest

agreement among the proposed solutions, with 43.2% strongly agreeing and 29.7% agreeing, totalling 72.9%. The mean score of 3.88 indicates a strong consensus that regulatory oversight of agrochemical suppliers could ensure better quality. This finding highlights a demand for regulatory intervention to prevent the distribution of substandard agrochemicals, which can affect crop yields and overall productivity. For the third statement: "Establishing contracts with reliable suppliers will ensure the timely delivery of farm inputs," 44.7%

strongly agreed and 26.4% agreed, representing a total of 71.1% agreement, with a mean score of 3.81. This suggests a strong perception that reliable supplier contracts would minimize delays in farm input delivery, which is crucial for ensuring that farmers receive necessary inputs in time for planting and cultivation.

The final statement, “Increasing transparency in fund allocation will enhance trust and reduce delays in the disbursement of funds,” received 41.7% strong agreement and 27.9% agreement, totalling 69.6%

agreement. The mean score of 3.74 reflects the importance of transparency in fund management to reduce disbursement delays

4.2 Research Hypotheses

H_0 : Participation in the Anchor Borrowers Programme does not significantly affect the productivity of smallholder rice farmers in Bauchi LGA

4.3 Hypothesis Testing

Table 6: Testing the Significant Effect of Participation in Anchor Borrowers Programme (ABP) on the Productivity of Smallholder Rice Farmers in Bauchi LGA

Chi-Square	73.931 ^a
Df	3
Asymp. Sig.	.000

Source: Field Survey, 2024. **Key:** a. = 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 83.3.

Table 6 provides the results of the Chi-square test used to examine whether participation in the Anchor Borrowers Program (ABP) significantly affects the productivity of smallholder rice farmers in Bauchi LGA. The Chi-square value obtained is 73.931 with 3 degrees of freedom (df) and an asymptotic significance level of 0.000. According to the decision rule set for hypothesis testing, if the calculated test statistic (in this case, the Chi-square value) is significant at a chosen threshold (here, 0.01), then the study should reject the null hypothesis. Since the Chi-square significance level (p-value) is 0.000, which is well below the 0.01 significance level, we can confidently reject the null hypothesis.

Therefore, the analysis shows a statistically significant effect of participation in the ABP on the productivity of smallholder rice farmers in Bauchi LGA. This suggests that the ABP positively impacts productivity, potentially through increased access to resources, better farming inputs, or technical support provided through the program. Rejecting the null hypothesis indicates that the ABP is effective in enhancing productivity for the participating smallholder rice farmers.

4.4 Discussion of Findings

This section is devoted to the analysis of the information gathered from the informants based on the interview conducted and the reports. The study raised issues regarding the impact of anchor borrowers' programme on smallholder agriculture and the extent to which smallholder rice farming in Bauchi LGA contribute to the productivity level of rice farmers' beneficiary of the ABP. The section has also dealt with the challenges and constraints face by smallholder rice farmers' beneficiaries of the anchor borrowers' programme and the implications of those challenges to overall agriculture. Based on the developed research hypothesis, the study was able to found that anchor borrowers' programme has a positive significant impact on smallholder rice farmers overall productivity in Bauchi LGA, and participation in the programme has positive significant impact on smallholder rice farmers' beneficiaries. The responses of the participants are analysed under the following themes:

4.4.1 The Impact of Anchor Borrower Program on Productivity of SHFs

With regards to the impact of ABP on SHFs productivity, the sampled respondents expressed their varied perceptions. According to statistical results, an

overwhelming majority (58% of the sampled beneficiaries of the ABP) believes that the provision of agrochemicals and fertilizers has significantly influenced their rice farming. Supporting these findings, Evbuomwan and Okoye (2017) highlighted that the central government of Nigeria, through the ABP, has spent a huge amount of money promoting local production of rice, and other important agricultural produce.

In the same direction, 58% of the respondents indicated that the ABP has improved their rice yield. This finding aligns with those of Evbuomwan and Okoye (2017), who found that more than 78,000 rural farmers in Kebbi State benefitted from the pilot project launched by the Federal Government of Nigeria in November 2015, and yields as high as 7.5 to 8.0 metric tons per hectare were obtained by farmers compared with less than 2.0 metric tons per hectare previously obtained. This increase in productivity level equally increased the livelihood status of the farmers. Furthermore, quantitative data show that a notable proportion 57.4% expressed their disagreement that extension services provided by the ABP enhanced their farming techniques. This suggests that the services may be futile or not supporting the smallholder rice farmers in BLGA.

Supporting this result, the Timoty, Kamila, and Olubunmi (2021) study identified several significant obstacles that hinder small-scale rice farmers, such as unpredictable weather conditions, transportation issues, insufficient extension services, and limited access to financing. It is pertinent to recognize that a significant majority of the sampled respondents (70%) agreed that the ABP enabled them to cultivate more land, which impacted their rice productivity. These findings are similar to the Olanrenwaju, Osabohien, and Fasakin (2020) study, which found that the ABP enables smallholder rice farmers to cultivate more lands and provides them with opportunities to generate income from rice cultivation

4.4.2 Challenges face by anchor borrower's smallholder rice farmers

Generally, the problem of productivity in agriculture in sub-Saharan Africa (SSA) remains a raving issue of

interests (UN, 2020). This is because productivity in this region is still low compared to what has been obtainable in other parts of the world due to several hurdles encountered in the availability, affordability and the use of farm inputs (Osabohien et al., 2020).

Smallholder rice farmers beneficiaries of the ABP are faced with numerous challenges which affect the yield and output of their farm produce.

The informants in Bauchi LGA identify inadequate fund as the major challenge hindering the growth and development of farm activities. Others include distribution of inferior agro chemicals, late arrival of farm inputs, lack of proper monitoring and evaluation are the major challenges faced by anchor borrower's smallholder rice farmers in Bauchi LGA. These findings corroborated with the study of Akpan (2010) who stated that inadequate credit facilities as a critical bottleneck to rural youth involvement in agriculture in Nigeria. With inadequate social capital, the youth often lack potential guarantors in their private circle to back their loan requests and this financial blockade has hindered many youth involvement in farming activities.

These findings are in line with the study of Olanrewaju, et al., (2020) who found that in the study indicated that marital status, education, access to credit and membership of cooperative association were the significant determinants of participation in the ABP amongst youth rice farmers. Soom et al, (2023) findings also supported the study that certain limited factors such as socio-economic factors, economic factors and institutional factors had constrained farmers' access to credit and other inputs from the programme.

Moreover, Obih and Baiyegunhi (2020) found the key challenges to be threatening the success and sustainability of ABP to included delays in timely disbursement of funds by deposit money banks (DMBs), inadequate personnel and institutional framework, side-selling of harvested paddy rice by SHFs, State government undue involvement in the ABP, and poor rural infrastructure. This finding is supported Evbuomwan and Okoye (2017), who found a dearth of extension agents as one of the implementation challenges of ABP in Nigeria. This contributed to

inefficient coordination of logistics among the key participants and implementers of the programme including the PMT, DMBs, and Anchors leading to late supply/distribution of inputs to farmers, extension services provision and aggregation and supply of harvested paddy rice to anchors. Had more challenges in repaying the loans and constituted the largest percentage of SHFs who defaulted in loan repayment and recovery by DMBs. Coker et al. (2018) observed a lack of updated database as one of the major issues militating against the effective implementation of the ABP. Side-selling of harvested farm produce by SHFs was one of the major challenges found to be a threat to the success of ABP. The guideline of ABP clearly stipulated that SHFs should sell their harvested farm produce to the Anchor in line with the executed tripartite memorandum of understanding (MOU).

5. Summary, Conclusion, and Implications

This chapter reviews the major findings from the research on the impact of ABP on smallholder rice farmers in Bauchi LGA. It summarizes the key results discussed in the preceding chapters, identifies implications and limitations of the study, and draws conclusions based on the study objectives. The chapter also identifies future directions for researchers and stakeholders in addressing recommendations of the study findings.

The major findings of this study are:

- 1) ABP have a positive impact on key aspects of smallholder rice farmers' productivity in BLGA, particularly in increasing rice yield and enhancing productivity through farm inputs. There is a mixed concern about land cultivation and the limited impact of extension services; which indicate that while the ABP is effective in some productivity areas, there are challenges or unmet needs regarding resource support for expanding land use and improving farming techniques.
- 2) Funding inadequacy, the quality of agrochemicals, delayed arrival of inputs, and

late fund disbursements are significant challenges for smallholder rice farmers participating in the ABP in BLGA. These findings suggest that addressing these issues could enhance the program's effectiveness and the overall productivity of the farmers involved.

- 3) Solutions such as increased government funding, stricter supplier regulations, reliable supplier contracts, and enhanced transparency in fund disbursement are crucial for addressing the challenges faced by the ABP. These solutions, if implemented, could help optimize the program's impact on smallholder rice farmers, addressing key obstacles and enhancing productivity and trust in the ABP.

5.1 Conclusions

Based on the findings of this study, it can be concluded that the Anchor Borrowers Program (ABP) has had a positive impact on smallholder rice farmers in Bauchi Local Government Area (LGA), particularly in terms of enhancing productivity, improving market access, and poverty reduction. However, the program has shown a mixed impact, with significant challenges remaining in areas such as youth employment, land cultivation, and extension services. These challenges indicate the need for more comprehensive support for smallholder farmers to fully realize the program's potential.

The ABP has successfully improved rice yield and provided essential farm inputs, but issues such as inadequate funding, delays in fund disbursements, poor quality of agrochemicals, and late arrival of inputs have hindered the program's full effectiveness. Additionally, the limited impact of extension services and the challenges related to land expansion indicate that further interventions are needed to improve the reach and quality of support provided to farmers.

5.2 Implications

This section highlights the research's meaningful contributions across theoretical, methodological, and practical domains, enhancing the understanding and

support of SHFs within the context of anchor borrowers' programs in Bauchi LGA.

Theoretically, this research has contributed by studying the impact of Anchor Borrower's Programme on SHFs in BLGA, using Keynesian theory of government intervention. The theory propounded by John Maynard Keynes offered an explanation of the role of government in economic growth and development through injection into the economy. The theory identifies aggregate demand, which includes total spending by households, businesses, and government, as the major driver of the economy and believes that government intervention in vital sectors of the economy can boost its overall growth, thus proving meaningful development. The introduction of the anchor borrowers' program is to address the flights of smallholder farmers and rice farmers in particular, considering the role they play in economic growth and development. This study has clearly demonstrated that the government-led financial intervention through the anchor borrowers' program has impacted SHFs in BLGA in areas such as agricultural productivity, income levels, and their overall wellbeing.

Methodologically, this research has provided empirical evidence on the role of anchor borrowers programs on SHFs in BLGA. It utilized a structured questionnaire using quantitative methods of multiple regression analysis through the use of SPSS. Supported with scholarly work, the research has offered robust empirical evidence on the causal relationship between ABP participation and improved farming performance. The

method has significantly enhanced the evaluation of the interventions by focusing on measurable outcomes such as changes in rice yields, farm income, and productivity levels. Practically, this research on the impact of SHFs in BLGA has significant practical implications for improving agricultural productivity and livelihoods. One key implication is the enhanced access to credit and inputs, which enables farmers to adopt modern agricultural practices, such as using improved seed varieties and fertilizers. This access reduces farmers' financial barriers and allows them to scale their production, leading to higher yields and increased income.

5.3 Limitations and guide for further studies

This study has contributed valuable insights on the impact of the ABP on SHFs in BLGA. However, no research was considered perfect or without limitations. Future research could take several directions, such as the assessment of the long-term effects of ABP on smallholder farmers. This would allow researchers to examine whether the short-term gains in productivity, income, and financial access are sustained over time. Future studies could also expand the scope beyond BLGA and SHFs to include other regions. Similarly, this study can be conducted qualitatively or using a mixed method; this can expand and deepen understanding of the data or result obtained. Researchers should explore how the ABP affects different demographic groups, particularly women, youth, and marginalized populations.

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