THE EFFECT OF THE CENTRAL BANK OF NIGERIA'S ANCHOR BORROWERS' PROGRAMME (ABP) ON FARMERS' INCOMES

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Abstract - The objectives of the study were to examine the socio-economic characteristics, determine sources and quantum of incomes as well as level of income inequality among of participants of the Central Bank of Nigeria's Anchor Borrowers Programme (ABP). In the process, 230 farmers were randomly selected from whom socioeconomic information was retrieved using structured questionnaires. The data collected were analysed using frequency distribution and ginni coefficient model. The study revealed that among the respondents, 87.39 per cent were males and in their middle ages of below 45 years. The farmers were also found to have attained some sort of advanced level education and having relatively large household sizes of over 6 members. Farm sizes among majority of the farmers were found to be small, below 5 hectares. Incomes stood at a gross total of N217,700,000.00 and an average income per farmer of N946,521.00. This less the average loan amount of N300,000.00 gave a net income of N646,521.00 per farmer. Furthermore, the results showed that farmers income increased by 215.38 per cent after joining the programme revealing that the ABP has impacted positively on their income level. Income inequality analysis showed that some degree of inequality exist in the distribution of total income among the participants as confirmed by a ginni coefficient of 0.43 however, majority of the farmers (63.05%) were situated in the middle income range earning between N201,000-N400,000 or 69.96% of total income. Based on the findings of this study, it was recommended that; a special quota should be instituted towards women under the ABP, adding a training module under ABP on how to make investment decisions when farmers earn incomes as well as the need for a follow-up mechanism to track impact of incomes earned after participating under the ABP.

Keywords - Anchor Borrowers' Programme, Income,

I. INTRODUCTION

The Central Bank of Nigeria (CBN) in line with its developmental functions established the Anchor Borrowers' Programme (ABP) in November 2015 with a view to collaborating with anchor companies involved in the production and processing of key agricultural commodities. The Programme was designed to help small scale farmers increase production while also guaranteeing the supply of feedstock to processors, reducing importation and conserve Nigeria's external reserves. Under the Programme, anchor firms serve as off-takers in recognition of their track record and experience in working with out-growers involved in production.

1.1 Features of the ABP

Under the Intervention, the CBN has set aside a part of the N220.0 billion Micro, Small and Medium Enterprises Development Fund (MSMEDF) for farmers at a single-digit, all inclusive interest rate of 9.0 per cent. In addition, the major stakeholders in the agricultural value chain work with participating financial institutions (PFIs), including the insurance industry and CBN, to create the linkages required to sustainably ramp up production. The Scheme involves a finance model whereby the anchor firms, CBN, Nigeria Incentive Based Risk Sharing System for Agricultural Lending (NIRSAL) and State Governments organize the out-growers and ensure that they comply with contractual terms thereby reducing the incidence of side-selling. The PFIs serve as veritable channels for delivering credit to the out-growers.

1.2 The Dynamics of the Programme

The dynamics of the programme as presented in Figure 1 involves the following:

- Formation of Project Management Team comprising key stakeholders to monitor operations
- Identification and selection of Small Holder Farmers
- Grouping of out-growers into viable cooperatives/clusters and Registration
- Determination of the economics of production, selection and engagement of banks/ insurance companies
- Execution of Agreements
- Capacity Building of out-growers, banks' staff and extension agents
- Opening of bank accounts by cooperatives/farmers
- Loan application and disbursement
- funds for agro-inputs are deducted from the disbursed loans and paid to the input suppliers
- Commencement of agronomic practices and distribution of agro-inputs
- Cash component of the loan are disbursed to the farmer for settlement of labour related expenditures
- Fortnightly meetings to discuss developments by Project Management Team (PMT).

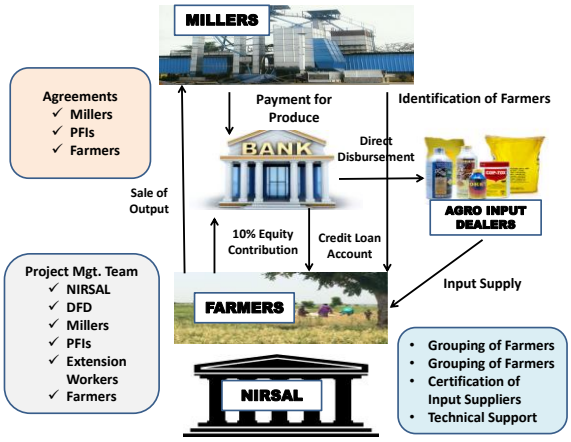


Figure 1: ABP Transaction Dynamics

Source: Based on CBN 2015

1.3 Statement of the Problem

Among the reasons for the establishment of the ABP by the CBN, were perceived existence of several gaps that exists in the agricultural economy. These are in terms of agricultural production, import bill and dwindling foreign exchange reserves. The Federal Ministry of Agriculture and Rural Development (2015) reported that a wide gap exists between demand and supply of agricultural products in Nigeria. According to the report, the top four imports into Nigeria consume over N1.0 trillion Naira in foreign exchange every year. This reliance on the import of expensive food on global markets fuels domestic inflation and puts high pressure on the nation's dwindling foreign reserves. This implies that Nigerian agriculture cannot continue to be practiced in the same pace using the same systems. It is in line with these, that the CBN established the ABP in November 2015.

1.4 Study Objectives

The general objective of the study is to analyze the effect of the Anchor Borrowers' Programme on farmers' income in Nigeria. The specific objectives are to;

- Examine the socio-economic characteristics of participants and non- participants of the ABP,
- Determine sources and quantum of income among participants of the ABP
- Determine level of income inequality among the respondents

II. EMPIRICAL LITERATURE REVIEW ON INSTITUTIONAL SUPPORT TO AGRICULTURE

Employing different statistical tools such as average, correlation and regression, Khanam F.A and Hasan K (2013) examined the evaluation of Management of Agricultural Credit-A Case Study on Bangladesh Krishi Bank. The study was based on data from primary and secondary sources for the period 2007 to 2011. The finding from the study discloses that the credit delivery technique and services of the bank do not fulfill the expectations of the borrowers. The study suggested a number of measures relating to credit delivery supervision, recovery and implementation of some policies by the Government relating to legal and administrative reforms.

Kumar et al (2010) looked at Institutional Credit to Agriculture Sector in India: Status, Performance and Determinants. The study identifies that secondary channels has experienced a substantial change and commercial banks have appeared as the major source of institutional credit in recent years. The study utilise data and employed Tobit model. The result of the study indicated that institutional credit to agriculture in real terms has increased immensely. The structure of credit that the amount of institutional credit availed to the farming households was affected by a number of socio-demographic factors which include education, farm size, family size, caste, gender, occupation of household among others. The study suggested simplification of the procedure for a better access to agricultural credit to smallholders and less-educated/illiterate farmers.

Using survey data, Asante-Addo et al (2016) studied agricultural credit provision: What really determines farmers' participation and credit rationing? The Garrett Ranking Technique was utilised to evaluate farmers' reasons for participation or non-participation in credit programs. Probit regression model was also applied to estimate factors influencing farm households' participation in credit programs. The study exposed that Farm households participate in credit programs because of enhanced loan access for farming purposes and savings mobilization, while fear of loan default and lack of savings are reasons for non-participation in credit programs.

Empirical Analysis of Agricultural Credit in Africa: Any Role for Institutional Factors was conducted by Salami, A. and Arawomo, D.F. (2013). Time series data spanning 1999 to 2011 was employed for the study and agricultural credit model was estimated using the panel data covering 1990-2011 generated for ten countries selected across the five sub-regions in the continent. Both fixed and random effects models were estimated and compared with the Pooled OLS. Findings showed that higher savings rate produces greater agricultural credit in the continent. Though, savings rate is generally low in Africa, while the impact of savings on agricultural credit is still massive. Furthermore, the study established that all the four governance variables - corruption index, Rule of Law index, Regulatory quality index, and Government Effectiveness index- impacted negatively on agricultural credit in the continent. The interest rates being charged by the various financial institutions especially commercial banks have

adverse effects on credit to the agriculture sector, while land available for agriculture has positive and significant impact on agricultural credit in Africa.

Ahmad .N (2011) investigated the impact of Institutional Credit on Agricultural Output: A Case Study of Pakistan. The study covers the period from 1974 to 2008 and used the Auto Regressive Distributive Lag model (ARDL) approach. The empirical findings show that there was significant role of credit in agriculture sector in Pakistan.

The study by Sial (2011) employed Johansen and Juselius (JJ) cointegration approach and Granger causality test to highlight the relationship between institutional agricultural credit and agricultural production. Time series data for the period of 1973-2009 was used. The discovery of the work shows the existence of long-run relationship among the variables. Granger causality examination demonstrate a uni-directional causality among institutional agricultural credit and agricultural production and among water availability and agricultural production, while bi-directional causality was establish among availability of labor force & cropping intensity and among water availability & cropping intensity. The impact of bank credit on agricultural output in South Africa using the Cobb-Douglas production function was examined by Chisasa and Makina (2013). Time series data spanning 1970 – 2009 was utilised. A Cobb-Douglas production function was estimated using OLS. The results of the study revealed that bank credit has a positive and significant impact on agricultural output in South Africa. With other factors of production kept constant, a 1% increase in credit results in 0.6% increase in agricultural output. Similarly, capital accumulation also indicated a positive and significant impact on agricultural output, albeit lower than that of credit, as a 1% increase in capital accumulation results in 0.4% increase in output, other factors kept constant. The Cobb-Douglas elasticities, showed the combined effect of credit (0.6%) and capital accumulation (0.4%) provides constant returns to scale, implying that doubling the two input will double agricultural output.

Ombok et al (2014) investigated the extent of credit financing by commercial banks to agribusinesses in kenya. Both primary and secondary data were utilised for the period 2003 to 2012. The study adopted a descriptive research design. The study findings reveal that the commercial banks grant an average of 4.98% credit funding to the agribusiness capital, 12.40% to owner equity and 4.38% share of credit extended to the agribusiness sector.

Sial (2011) using OLS estimated Cobb-Douglas production function to explore the role of institutional credit in agricultural production using the time series data for the period of 1972 to 2008. Results of the study showed that agricultural credit, availability of water, cropping intensity and agricultural labor force are positively significantly related to agricultural production. Abdallah A.H. (2016) examined the impact of agricultural credit on technical efficiency of Ghanaian maize farmers using 2008 data. A two-stage estimation procedure was employed using probit model, while the second stage utilized stochastic frontier approach to estimate impact of credit on technical efficiency of Ghanaian maize farmers. The result reveals that farmers are producing below the frontier with average technical efficiency of 47 percent. Policy variables such as credit access; education, extension access and farm size played a stronger role in technical efficiency and agricultural credit in particular increased technical efficiency by 3.8 percent.

Akram, W. and Hussain Z.(2008) studied the agricultural credit constraints and borrowing behavior of farmers in rural Punjab. The borrowing behavior of the respondents was estimated through the logit model and identified the determinants of credit constraints. The results showed that the coefficients of transitory income, education level, and predicted interest rate have important bearing on borrowing behavior. The household consumption expenditure was positively and significantly determined by operational holding and value of implements.

Using survey data, Dong et al (2010) inspected how credit constraints currently affect agricultural productivity and rural household income in China. The study outcomes suggest that under credit constraints, production inputs, along with farmers' capabilities and education, cannot be fully employed. By eliminating credit constraints, agricultural productivity and rural household income can be improved. Shrestha C.M (1992) estimated the impacts Institutional credit as a catalyst for agricultural sector growth: Evidence from Nepal. Regression estimates obtained from data spanning the period 1970 to 1987 indicated that both the current and lagged values of agricultural credit had positive impacts on real gross domestic product of the agricultural sector. The findings further revealed a unidirectional causation from the real values of agricultural credit to real gross domestic product of the agricultural sector, indicating that Institutional credit do not lead agricultural sector growth in Nepal.

Khan, N. et al (2007) analyzed the impact of short-term credit scheme of Zarai Tarraqiati Bank Limited on farm production. The study was in 2005-06. The main discoveries of the study suggested that short-term agricultural credit by Zarai Tarraqiati Bank has positive effects on wheat, other grains and livestock production.

III. METHODOLOGY

Data for the study was collected from both primary and secondary sources. The primary data was mainly obtained by the use of questionnaires designed to obtain information on farmers' socioeconomic characteristics, sources of farm and non-farm

incomes, other sources of credit aside from the ABP etc. For the secondary data on other hand, data from CBN ABP Office, Participating Financial institutions (PFIs), publications and records of agencies like the Agricultural Development Programme etc were perused for information about the study areas, market prices etc.

3.1 Analytical Framework

Analytical tools for a study on incomes patterns are numerous and a good choice can only be based on the objectives of the study. Against this backdrop the following tools of analysis were adopted for the study.

(i) Frequency distribution and percentages were used to classify the socioeconomic characteristics of the respondents and their income sources (objectives number 1 and 2).

(ii) Analyses of Gini coefficient was adopted in assessing income inequality among the respondents (objective number 3).

3.2 Gini Coefficient

In analyzing income inequality among the ABP participants, the Gini coefficient was used. This is a standardized index with values between 0 (total equality) and 1 (total inequality). As a decision rule, the closer the Gini coefficient to unity, the higher the level of income inequality among the respondents while the closer the Gini coefficient to zero, the lower the level of income inequality among the respondents (Adams and He, 1995).

The mathematical formulation of the Gini coefficient is as follows;

$G = 1 - \sum XY$

Where: G= Gini coefficient

X= Cumulative % of farmer population

Y= Cumulative % of farmers' income

Income inequality increases or decreases, depending on whether the relative concentration coefficient (ci or gi) is greater or less than unity.

IV. RESULTS AND DISCUSSIONS

4.1 Farmers' Socioeconomic Characteristics and Perspectives

4.1.1 Gender Distribution

The study revealed that among the farmers, 87.39 per cent were males while 12.61 per cent were females (Table 1). This shows that men constitute the majority of beneficiaries under the ABP, in spite of the significant roles played by women in agricultural production in Nigeria. From the foregoing, it is likely that that women participation in ABP was greatly hindered by socio-cultural barriers, hence their role in that capacity is greatly reduced. The implication here is that women still remain underserved in respect of financial services even though efforts had been made to ensure that they are mainstreamed. For example, under the N220 Micro Small and Medium Enterprises Development Fund of the Central Bank of Nigeria, 60 per cent of the fund has been dedicated to women entrepreneurs.

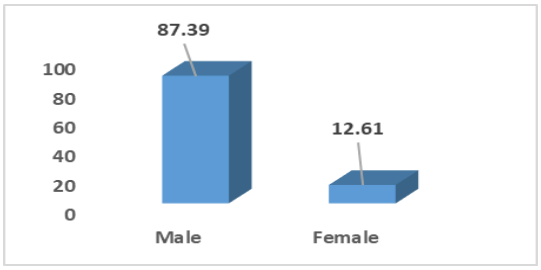


Figure 2: Gender Distribution of Anchors (Percentage)

4.1.2 Age Distribution

Data on age distribution of the farmers are presented on Figure 3. The study revealed that 5.06 per cent of the farmers were below the age of 25 years while 26.58 per cent were between 25 and 35 years of age. In addition, 29.11 per cent fell within the age range of 36-45 years while 39.24 per cent were above 45 years. This shows that majority of participating farmers (60.76 per cent) fall in their middle ages of below 45 years therefore young, venturesome and innovative.

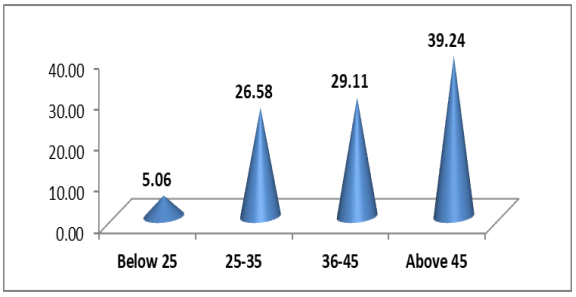


Figure 3: Age Distribution of Farmers

4.1.3 Distribution Based on Marital Status

As shown in Figure 4, a greater proportion (79 per cent) of the farmers were married, 19 per cent were single while 2 per cent fell into other various situations like windowed, divorced, separated etc. This implies that majority of the farmers were stable and had family relationships and responsibilities.

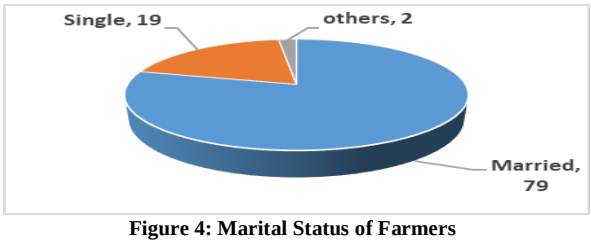


Figure 4: Marital Status of Farmers

4.1.4 Distribution of Respondents by Immediate Family / Household Size

From Figure 5, it can be noted that 61 per cent of the farmers have household size of 6 persons and above. In recognition that family labour remains a major

source of labour supply in small holder production, it could be seen that household size will determined their availability of family labour. Another possible outcome as a result of the relatively large family sizes is the fact that many of the farmers may have to forfeit the pursuit of some basic needs like education and adequate health care in order to cater for such large families.

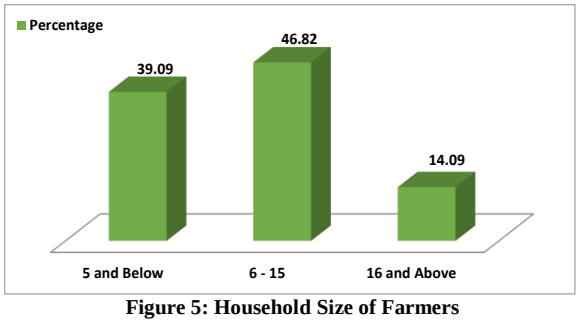


Figure 5: Household Size of Farmers

4.1.5 Distribution Respondents According to Educational Background

The surveyed data revealed that more than half of the farmers (56.57 per cent) have obtained advanced level education, about 21 per cent of the farmers attended or completed secondary school, 8 per cent and 10 per cent attended primary school and Qur'anic school, respectively. In addition, only about 4 per cent did not attend any formal educational institution (Figure 6). This indicates that most of the farmers were literate and semi-literate with very few uneducated ones among them. The possible implication is that farmers with formal education are more likely to access and judiciously use credit compared with the uneducated ones.

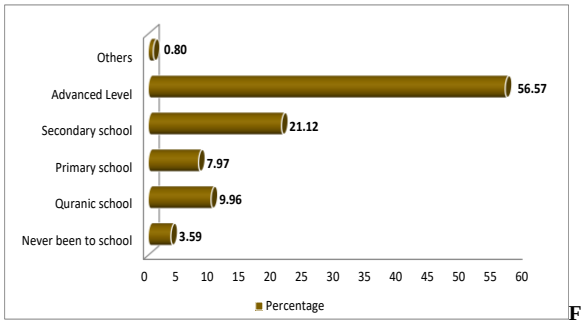


Figure 6: Educational Background of Farmers

4.1.6 Distribution of Respondents According to Farm size

The study data as presented on Figure 7 reveals that 14 per cent of the farmers operate on farms that are less than 1 hectare, 40 per cent use between 1-2 hectares, about 26 per cent use between 2-5 hectares while only about 20 per cent produce on farms that are up to 5 hectares under ABP. This point toward the fact that majority of the farming was dominated by small holder. This is due to the fact that under the ABP model, farmers are in most cases (with some exceptions) expected to produce on only 1 hectare of land (for crop farmers).

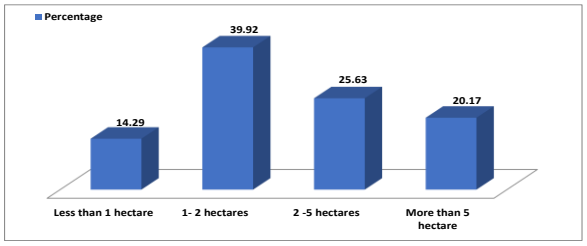


Figure 7: Farm Size of Farmers

4.2 Analysis of Farmers' Incomes

4.2.1 Net Income Analysis under ABP

Analysis of Farmers' Incomes is presented in Table 1. Data on farm output collected from the administered questionnaire indicated that the total output of the sampled farmers stood at: Rice (714MT), Wheat (12MT) and Maize (411MT). Others include Cassava (465MT), Fish (40MT) and poultry (34,000 birds).

Average market prices during the time of the study showed the following: Rice (N110,000/MT), Wheat (N280,000/MT), and Maize (N125,000/MT). Others include Cassava (N25,000/MT), Fish (N800,000/MT), and poultry (N1,200/bird) as presented on Table 1.

The Gross income for each commodity was determined by multiplying the output by the market price which stood as follows: Rice (N78,540,000.00), Wheat (N 3,360,000.00), and Maize (N51,375,000.00),. Others include Cassava (N11,625,000.00), Fish (N32,000,000.00), and poultry (N40,800,000.00) as presented on Table 1.

The income from crop sources under the ABP was N144,900,000.00 while for livestock stood at N72,800,000.00. These gave a total income (gross) of N217,700,000.00 and an average income per farmer of N946,521.00. These less the average loan amount of N300,000.00 gave a net income of N646,521.00 per farmer (Table 1).

Commodity	Output	Price	Total Income (N)*
*Rice (Paddy) -MT	714	110,000	78,540,000.00
Wheat- MT	12	280,000	3,360,000.00
Maize – MT	411	125,000	51,375,000.00
Cassava - MT	465	25,000	11,625,000.00
	Crop Income		144,900,000.00
Fish (MT)	40	800,000	32,000,000.00
Poultry (Birds)	34,000	1200	40,800,000.00
	Livestock Income		72,800,000.00

	Gross Income	217,700,000.00
	Average Income/Farmer	946,521.74
	Loan (Average)	300,000
	Net Income per Farmer	646,521.74

Table 1: Analysis of farmers' incomes

*N306.95 = $1.00 (U.S.)

4.2.2 Farm Income Before and After Participation Under the ABP

Analysis of data on farm income before and after participation under the ABP are given on Table 10. As presented on Table 2, the farmers were earning an average net farm income of N205,000.00. This amount however, increased by 215.38 per cent to N646,521.00 after the farmers received financing under the ABP. This outcome reveals that the ABP has impacted positively on the income level of the participating farmers thereby achieving one of the objectives of the Programme to make farming a profitable business.

	Before ABP (N)*	After ABP (N)*	% Change (Increase)
Livestock Income	131,000	630,000.00	380.92
Crop Income	74,000	316,521.74	327.73
Less Loan	0	-300,000	
Total Net Income	205,000	646,521.74	215.38

Table 2: Change in Farm Income After Participation Under the ABP

*N306.95 = $1.00 (U.S.)

4.3.3 Analysis of Income Inequality

Income inequality among ABP beneficiaries was analysed based on inequality of total income (gross). The way total income is distributed among participants is given on table 3. Here it is given that 3.04% of Farmers earn below N100,000 or 0.80% of total income while 19.13% received N101,000-N200,000 or 12.94% of total income. In addition, 36.09% of Farmers receive N201,000-N300,000 or 34.03% of total income while 26.96% of Farmers receive N301,000- N400,000 or 35.93% of total income. Finally, 11.30% of Farmers earn N401,000-N500,000 or 13.67% of total income while 3.48% of Farmers earn above N500,000 or 3.08% of total income (Table 3). From the foregoing, some degree of inequality exist in the distribution of total income among the participants as confirmed by a ginni coefficient of 0.43. The ginni coefficient obtained (0.43) is higher than the value (0.381) obtained By Adams and He (1995) in Pakistan and 0.290 obtained by Adams (1991) in rural Egypt. However, it is clear that majority of the farmers (63.05%) are situated in the middle range earning between N201,000-N400,000 or 69.96% of total income accruing to the participants. This indicates that the income structure of participants is not a pyramid with a few Farmers at the top and the majority at the bottom rather, it is a diamond with majority in the middle and a minority at either extreme. The inference here is that ABP has helped raised the incomes and therefore the living standards of majority of the participants and not just a few.

Incomes Range (₦)	No. of farmers	Total Income (₦)	% of farmers (X)	% of Income	Cumulative % farmers	Cumulative % of Income (y)	EXY
0-100,000	7	1,741,044.00	3.04	0.80	3.04	0.80	0.000243
100,001-200,000	44	27,185,028.00	19.13	12.49	22.17	13.29	0.025419
200,001-300,000	83	74,080,856.00	36.09	34.03	58.26	47.32	0.170749
300,001-400,000	62	78,221,664.00	26.96	35.93	85.22	83.25	0.224405
400,001-500,000	26	29,763,516.00	11.30	13.67	96.52	96.92	0.10956
Above 500,000	8	6,707,892.00	3.48	3.08	100.00	100.00	0.034783
Total	**230**	**217,700,000.00**	**100**	**100**			**0.565159**

Table 3: Distribution of Income for Participants

$\Sigma XY = 0.57$

Ginni Coefficient = $1 - \Sigma X = 1 - 0.57 = 0.43$

V. CONCLUSION AND RECOMMENDATIONS

The Central Bank of Nigeria in line with its developmental agenda designed the ABP to help local farmers increase production and the supply of feedstock to processors, reduce food importation and conserve Nigeria's external reserves.

The success of ABP is not just a function on how striking the solution design is modelled, but on how well it is implemented. This study has identified some critical issues which need to be addressed if the objectives for the programme objectives to be achieved.

Based on the findings of this study, the following recommendations are hereby proffered for policy focus:

- A special quota should be instituted towards women under the ABP
- Training module under ABP should include how to make investment decisions when farmers earn income to avoid unnecessary expenditure on consumables
- A follow-up mechanism to be instituted to track impact of incomes earned after participating under the ABP and how it has transformed farming business and standard of living of beneficiaries over a couple of years
- Farm sizes should be up-scaled for farmers financed under ABP that have exhibited good repayment history

- Explore use of mobile apps and other faster and easier mode of financial transaction under ABP to ensure speed and safety

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