Performance Implication of Agricultural Transformation Agenda Support Program Phase 1 (Atasp-1): A Southeast Nigeria Experience

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ABSTRACT

In a bid to revitalize the ailing agricultural sector in Nigeria, several programmes have been introduced by the government, one of such programmes is Agricultural Transformation Agenda Support Program Phase 1 (Atasp-1). Hence, this study was necessitated to look at the performance implication of the programme on participant farmers in Southeast Nigeria. The study specifically determined the effect of ATASP-1 interventions on the farm income of participants and ascertained the effect of ATASP-1 intervention on the farm profit of participants. A survey research design was adopted for the study. A total of 8,585 (Rice 3248 and Cassava 5337) farmers are participating in the programme from Anambra and Enugu constituted the population for the study. A multi-stage sampling technique was employed by the researcher. Taro Yamane sample size determination formula was further used to derive the sample size (730) of the study. R. Kumaison formula was adopted to allocate sample stratum for the study. Primary and secondary data were collected and used in the study. A combination of descriptive, regression and inferential statistics were utilized in data analysis. Results revealed that Pseudo R2 was 0.435 which implies that 43.5% variation in farmer's income was explained by the joint action of the programme interventions and that the Pseudo R2 was 0.300 which implies that the programme interventions explained 30.0% variation in the profit of farmers. Hence, it was concluded that ATASP-1 is a signifant and right step in the right direction to regalvanize the agricultural sector and give it the pride of place it desearves. Among others, the study recommended that there is a need for the programme to increase its efforts on financial/ market development intervention and that the programme implementers and policymakers are encouraged to increase their intervention in rural areas.

KEYWORDS: *Agricultural Transformation Agenda Support Program Phase 1 (Atasp-1), Nigeria, Interventions, Farm Income and Farm Profit*

INTRODUCTION

Different countries of the world have several mainstays of their economy. For many underdeveloped and developing countries of the world, however, agriculture plays a significant role in their economic progress and growth. This was captured by the World Bank when they opine that agriculture is the main source of income for rural people especially in the developing world (World Bank, 2008). On their part, Mwangi and Kariuki (2015) posit that agriculture is critical in the enhancement of food security, poverty reduction, rural development and economic growth. This is why most countries of the world take agriculture serious and go ahead to introduce numerous interventionist programmes to improve agricultural practices.

Despite the efforts of different governments of the world, especially in developing countries like Nigeria,

agricultural activities still seem to be operating at a subsistence level. Agricultural practice in developing economies is majorly at the subsistence level. Around 70% of agricultural production in developing countries are in the hands of smallholder farmers who use the traditional method of production (Muzari, Gatsi & Muvhunzi, 2012). These smallholder farmers encounter a lot of encumbrances, such as low level of income, high cost of inputs, poor access to irrigation facilities, pest and diseases that reduce yield, and high cost of labour among others which had affected the agricultural sector (Oluwadamilola, 2018), hence, risking food crisis if nothing is done.

Nigeria used to be a major player in the league of agriculturally inclined nations before the discovery of oil in the 60(s). Back then, agriculture used to employ over 70% of the rural workforce which metamorphoses to 60% of the nation's Gross Domestic Product (GDP). There was a massive drop in the contribution of agriculture to GDP after the oil discovery. Its contribution to the nation's GDP saw an improvement only of 29.15% in the fourth quarter of the year 2018. This could be attributed to the recent effort of the government to revamp the sector (Obianefo, Okafor, Bola-Audu & Umebali, 2019).

The Malthusian theory of arithmetic and geometric growth of resources assert that food production moves at arithmetic mean, while the human population grows at geometric mean. Food and Agricultural Organization (2009); Oladimeji, Ajao, Abdulrahman, Suleiman and Bolaji (2016) affirmed this theory by projecting that feeding a world population of about 9 billion people in 2050 would require raising overall food production by at least 70%. It is worthy to note that the State of Nigeria's agriculture and food production, the future challenges and potential solutions require specific agricultural development pathways and technology use that must work towards eradicating poverty, hunger and malnutrition in our generation (Diao, Thuriow, Benin and Fans, 2012). Thus, in a bid to make the nation self-sufficiency in food production, as well as to earn foreign exchange from the exportation of agricultural products the Federal Government of Nigeria started making concerted efforts to transform the Nigerian agricultural sector since the nature of most agricultural activities are still at subsistence level (Kumane, Osazuwa and Johnson, 2015).

Since Nigeria attained independence in 1960, there has been a consistent drive towards the improvement of the agricultural sector. This can be seen in the various agricultural policies and programmes that have been embarked upon by different regimes, military and civilian alike some of which are defunct or abandoned, and some restructured while others are still in place. Mgbenka and Mbah (2016) attributed these defunct or abandonment of the agricultural development initiatives to different constraints that militate against smallholder farming in the country, which are mostly economic, political or financial issues. This study however seeks to focus on Agricultural Transformation Agenda Support programme phase one (ATASP-1) which aimed at moving the agricultural activities in the nation from subsistence level to commercial level. The programme is funded by the African Development Bank (AfDB) and the Federal government of Nigeria through the Federal Ministry of Agriculture and Rural Development (FMARD). It is a five year loan project amounting to USD174.85 million loan from AfDB to transform Nigeria's agricultural sector which became effective from 20th February 2015. The extent to which the goals and objectives of the programme have been achieved is still relatively obscure, hence, the need to look at the performance implication of the programme on farmers' participants in Southeast, Nigeria. The study seeks to specifically look at:

1. determining the effect of ATASP-1 interventions on the farm income of participants.
2. ascertaining the effect of ATASP-1 intervention on the farm profit of participants

REVIEW OF RELATED LITERATURE
Concept of Agricultural Transformation Agenda Support Program (ATASP-1)

ATASP-1 came into existence in 2015 following the agreement between the Federal Government of Nigeria and the AfDB. The major objective of the intervention programme was is to develop the agricultural value chains in the country. It intends to achieve this mandate through the provision of improved inputs such as seeds, fertilizer, increased productivity and production, as well as the establishment of Staple Crop Processing Zones. Also included in the objective of the programme is to address post-harvest losses encountered by farmers, improve the linkages activities with industry, through a technique called backward integration, where organizations will invest and develop directly the farm activities where they get raw materials from. The programme also aims at improving access to financial services and markets (Alhassan *et al.*, 2019). The major target of the programmes is rural communities, with a special interest in women, youth and farmers associations (Federal Government of Nigeria (FGN), 2015).

The Agricultural Development Bank Group (ADBG, 2013) avers that ATASP-1 has three major

mechanisms for the implementation of the mandate of the programme. These mechanisms are:
1. Infrastructure Development
2. Commodity Value Chain Development (Advisory Services, Agro input supply and capacity building)
3. Program Management

The programme aims at developing critical infrastructure for rural farmers to ensure that they maximize their output. it also intends to maximize the value chain for these groups of framers to cut wastage in the value chain. The programmes also ensure it manages the programmes through various management strategies, aimed at making the farming and harvesting experience of participant farmers more fulfilling.

Table 1: ATASP-1 Intervention Activities.

Component	Total Costs (UA million)	Component Description
Infrastructure Development	71.56 (55.0%)	Rehabilitation of agricultural and ancillary social infrastructure including 1,300km of irrigation water conveyance canals (Kebbi, 280km; Sokoto, 175km; Niger, 220km; Kano, 230km; Enugu, 125km; Anambra, 75km and Jigawa, 195km). 1,007 units of various hydraulic structures (Kebbi, 167; Sokoto, 120; Niger, 229; Kano, 104; Enugu, 182; Anambra, 100 and Jigawa, 105). 1,330km of feeder roads (Kebbi, 265km; Sokoto, 55km; Niger, 235km; Kano, 330km; Enugu, 115km; Anambra, 80km and Jigawa, 250km). Rehabilitation of 35 primary schools (5 per state), 14 health centres (2 per state), 70 potable water supply and sanitation schemes (10 boreholes and accessories per state). 21 demonstration and technology centres (3 per state), 21 community markets and storage facilities (3 per state).
Commodity Value Chain Development	38.10 (29.3%)	Capacity development for public (agricultural research, extension, relevant ministries' development such as Rural Development and FMARD, Monitoring and Evaluation for efficient external supervision), private (MFIs, agro-dealers, etc) and community-based (producers' organizations, cooperatives, inter-professional bodies, etc.) institutions, training value chain actors in technical and managerial skills, promoting the use of science and technology, training in post-harvest reduction methods including food processing, business and entrepreneurship training, training of communities and health workers on prevention and management of common diseases as well as good nutrition, sanitation and hygiene practices, development of market information system (MIS), management of environmental and social impacts, implementation of policies to promote private investment in agriculture.
Program Management	20.43 (15.7%)	Coordination and supervision of program activities and program day to day management based on adequate results measurement framework, Environmental and Social Management Plan (ESMP) implementation and supervision, program procurement, disbursement, financial management, audit and reporting.
Total	130.09	

Source: African Development Bank Group (ADBG, 2013).

Table 1 shows the various mechanisms of ATASP-1 and the percentage/cost expended in each of the mechanisms.

Agricultural Transformation Agenda Support Program Phase 1 in Southeast
The Federal Government of Nigeria (FGN) under President Muhammadu Buhari in collaboration with the African Development Bank (AfDB) designed the Agricultural Transformation Agenda Support Program Phase-One (ATASP-1), which has adopted a holistic approach to tackling the challenges confronting agriculture in Nigeria. The AfDB is funding ATASP-1 as its contribution to the revitalization of agriculture in the country.

ATASP-1, in the South-East, made up of Anambra and Enugu States called Adani-Omor Zone is being implemented in Seven (7) Local Government Areas and 33 communities selected based on the three crops (Rice, Cassava, Sorghum) production potentials, are as follows;

A. Ayamelum; - Omor,Ifite-Ogwari,Umumbo, Anaku and Umueje.
B. Orumba North: - Ufuma, Awa, Omogho, Ndiowu and Awgbu.
C. Orumba South:- Akpu, Ezira, Ogborji and Ogbunka and
D. Ogbaru:- Odakpe, Abo-Atani, Ossomala, Ogbakuba and Amiyi
E. Uzo-Uwani – Adani, Iggah, Asaba, Ogurugu, and Ojor
F. Isi-Uzo – Ikem, Mbu, Neke, Isu, and Amede
G. Udenu – Imilike Agu, Ezimo Agu, Agu-Orba and Obollo-Eke

ATASP-1 in the Southeast has three (3) components of implementation with the activities as follows;(i) **Infrastructure Development;** There are various activities implemented in Adani- Omor Zone, in this infrastructural component, which includes; (A) **Social infrastructures** include; (i) Construction of Eight (8) primary schools at Adani-Omor, (ii) Construction of Four (4) health centres, (iii) Construction of four (4) markets and stalls at Adani-Omor, (iv) Provision of a Technology centre, (v) Provision of eight(8) potable water supply at Adani-Omor, (vi) Provision of sanitation facilities and (vii) Provision of toilets facilities at Adani omor Zone.

(B) **Productive/Economic Infrastructure**: This includes;(i)Rehabilitation of existing Lower Anambra Irrigation Project at Omor,(ii) Construction of 102km roads at Adani-Omor (iii) Construction of 2-span concrete reinforced Obinna bridge and various hydraulic structures.

(ii) Commodity Value Chain Development; Capacity development for relevant Ministries' departments; private and community-based institutions; training value chain actors in technical and managerial skills; promoting the use of science & technology; training in post-harvest reduction methods; business and entrepreneurship training; training of communities and health workers on prevention and management of common diseases, nutrition and hygiene practices; development of market information system (MIS); management of environmental and social impacts; implementation of policies to promote private investment in agriculture. and (iii) Program Management: Coordination of program activities; management based on results measurement framework; monitoring and evaluation; implementation of ESMP; program procurement, disbursement, financial management, audit and reporting

In the South-East, Adani- Omor, the agricultural business is gradually becoming private sector-led growth for food security, creation of jobs and shared wealth and sustainability basis, the income of smallholder farmers and rural entrepreneurs that are engaged in the production, processing, storage and marketing of the priority commodity value chains is gradually changing towards the realization of set objectives.

For the purpose of policy fulfilment, ATASP-1 have implemented Staple Crops Processing Zones (SCPZs) of Adani-Omor. The Processing Zones are specially delimited contiguous expanses of land in areas of high agricultural production and potential where the localized provision of a well-developed physical infrastructure such as access roads and energy, as well as water, are necessities to support production, processing and marketing activities for selected commodities.

The ATASP Phase 1 (2014-2019) entails a multi-sectoral operation that leads to the development of agricultural value chains for selected crops. The project has contributed to poverty reduction and food security by enhancing the incomes of smallholder farmers and small/medium scale processors that are engaged in the production, processing, storage and marketing of rice and cassava on a sustainable basis.

The Bank's involvement has been a supportive initiative towards: (i) complementing and supporting the Government's efforts for enhanced food security in the country; and (ii) supporting the ATASP-1, a top priority program of the Government. The ATASP-1 has a great potential in enhancing the role of agriculture as an engine of inclusive growth leading to employment and income generation, import-substitution, poverty reduction and diversification of the economy.

Performance Dynamics
Performance has been generating a lot of mixed reactions as it implies different things to different people at different times. Some see it as the end result, while others view it as a process. In some instance, it is seen as a tangible result, while some others would insist that it entail things or people that produce the result. This has led to two performance measures, the financial measures and non-financial measures of performance.

What constitutes performance for a manufacturing firm may not quite measure performance very well for a service rendering firm or for a farmer. So, performance is about perspective. The frequently used measures of performance are annual sales, the number of employees, growth in sales and growth in employee number (Mohammed and Abu, 2012). Mamman (2013) adopted the performance measure used by (Jamil & Mohammed 2011). They note that the Performance Measurement for Small Firms is based on seven main dimension measures, classified as two external dimensions (financial performance and competitiveness) and five internal dimensions comprising costs, production factors, activities, products and revenues. According to Jamil and Mohammed (2011) as cited by Mamman (2013) the internal dimensions are used to monitor the entire production process and the external dimensions are used to monitor the company's competitive position.

Extant literature (Oyelarin-Oyeyinka, 2010; Gbandi & Amissah, 2014) is replete with the performance of businesses and cooperative business inclusive in Nigeria which has been described to be incidentally low in terms of entrepreneurship development, source of income, promoting and providing employment and its contribution to GDP. Nigeria's SME sector grossly underperforms in contribution to GDP vis-à-vis other selected countries. Nigeria Vision 2020 NTWG on SMEs suggests that the difference lies in the importance ascribed to the sector. The Nigerian small business sector contributes 10 percent to GDP and just 2 percent to export earnings. These have been attributed to lack of skills/management capacity, poor quality product, low production capacity, poor access to international markets, insufficient working capital, poor Information and Communication Technology (ICT) adoption. Consequently, the sector has tended to serve the bottom end of the domestic market (Okwu *et al.*, 2013; Ariyo, 1999).

The agricultural sector continues to play a crucial role in development, especially in low-income countries where the sector is large both in terms of aggregate income and total labour force. Stagnation in agriculture is the principal explanation for poor economic performance while rising agricultural productivity has been the most important concomitant of successful industrialization. Generally, the sector contributes to the development of an economy in four major ways namely; product contribution, factor contribution, market contribution and foreign exchange contribution (Abayomi, 2002).

According to the World Bank estimates, the developing world has experienced faster growth in the value of agricultural output (2.6% per year) than the developed world (0.9 % per year) over the period 1980- 2004. But progress in agriculture has been very uneven with yields from Sub-Sahara Africa low compared to Asia, Latin America and Europe. The United Nations Food and Agriculture Organization (FAO) have repeatedly warned of catastrophic food shortages in Africa because the average per capita calorie intake in the majority of African countries has now fallen below the minimum nutritional standards. One of the major reasons for the relatively poor performance of agriculture in Africa has been the neglect of this sector in the development priorities of their governments. One of the important challenges for agriculture in development is to get the role of government right. Government has a role to play in agriculture simply because of its necessary role in poverty alleviation- and a large majority of Africa's poor are still farmers. Poverty itself prevents farmers from taking advantage of opportunities that could help pull them out of poverty. Lacking collateral, they cannot get credits. Lacking credits, they may have to take their children from schools to work, transmitting poverty across generations. Lacking health and nutrition, they may be unable to work well enough to afford better health and nutrition. With a lack of information and missing markets, they cannot get insurance. Lacking insurance, they cannot take what seem favourable risks for fear of falling below subsistence. Without middlemen, they cannot specialize (and without specialization, middlemen lack incentives to enter). Being socially excluded because of ethnicity, caste, language, or gender, they are denied opportunities, which keep them excluded. These poverty traps are often impossible to escape without assistance. Hence, the government is needed to at least play a facilitating role CBN (2007). It follows that in developing countries such as Nigeria, spending on agriculture is one of the most important government instruments for alleviating poverty in rural areas and promoting economic growth and development. In realization of this, the Federal Government of Nigeria (FGN) has embarked on various policies and programmes aimed at strengthening the agricultural sector in order to continue to perform its role of combating rural poverty through growing the income strength of the people.

Income
Barr (2004) defined income as the consumption and savings opportunity gained by an entity within a specified time frame, which is generally expressed in monetary terms. However, for households and individuals, income is the sum of all the wages, salaries, profits, interest payments, rents and other forms of earnings received in a given period of time (Case and Fair, 2007). In the field of public economics, the term income may refer to the accumulation of both monetary and non-monetary consumption-ability, with the monetary being used as a proxy

for total income (Barr, 2004). According to Minggu (2011), Income is measured based on the increase or decrease in net worth or capital owned by an entity plus the value (market price) of goods and services consumed in a period. Nandwa (2018) highlighted the following points as the top three concepts of income. The concepts are:
A. Accounting income
B. Economic income
C. Capital maintenance income
D. Farm income

A. **Accounting Income:** Accounting income often referred to as business income or conventional income is measured in accordance with generally accepted accounting principles. The profit and loss account or income statement determines the net income or operating performance of a business enterprise for some particular period of time. Income is determined by following the income statement approach, i.e., by comparing sales revenue and costs related to the sales revenue. Net income is determined as follows:

Net Income = Revenue – Expenses

The net income defined as the difference between revenue and expenses determines the business income of an enterprise. Under the income statement approach, expenses are matched with the revenues and the income statement is the most significant financial statement to measure the income of a business enterprise. Thus, the business income of an entity represents the difference between the realized revenues arising from the transactions of the period and the corresponding historical costs. Accounting income is the increase in the resources of a business (or other) entity that results from the operations of the enterprise. In other words, accounting income is the net increase in owner's equity resulting from the operations of a company. It should be distinguished from the capital contributed to the entity. Income is a net concept; it consists of the revenue generated by the business, fewer losses and fewer expired costs that contribute to the production of revenue. Income has the following two major components or elements:
1. Revenue.
2. Expenses.

Besides the revenues and expenses, gains and losses are also considered while determining the business income or net profit of an enterprise.

B. **Economic Income:** The economic concept of income is based on Hick's concept (1946) in Nandwa (2018) of income defined as the maximum value which he can consume during a week, and still expect to be as well-off at the end of the week as he was at the beginning. Hicks presented his concept of 'well offness' as the basis for a rough approximation of personal income. According to Hicks, income is the maximum that can be consumed by a person in a defined period without impairing his 'well offness as it existed at the beginning of the period. 'Well offness' is equivalent to wealth or capital. Hick's concept of personal income was subsequently adopted by Alexander and subsequently revised by Solomon's to an equivalent concept of corporate profit. Alexander defined income of an enterprise as the maximum amount which a firm can distribute to shareholders during a period and still be as well off at the end of the period as at the beginning."

Economic income may be defined as the operating earnings plus the change in asset values during a time period. Economic income is measured in real terms and results from changes in the value of assets rather than from the matching of revenue and expenses. Like accounting income, it is not based on money values. The 'Well offness' is measured by comparing the value of the company at two points in terms of the present value of expected future net receipts at each of these two points. The economic concept of income underscores the value of goods and/or services that can be consumed or the consumption ability of an entity (Minggu, 2011).

In other words, economic income is the consumption plus saving expected to take place during a certain period, the saving being equal to the change in economic capital. Economic income may be expressed as follows:

$EI = C + (K_1 - K_2)$

Where:

EI = Economic Income

C = Consumption

K_1 = Capital as at period 1

K_2 = Capital as at period 2

C. Capital Maintenance Income: In traditional accounting, the concept of accounting income has been recognized widely. Adequate attention has not been given to the capital maintenance concept associated with income measurement. In fact, 'income measurement' and 'capital maintenance' are interrelated or twin concepts (Nandwa, 2018). The term capital represented by assets refers to 'stock' or a 'tree' while the term 'income' refers to the fruit. As such, by using the concept of capital maintenance, income for a business enterprise can be defined as the amount which can be drawn from the business maintaining intact the capital that existed at the beginning of the period.

Capital maintenance concept of income requires that the capital of a business enterprise needs to be maintained intact before income can be distributed (David, 2009). Return on capital (income) is distinguished from the return of capital (cost recovery). Capital at the end of a year should be measured in order to determine the amount that can be distributed without impairing the capital that the firm had at the beginning of the year. Capital maintenance may refer to maintaining capital intact in financial or physical terms.

The capital maintenance concept is viewed merely as a neutral benchmark to be used in determining the surplus which accrues to shareholders as income and implies nothing which ought to be interpreted as suggesting normative behaviour for the management of the enterprise. Choice of maintenance concepts may however be dictated by the preferences of managers or owners. The following are the concepts of capital maintenance according to Nandwa (2018):
1. Financial Capital Maintenance.
2. General Purchasing Power Financial Capital Maintenance
3. Physical or Operating Capital Maintenance.

D. Income Growth
The growth in income of farmers is strongly correlated with the overall growth of the economy, especially in the agricultural sector. This fact has been demonstrated in cross country and individual country studies (Chirwa, 2005). There is an indirect link between poverty status and poverty reduction among the farming households through the relationship between productivity, income growth and poverty (Simon et *al.,* 2011).

Chirwa (2005) equally argued that macro-economic policies that promote growth in income are likely to lead to poverty reduction. Although, in agriculture, positive changes in price can provide incentives for agricultural production and specialization, which in turn may lead to growth and distribution of income through employment generation and revenue enhancement, and consequently, poverty reduction. Also, improvement in farmer's productivity and output would lead to income growth and consequently poverty reductions. Penda and Asogwa, (2011), opined that agriculture has already made a significant contribution to the economy. This can be achieved through increased agricultural output and productivity which contributes substantially to the overall economic development of a predominantly agricultural populating of a country like Nigeria. The World Bank (1996), stated that low productivity in agriculture is the cause of the high incidence of food insecurity and poverty in Nigeria.

Chirwa (2005) observe that productivity improvement for the Nigerian small-scale farmers is the ultimate if development is to take place and be sustained. This proposes that in Nigeria, the greater part of food production (70%) made available to consumers, is in the hands of small-scale subsistence farmers who reside mostly in the villages or rural areas (of the country. However, these farmers farm with local implements and unimproved inputs which limit their productivity. More so, if the farmer is to be alleviated from poverty, the productivity of the farmer should be improved to support increased income, better standard of living and serves as a check on environmental degradation consequently. Resources committed to agriculture should generate high productivity and the productivity should be transformed into an improvement in the quality of life of targeted Nigerians. To achieve prosperity and overcome stagnation, there is a need to increase growth in all sectors of the economy; such growth will be the most efficient means of alleviating poverty and generating long term sustainable development. It is an irony, however, that an agrarian country like Nigeria could fail in its successive effort to utilize its large resources for producing food and income wealth for the effective wellbeing of its citizenry.

Farm income and farm profit
Over the years, researchers have often used cash receipts accrued from the sales and other activities relative to the farm as a farm income. These cash receipts could be from the sales of farm produce or products, wages, among other activities transacted relative to the farm. On the other hand, the farm profit Department of

Agriculture and Food (DAF) noted that farm profit simply means the income left after all costs have been paid for or is calculated as gross farm income less cost (Retrieved 6 June 2020). Farm profit varies across farm business and between years and it's driven by changes in the price of production and cost. DAF (retrieved 6 June 2020) noted that farm profit is the capacity of the farmers to effectively manage each of these drivers that determine farm profitability under a range of conditions. Management skills are often the differentiating factors between the top and the bottom performance of the operation in a similar environment. Bonabana-Wabbi (2002) opined that the recent introduction of agricultural technologies was meant to boost the profit realizable from the farming business. These profits are dependent on management skills and it is location-based. Thus, ATASP-1 project activities have worked tirelessly to persuade the programme participants into adopting the technologies being introduced to them at 70 percent counterpart arrangement to improve their performance.

METHODOLOGY

This study adopts a survey research design with a population of 8,585 farmers (Rice 3248 and Cassava 5337) in the study area which is ATASP-1, Adani-Omor Zone made up of Anambra and Enugu States. The sample size of the study is 730, arrived at, through the application of the Taro Yamane sample size determination formula. The major instrument for data collection was a questionnaire which is a primary source of data. The instrument was validated using face a content validity by experts of the field of management and agriculture. Reliability was ascertained using Cronbach's Alpha test, with a coefficient of .88. The researchers engaged and train seven (7) enumerators (research assistants); each enumerator covered one Local Government Area. The enumerators spent at least two weeks in the field collecting the needed data for the study using questionnaires as the instrument. The study utilized a combination of descriptive and regression statistics in data analysis and hypothesis tested at 5% of significance.

DATA ANALYSIS AND RESULTS

Percentage Change on Income as a Result of Programme Participation

Table 2: Percentage change in income as a result of programme participation

Variables	Mean (NGN)	Percentage change (%)
Pre income	282,022.63	59.96
Post income	451,132.99	

Source: Field Survey Data, 2021.

Table 2 shows the percentage change in the income of farmers as a result of the programme participation. The study revealed that the mean annual income of the farmer at pre-programme participation was ₦282,022.63 and ₦452,132.99 during the programme participation. The study further revealed that the programme made a 59.96% change in the income status of the farmers.

Table 3: Effect of ATASP-1 interventions on farmer's income

Promotional activities	Coefficient	Std. Err.	t-ratio
Infrastructure development	-0.483	0.036	-13.38***
Financial/market development	-6.732	0.039	-174.62***
commodity value chain development	2.758	0.048	56.98***
Constant	206.523	0.866	238.5***
Diagnostic statistics			
Pseudo R^2	0.435		
Likelihood ratio (LR)	2660.04		
Log-likelihood ratio	-1729.759		
N	666		

Source: Field Survey Data, 2021. (*) Sig. @ 10%, (**) Sig. @ 5%, (***) Sig. @ 1%

Table 3 shows the ordinary least square regression result which was performed to further investigate the programme interventions on farmer's income. The Pseudo R^2 was 0.435 which implies that 43.5% variation in farmer's income was explained by the joint action of the programme interventions while the remaining 56.5% unexplained was as a result of external influence like political, economic and other factors outside the influence of programme implementation. The weak effect size of R^2 was within the acceptance range of 0.25 to 0.50.

The coefficient of infrastructure development (0.483) was negative and significant at a 1% level of significance, this implies that a marginal increase in the number of uncompleted infrastructure projects will reduce the effect on farmer's income by 48.3%. The project implementers are advised to ensure the completion of all

infrastructure projects to achieve the desired result on the beneficiary's income status. These findings reflect Amadi *et al.* (2015) who noted that investment in infrastructure affects farmer's income to cause changes in their lives.

The coefficient of financial/market development intervention (6.732) was equally negative and significant at a 1% level of significance, this implies that a unit increase in the number of financial packages that were not completed or transparently implemented will reduce the income of farmers by 6.732 unit. The project implementers must deploy transparency in the disbursement of funds as its impact will make or mare the effort of the programme.

Furthermore, the coefficient of commodity value chain development (2.723) was positive and significant at a 1% level of significance, this implies that a marginal increase in the number of commodity value chain development interventions executed will increase farmer's income by more than 100%. It has clearly been revealed that rural intervention remains the best way to tackle unemployment and poverty issues in Nigeria.

The null hypothesis was rejected based on these findings since it has been established that the project has an effect on farmers income.

Effect of ATASP-1 Intervention on Farmer's Profit
Table 4: Percentage change in profit as a result of programme participation

Variables	Mean	Percentage change
Pre profit	165,465.47	156.12
Post profit	423,783.78	

Source: Field Survey Data, 2021.

Table 4 revealed that the average annual income of farmers before participating in the programme was ₦165,465.47 and ₦423,783.78 during participation. The percentage change in profit status was 156.12% which is more than a 100% increase.

Table 5: Effect ATASP-1 intervention on farmer's profit

Promotional activities	Coefficient	Std. Err.	t-ratio
Infrastructure development	-1.358	0.039	-34.43***
Financial/market development	-3.568	0.048	-74.12***
Commodity value chain development	4.521	0.062	72.64***
Constant	190.861	1.058	180.33***
Diagnostic statistics			
Pseudo R^2	0.300		
Likelihood ratio (LR)	1781.91		
Log-likelihood ratio	-2077.309		
N	666		

Source: Field Survey Data, 2021. (*) Sig. @ 10%, (**) Sig. @ 5%, (***) Sig. @ 1%.

Table 5 revealed the result of the analysis aimed at investigating the effect of project interventions on the profit of farmers. It was revealed by the regression analysis that the Pseudo R^2 was 0.300 which implies that the programme interventions explained 30.0% variation in the profit of farmers while the remaining 70.0% unexplained was as a result of errors external to the programme implementation.

The coefficient of infrastructure development (1.358) was negative and significant at a 1% level of significance, this implies that a marginal increase in the number of uncompleted infrastructure development interventions will reduce the farmer's profit by 1.358 units. The project implementers are advised to ensure the completion of all infrastructure projects to achieve the desired result on the beneficiary's profit status.

The coefficient of financial/market development intervention (3.568) was equally negative and significant at a 1% level of significance, this implies that a unit increase in the number of financial packages not completed or transparently implemented will reduce the profit of farmers by 3.568 unit. The project implementers must deploy transparency in the disbursement of funds as its impact will make or mare the effort of the programme.

The coefficient of commodity value chain development (4.521) was positive and significant at a 1% level of significance, this implies that a marginal increase in the number of commodity value chain

development interventions executed will increase farmer's profit by 4.521 units. It has clearly been revealed that rural intervention remains the best way to tackle unemployment and poverty issues in Nigeria.

The null hypothesis three was equally rejected, hence the study established that ATASP-1 interventions have a significant effect on farmer's profit.

Conclusion

Agriculture used to be the backbone of the Nigeria economy, but lost its momentum when oil was discovered. However, successive governments have made substantial effort at revitalizing the ailing sector; one of such programmes is ATASP-1. The intervention have had signficant impact in the lives of farmers as the study revealed that it impacts on the performance of participating farmers. The study, therefore, concludes that ATASP-1 is a signifant and right step at the right direction to regalvanize the agricultural sector and give it the pride of place it desearves.

Recommendation

1. There is a need for the programme to increase its efforts on financial/ market development interventions. This is due to the aids to farmers' technology adoption which invariably increases farmers income, profit and asset acquisitions.

2. The programme implementers and policymakers are hereby encouraged to increase their intervention in rural areas by 85%. This as shown in the researchers' findings that rural infrastructures increase farmers income, profit and asset acquisitions.

3. Plans on sustainability measures of maintaining both the infrastructures and value chain development before their exit are advised to be made. This will help the farmers not to go back to poor performance in output resulting in poverty.

4. The programme is also encouraged to involve the community members not only the stakeholders in the activities. This community participation will encourage community ownership and management which will reduce damages on government projects and poverty too.

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