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# Fostering Economic Growth: Unveiling The Nexus Between Agricultural Investment And Nigeria's Development

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**ABSTRACT**
This study empirically examined the prospects of fostering economic growth: unveiling the nexus between agricultural investment and Nigeria's development from 2003 to 2021. The data were extracted from the Central Bank of Nigeria statistical Bulletins and the reports of the National Bureau of Statistics (NBS). Two objectives and hypotheses were designed to guide this study. However, the Auto Regressive Distributed Lag (ARDL) Model was used to estimate the data since the unit root test showed that the variables have mixed order of integration. The result from the analyses indicated that there is a negative and significant relationship between Public Investment in Agriculture (PIA) and the Human Development Index (HDI) in Nigeria. This study also discovered that there is a positive and insignificant relationship between Private Investment in Agriculture (PRIVA) and the Human Development Index (HDI) in Nigeria. This study recommends amongst others that the government should diversify into agriculture through proper and adequate allocation of fund in an annual budget and entrenchment of subsidy where necessary as increment in agricultural produce can be exported and this will give progressively foreign exchange to the economy and further reinforce the naira in the worldwide market.
**Keywords**: agricultural investment, economic growth, development

## 1.1 INTRODUCTION

The pivotal role of agriculture in the economic development of nations, particularly in a diverse and resource-rich country like Nigeria, cannot be overstated. Nigeria, as one of the most populous nations in Africa, has a rich agricultural heritage that has the potential to be a driving force behind its economic prosperity (Angbas, Bala & Taofeek, 2019).

Historically, agriculture has been the backbone of Nigeria's economy, providing livelihoods to a substantial portion of its population. However, the sector faces various challenges such as limited access to modern technologies, inadequate infrastructure, and inconsistent policies. These issues have hindered the sector's growth and its ability to fully harness its potential (Ukpe et al., 2018).

Despite the widely acclaimed growth potential of the sector, its contribution to economic growth in Africa is not commensurate.

The sluggish expansion in Agricultural sector has turned out to be a major source of worry to policy makers because of its profound implication on other sectors of the economy. In poor developing countries, agriculture generates on average 29 percent of the gross domestic product (GDP) and employs 65 percent of the labor force; more than half of the developing world's population—3 billion out of 5.5

billion—lives in rural areas; and as much as 75 percent of developing world's poor live in rural areas, most of them dependent on agriculture either directly or indirectly (Angbas, Bala & Taofeek, 2019). It is in line with this that Dul & Grace (2017) posited that it would seem straightforward to argue that the focus of development policies in developing countries should be on promoting Agriculture. But it is not so simple.

The dismal performance of agricultural sector may be connected to the poor funding practices and inconsistencies in investment policies. Oladotun (2017) reported that expenditure on agriculture as a percentage of total expenditure fell from an average of 4.57 per cent between 1986-1993, to an average of 4.51 per cent per annum between 1994-1998 and later to 3.53 per cent between 1999-2005.

In recent years, there has been a growing recognition of the need for increased agricultural investment as a means to stimulate economic growth and reduce poverty in Nigeria. This investment encompasses various aspects, including financial support, technology transfer, and infrastructural development within the agricultural sector.

This background of study aims to explore the intricate relationship between agricultural investment and Nigeria's economic development. It seeks to understand how strategic investments in agriculture can catalyze economic growth, create employment opportunities, improve food security, and reduce the country's dependence on oil revenues. Furthermore, the study will examine the policy frameworks and initiatives that have been put in place to promote agricultural investment and assess their effectiveness.

As Nigeria continues to diversify its economy and reduce its vulnerability to external economic shocks, understanding the potential of agricultural investment is crucial. This research will provide insights into the challenges and opportunities in this sector, with the ultimate goal of contributing to informed decision-making and policies that can drive Nigeria's economic development through agriculture.

From the above, the work has the following as specific objectives;

i. To ascertain the relationship between public investment in agriculture and the Nigerian economy.
ii. To ascertain the relationship between private investment in agriculture and Nigerian economy.

Based on the objective the hypotheses of the study are stated thus;

**$HO_1$**: Public investment in agriculture has no significant impact on the economic development in Nigeria.

**$HO_2$:** Private investment in agriculture has no significant impact on the economic development in Nigeria.

## 2.0 LITERATURE REVIEW

### 2.1 Conceptual Review

#### The Concept of Investment

Investments are additions to capital stocks, which may come from public or private sources, according to Agbada (2015). The study approaches investment from a broad perspective that takes into account social capital, human capital through health and education, and on-the-job training through the generational transfer of farming skills, as well as real tangible physical capital, such as dams, irrigation structures, grain silos, etc.

Egwu (2016) defines investment as the commitment of present financial resources with the goal of achieving larger returns in the future. It addresses what are referred to as uncertainty domains. This term highlights the significance of time and the future, two crucial components of investment. Therefore, it is important to have information that could aid in creating a picture of the degree of confidence around the status of investments in the future. Economically speaking, saving and investing are distinct concepts. Savings is defined as any earnings that are not used for consumption, regardless of whether they are invested for higher returns or not. Various statistical techniques can be used to determine the values of consumption, saving, and investment at the macroeconomic level as well as at the individual level (Florence & Natha, 2020).

**The Concept of Agricultural Investment**

Investments in agriculture, both long-term and short-term, are referred to as agricultural expenditures. Government spending on agricultural infrastructure, R&D, and training and education are all considered investments in agriculture (Ayeomoni & Aladejana, 2016).

Nigeria is blessed with a climate that is ideal for agriculture and an abundance of fertile soil. Working in the agriculture sector could also be beneficial for the pool of human resources that exist.

Agricultural investment is a multifaceted concept that encompasses a wide range of financial and non-financial resources directed towards the agricultural sector with the aim of improving productivity, sustainability, and overall economic development. It plays a pivotal role in the growth and transformation of agricultural practices and has far-reaching implications for food security, poverty reduction, and national economic stability. Here are some key aspects of the concept of agricultural investment:

**Financial Capital:** At its core, agricultural investment involves the allocation of financial resources, both public and private, into the agricultural sector. This can take the form of grants, loans, subsidies, or equity investments to support farmers, agribusinesses, and the development of agricultural infrastructure.

**Technology and Innovation:** Investment in agriculture also includes the adoption and dissemination of advanced technologies and innovations. This can involve the introduction of high-yielding crop varieties, modern farming equipment, precision agriculture techniques, and sustainable farming practices.

**Infrastructure Development:** Agricultural investment often extends to the construction and improvement of essential infrastructure, such as roads, irrigation systems, storage facilities, and marketplaces. These infrastructural developments help farmers access markets and reduce post-harvest losses.

**Human Capital:** Investments in agriculture go beyond the tangible resources and include capacity building for farmers and agricultural workers. Training programs and educational initiatives play a crucial role in enhancing agricultural productivity and efficiency.

**Policy and Regulatory Support:** Governments play a significant role in agricultural investment through the formulation of policies and regulations that create an enabling environment for agribusinesses and farmers. These policies can include incentives, subsidies, and land tenure security.

**Sustainable Practices:** Increasingly, agricultural investment is associated with sustainability. This involves investments in practices that are environmentally friendly, socially responsible, and economically viable. Sustainable agriculture seeks to balance the needs of the present without compromising the ability of future generations to meet their own needs.

**Market Access:** Investment in agricultural value chains, including transportation and logistics, helps farmers and agribusinesses access markets, both domestically and internationally. This promotes economic growth and ensures fair prices for agricultural products.

**Risk Mitigation:** Agricultural investment can also include risk mitigation strategies, such as crop insurance and disaster relief programs, to protect farmers from unforeseen challenges like extreme weather events or pest outbreaks.

**Research and Development**: Investment in agricultural research and development leads to the creation of new knowledge, technologies, and practices that can significantly enhance agricultural productivity and sustainability.

**Public-Private Partnerships**: Collaboration between public and private sectors is common in agricultural investment. These partnerships can leverage the strengths of both sectors to drive innovation and growth.

Agricultural investment is not only vital for ensuring food security but also for reducing poverty, generating employment, and fostering economic development in many countries, particularly in those with predominantly agrarian economies. It represents a strategic approach to addressing the complex challenges of the agricultural sector and achieving broader socioeconomic goals.

**The Concept Economic Development**

Economic development encompasses progress in providing livelihood on a sustainable basis, access to education and basic healthcare for the majority of the population (Kelani, Olunlade & Olubanwo, 2020).

Economic development is a comprehensive and dynamic concept that encompasses the sustained improvement in the economic well-being and quality of life of a country's population. It goes beyond mere economic growth, which measures the increase in a nation's gross domestic product (GDP), and takes into account a wide range of factors that influence the standard of living, prosperity, and overall welfare of a society. Here are some key elements of the concept of economic development:

**Income and Wealth Distribution:** Economic development aims to reduce income inequality and ensure a fair distribution of wealth across various segments of the population. It seeks to improve the living standards of not just the affluent but also the marginalized and impoverished.

**Poverty Reduction:** An essential component of economic development is the reduction of poverty. This includes not only increasing the overall income levels but also ensuring access to basic necessities such as food, clean water, healthcare, and education for all citizens.

**Employment Generation:** Economic development promotes the creation of meaningful and sustainable employment opportunities. It focuses on reducing unemployment and underemployment, offering job security, and improving the working conditions and benefits of the labor force.

**Infrastructure and Human Capital:** Investment in physical infrastructure, such as transportation, energy, and communication networks, is a critical aspect of economic development. Equally important is the development of human capital through education, training, and healthcare, as it enhances a country's productive capacity.

**Economic Diversification:** Economic development encourages diversification of the economy beyond traditional sectors, reducing dependence on a single industry or export. This diversification makes the economy more resilient to external shocks.

**Access to Basic Services:** Access to essential services, including healthcare, education, housing, and clean sanitation, is crucial for economic development. Ensuring these services are available and affordable to all citizens is a key goal.

**Institutional Development:** Sound governance, the rule of law, and effective institutions are fundamental to economic development. These factors help create a stable and transparent environment that fosters economic growth and encourages investment.

**Environmental Sustainability:** Economic development seeks to balance growth with environmental sustainability. It emphasizes responsible resource management, pollution control, and the development of clean and sustainable technologies.

**Global Integration**: Economic development often involves integrating a country into the global economy through trade, investment, and technology transfer. This can lead to increased economic opportunities and access to international markets.

**Cultural and Social Well-Being**: Beyond economic indicators, development also focuses on social and cultural aspects, including preserving cultural heritage, promoting social cohesion, and ensuring citizen well-being.

**Resilience and Inclusivity:** Economic development aims to build resilience against economic shocks and crises, as well as ensure that marginalized and vulnerable populations are included in the development process.

**Quality of Life:** Ultimately, the goal of economic development is to enhance the overall quality of life, fostering an environment where individuals have the opportunity to lead fulfilling lives, make choices, and pursue their aspirations.

Economic development is a holistic and ongoing process that requires careful planning, investment, and policy formulation. It recognizes that true development encompasses not just financial wealth but also the well-being, opportunities, and freedoms of all individuals within a society.

**Agricultural Investment and Economic Development in Nigeria**

Agriculture is key to enhancements of economic growth and development of several nations all over the world. It is regarded as the largest single employer of labour and good contributors to most countries GDP worldwide. Agriculture deals with the development of land for crop production, raising of animals for the utilization of man and industries. Agriculture has few other sub-divisions like forestry, fishery, handling and marketing of the agricultural produce. The agricultural division provides employment opportunities and raw materials for some agro-allied industries. Agricultural sector stands out as the most significant sector that contributes to the economic growth of a nation when compared with the other sectors. It accounts for at least 32% of the African region GDP and employs at least 65% of the total work force, besides, 45% of Africa population live in the rural areas and depend on agriculture for survival and means of livelihoods (Matthew *et al*., 2020). According to World Bank (2020), agriculture is critical to economic growth. In 2018, it accounted for 4% of GDP while in some developing countries, it accounts for more than 25% GDP.

Nigeria has an abundance of material and human resources. The country is divided into three main regions; the Eastern, Western and Northern regions. The Northern region of Nigeria is the largest of the three. It contributes the most to the agricultural sector.

A study identified that the main problems of Nigeria stem from the fact that they are unable to access the natural and human resources (Angbas, Bala & Taofeek, 2019). In the study, Muhammed *et al.*, observed growth in many different sub sectors of agriculture and their contribution to the Nigerian economy during the years 1981 to 2003. They also identified the various factors that have an impact on the national agricultural production in Nigeria. They specifically examined the sectors of crops, livestock, fishery and forest. The factors that were examined included population growth rate, GDP growth rate, consumer price index, food import values and the expenditure of government on the agricultural sector. Land, labour and machinery; which are equally important factors were not included in the analysis.

In his study, Muhammed *et al*., (2016) found that a negative coefficient exists between the values of food imports. This means that whenever food import in the country increases, national agricultural production tends to decline. Other variables in the study had a positive coefficient leading to the notion that any increase in the variable will result in an increase in the national agricultural production.

Muhammad *et al*., (2016) however, did not examine the amount of output and its contribution to the GDP. He also failed to observe whether this amount was sufficient to instigate a transformation in the economy of Nigeria. One may also wonder how much more the government needs to allot to agriculture expenditure to yield a certain amount of agricultural output. Moreover, there is also a need to further investigate whether allocating such an amount in the existing budget is feasible or not. In case of a lack of availability of funds, further study needs to be carried out to find whether acquiring foreign aid to fund the agricultural sector will be a sensible decision or not.

**Public Investment in Agriculture and Economic Development**

Public investment in agriculture is a critical driver of economic development in many countries, particularly those with agrarian-based economies. This type of investment involves government funding, resources, and policy support directed towards the agricultural sector. The need for public investment has arisen from the need to provide certain capital-intensive goods, such as infrastructure or services that are considered to be of vital national interest. Due its complimentary consequence on the private sector, public investment has a tendency to intensify the process of industrialization. Hence, it attracts demand for new infrastructure which eventually facilitates the growth of urban communities (Erden & Holcombe, 2015).

Public investment in agriculture plays a pivotal role in achieving economic development by:

**Boosting Food Security**: Investment in agriculture ensures an adequate and stable food supply, which is essential for food security. This reduces food price volatility, which, in turn, benefits consumers and stabilizes the overall economy.

**Generating Employment:** Agriculture remains a major source of employment in many developing economies. Public investment in this sector creates jobs, reduces unemployment, and contributes to poverty reduction, particularly in rural areas.

**Enhancing Productivity**: Public investments can fund research, technology transfer, and modernization of farming practices. This leads to increased agricultural productivity, resulting in higher agricultural output and income for farmers.

**Infrastructure Development:** Public funding supports the construction and maintenance of essential agricultural infrastructure, such as roads, irrigation systems, and storage facilities. This infrastructure facilitates market access and reduces post-harvest losses, benefiting both farmers and consumers.

**Stimulating Agribusiness:** Public investments encourage the growth of agribusinesses, which can lead to value addition, job creation, and exports of processed agricultural products, contributing to economic growth.

**Export Potential:** Investment in agricultural products with export potential can bring foreign exchange earnings, enhance international trade, and contribute to economic stability.

In summary, public investment in agriculture is an essential tool for economic development, particularly in countries where agriculture is a significant contributor to the economy. It not only improves food security, reduces poverty, and spurs rural development but also promotes sustainable, inclusive growth with a positive impact on overall economic stability and well-being

**Private Investment in Agriculture and Economic Development**

Private investment in agriculture is a key driver of economic development, complementing public sector efforts in many countries. Private investment in agriculture involves individuals, agribusinesses, and investors channeling their funds and resources into agricultural activities. It could also simultaneously cause income generation and appreciation in value. In the computation of GDP, private investment is the measure of physical investment which is an important component because it is an indicator of the future productive capacity of the economy (Grimsley, 2016). The relevance of investment in agriculture in Nigeria can be linked to the fact that theoretically and historically, it is assumed that the sector requires robust funding packages for capital investment from all possible sources which in turn translate to growth and development.

Private investment in agriculture plays a crucial role in promoting economic development by:

**Efficiency and Innovation:** Private sector investments are often driven by profit motives, which encourage efficiency and innovation in agriculture. Private businesses seek cost-effective and sustainable solutions to enhance productivity and reduce waste.

**Job Creation:** Private investment in agriculture results in the establishment and growth of agribusinesses. This leads to the creation of jobs throughout the agricultural value chain, from production and processing to marketing and distribution.

**Technology Transfer:** Private investors bring modern technologies and farming practices to the sector. This enhances agricultural productivity, reduces post-harvest losses, and drives economic growth.

**Market Access:** Private investments often focus on creating and expanding markets for agricultural products. This includes developing supply chains, building distribution networks, and improving access to domestic and international markets.

**Diversification:** Private investors can drive diversification into high-value crops and non-traditional agricultural activities, which not only increases income but also reduces risks associated with monoculture.

**Access to Finance:** Private investors provide capital and access to finance for farmers and agribusinesses, enabling them to expand and invest in their operations. This helps in increasing the capital base of the agricultural sector.

**Export Opportunities:** The private sector often explores export opportunities for agricultural products, contributing to foreign exchange earnings and expanding international trade.

In summary, private investment in agriculture is a crucial driver of economic development, fostering efficiency, innovation, and job creation within the agricultural sector. It complements public sector efforts and helps to unlock the full potential of agriculture, making it a more profitable and sustainable industry. This, in turn, contributes to broader economic growth, increased income, and improved livelihoods for rural and urban populations.

## 2.2 Theoretical Review

### The Structural Transformation Theory

This theory provides a robust theoretical framework for understanding the relationship between agricultural investment and economic development in Nigeria. This framework emphasizes the transition of an economy from a primarily agrarian and low-productivity structure to a more diversified and industrialized one.

The Structural Transformation Theory recognizes that agriculture typically plays a central role in the early stages of development. In Nigeria, agriculture has historically been a primary sector, providing livelihoods for a substantial portion of the population (Yusuf S.A, 2018). Investment in this sector is crucial for increasing agricultural productivity, which is often seen as a necessary step in the structural transformation process.

The theory emphasizes the shift of labor and capital from traditional, low-productivity agricultural activities to more modern, high-productivity sectors as a key component of structural transformation. Agricultural investment can stimulate rural-urban migration, as workers seek opportunities in other sectors. As noted by NBS (2019), "Agricultural investment can reduce the proportion of the population engaged in agriculture and contribute to labor reallocation.

Structural transformation involves economic diversification, where countries move beyond traditional agricultural activities and develop higher-value industries. Agricultural investment can facilitate this diversification by supporting the development of agribusinesses and value-added processing, thereby reducing dependence on raw agricultural commodities and increasing income opportunities.

The transition towards structural transformation often involves the development of infrastructure, which is crucial for connecting rural areas to urban centers and facilitating economic growth. Agricultural investments, such as the construction of rural roads and irrigation systems, contribute to this process.

Investment in agriculture, especially in the form of modern technologies and best practices, can lead to increased agricultural productivity. As emphasized by the AfDB (2016), "Investments in agriculture are critical for achieving high and sustained economic growth, as increased agricultural productivity has significant multiplier effects on the broader economy.

## 2.3 Empirical Review

Yusuf (2018) explored empirically the role of agriculture in development of Nigeria between 1981 and 2016. The restricted error correction model quantitative technique was used in the study with the adaptation of the Solow Growth model that include Capital proxy by Gross Capital Formation (GCF), labour proxy by post-secondary school enrolment, Agricultural Output and Economic Growth and Development proxy by RGDP. The study revealed that the agriculture plays a significant role in economic development of the nation.

Sulaimon (2021) studied agricultural credit guarantee scheme fund and agricultural performance in Nigeria. The study proxied agricultural credit guarantee scheme fund with agricultural loan while agricultural performance was measured with the gross domestic product contribution from the agricultural sector. The study revealed U shaped relationship between real agriculture gross domestic product and agricultural credit guarantee scheme fund. The study concluded that an increase in agricultural loan will translate to robust contribution in terms of agricultural performance in Nigeria.

In addition, Florence and Nathan (2020) studied the impact of commercial banks credit on agricultural growth in Uganda. The study proxied commercial banks credit with total bank credits in the economy of Uganda while agricultural growth was measured with the gross domestic product contribution in Uganda.

The study revealed that bank credits have positive input on agricultural output in the long run and insignificant input on the short run.

Kelani, Olunlade and Olubanwo (2020) studied agricultural financing and economic performance in Nigeria. The study proxied agricultural financing with total bank loans granted in favour of the Nigerian agricultural sector in Nigeria while economic performance was measured with the gross domestic product of Nigeria. The study revealed that agricultural sector is inadequately funded by government and private sector. The study concluded that an increase in agricultural financing will translate to a little contribution in terms of the economic performance of Nigeria.

Osabohien *et al*., (2022) examined the impact of agricultural export on Nigeria's economic growth. This study used the Autoregressive Distribution Lag (ARDL). Economic growth is the dependent variable, and is proxied by the real gross domestic product, the explanatory variables include: agricultural export, foreign direct investment, inflation rate and the labour force. The results from the ARDL technique revealed that agricultural exports significantly affect Nigeria's economic growth. Therefore, from the results, the study recommended that agricultural export need to be promoted through the increase in agricultural production base.

Oboh, and Adeleke, (2016) carried out an assessment on the potential capacity of agricultural sector to propel sustainable broad based growth using data spanning over 34 years between 1981 and 2015. Agriculture was found to led service and industrial sector in their contributions to employment creation in Nigeria. Their recommendations include increase in public investment, availability and access to inputs as well as agricultural programs aimed promoting inclusiveness, through youth friendly and price stabilization strategies.

Angbas, Bala and Taofeek (2019) investigated the role of Agricultural investment on economic growth in Nigeria using annual time series data obtained from secondary sources, spanning over a period of 35 years between 1983-2017. Analysis was done using Johansen Cointegration test before the error correction model was developed and analysed. The result of the data analysis indicated that public investment in Agriculture has a negative insignificant impact on economic growth in Nigeria while private investment has a positive significant impact on poverty in Nigeria. The study recommended that government should expand public investment in Infrastructure and R&D in order to motivate the private sector to participate fully and those broad-based policies should be designed for optimal economic growth experience.

## 3.0 RESEARCH METHODOLOGY

### 3.1 Research Design

The research design employed in this study aligns with the Ex-post facto research design paradigm. This choice is driven by the historical nature of the events under investigation, specifically the relationship between agricultural investment and Nigeria's economic development. The study's aim is to retrospectively examine and assess the impact of various forms of agricultural investment on the economic growth of Nigeria. Additionally, the study adopts an explanatory research design to establish the causal links between different forms of agricultural investment and Nigeria's economic development. To achieve this, the research will formulate regression models based on foundational theories and empirical studies, covering a period from 2003 to 2021.

This study primarily relies on secondary data sources meticulously gathered from the Central Bank of Nigeria (CBN) statistical bulletin and the World Bank's extensive database. To accomplish the study's objectives, annual time series data spanning from 2003 to 2021 has been acquired and will be utilized. Other sources of data include relevant journals, books, magazines, and publications that are pertinent to the investigation of the relationship between agricultural investment and Nigeria's economic development.

### 3.2 Analytical Framework and Model Specification

This study is guided by the theoretical framework of Angbas, Bala and Taofeek (2019). To empirically examine the relationship between agricultural investment and Nigeria's development, we hypothesized that the HDI depends behaviorally on agricultural investment. Thus, such behavioral relationship can be given in the equation below:

$HDI_t = f(PIAt, PRIVAt)$ …….……. (1)

Equation (1) can be re -specified in a stochastic form.

$HDI_t = \beta_0 + \beta_1 PIA_t + \beta_2 PRIVA_t + E_t$---------- (2).

$\beta_1$ = Coefficient of the explanatory variable, PIA

$\beta_2$ = Coefficient of the explanatory variable, PRIVA

PIA = Public Investment in Agriculture

PRIVA = Private Investment in Agriculture

HDI = Human Development Index

$E_t$ = Error term

$t$ = time period under study (2003-2021)

### 3.3 Method of Data Analysis

The simple ordinary least squares method would be used to examine the relationship between agricultural investment and Nigeria's development.

$HDIt = \beta_0 + \beta_1 PIAt + \beta_2 PRIVAt + E_t$---------- (2).

Where,

t = time

$\beta_0$ = constant term

$\beta_1 - \beta_2$ = long-run coefficients

μt = white noise error term

### 3.4 Hypothesis Testing and Decision Rule Criteria

The decision rule was employed to test the hypothesis of the study and to make comparison between the probability value and the critical value. The study adopted 5% as its level of significance. The following decision rules were adopted for rejecting or accepting the null hypotheses: If,

i. Probability value (p-value) > 0.05 critical value; do not reject the null hypothesis (H0i).

ii. Probability value (p-value) < 0.05 critical value; reject the null hypothesis (H0i)

## 4.0 DATA PRESENTATION AND ANALYSIS

### 4.1 Descriptive Statistics

**Table 4.1: Descriptive Statistics**

| | HDI | PIA | PRIVA |
|---|---|---|---|
| Mean | 0.505263 | 39.64158 | 17570.45 |
| Median | 0.514000 | 36.70000 | 15816.00 |
| Maximum | 0.540000 | 76.60000 | 41126.06 |
| Minimum | 0.445000 | 7.540000 | 4585.930 |
| Std. Dev. | 0.029511 | 20.74176 | 10738.64 |
| Skewness | -0.515407 | 0.314216 | 0.766805 |
| Kurtosis | 1.973135 | 2.125979 | 2.665232 |
| Jarque-Bera | 1.675982 | 0.917415 | 1.950688 |
| Probability | 0.432579 | 0.632100 | 0.377063 |
| Sum | 9.600000 | 753.1900 | 333838.6 |
| Sum Sq. Dev. | 0.015676 | 7743.971 | 2.08E+09 |
| Observations | 19 | 19 | 19 |

**Source: Researcher**

The study conducted the descriptive statistics of the relevant variables involved. Table 4.1 shows the descriptive statistics of the dependent and independent variables in the model are displayed in table 4.2. From 2003 to 2021, the mean values of Human Development Index (HDI), Public Investment in Agriculture (PIA) and Private Investment in Agriculture (PRIVA) are 0.505263, ₦39.64158 and ₦17570.45 respectively. These figures may be compared with the maximum values of Human Development Index (HDI), Public Investment in Agriculture (PIA) and Private Investment in Agriculture (PRIVA) which are 0.540000, ₦76.60000 and ₦41126.06 and respectively. Skewness is a measure of asymmetry of the distribution of series around its mean. The skewness of Public Investment in Agriculture (PIA) and Private Investment in Agriculture (PRIVA) are above zero. It indicates that Public Investment in Agriculture (PIA) and Private Investment in Agriculture (PRIVA) each have a positive skewness. Thus, there is a right long-tailed distribution for the observations of PIA and PRIVA. Meanwhile, Human Development Index (HDI) has a negative skewness. The Kurtosis of a normal distribution is 3. Table 4.1 further shows that PRIVA, HDI and PIA has a kurtosis that is less than three (3). This indicates that the distributions of HDI, PRIVA and PIA are platykurtic.

**4.2: Test of Hypotheses**

In an attempt to test the two hypotheses stated earlier, the hypotheses were tested using Autoregressive Distributed Lag (ARDL) model through the use of E-views version 10.0 to determine the extent to which the independent variables (Public Investment in Agriculture and Private Investment in Agriculture) influence the dependent variable (Human Development Index) in this study.

**Testing of Hypothesis One (1)**

Hypothesis one is restated below:

**$HO_1$: Public investment in agriculture has no significant impact on the economic development in Nigeria.**

**Table 4.2: Extraction for Testing Hypotheses One**

| Variable | Coefficient | t-statistic | Prob.* | Decision |
|---|---|---|---|---|
| **PIA** | -0.019110 | -2.246463 | 0.0427 | Reject $H0_1$ |

**Source: Researcher**

Table 4.2 shows the regression of the Autoregressive Distributed Lag (ARDL) result for the study. According to the results, Public Investment in Agriculture (PIA) has a negative coefficient of -0.019110 which is significant with a p-value of 0.0427. The interpretation of the negative coefficients of Public Investment in Agriculture (PIA) indicates that an increase in Public Investment in Agriculture by a unit will lead about 0.02-unit decrease in Human Development Index (HDI), all things being equal.

Since the probability value of Public Investment in Agriculture (PIA) of 0.0427 is less than the 5% level of significance, the null hypothesis is hereby rejected and we conclude that there is a significant relationship between Public Investment in Agriculture and the economic development in Nigeria.

**$H_{02}$: Private investment in agriculture has no significant impact on the economic development in Nigeria.**

**Table 4.3: Extraction for Testing Hypotheses Two**

| Variable | Coefficient | t-statistic | Prob.* | Decision |
|---|---|---|---|---|
| **PRIVA** | 0.020761 | 1.140862 | 0.2745 | Accept $H0_2$ |

**Source: Researcher**

According to the Autoregressive Distributed Lag (ARDL) results in table 4.3, Private Investment in Agriculture (PRIVA) has a positive coefficient of 0.020761 which is insignificant with a p-value of 0.2745. The interpretation of the positive coefficients of Private Investment in Agriculture (PRIVA) indicates that an increase in Private Investment in Agriculture by a unit will lead about 0.02-unit increase in Human Development Index (HDI), all things being equal.

Since the probability value of Private Investment in Agriculture (PRIVA) of 0.2745 is greater than the 5% level of significance, the null hypothesis is hereby accepted and we conclude that there is no significant relationship between Private Investment in Agriculture and the economic development in Nigeria.

### 4.3. DISCUSSION OF RESULTS

This study employed regression analysis to examine the nexus between agricultural investment and Nigeria's economic development. The rest of this section discusses the findings of the study.

**Public Investment in Agriculture and the Economic Development in Nigeria**

On the relationship between public investment in agriculture and the economic development in Nigeria, Public Investment in Agriculture (PIA) was found to have a negative coefficient of -0.019110 which is significant with a p-value of 0.0427. The implication of the negative coefficients of Public Investment in Agriculture (PIA) indicates that when Public Investment in Agriculture increase by 1unit, Human Development Index (HDI) would decrease by 0.02-unit, holding every other thing constant.

In essence, this study discovered that there is a negative and significant relationship between public investment in agriculture and economic development in Nigeria. This finding is consistent with the results of Kelani, Olunlade & Olubanwo (2020); Angbas, Bala & Taofeek (2019); whose study also discovered that public investment in Agriculture has a negative and significant impact on economic growth in Nigeria.

The findings of this study relate with the results of Kelani, Olunlade & Olubanwo (2020) who studied agricultural financing and economic performance in Nigeria. The study revealed that agricultural sector is inadequately funded by government and private sector. This had contributed to poor economic performance within the sampled period due to shortage of agricultural funding.

**Private Investment in Agriculture and the Economic Development in Nigeria**

On the relationship between private investment in agriculture and the economic development in Nigeria, Private Investment in Agriculture (PRIVA) was found to have a positive coefficient of 0.020761 which is insignificant with a p-value of 0.2745. The implication of the positive coefficients of Private Investment in Agriculture (PRIVA) indicates that when Private Investment in Agriculture increase by 1unit, Human Development Index (HDI) would increase by 0.02-unit, holding every other thing constant.

In essence, this study discovered that there is a positive and insignificant relationship between public investment in agriculture (PRIVA) and economic development in Nigeria. This finding is in line with the results of Sulaimon (2021) which revealed that increase in agricultural loan will translate to robust contribution in terms of agricultural performance in Nigeria. This finding is consistent with the results of Florence & Nathan (2020) who studied the impact of commercial banks credit on agricultural growth in Uganda. The study revealed that bank credits have positive input on agricultural output in the long run and insignificant input on the short run.

## 5.0 CONCLUSION AND RECOMMENDATION

### 5.1 Conclusion

This study was conducted to examine the effect of public investment in agriculture on the economic development in Nigeria. The study was carried out to investigate the effect of Public Investment in Agriculture (PIA) and Private Investment in Agriculture (PRIVA) on the Human Development Index (HDI) in Nigeria. The data used in the study were extracted from the Central Bank of Nigeria Statistical Bulletins and the reports of the National Bureau of Statistics (NBS).

The result from the analyses indicated that there is a negative and significant relationship between Public Investment in Agriculture (PIA) and the Human Development Index (HDI) in Nigeria. Hence, this study concludes that public investment in agriculture has a significant effect on the economic development in Nigeria.

This study also discovered that there is a positive and insignificant relationship between Private Investment in Agriculture (PRIVA) and the Human Development Index (HDI) in Nigeria. Therefore, this

study concludes that private investment in agriculture has no significant effect on the economic development in Nigeria.

### 5.2 Recommendations

Based on the observed key findings and conclusions drawn above, the following recommendations are made.

1. A broad-based agricultural investment policy should be designed to make life meaningful to over 60% Nigerian farmers whose majority engage in subsistence Agriculture to survive.
2. Government should expand investment on factors that tend to motivate the private sector in general and utilize funds in line with global best practice.

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