

Rural Development, Agricultural Output and Economic Growth Nexus in Nigeria.

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Abstract.

The agricultural sector is a major driver of the Nigerian economy, and the key sector to creating a faster growth through sufficient food production. Since the end of the second world war, she has prioritized rural development as an approach to a broader national economic development, and agriculture playing a central role. However, since independence in 1960, the various strategies that have been adopted for rural development have achieved minimum impact to achieving faster growth in the economy. Many of these policies and approaches have focused on agricultural, integrated rural and infrastructural development, and industrialization. Therefore, this study examined the link between rural development, agricultural output and economic growth in Nigeria between 2000 and 2019. To achieve the study specific objectives, the OLS method was employed as estimation technique. Error Correction Model was set for the short run effects. The Granger Causality Test was also carried out. The short run error correction term reveals there is a speedy adjustment process to long run equilibrium. There is evidence of long run relationship between rural development, agricultural output and economic growth. The major findings revealed that in the long run, the development of the rural sector is a major factor in agricultural development and economic growth in Nigeria. It is suggested that government should increase expenditure on rural capital projects, rural infrastructure, and development of human capital.

Keywords: Rural Development; Agricultural Output; Economic Growth

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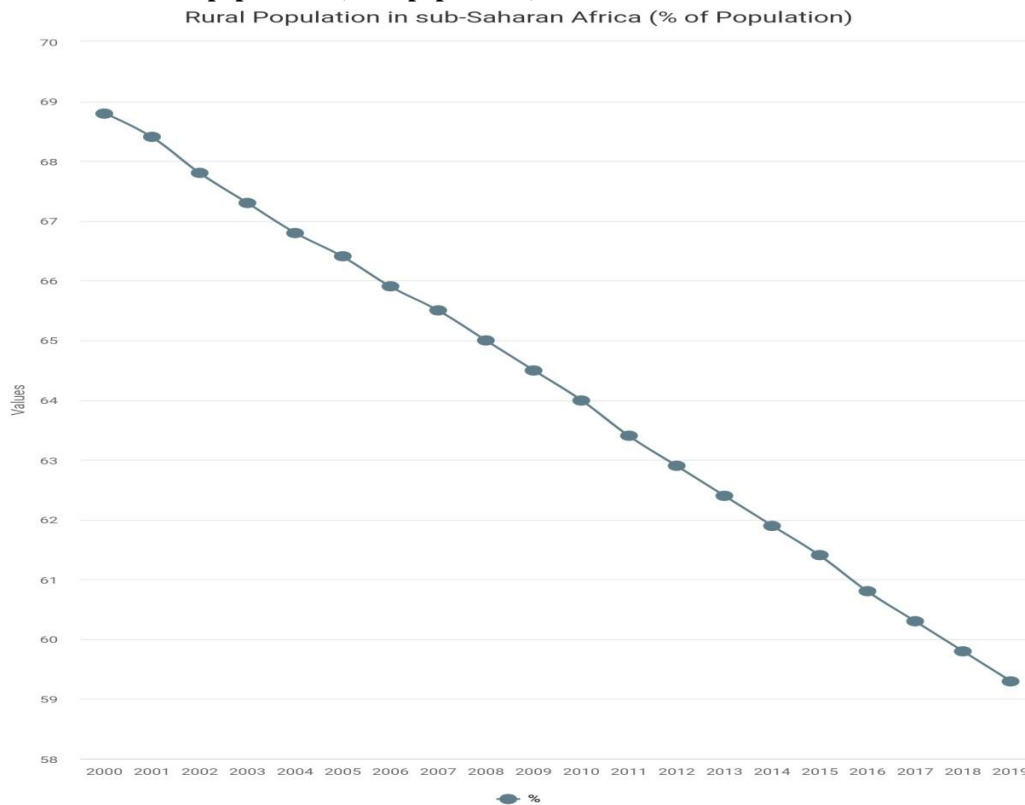
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I. Introduction

Sub-Sahara Africa population is largely rural, with over 60 percent of the total population, and an average growth rate of 2 percent, this is projected to increase to 65 percent by the turn of the century. As at 2006, over 400 million people live in the rural areas in sub-Sahara Africa, and this figure represented 42 percent of the total population. By 2019, rural Africa's population has grown to a staggering 652 million representing over 47 percent. Rural Africa is characterized by a smaller population, in comparison with urban Africa, abundant natural resources, an aging population, lower cost and standard of living, lower wages, and high poverty levels. In Africa, a rural area or settlement is defined as a geographic area with fewer homes or settlements, fewer population, with agriculture as the mainstay of the rural economy, and most rural population live and work in farms. Ginneken et al (2008) saw a correlation between improvements economic conditions and population growth in rural Kenya, and rural-urban migration. Agriculture plays an important role in Sub-Sahara Africa, employing more than 60 percent of the total labor force, and has remained largely lower in growth and output relative to the rest of the world. Rural agriculture in Africa is largely subsistence farming, with the use of obsolete farming methods and tools.

Ojo and Musa (2019) alluded to the fact that agriculture has been the most important sector supporting economic growth and development in Africa since the early 1960s, and the contribution of this sector to the industrial growth of the economy cannot be overemphasized. Due to the importance of agriculture in Africa, it has become a topic of interest to most development economists. Argument abound that until countries of Africa can adequately produce enough food, labor is trapped in agriculture, and they cannot begin the process of modern growth and development. Nwankwu(1981) observed that in most developed countries and Africa, agriculture has been the primary source of employment, basic food supply, source of foreign exchange, and the means of providing the nation's industries with the needed raw materials. Farming and many other economic activities contribute to the rural areas in Africa with regards to infrastructural development, rural-urban integration, investment opportunities, and quality of life and the environment. In rural African economies, agriculture is the main activity and it support over 70 percent of the labor force. Research has shown that with increasing technological innovation and diversification, agriculture in the rural areas in Africa, can reduce poverty and unemployment rates.

Figure 1. Africa rural population (% of population) in Sub-Saharan Africa between 2000 and 2019.



Research has shown that Sub-Sahara Africa is not expected to be urban in the next 25 years. As of 2015, over half of Africa’s population lived in rural areas, and Africa is the least urbanized places on earth. However, the urbanization rate is expected to grow among the fastest in the next decade. OECD reports that since the beginning of 1990, Africa’s rapid urbanization has been largely due to a high growth rate in its population, and partly due to the reclassification of rural residents. With the current growth rate, Africa’s population is expected to double by 2050. Asogwa et al (2020) posited that urban areas are the major drivers in assessing a country’s level of economic development and wellbeing, as the growth of cities drive economic prosperity, technological progress, and consumption. Population experts have deduced that 40 percent of sub-Sahara Africa’s population live in cities, and in the next decade or more, the United Nations projects that the 10 fastest growing cities will be in Africa. The growth in urbanization has no direct relationship with the growth and development of basic infrastructure, as the pace of urban development outpace infrastructural development.

Africa’s rural population has been on the decline since 2000, largely due to the high levels of rural-urban migration, lack of basic infrastructural facilities, low pricing of agricultural products, lack of employment opportunities, low standard of living, and “Pull” factors toward urban living. As at 2019, sub-Sahara Africa rural population was 656,284,564, and this represents a marginal increase of 1.7 percent from 2018. Mellor (2014) observed that the level of infrastructural facilities in rural Africa lag behind those of most Asian countries. Secondly, Price distortions on agricultural products are predominant in Africa and this damage has not been reduced relative to other developing countries.

There are several reasons why many people in the rural areas of Africa migrate to the urban areas. Drought occasioned by climate change, famine, rural conflicts and land disputes, general decline in subsistence farming resulting from technological development in agricultural production, poverty, and lack of infrastructure in rural Africa. There is also the “Pull Effect” in rural-urban migration. Many rural dwellers are attracted to many opportunities in the urban areas, and the prospect of job opportunities, better living conditions, education, political freedom, and security are more visible in urban life. Studies have shown that unemployment in the rural areas is the biggest “Pull” factor responsible for over 80 percent of the reason people migrate. Lyu et al (2019) surmised that migrants are being pulled more for better employment opportunities than for income prospects, and other factors. The development of rural Africa is a crucial step to mitigating the huge impact of rural-urban migration, and raising agricultural output. 46 million people living in the rural areas of north America, occupies over 72 percent of land, and represent 13 percent of the total population. Rural communities play an important role in the economies of most developed countries, and these communities play a major role in providing food and creating jobs.

Development initiatives and the provision of infrastructural facilities in the developing countries of Africa are often urban-focused. Africa rural communities lack access to basic infrastructure such as roads and highways, housing, bridges, transportation facilities, health and educational services, communication and internet services, and affordable and reliable electricity. The absence of these basic facilities and services are responsible for the rapid rural-urban migration, and low agricultural output in the economies of most countries in developing Africa. Most countries of sub-Saharan Africa have developed strategies for implementing various programs aimed at attracting and retaining communities in the rural areas.

Table 1. Global Rural and Urban Population Dynamics (% of Total Population) as of 2020.

Region	Urban Population	Rural Population
North America	82	18
Middle East & North Africa	65	35
Sub-Sahara Africa	40	60
Europe	75	25
China	61	39
India	35	65
Oceania	68	32
Asia	51	49
Latin America & Caribbean	79	23

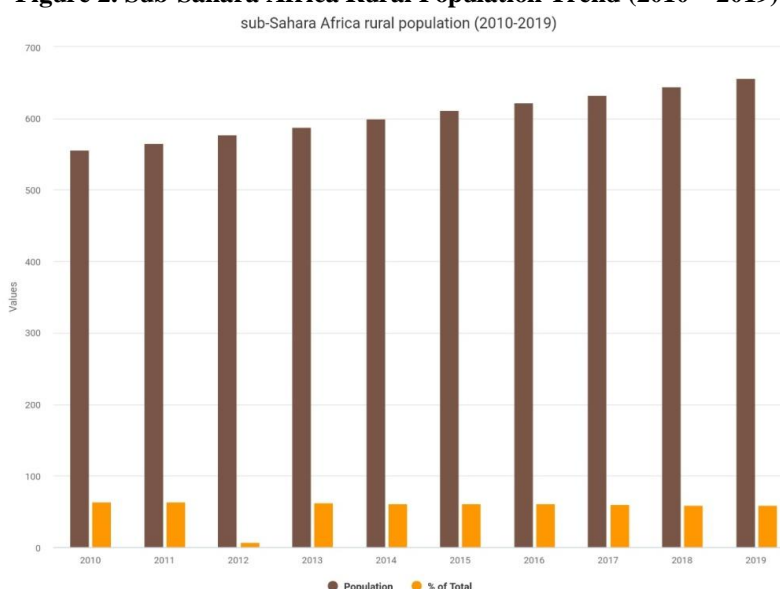
Source: Author’s compilation, Statista, UNFPA, UNDP reports 2020.

Sub-Sahara Africa is the least urbanized region in the world, with a growth rate of 4.1 percent, and in comparison, with the global rate of 2 percent, it is expected to double in the next three decades. In 2019, **Gabon** had the highest growth rate in Africa, with over 85 percent of its population of 2.17 million people living in urban areas. Libya with a population of 6.77 million people had over 80 percent of its citizens living in the urban areas and Djibouti with a population of 973,560 people had over 78 percent.

Sub-Sahara Africa Rural Population.

In 2019, the population of people living in the rural areas grew by 1.72 percent, with a population 656 million. As of 2010, sub-Sahara rural population was 556 million and 64 percent lived in the rural areas. With a growth rate of about 1%, by 2014, rural population declined by 4 percent to 61.4 percent of the total population of 600 million. Ogunkola et al (2020) surmised that rural areas in Africa accounts for a large percentage of the total population. Rural Africa accounts for over 60 percent of the labor force, and over 90 percent of total agricultural output.

Figure 2. Sub-Sahara Africa Rural Population Trend (2010 – 2019)



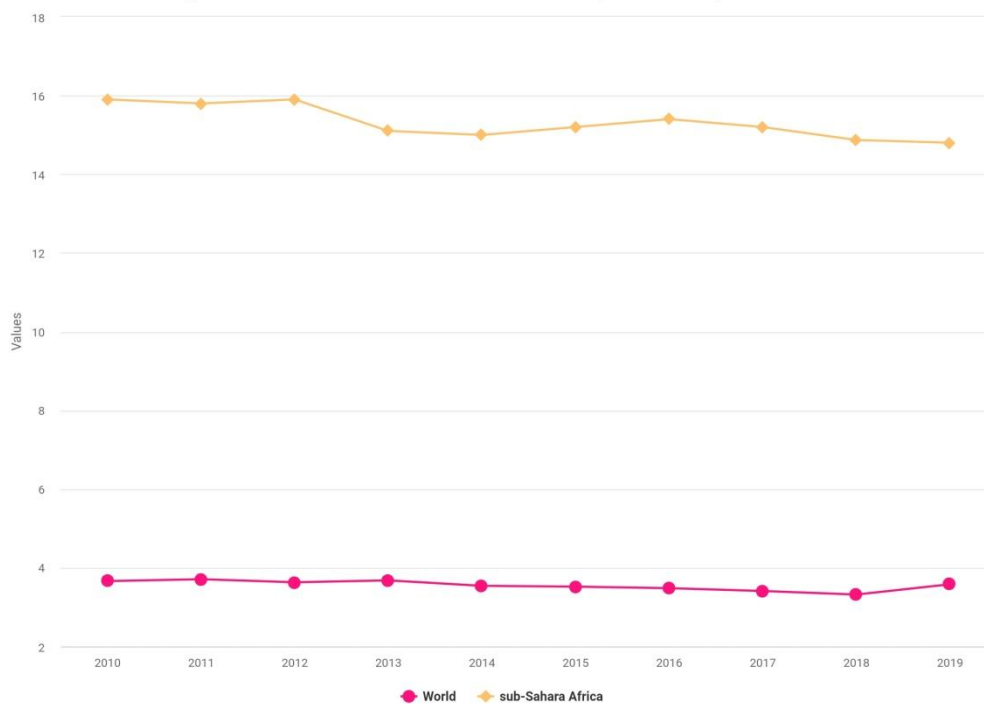
Source: Author’s computation, UNFPA, UNDP, 2020.

Development experts believe that millions of people in sub-Sahara Africa who are transiting into the labor force need not be attracted by the urban “pull” factors, in order to escape poverty in the rural areas. It is argued that rural Africa has great potentials for driving economic growth through accelerated food production. Figure 2 has shown a steady decline in the percentage of rural population to the total population between 2010 and 2019.

Agriculture and Economic Development.

Developing countries of Africa remain largely agrarian. The agricultural sector of these countries has contributed immensely in supporting and promoting economic growth and development. Agricultural output has contributed to increase in the welfare and incomes of the rural population which has led to increase in the demand for industrial goods, and the development of the industrials sector. Agricultural sector contribute a larger share to the GDP of these countries. However, this is not reflected on the size of this sector, as total output results from the use of crude implements, small scale farming, and subsistence farming which often lead to low yield.

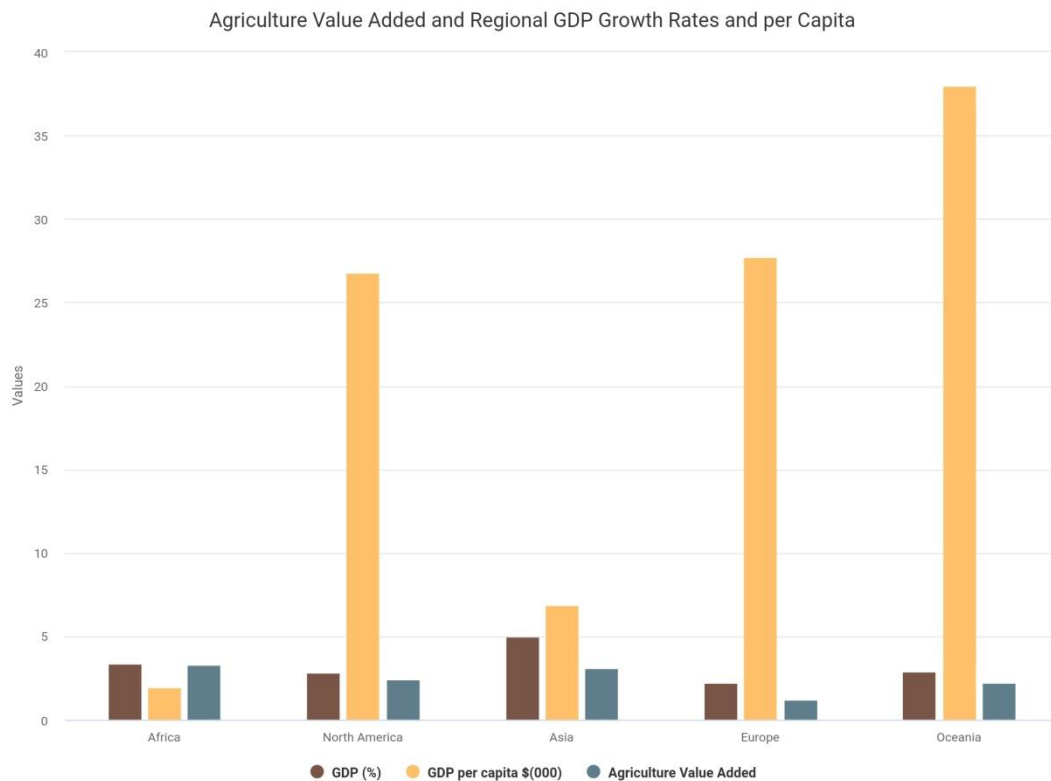
Figure 3. Agriculture Output to % GDP, World and sub-Sahara Africa. 2010-2019
Comparison between World and Sub-Sahara Africa Agricultural Output to GDP Ratio



Source: World Bank data, 2019

Figure 3 depicts a comparison between global and sub-Sahara Africa agricultural output to GDP ratio, between 2010 and 2019. On average, agriculture contributes about 3.5 percent to the global GDP, and 15 percent to the GDP of sub-Sahara African countries. Agriculture provides employment to about 24.5 percent of the global labour force, while it provides employment to 52 percent of the workforce in sub-Sahara Africa. Agricultural sector is the natural resource sector and provides the foundation for human existence. This sector remains the most crucial for agricultural productivity and economic growth, and expansion in productivity is the main driver for raising rural incomes and purchasing power. Ojo and Olayinka (2019) observed that agricultural output has been relatively slow compared to population growth, and this has created an excess demand for food relative to supply. This phenomenon has been largely attributed to bias against the sector, emphasis on investment in the industrial sector, tax incentives and subsidies bias against the agriculture sector, and rural infrastructural deficit. The agriculture sector in developing countries is largely neglected.

Figure 4. Agriculture Value Added and regional GDP per capita and growth rates 2010 - 2019



Source: Food and Agricultural Organization-United Nations, 2019

The agriculture value added represents the net output of the sector discounted for all output and inputs. The average agriculture value added for the year 2019, based on official figure from the FAO, was \$19 billion. The highest value was generated from China, and the lowest was in Bermuda. Agriculture is crucial to global economic growth. It is estimated that it accounted for 4 percent of GDP. It is the most powerful tool to end poverty in developing countries. By 2050, it is projected to feed about 9.5 billion people in the world, and growth in this sector is three times more effective in raising income levels in developing countries. Sub-Sahara Africa accounts for over half of the world’s population growth rates, and has managed to maintain a steady growth in her economies. United Nations projects that agriculture is Africa’s next economic powerhouse and despite climatic changes, Africa can conveniently feed her, over 1.3 billion, people.

Table 2. GDP, Agricultural Output, and Rural Population for 10 countries, 2019

S/N	Country	GDP(\$bn)	Agriculture Value Added(\$bn)	Agriculture to GDP%	Population (million)	Rural Population (million)	% Rural to Population
1	China	14,340	978	7.9	1,398.	848.4	38.5
2	India	2,880	396	15.4	1,366.	895.3	68.8
3	United States	21,430	178	0.9	328.	57.2	19.3
4	Indonesia	1,119	133	13.7	270.	118.5	43.4
5	Nigeria	448	84	21.1	201.	98.1	48.0
6	Brazil	1,840	81	6.6	211.	27.8	12.9
7	Pakistan	278	71	24.4	216.	136.6	62.8
8	Japan	5,082	57	1.1	126.	10.4	8.2
9	Russia	1,700	52	4.7	144.	37.2	25.2
10	France	2,716	45	1.7	67.	12.8	19.0

Source: Author’s compilation. FAO, United Nations, UNFPA, and UNDP. 2019

Table 2 shows the relationship between agricultural value added, rural to total population, and the GDP of 10 countries with the highest agricultural output. Japan and France are the least rural countries. However, more people live in rural France in comparison with Brazil with a lower percentage of rural dwellers. The United States with a rural population of 57 million people has the highest agricultural value added compared to Nigeria with 98 million and \$84 billion value added. Rupasingha (2009) observed that policy decisions, with reference to rural development, has become the focus of most developing countries in attracting value added agricultural businesses.

Rural Development in Africa.

Rural development involves development strategies, objectives, policies and capabilities intended for improving living standard, and economic wellbeing of the rural dwellers. Rural development strategies in Africa have become a focus of governments to revive social and economic efforts for the growth, expansion and the development of the areas outside the urban centers. The major objectives of rural development in Africa, as drivers of growth, are to improve the quality of life of rural citizens, create employment opportunities, the general development of rural dwellings and improving standard of living, and reducing poverty. Some of the strategies include the effective participation and involvement of rural communities in the management of their social, economic, and environmental objectives. The major focus of rural development in Africa is the provision of educational services, enterprises for job creation, and the provision of key social and physical infrastructure. Studies have shown that rural infrastructure raises agricultural output, and drives growth in the rural areas resulting from higher wages, and providing more opportunities for non-farm labour. The provision of rural roads, healthcare, availability of credit, educational facilities, and electricity are major determinants of rural development, and ultimately a growth in agricultural output. Studies have shown a positive correlation between the development of rural infrastructure and agricultural output. Narayanamoorthy and Hanjara (2006) observed that physical and institutional infrastructure such as roads, electricity, agricultural development programs, and rural markets play a major role in determining agricultural output in India.

Since the end of the second world war, many countries have prioritized rural development as an approach to a broader national economic development, and agriculture playing a central role. Different approaches have been adopted over time to ensure rural development transcend agricultural policies. The various models that have been adopted include, sectoral, multisectoral, territorial, and local. While the sectoral model places emphasis on agriculture as the major sector, output growth is a measure of its performance. The multi-sectoral adopted a general approach including potentials for other sectors in the rural areas, while territorial approach shifts focus on potentials and conditions within a particular territory, and ultimately emphasis on rural areas. Overtime there have been growth-centered models to rural development. These include Integrated Rural Development, Community-driven, and Area Development. These various models were designed for both the rural dwellers and expansion of the nation's economy. A long term and sustainable rural development is crucial to the social and economic viability of any nation. It is essential for poverty reduction in the rural areas where over 75 percent of the world's poor live, and the poverty rate is higher. Rural development in Africa can also contribute to reducing migration to urban centers, and ultimately reducing poverty in urban areas.

Sustainable Development Goals (SDGs) 1 and 2 emphasized ending poverty in all its forms, globally, and ending hunger, achieving food-sufficiency and security, and promoting sustainable agriculture. It is estimated that, in the rural areas, about 16 percent do not have access to basic necessities, in comparison to the urban areas. On average, about 50 percent lack improved health and sanitation compared to the cities. Target 2, of SDG specifically devoted attention to improvement and increased investment, through international cooperation, in rural infrastructural development. An enduring and sustainable rural development is essential to social progress and economic growth of any nation. Global poverty is mainly rural, while over 70 percent of the world's poor dwell in the rural areas, poverty rate in these areas is three times higher than in the cities.

Developed countries in the western hemisphere are highly urban. Most countries in the European Union have less than 19 percent of the population living in the rural areas. Rural Europe and North America are substantial sources of employment opportunities. These areas also play important roles of managing environmental, cultural, and traditional assets as well as providing food for its population. There are economic policies centered on the continuous development of rural areas by prioritizing the preservation of the ecosystem, infrastructure, recreation sites, national monuments, and cultural heritage of the nations. Foster (1989) observed that rural areas in the advanced countries also face developmental challenges, partly due to the abundance of agricultural output, and excess labor. Over 60 million Americans live in the rural areas, and the rural development policies are targeted at improving the economies, quality of life, and reducing poverty. Rural areas in the developed countries are sources of natural water, food, energy, and over 80% of these areas contribute to over 60 percent of the land mass.

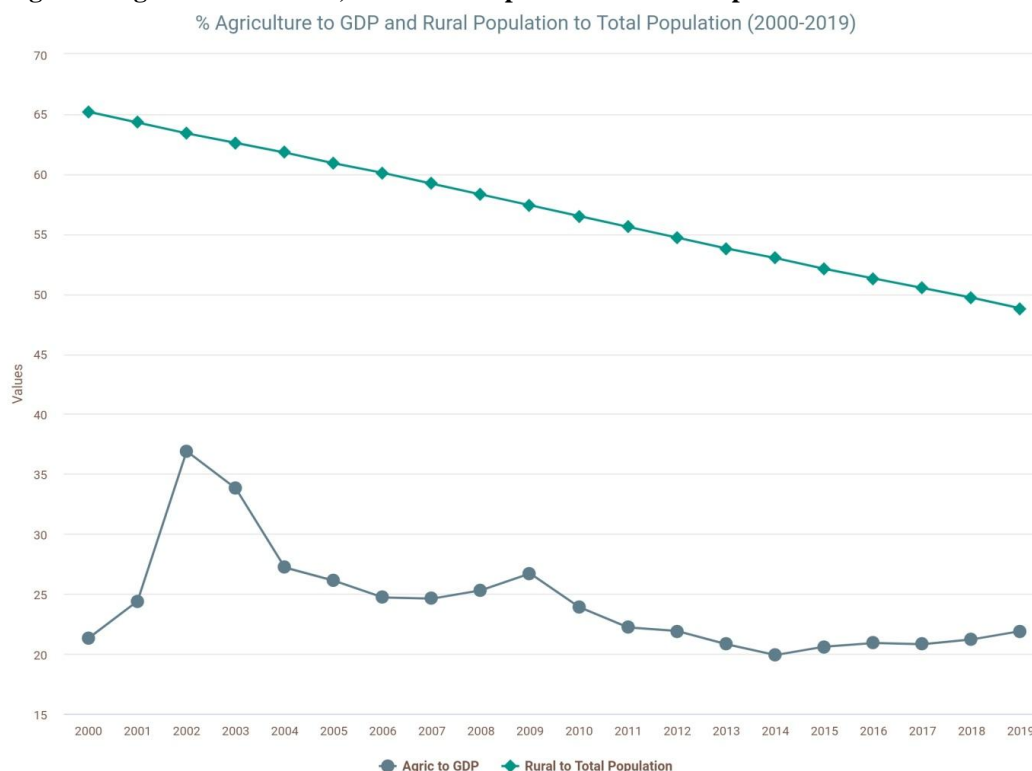
Rural Development in Nigeria.

Since independence in 1960, various strategies have been adopted for rural development in Nigeria. Many of these policies and approaches have focused on agricultural, integrated rural and infrastructural development, and industrialization. Nigeria’s rural development strategies have been mainly to drive agricultural output and the provision and improvement of rural infrastructure, poverty alleviation, provision of agricultural credit, and training of rural unemployed. In the last four decades some of the rural development strategies include:

1. Operation Feed the Nation (OFN)
2. Better Life for Rural Women.
3. Directorate of Food Roads, and Rural Infrastructure (DFRRI)
4. National Accelerated Food Production Programme.
5. National Agricultural Land Development Authority (NALDA)
6. National Rural Roads Development (NRRDF)
7. River Basin Development Authority (ADP)
8. Universal Basic Education, and
9. Agricultural Credit Guarantee Scheme (ACGS)

Rural development strategies were mainly targeted at the provision of rural infrastructure, education and healthcare, and the improvement of socio-economic wellbeing of rural dwellers. The government has budgeted huge amount of money and invested so much human, social, and natural capital in the development of rural areas. Numerous agencies and programmes have been established through the various development plans since 1962, and much of the rural life has remained the same since independence. Ahmed et al (2021) observed that there are various gaps in relationship between implementing these various policies and programmes, and the reality in the level of development in rural Nigeria. The Third development plan 1975-1980 specifically implemented the integrated rural development within the framework of the various agricultural development programmes, and since the early 1970s, rural development strategy has been to improve the rural and agricultural sectors of the Nigerian economy. The various challenges associated with the implementation of these programmes have had negative consequences on rural life and wellbeing.

Figure 5. Agriculture to GDP, and Rural Population to Total Population Ratios. 2000-2019.



Source: World Bank data 2000 – 2019

Figure 5 depicts the ratios of total agricultural contributions to Nigeria GDP, and rural to total population for twenty years between 2000 and 2019. The contributions of agriculture to total GDP have been on average of 24.3 percent, and rural to total population 56.9. Several factors are attributed to the decline of rural

population since 2000, in Nigeria. Some of these include lack of job opportunities and extreme poverty, poor condition of schools and lack of education opportunities, lack of proper health services, housing settings, and lack of rural infrastructure, bridges, roads, silos, warehouses, railway services etc.

II. Methodology

In this paper I develop a model for Nigeria to estimate the relationship between rural development, agricultural output and economic growth. The variables will include those omitted from previous research on the subject matter, and these are expenditure on agricultural sector, expenditure on agricultural capital projects, expenditure on rural human capital development, and rural infrastructure. It is theorized that output in agricultural sector, and ultimately in economic growth is a function of these variables. Time series data from 2000 and 2019 are used for measurement and coefficient estimation.

Model Specification.

The following models were developed, and all variables are expressed in log. form:

$$Y = \alpha_0 + \alpha_1 \ln EAGR_t + \alpha_2 \ln ECAP_t + \alpha_3 \ln INF_t + \alpha_4 \ln HCD_t + \epsilon_t \quad 1.1$$

Where:

Y = Economic Growth at time t

$EAGR$ = Expenditure on agricultural sector in time t

$ECAP$ = Expenditure on agricultural capital projects.

INF = Expenditure on rural infrastructure.

HCD = Expenditure on human capital

Estimation Technique.

The OLS technique was employed to examine the relationships between rural development and agricultural output, and economic growth.

III. Conclusion

This study examined the link between rural development, agricultural output and economic growth in Nigeria spanning 20 years, from 2000 to 2019. Since independence in 1960, the various strategies that have been adopted for rural development, in Nigeria, have achieved minimum impact to achieving faster growth in the economy. Many of these policies and approaches have focused on agricultural, integrated rural and infrastructural development, and industrialization, Governments have made concerted efforts to achieve even development in rural infrastructure, human capital and capital projects in the areas where over 50% of the population live and work. Quite a significant number of policies have been adopted to address the challenges associated with rural development and agricultural output with minimal results. This study, therefore, examined the impact of rural development and agricultural output on economic growth in Nigeria, and the results from this study showed that the government should increase its expenditure on rural infrastructure, rural capital projects, and human capital.

IV. Recommendation

From the results of this study, it is suggested that government should prioritize rural development as a strategy for agricultural output and economic growth in Nigeria. Secondly, there should increase in rural expenditure on infrastructure, capital projects, and human capital. Budgetary implementation in the agricultural sector should be vigorously pursued to ensure a higher level of budgetary implementation in other areas of capital projects and infrastructure. This will ensure, in the long run, self-sufficiency and food security, rural development, and economic growth. Thirdly, increase in government expenditure in other agricultural programmes, subsidies, and extension services, are major factors in agricultural output. Fourthly, as the role of government is vital in rural and agricultural development, therefore, through its fiscal and monetary policies, she can raise government expenditure through the various subsidy programmes and extension services through concessionary interest rates to farmers, and agri-business practitioners, Finally, the provision of education, skills acquisition, and the social infrastructure, play vital roles in changing the rural landscape in Nigeria.

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