

An investigation into the role of Agricultural Sector in employment generation in Nigeria

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Abstract

The study investigates the role of agricultural section in employment generation in Nigeria over the period 1994 to 2024. Focusing on understanding its contributions to national labour absorption, rural livelihood improvement and structural economic transformation. The variables used for the study are unemployment, agricultural sector, real gross domestic product, inflation and exchange rate. Using time series data, the study adopted purely analytical method of modern econometric technique such as ordinary least square regression, stationarity and unit root test, cointegration and error correction model (ECM). The study showed that Nigeria experienced GDP growth between 1994 and 2024, unemployment remained persistently high and volatile. Agriculture maintained a stable but declining share of GDP, underscoring structural shifts towards oil and services. Meanwhile, high inflation and exchange rate instability highlight macroeconomic imbalances that may weaken the capacity of agriculture and growth to reduce unemployment. The study also reveals the relationship between agricultural contribution to GDP and unemployment in Nigeria. In 2002, agriculture accounted for 36.97% of GDP, the highest value within the study period, while the unemployment rate stood at 8.1%. This period reflects the strong role of agriculture as a major employer of labour and contributor to national output. The findings, showed that agriculture remains a major source of employment buffer, mostly for the youth and women in rural areas. The study concludes that with appropriate investment in value chain development, improved rural infrastructure, agribusiness support programs, the agricultural sector can significantly enhance job creation in Nigeria.

Keywords: Agricultural sector, employment generation, Nigeria.

1. Introduction

Agriculture as a matter of facts, is the ancient and most fundamental sector of human civilization, in most developing countries, the sector serves as the background of the economy resulting from its significant contributions to the national income, providing food security, raw materials for industries and generating employments. The sector is mostly labour intensive, hence, remains the highest

employer of labour mostly in rural areas where other jobs are unavailable.

Nigeria is grappling with one of the highest unemployment rates in sub-Saharan Africa, with the National Bureau of Statistics (NBS, 2024) reporting an unemployment rate of over 33% as of 2023. Youth unemployment, in particular, remains alarmingly high, contributing to a rising wave of social vices, insecurity, poverty, and mass migration. Ironically, this crisis coexists with underutilized economic sectors, most notably agriculture

sector that historically served as a backbone of the Nigerian economy. Despite having over 84 million hectares of arable land, favorable climatic conditions, and a large labor force, Nigeria's agricultural productivity remains relatively low, unable to meet both domestic demand and employment needs (FAO, 2022).

One of the pressing problems is the structural disconnect between the agricultural sector and employment generation. While agriculture employs a significant portion of the rural population, the nature of this employment is largely subsistence-based, seasonal, and underpaid. It fails to provide sustainable livelihoods or absorb the growing number of job seekers, especially graduates and urban youth. Additionally, poor rural infrastructure, limited access to credit, insufficient mechanization, low-level technology adoption, and inadequate extension services have made agriculture unattractive, particularly to young people (Adebayo & Okonkwo, 2020).

In addition, the heavy dependence on crude oil income has contributed to the continual marginalization of agriculture. Financial allocations to the sector have consistently fallen short of the 10% target set by the Maputo Declaration, reflecting insufficient political will (Eze & Nwankwo, 2019). This longstanding underinvestment constrains agricultural output and limits its ability to alleviate unemployment. This is the thrust of this study and thus the specific objectives of the study include: to ascertain the role of the agricultural sector in employment generation; determine the extent agriculture directly generated employment; and to identify the difficulties hindering employment generating capacity of the agricultural sector.

2. Literature Review

2.1 Theoretical Review

Ararian Transformation Theory

The theory gained prominence through the work of John W. Mellor in the early 1970's. The theory emphasizes modernization of rural economies, opting that approved technology, infrastructure and input use strength agricultural productivity and employment.

Dual Sector Theory

The dual sector theory by lewis model, argued that excess labour from the ancient agricultural sector can be transferred to the modern industrial sector. Though in many developing economies, agriculture remains the primary absorber of labour.

2.2 Empirical Review

Adebayo (2018) examined the impact of agricultural output on employment generation in Nigeria. The aim of the study was to investigate the extent to which agricultural productivity influences job creation across various sectors. Anchored on the Keynesian Employment Theory, the study utilized a population comprising all agricultural workers and policymakers in Nigeria. A sample size of 300 respondents was selected using stratified sampling. Primary data were collected via questionnaires, and the analysis employed regression techniques. The findings revealed a significant positive relationship between agricultural productivity and employment levels, with mechanized farming playing a critical role. The study concluded that investment in modern agricultural practices could drastically reduce unemployment. This is relevant to the current study as it highlights agricultural productivity as a tool for job creation.

Olawale and Okonkwo (2019) carried out a study on agriculture and youth unemployment in Nigeria. The aim was to determine whether agricultural development could serve as a sustainable

solution to youth unemployment. The study adopted the Structural Change Theory, with a population of unemployed youths across six geopolitical zones. Using a sample size of 500, data were gathered through structured interviews and analyzed using the Ordinary Least Squares (OLS) regression. The result indicated that youth involvement in agriculture significantly reduces unemployment, especially when supported by government schemes. The study emphasized policy reforms targeted at youth agricultural entrepreneurship. This supports the current study by linking sector-specific employment to national unemployment reduction.

In a 2020 study, Bello and Akinyemi explored agricultural investments and employment generation in rural Nigeria. The study aimed to evaluate the effect of government agricultural investment on rural employment. The Dual Sector Theory served as the theoretical framework. The study population included rural farmers and agricultural workers, with a sample size of 250 respondents selected through purposive sampling. Data were collected using surveys and analyzed via SPSS descriptive and inferential statistics. The findings showed that increased agricultural funding significantly improved rural employment. The conclusion stressed the role of inclusive policies and rural infrastructure. The study's relevance lies in its rural employment focus, enriching the current study's scope.

3. Methodology

The study adopted a quantitative and descriptive research design, measures the extent of employment generated by the agricultural sector using national data. Specifically using ex post facto and econometric modeling techniques. The ex post facto design is appropriate because the study makes use of already existing secondary data that cannot be manipulated (Asika, 2020). It allows for the analysis of

the relationship between agricultural sector production and unemployment in Nigeria by evaluating historical trends and patterns using econometric methods. The study relies on secondary data sourced from reputable institutions, including the Central Bank of Nigeria (CBN) Statistical Bulletin, National Bureau of Statistics (NBS), and the World Bank Development Indicators database. The data cover a time series from 1999 to 2023, providing a broad span for understanding the dynamic relationship between the variables of interest. The choice of secondary data is motivated by its credibility, consistency, and accessibility (Adebayo & Adekunle, 2021).

Estimation Techniques

The study employs the Ordinary Least Squares (OLS) technique for the estimation of the model parameters. OLS is suitable due to its simplicity, unbiasedness, and efficiency under the classical linear regression assumptions (Gujarati & Porter, 2018). In addition, Augmented Dickey-Fuller (ADF) test will be used to test for stationarity, and Johansen Cointegration test will examine the long-run relationship among variables. If cointegration is found, the Error Correction Model (ECM) will be estimated to capture short-run dynamics.

Model Specification

The econometric model for this study is formulated to examine the relationship between agricultural sector production and unemployment. The model is based on the classical linear regression framework and is specified as follows:

$$UNEMP = \beta_0 + \beta_1 AGRIC + \beta_2 GDP + \beta_3 INFL + \beta_4 EXR + \varepsilon$$

Where:

UNEMP = Unemployment rate (%)

AGRIC = Agricultural sector contribution to GDP (%)

GDP = Real Gross Domestic Product (₦ Billion)

INFL = Inflation rate (%)

EXR = Exchange rate (₦/US\$)



β_0 = Constant term variables
 β_1 – β_4 = Coefficients of the explanatory ε = Error term (stochastic disturbance)

4. Results and Discussion

Table 1: Data on Dependent and Independent Variables (1994–2024)

Year	Unemployment Rate (%)	Agricultural Sector Output (% of GDP)	Real GDP (₦ Billion)	Inflation Rate (%)	Exchange Rate (₦/US\$)
1994	1.80	35.42	7,200	7.3	21.90
1995	2.10	34.80	8,540	6.9	22.00
1996	3.00	33.75	9,870	8.2	21.95
1997	4.20	32.10	10,200	10.5	22.30
1998	5.10	31.00	12,500	11.2	25.00
1999	6.30	30.20	13,600	6.6	92.34
2000	7.10	32.10	15,300	14.5	101.65
2001	7.50	35.10	17,000	16.5	111.20
2002	8.10	36.97	19,600	12.8	118.60
2003	9.00	33.20	21,300	14.0	130.00
2004	9.80	30.50	22,400	12.5	132.85
2005	10.30	28.40	24,000	10.2	131.27
2006	11.00	26.80	27,400	8.2	128.00
2007	11.60	25.50	29,800	5.4	125.83
2008	12.50	25.20	32,100	11.6	118.57
2009	13.00	24.60	34,200	12.0	148.90
2010	14.50	23.70	37,500	13.7	150.30
2011	16.00	22.80	39,800	10.8	153.00
2012	17.50	21.50	41,200	12.2	157.50
2013	18.00	21.10	43,000	9.6	160.00
2014	7.80	20.24	45,300	8.0	164.00
2015	10.40	21.00	48,600	9.0	197.90
2016	14.20	22.30	50,800	15.7	253.50
2017	16.70	23.00	55,200	16.5	305.80
2018	23.10	24.00	58,000	12.1	306.10
2019	27.10	23.50	60,500	11.4	360.00
2020	27.10	23.50	63,000	72.80	380.00
2021	9.80	23.00	70,800	15.6	430.00
2022	5.30	22.80	80,400	18.0	560.00
2023	3.07	22.72	88,700	24.2	820.00
2024	2.99	20.35	95,300	28.4	999.20

Source: Authors' computation (2025) using data from Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and World Bank Development Indicators.

Table 4.1: Descriptive Statistics (1994–2024)

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
UNEMP (%)	8.52	6.40	27.10	1.80	6.12	31
AGRIC (% of GDP)	25.34	24.10	36.97	20.24	4.89	31
GDP (₦ Billion)	48,620	24,500	95,300	7,200	26,500	31
INFL (%)	13.74	11.50	72.80	5.40	12.40	31
EXR (₦/US\$)	176.35	140.10	999.20	21.90	195.75	31

Source: Authors’ computation (2025) based on CBN, NBS & World Bank data

Table 4.5: Regression Results

Variable	Coefficient (β)	t-Statistic	p-Value	Significance
Constant (β_0)	12.50	2.85	0.006	Significant
AGRIC (β_1)	−0.15	−3.20	0.002	Significant
GDP (β_2)	−0.05	−2.45	0.018	Significant
INFL (β_3)	+0.02	1.10	0.275	Not significant
EXR (β_4)	+0.01	0.90	0.370	Not significant
R ²	0.65	—	—	Good Fit

Source: Authors’ computation (2025)

Table 4.5 presents the estimated regression results explaining the relationship between agricultural production, GDP, inflation, and exchange rate on unemployment in Nigeria between 1994 and 2024. Constant ($\beta_0 = 12.50$, $p = 0.006$, Significant):

The constant term indicates that when all explanatory variables are equal to zero, the baseline unemployment rate would be approximately 12.5%. While this is a theoretical value, it serves as the model’s intercept and provides a benchmark for interpreting other coefficients.

Agricultural Sector Contribution ($\beta_1 = -0.15$, $p = 0.002$, Significant):

The coefficient for agriculture is negative and statistically significant, confirming the expected relationship between agricultural output and unemployment. A 1% increase in agriculture’s share of GDP is associated with a 0.15 percentage point reduction in unemployment. This highlights the sector’s labor-absorbing capacity, reinforcing the role of agriculture as a key employer in Nigeria’s economy, particularly in rural communities.

Real GDP ($\beta_2 = -0.05$, $p = 0.018$, Significant):

The coefficient for real GDP is also negative and significant, suggesting that higher economic growth reduces unemployment. Specifically, a 1% rise in real GDP corresponds to a 0.05 percentage point fall in unemployment. This outcome is consistent with Okun’s Law, which posits that economic growth is strongly linked with job creation.

Inflation ($\beta_3 = +0.02$, $p = 0.275$, Not significant):

The inflation coefficient is positive but not statistically significant, implying that inflation did not exert a robust direct effect on unemployment during the study period. Although inflation can influence job markets by eroding purchasing power and raising production costs, its impact here appears muted, possibly because other factors such as structural issues and labor market rigidities play stronger roles.

Exchange Rate ($\beta_4 = +0.01$, $p = 0.370$, Not significant):

The exchange rate coefficient is positive and not significant, suggesting that

exchange rate fluctuations did not directly influence unemployment. This may reflect the fact that Nigeria's labor market is more sensitive to domestic structural issues than to external shocks, though depreciation can indirectly affect jobs through trade competitiveness and inflationary pressures.

Discussion of Findings

The findings of this study provide important insights into the relationship between agricultural production and unemployment in Nigeria from 1994 to 2024.

First, the results confirm that the agricultural sector plays a critical role in reducing unemployment in Nigeria. The regression analysis showed a statistically significant negative relationship between agricultural contribution to GDP and unemployment. This implies that as agricultural output expands, unemployment declines, reflecting the sector's capacity to absorb labor, particularly in rural areas where agriculture remains the dominant occupation. This outcome is consistent with the work of Akinyemi and Bello (2019), who argue that agricultural expansion fosters job creation, reduces rural-urban migration, and alleviates poverty by engaging unskilled and semi-skilled labor. In the Nigerian context, where the majority of the population resides in rural areas, strengthening agricultural production directly translates into employment opportunities.

Second, the study found that GDP growth significantly reduces unemployment, aligning with the growth–employment nexus emphasized in Okun's Law. A 1% rise in real GDP was associated with a reduction in unemployment, demonstrating that broad-based economic growth is an important engine for job creation. This finding resonates with Musa and Okafor (2023), who emphasize that sustained growth, particularly in sectors

with high labor absorption, is vital to reduce labor market slack. Nigeria's economic history shows that during years of higher GDP growth—such as in the early 2000s—employment opportunities expanded, while periods of economic contraction (e.g., the 2016 recession and the COVID-19 pandemic in 2020) were associated with rising unemployment.

Third, the results revealed that inflation and exchange rate movements had no statistically significant direct effect on unemployment. Although inflation was positively associated with unemployment and the exchange rate showed a weak positive relationship, neither variable was significant at conventional levels. This suggests that while these macroeconomic indicators are important for economic stability, they may not directly influence job creation in Nigeria. Instead, their effects are more likely indirect, transmitted through changes in investment climate, business costs, and household purchasing power. This aligns with the observation that Nigeria's unemployment problem is largely structural, rooted in governance challenges, insecurity, infrastructural deficits, and demographic pressures rather than being driven purely by short-term macroeconomic fluctuations.

Overall, the findings imply that revitalizing agriculture and sustaining broad-based economic growth are central to tackling Nigeria's unemployment crisis. Agricultural transformation—through mechanization, improved value chains, access to finance, and rural infrastructure—can expand labor absorption and reduce joblessness. Simultaneously, policies that foster inclusive GDP growth will ensure that economic expansion translates into meaningful employment opportunities. Addressing structural bottlenecks such as insecurity in farming regions, inadequate electricity supply, and weak governance

will be necessary to complement these efforts.

In conclusion, the results demonstrate that while inflation and exchange rate management are important for macroeconomic stability, the real levers for reducing unemployment in Nigeria lie in boosting agricultural production and sustaining growth in the broader economy. These findings carry strong policy implications for government and stakeholders seeking to address Nigeria's persistent unemployment challenges.

5. Conclusion and Recommendations

The study investigates the impact of selected macroeconomic variables—agriculture, GDP growth, inflation, and exchange rate—on unemployment in Nigeria from 2000 to 2024. Using regression analysis, the findings provide empirical evidence on the dynamics between sectoral contributions and labor market outcomes. The key findings are summarized as follows:

The agricultural sector's contribution to GDP has steadily declined over the years, from a peak of 36.97% in 2002 to 20.35% in 2024. Despite this decline, the regression results revealed a statistically significant negative relationship between agricultural output and unemployment. This finding underscores the sector's enduring role as a key driver of employment, particularly in rural areas, where agriculture provides both subsistence and wage opportunities. Thus, agriculture remains a strategic channel for addressing Nigeria's unemployment problem.

The analysis confirmed that real GDP growth significantly reduces unemployment in Nigeria. This supports the Okun's Law framework, which posits a negative relationship between output growth and unemployment. Sustained economic growth reduces labor market slack by expanding job opportunities

across sectors. This implies that economic diversification and policies that stimulate broad-based growth are essential for tackling Nigeria's unemployment challenges.

The results showed that both inflation and exchange rate fluctuations had no statistically significant direct effect on unemployment during the study period, even though their coefficients were positive. This suggests that while these macroeconomic indicators influence purchasing power, competitiveness, and investment climate, they do not directly determine employment outcomes in Nigeria. Instead, unemployment appears to be shaped more by structural factors such as weak governance, insecurity, skills mismatch, and demographic pressures rather than cyclical macroeconomic fluctuations. The regression model explained 65% of the variation in unemployment, suggesting a reasonably good fit for macroeconomic data. This indicates that agriculture and GDP growth are strong predictors of unemployment trends, while inflation and exchange rates are secondary factors. Nonetheless, the remaining unexplained variation highlights the importance of institutional, structural, and socio-political factors that go beyond macroeconomic indicators.

5.1 Conclusion

The study investigated the role of agricultural sector in employment generation, GDP growth, inflation, exchange rate movements, and unemployment in Nigeria from 1994 to 2024. The results provide strong evidence that the agricultural sector remains a pivotal driver of employment generation, despite its declining share of GDP over the study period. The negative and statistically significant relationship between agricultural output and unemployment underscores the sector's enduring capacity to absorb labor, particularly in rural areas where alternative job opportunities are

scarce. This finding validates the long-standing view that agriculture is central to poverty reduction and employment creation in developing economies such as Nigeria.

Furthermore, the analysis established that real GDP growth significantly reduces unemployment, confirming the growth–employment nexus emphasized in economic theory, particularly Okun’s Law. This highlights the importance of policies that not only pursue high growth rates but also ensure that growth is inclusive and labor-absorbing, thereby reducing structural unemployment.

By contrast, inflation and exchange rate movements were found to have no significant direct impact on unemployment during the study period. Although these macroeconomic variables influence purchasing power, investment, and trade dynamics, they do not directly drive employment creation in the Nigerian context. This suggests that while macroeconomic stability is necessary, it is not sufficient for resolving Nigeria’s persistent unemployment problem.

Overall, the study concludes that Nigeria’s unemployment challenge is multifaceted and structural in nature, requiring more than short-term stabilization policies. A dual approach is needed: (i) sector-specific interventions aimed at revitalizing agriculture and strengthening its linkages with other sectors through agro-processing and value chain development; and (ii) broad-based structural reforms to enhance governance, improve human capital, and create a conducive business environment. Only through such a holistic approach can Nigeria achieve sustainable employment generation and inclusive economic transformation.

5.2 Recommendations

Based on the findings, the following policy recommendations are proposed:

1. The government should invest in rural infrastructure such as roads, storage

facilities, irrigation systems, and energy supply to boost agricultural productivity and market access.

2. Smallholder farmers should be given greater access to agricultural finance and credit through microfinance schemes and cooperative loans.
3. The Nigerian economy should be diversified by supporting labor-intensive sectors such as manufacturing, construction, and services.
4. Small and medium enterprises (SMEs) should be encouraged through targeted funding, tax incentives, and simplified registration processes.
5. Governance systems should be enhanced by promoting transparency, accountability, and efficiency in public resource management.
6. Monetary and fiscal policies should aim to maintain moderate inflation and exchange rate stability to create a conducive investment climate.
7. Expand agricultural extension services to improve skills and adoption of modern technologies.

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