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## SOCIO-ECONOMIC DEVELOPMENT AND UNEMPLOYMENT IN NIGERIA

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### ABSTRACT

*This study examines the impact of socio-economic development on unemployment in Nigeria, using secondary data from the Central Bank of Nigeria's Statistical Bulletin and the National Bureau of Statistics for the period 1991-2022. A linear model was developed to specify unemployment as a function of inflation rate, real GDP growth rate, industrial value added to GDP, and government social expenditure on community services. Preliminary analyses conducted include descriptive statistics, correlation analysis, the Augmented Dickey-Fuller unit root test, and bounds testing for cointegration. The Autoregressive Distributed Lag (ARDL) model technique was employed for model estimation. Findings revealed that inflation has a minimal short- and long-term effect on unemployment, while industrial value added significantly impacts unemployment with a delayed effect. Government social expenditure positively influences employment, reducing unemployment in both the short and long run. Additionally, GDP growth is linked to lower unemployment rates. Based on the findings, the study recommends that policymakers prioritize industrial expansion and government social expenditure as effective strategies for reducing unemployment in Nigeria, both in the short and long term. Additionally, fostering economic growth through supportive policies is essential for creating job opportunities and promoting sustainable development.*

**Keywords:** *community service, employment, job creation, social expenditure, sustainable development,*

### INTRODUCTION

One of the most important microeconomic issues that proactive governments seek to manage and, to the greatest extent feasible, reduce is unemployment. Nigeria has a serious youth unemployment problem in spite of its abundance of natural resources. One of the main causes of the rising violence in the country is frequently attributed to this high unemployment rate. According to studies, young people without jobs are more likely to be affected by and involved in crime and violence. Inadequate infrastructure makes it more difficult for independent contractors to make a living (Okafor, 2011).

Advances in both social and economic facets are included in socio-economic development, which aims to enhance people's quality of life and financial security within a community (Todaro & Smith, 2015). Improved access to high-quality healthcare, clean water, sanitation, and education are essential components that together increase life expectancy, lower poverty, and strengthen communities (UNDP, 2020). Economic growth lays the groundwork for higher living standards and less inequality, as demonstrated by the production of jobs, revenue, and infrastructure (World Bank, 2021). By giving excluded groups equitable chances,

socioeconomic development also promotes social justice and strengthens social cohesiveness and stability (Sen, 1999). In order to guarantee that advancement continues to benefit future generations, sustainable resource management and environmental protection are becoming more and more important (Sachs, 2015). Furthermore, a stable environment that encourages investment, innovation, and fair resource allocation requires robust institutions and open governance (North, 1990). When combined, these components form socio-economic development, which integrates social well-being and economic advancement for long-term improvements in living conditions.

Nigeria's unemployment rate, which still presents difficulties for both the economy and policymakers, is significantly impacted by the country's socioeconomic progress. Although it is anticipated that the intricate interactions among social infrastructure, education spending, and economic growth will affect the generation of jobs, the nation's high unemployment rate still exists. Despite its abundance of natural and human resources, Nigeria, the most populous country in Africa and its largest economy, suffers from chronic unemployment. Numerous socioeconomic elements, including education, skill mismatches, demographic trends, economic policies, and labor market structural challenges, are intricately tied to the unemployment problem (Sengul, 2017).

Unemployment and socioeconomic circumstances are closely related in emerging nations like Nigeria, where job scarcity is made worse by fast population growth, restricted economic growth, and educational mismatches. Because a large amount of economic activity is still concentrated in industries with low worker absorption capacity, Nigeria's GDP growth has not resulted in corresponding employment possibilities (World Bank, 2023). A sizable section of the labor population, particularly young people, are underemployed or unemployed as a result of the slow structural shift from agriculture to industry and services (NBS, 2022). Furthermore, Nigeria's socioeconomic problems are made worse by urban unemployment brought on by the country's fast urbanization, which is outpacing the development of jobs (UNDP, 2021).

Inadequate investment in education and vocational training has resulted in a mismatch between skills and labor market demands, further complicating the relationship between unemployment and socioeconomic development in Nigeria (Adebayo & Olayinka, 2021). Nigeria's capacity to compete internationally is hampered by this mismatch, which further increases reliance on informal work (ILO, 2022). Although socioeconomic policies that focus on job creation through small business support, vocational training, and infrastructure development have showed promise in addressing these issues, persistent efforts are required to reduce poverty and long-term unemployment (UNCTAD, 2020). A comprehensive strategy is needed to address these structural problems, with socioeconomic policies that promote skills in line with market demands in addition to job creation, thereby lowering unemployment and promoting sustainable development in Nigeria (World Bank, 2023; NBS, 2022).

Numerous countries, particularly Nigeria, have carried out empirical research on the relationship between unemployment and socioeconomic development (Eneji, Mai-Lafia, & Weiping 2013; Dauda 2020). The bulk of these research, however, concentrated on how unemployment affected Nigeria's economic development or poverty. Although comparable, the study of Effiong and Udonwa (2024) solely looked at how industrial value addition affected unemployment in Nigeria. The current researcher's attempts to locate an empirical study that looks at how socioeconomic development affects unemployment reduction were unsuccessful.

At a time when Nigeria's economy is struggling greatly, a study looking at how socioeconomic development factors affect unemployment is essential. Economic instability has worsened due to high unemployment, inflation, and currency devaluation, which has lowered living standards and made it more important than ever to create jobs (World Bank, 2023). Knowing how socioeconomic development factors—like infrastructure, healthcare, education, and industrial investment—interact with employment may help build successful recovery plans. In order to

solve Nigeria's current economic situation, these factors are crucial for developing a productive labor force, encouraging industrialization, and raising national competitiveness (UNDP, 2021). Therefore, the objective of the present study is to examine the impact of socio-economic development variables on the reduction of unemployment in Nigeria.

The study is divided into five sections. The first is the introductory part, which is followed by the literature review section. The third part of the study is the methodology, while the fourth section is the data analysis and discussion of findings. The final part is the conclusion and policy recommendations.

## **Literature Review**

Nigerian unemployment is still a major problem, made worse by the country's unstable economy and labor market structural problems. Many young Nigerians lack access to good education and employment possibilities, making the country's youth unemployment rate especially concerning. Despite initiatives to encourage industry and entrepreneurship, the economy finds it difficult to accommodate the expanding labor force. Reducing unemployment is essential to promoting long-term economic expansion and enhancing the nation's general socioeconomic circumstances.

It is anticipated that unemployment and national productivity will have a negative connection. It is anticipated that increased productivity in goods and services will lead to a decrease in unemployment, particularly in developing economies (Amassoma & Nwosa, 2013; Omitogun & Longe, 2017). Since GDP growth indicates economic progress, which can spur job creation across sectors, it is typically viewed as an employment driver. Due to issues like labor-intensive industry deficits and uneven growth distribution, Nigeria's GDP growth periods have had varying effects on the country's ability to reduce unemployment (World Bank, 2023). According to studies, structural unemployment frequently endures in economies dependent on industries like agriculture and oil, which might not fully absorb labor, even while GDP growth helps create jobs. By diversifying its economy, Nigeria can leverage GDP growth to reduce unemployment sustainably (Agbodike, Igbokwe-Ibeto, & Umeifekem, 2015).

In Nigeria, there is a complicated relationship between unemployment and inflation. High inflation frequently leads to job losses because of decreased purchasing power and business expenses, however moderate inflation might stimulate production (Orji, A., Anthony-Orji, & Okafor, 2015). Stagflation, a state of inadequate macroeconomic performance of the economy, is shown by rising unemployment and inflation rates. According to some economists, policymakers should determine what rate of inflation should be given up in order to achieve an acceptable rate of unemployment because it is impossible to have both low rates of unemployment and inflation as policy outcomes. Ekpo (2012). Phillips (1958) discovered that the degree of unemployment appeared to influence the intensity of the wage-change versus unemployment connection. While reductions in the unemployment rate appeared to result in modest increases in wage growth rates when unemployment was high, they were often linked to significant increases in wage inflation when unemployment was low. The Phillips Curve theory proposes a trade-off between unemployment and inflation; however, this link is complicated by Nigeria's stagflation, in which high unemployment and inflation coexist (Orji et al 2015). According to empirical research, preserving employment levels requires controlling inflation through measures that target the primary causes of inflation (Adebayo & Olayinka, 2021).

In Nigeria, industrialization entails changing the economic structure by converting the nation's primarily peasant or underutilized labor force into a more industrial labor force (Effiong & Udonwa, 2024). Employment is directly impacted by industrial sector growth since it reduces dependency on less productive industries and generates new work opportunities. However, issues like poor infrastructure and reliance on import-based manufacturing hinder Nigeria's industrial sector's capacity to create jobs (UNCTAD, 2020). Achieving long-term decreases in



unemployment requires increasing industrial value added, particularly in manufacturing (Adeninyi, 2021).

By creating jobs and enhancing workforce preparedness, government spending on social services including healthcare, education, and community infrastructure promotes employment creation (World Bank, 2023). According to Edeh, Attamah, and Ezaegu (2023), poverty in Nigeria is anticipated to decline as a result of higher government spending on social and community services. In Nigeria, raising government spending on social goods and services could boost economic growth and worker productivity (Aluthge, Jibir, & Abdu, 2020). On the other hand, the Nigerian government has invested a significant sum of money in public spending, especially in social and community services, to address the country's unemployment issues.

In Nigeria, increasing government spending on social goods and services could increase economic growth and worker productivity (Aluthge, Jibir, & Abdu, 2020). Meanwhile, the Nigerian government has invested a substantial amount of money in public spending, particularly in social and community services, to address the country's unemployment issues. Edeh, Attamah, and Ezaegu (2023) state that increasing government spending on social services, such as healthcare, education, and community infrastructure, promotes employment creation by creating jobs and improving workforce preparedness (World Bank, 2023).

### **Theoretical Framework**

Three perspectives, the human capital theory, the structural change theory, and the Keynesian perspectives, can be used to the current study. According to Gary Becker and Theodore Schultz's Human Capital Theory, which was created in the 1960s, expenditures in health, education, and skills boost economic development and productivity (Becker, 1964; Schultz, 1961). With the idea that people would receive compensation for their investments in human capital, it highlights the significance of education and skill development for worker performance. Critics counter that the theory ignores socioeconomic variables that might perpetuate inequality and impede access to education, such as poverty and prejudice (Kaufman, 2015). Notwithstanding these objections, the Human Capital Theory is still applicable to the analysis of Nigerian socioeconomic policies, emphasizing the importance of health and education spending as vital tactics for improving employability and lowering labor force unemployment.

A framework for comprehending economic transformation as a means of creating jobs is offered by structural change theory. According to this theory, which was first put forth by Arthur Lewis in 1954 and then developed by Hollis Chenery in the 1970s, developing nations can grow by shifting workers from low-productivity industries like agriculture to higher-productivity industries like industry and services (Lewis, 1954; Chenery, 1979). According to the hypothesis, modern companies gradually absorb excess labor, and industrial growth is essential for economic diversity and rising employment levels. Critics counter that it presupposes a linear economic evolution that may not be appropriate in all situations and overemphasizes industrialization while ignoring the service sector (Todaro & Smith, 2012). However, the theory is relevant to Nigeria, where industrialization and infrastructural development are viewed as critical to reduce reliance on primary sectors, creating jobs, and diversifying the economy.

Lastly, John Maynard Keynes' 1936 Keynesian Theory of Employment places a strong emphasis on how aggregate demand affects employment levels (Keynes, 1936). This hypothesis states that low demand for products and services, which in turn reduces demand for labor, frequently leads to unemployment. Keynes maintained that, particularly in times of economic recession, government intervention through fiscal measures like higher expenditure might boost economic activity and job creation. According to the hypothesis, economies are

incapable of self-correcting and may continue to experience high unemployment rates in the absence of proactive government intervention. Keynesian theory detractors highlight possible dangers such as inflation and rising public debt, particularly in the event of excessive government expenditure (Blinder, 2013). The Keynesian approach, however, emphasizes the significance of public investment on social services and infrastructure in Nigeria in order to boost demand, encourage job creation, and combat unemployment.

When combined, these ideas offer a thorough framework for examining Nigerian unemployment reduction tactics. Keynesian Theory promotes focused government action, Structural Change Theory highlights economic diversity, and Human Capital Theory highlights the necessity of investing in health and education. All of these are vital to developing a robust, sustainable workforce capable of lowering unemployment in Nigeria.

### **Empirical Review**

Agbodike (2012) investigated the impact of unemployment on the Nigerian economy from 1980 to 2010. Its primary objective is to determine the relationship between unemployment and GDP growth in Nigeria. The analytical methods used to evaluate the hypothesis include the t-test, f-test, and others. The primary findings were that Nigeria's GDP (gross domestic product) suffers as a result of unemployment.

Akeju and Olanipekun (2014) examined the relationship between the unemployment rate and economic development using the Error Correction Model (ECM) and Johansen cointegration to ascertain the validity of Okun's law in Nigeria. They found that unemployment and Nigeria's economic growth were positively correlated. Additionally, they found a correlation between Nigeria's output growth and both short- and long-term unemployment rates.

Using the Ordinary Least Squares (OLS) approach, Airi, Unakpo, and Anebi-Atede (2016) examined the effects of unemployment on Nigeria's economy from 1980 to 2010 and came to the conclusion that unemployment had a negative influence on GDP. Similarly, Imoisi, Ambamba, and Okon (2017) used multiple regression analysis with OLS to examine the impact of unemployment on economic growth in Nigeria from 1980 to 2016. They discovered that although the minimum wage had no discernible impact on economic development, the labor force, population, and unemployment rate did.

Using the Granger Causality Test, Pearson correlation, and the Impulse Response Function (IRF), Dauda (2020) investigated the connection between poverty, unemployment, and economic growth in Nigeria. The results indicate that poverty and unemployment have a modest negative link, while economic growth has a weak negative correlation with both unemployment (-0.36) and poverty (-0.21). Although both poverty and unemployment do not significantly react to economic growth shocks, the IRF and Granger causality tests show that growth is pro-poor, indicating that the poor do not fully benefit from production growth. The study comes to the conclusion that poverty may not be effectively reduced by economic growth alone.

Olubusoye, Salisu, and Olofin (2023) investigated the causes, characteristics, and remedies of youth unemployment in Nigeria. The study uses the Panel Autoregressive Distributed (PARDL) Model and the Vector Autoregressive (VAR) Model to examine young unemployment in Nigeria. The VAR model illustrates the distribution of young employment throughout Nigeria's industries, services, and agriculture. The PARDL model looks at variables including labor market flexibility, output level, and macroeconomic uncertainty that affect youth unemployment. Nigeria's young unemployment issue appears to be primarily structural, non-cyclical, and partially frictional, according to the findings.

Nigerian graduate unemployment's socioeconomic effects and the 20:2020 vision were examined by Eneji, Mai-Lafia, and Weiping (2013). The purpose of the study is to look into

how social policy, economic growth, education, and unemployment relate to each other in the Nigerian economy. The analysis techniques include percentages, pie charts, tables, graphs, and multiple regressions using primary and secondary data.

Effiong and Udonwa (2024) examined the impact of industrialization and employment creation in Nigeria for the period 1990-2022. Techniques of Autoregressive Distributed Model and Granger Causality analysis were used to test estimate the models of the study. result indicated that industrial sector performance has a negative and significant impact on employment creation in Nigeria.

The effect of government social spending on unemployment in Nigeria between 1981 and 2016 was examined by Obisike, Okoli, Onwuka, and Mba (2020). The Ordinary Least Squares (OLS) regression's findings showed that capital social expenditures on health as well as ongoing social expenditures on education and health did not match theoretical predictions. According to the entire analysis, Nigerian unemployment was statistically significantly impacted by both capital and ongoing investments in health and education. According to the study's findings, government spending on social and community services like health and education that was meant to lower unemployment ultimately fell short of this objective.

In order to ascertain if the original Phillips curve hypothesis is applicable, Orji et al. (2015) examine the connection between unemployment and inflation in Nigeria. The study regressed the consumer price index (a measure of inflation) on factors such as the unemployment rate, money supply growth rate, budget deficit, real GDP, interest rate, and lagged interest rate using a distributed lag model with data spanning 1970 to 2011. The results show that unemployment and inflation are positively correlated in Nigeria and that unemployment has a major impact on inflation. The original Phillips curve idea for the Nigerian environment is refuted by this outcome.

## METHODOLOGY

The annual time series data are sourced from secondary sources such as CBN Statistical Bulletin, and the NBS Bulletin, covering the period of 42 years that is, 1991-2022. Preliminary tests were run on the time series data of 33 observations using the descriptive statistics, correlation analysis, Augmented Dickey-Fuller unit root test for stationarity, and Pesaran et al (2001) Autoregressive Distributed lagged Model/bound test cointegration procedure.

The Augmented Dickey-Fuller (ADF) test equation is specified as follows:

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^m \alpha_i \Delta Y_{t-i} + \varepsilon_t \quad 3.1$$

**Decision Rule:** If the ADF test statistic is greater than the MacKinnon critical value at 5% (all in absolute term), the variable is said to be stationary. Otherwise it is non stationary.

## Model Specification

In line with the Philips curve model (Phillip, 1958), this study builds upon the model proposed by Effiong and Udonwa (2024), which framed unemployment as a function of various factors including industrial sector output, gross fixed capital formation, foreign direct investment, government expenditure on economic services, private sector credit, trade openness, and the inflation rate. However, this research departs from that approach by excluding external sector variables and concentrating on socio-economic factors. Consequently, in this analysis, the unemployment rate is conceptualized as a function of real GDP growth, the inflation rate, industrial value added, and government social expenditure on community services. Symbolically, the model is given as:

$$UN = f(GDPGR, INF, INDVA, GSXP) \quad (3.2)$$

$$UN_t = \beta_1 GDPGR_t + \beta_2 INF_t + \beta_3 INDVA_t + \beta_4 GSXP_t + \mu_t \quad (3.3)$$

Where: UN = unemployment rate, GDPGR = growth rate of real GDP, INF = annual inflation rate, INDVA = industrial sector productivity, and GSXP = government social spending on community services,  $\mu$  = error term,  $t$  = time. The parameters to be estimated are:  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ,  $\beta_4$ .

A priori Expectations:

$$f(\beta_1) < 0; f(\beta_2) > 0; f(\beta_3) < 0; f(\beta_4) < 0;$$

The study utilizes the Autoregressive Distributed Lag (ARDL) Bound testing procedure by Pesaran et al (2001) to analyze long-run relationships and short-run dynamics among variables (Banerjee, Dolado, Galbraith, & Hendry, 1993). ARDL effectively manages different orders of integration and allows for the derivation of a dynamic error correction model (ECM) to address non-stationary data challenges (Charemza & Deadman, 1992; Laurenceson & Chai, 2003). Once cointegration is established, the long-run relationship is estimated.

$$\Delta UN_t = \alpha_0 + \alpha_{1i} \sum_{i=1}^q \Delta UN_{t-i} + \alpha_{2i} \sum_{i=0}^q \Delta GDPGR_{t-i} + \alpha_{3i} \sum_{i=0}^q \Delta INF_{t-i} + \alpha_{4i} \sum_{i=0}^q \Delta INDVA_{t-i} + \alpha_{5i} \sum_{i=0}^q \Delta GSXP_{t-i} + \beta_1 GDPGR_t + \beta_2 INF_t + \beta_3 INDVA_t + \beta_4 GSXP_t + \varphi ECM \quad (3.4)$$

Where:

$\alpha_i$  = short regression coefficients and  $i = 0, 1, \dots, n$ ;  $\beta$  = long run regression coefficients;  $\varphi$  = error correction coefficient, speed of adjustment from the short run to the long run equilibrium after a shock)

## RESULTS AND DISCUSSION

The empirical results are presented in this section. Table 1 presented the result of the Descriptive statistics of the time series variables. The purpose is to explain the characteristics of the series in their natural form and to determine if they follow normal distribution as required by Ordinary Least Square assumptions.

**Table 1: Result of Descriptive Statistics**

|              | UN       | INF      | INDVA    | GSXP     | GDPGR     |
|--------------|----------|----------|----------|----------|-----------|
| Mean         | 4.021212 | 18.60876 | 28.42598 | 629.4438 | 4.017535  |
| Median       | 3.827000 | 13.00697 | 28.22051 | 407.5690 | 4.195924  |
| Maximum      | 5.712000 | 72.83550 | 37.70961 | 2291.760 | 15.32916  |
| Minimum      | 3.074000 | 5.388008 | 18.17313 | 3.468746 | -2.035119 |
| Std. Dev.    | 0.577514 | 16.02940 | 5.068155 | 661.5569 | 3.728781  |
| Skewness     | 1.559230 | 2.143506 | 0.178378 | 0.962491 | 0.518536  |
| Kurtosis     | 4.732119 | 6.664365 | 2.407373 | 2.859587 | 3.900735  |
| Jarque-Bera  | 17.49691 | 43.73332 | 0.657913 | 5.122245 | 2.594407  |
| Probability  | 0.000159 | 0.000000 | 0.719674 | 0.077218 | 0.273295  |
| Sum          | 132.7000 | 614.0892 | 938.0575 | 20771.65 | 132.5787  |
| Sum Sq. Dev. | 10.67272 | 8222.134 | 821.9582 | 14005040 | 444.9219  |
| Observations | 33       | 33       | 33       | 33       | 33        |

Source: Authors' computation 2024

The results, as evidenced by the probability figure of the Jarque-Bera statistics shows that the series for unemployment and inflation do not follow normal distribution since their values (0.000159, 0.000000) < 0.05.

## Correlation Matrix

Pearson correlation matrix is shown in Table 2 to presents the result of the strength of the association among the series.



**Table 2: Correlation Matrix**

|       | UN    | INF   | INDVA | GSXP  | GDPGR |
|-------|-------|-------|-------|-------|-------|
| UN    | 1.00  |       |       |       |       |
| INF   | -0.06 | 1.00  |       |       |       |
| INDVA | -0.14 | 0.51  | 1.00  |       |       |
| GSXP  | 0.45  | -0.25 | -0.24 | 1.00  |       |
| GDPGR | -0.46 | -0.41 | -0.29 | -0.16 | 1.00  |

Source: Authors' computation 2024

The result shows the none of the correlation coefficients exceeds 0.80 as suggested by Gujarati (2004). This shows that the chances of problem of multicollinearity of variables will likely not occur in the model. The result of the Unit root test of stationarity is presented in Table 3.

**Table 3: Result of Augmented Dickey Fuller Unit Root Test of the Variables**

| Variable | Level Form      |                   | First Difference |                   | Order of integration |
|----------|-----------------|-------------------|------------------|-------------------|----------------------|
|          | ADF t-statistic | 5% critical value | ADF t-statistic  | 5% critical value |                      |
| UN       | -3.106150       | 0.0365            |                  |                   | I(0)                 |
| GDPGR    | -2.956965       | 0.0500            |                  |                   | I(0)                 |
| INF      | -5.443258       | 0.0001            | -2.103583        | 0.2446            | I(1)                 |
| INDVA    | -2.175225       | 0.2187            | -6.131461        | 0.0000            | I(1)                 |
| GSXP     | 3.289329        | 1.0000            | -3.456315        | 0.0164            | I(1)                 |

Source: Authors' computation 2024

Since the variables were found to be stationary at levels I(0) and at first difference I(1), the study had to test for the existence of long run relationship among the variables using the Bound test cointegrations (Pesaran et. al 2001). The bound test cointegration result is presented in Table 4.

**Table 4: Result of Bound test cointegration Analysis**

| ARDL Bounds Test | value    | Significance level | I(0) | I(1) |
|------------------|----------|--------------------|------|------|
| F-Statistic      | 12.44006 | 10%                | 2.45 | 3.52 |
| K                | 4        | 5%                 | 2.86 | 4.01 |
|                  |          | 2.5%               | 3.25 | 4.49 |
|                  |          | 1%                 | 3.74 | 5.06 |
|                  |          | 10%                | 2.45 | 3.52 |

Source: Authors' computation 2024

The result of the bound test cointegration analysis shows that the value of the F-statistic (12.44) exceeds the lower and upper bounds at 1 per cent, 2.5 per cent, 5 per cent and 10 per cent. Therefore, it is concluded that cointegration exists. There is a long run relationship among the variables in the study. As a consequence, the technique of Autoregressive Distributed Lagged Model was a chosen to estimate the model. The result of the short run and long run is presented below.

**Table 5: Result of Short Run and Long Run ARDL Analysis**

| Dependent Variable: UN              |             |            |             |        |                 |             |            |         |        |
|-------------------------------------|-------------|------------|-------------|--------|-----------------|-------------|------------|---------|--------|
| Selected Model: ARDL(1, 2, 4, 1, 4) |             |            |             |        |                 |             |            |         |        |
| Cointegrating Form                  |             |            |             |        | Long Run Result |             |            |         |        |
| Variable                            | Coefficient | Std. Error | t-Statistic | Prob.  | Variable        | Coefficient | Std. Error | t-Stat. | Prob.  |
| D(INF)                              | -0.000639   | 0.004767   | -0.134088   | 0.8956 | INF             | -0.0132     | 0.0084     | -1.5643 | 0.1437 |
| D(INF)                              | 0.007542    | 0.004941   | 1.526492    | 0.1528 | INDVA           | -0.2607     | 0.0608     | -4.2883 | 0.0011 |
| D(INDVA)                            | 0.028309    | 0.017454   | 1.621939    | 0.1308 | GSXP            | -0.0013     | 0.0004     | -2.9002 | 0.0133 |
| D(INDVA(-1))                        | 0.019691    | 0.024136   | 0.815809    | 0.4305 | GDPGR           | -0.3475     | 0.0644     | -5.4000 | 0.0002 |
| D(INDVA(-2))                        | 0.035951    | 0.021207   | 1.695225    | 0.1158 | C               | 14.164      | 2.2686     | 6.2438  | 0.0000 |
| D(INDVA(-3))                        | 0.060757    | 0.017724   | 3.428050    | 0.0050 |                 |             |            |         |        |
| D(GSXP)                             | -0.001834   | 0.000404   | -4.537694   | 0.0007 |                 |             |            |         |        |
| D(GDPGR)                            | -0.046100   | 0.015325   | -3.008054   | 0.0109 |                 |             |            |         |        |
| D(GDPGR(-1))                        | 0.013373    | 0.014657   | 0.912426    | 0.3795 |                 |             |            |         |        |
| D(GDPGR(-2))                        | 0.037832    | 0.015828   | 2.390171    | 0.0341 |                 |             |            |         |        |
| D(GDPGR(-3))                        | 0.035876    | 0.017479   | 2.052577    | 0.0626 |                 |             |            |         |        |
| CointEq(-1)                         | -0.506821   | 0.138333   | -3.663773   | 0.0032 |                 |             |            |         |        |

Source: Authors' computation 2024

Both short run and long run relationships between inflation, GDP growth rate, unemployment, industrial value added, and government social expenditure are revealed by the ARDL analysis. The statistically insignificant coefficients for all lagged factors suggest that the effect of inflation on unemployment is minimal in the short run. This implies that shifts in inflation have a delayed impact on unemployment. Industrial value added (INDVA) does, however, have a large lagged impact. Specifically, a significant increase in unemployment is linked to its third lag, suggesting that previous gains in industrial output may have contributed to a delayed increase in unemployment. In the long run, inflation is still statistically negligible, indicating that unemployment is not significantly impacted. On the other hand, there is a notable adverse effect on industrial value added, suggesting that sustained increases in industrial production are linked to decreases in unemployment.

In the short run ( $P(t) = 0.0007 < 0.05$ ), and in the long run ( $P(t) = 0.0133 < 0.05$ ) government social expenditure (GSXP) has a significant and direct detrimental impact on unemployment. This suggests that more social spending soon results in lower jobless rates. Additionally, government social investment still has a significant, detrimental impact. This demonstrates that sustained government social spending can successfully lower unemployment over time. This outcome is dissimilar to the findings by Obisike, Okoli, Onwuka, and Mba (2020) whose study revealed that government social expenditure does not reduce unemployment in Nigeria.

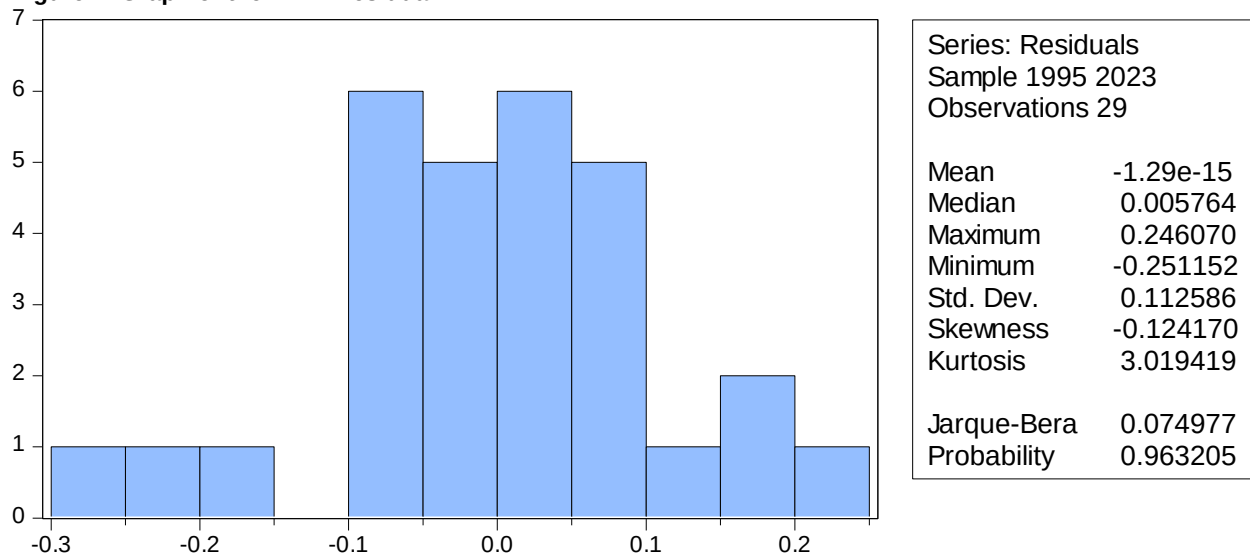
In a similar vein, unemployment and GDP growth (GDPGR) exhibit an immediate negative relationship since, in the short run ( $P(t) = 0.0109 < 0.05$ ) and in the long run ( $P(t) = 0.0002 < 0.05$ ), reduced unemployment is linked to higher GDP growth rates. The assumption that prolonged economic expansion eventually results in decreased unemployment rates is further supported by GDP growth, which shows a comparable negative and significant effect. This outcome is supported by the findings of the study by Akeju and Olanipeun (2014).

The presence of a stable long run connection is confirmed by the negative and considerable error correction term (CointEq(-1)), which shows that roughly 50.7% of any unemployment disequilibrium is rectified each period. All things considered, the analysis emphasizes how crucial GDP growth, government social spending, and industry value added are to lowering unemployment both immediately and over the long run as part of the economy's equilibrium.

## Results of Post-estimation tests

### Result of the Model Residual

Figure 1: Graph of the ARDL residual



Given the probability value of 0.963205, which is significantly higher than common alpha levels (e.g., 0.05 or 0.01), we fail to reject the null hypothesis. This suggests that the model is normally distributed. This outcome confirms the validity of the model's assumptions regarding normality.

Table 5: Result of Serial Correlation test

| Breusch-Godfrey Serial Correlation LM Test: |          |                     |        |
|---------------------------------------------|----------|---------------------|--------|
| F-statistic                                 | 0.035387 | Prob. F(2,10)       | 0.9654 |
| Obs*R-squared                               | 0.203805 | Prob. Chi-Square(2) | 0.9031 |

Source: Authors' computation 2024

With a probability measure of 0.9654 for the F-statistic and 0.9031 for the Chi-Squared, there is no evidence of serial correlation in the residuals.

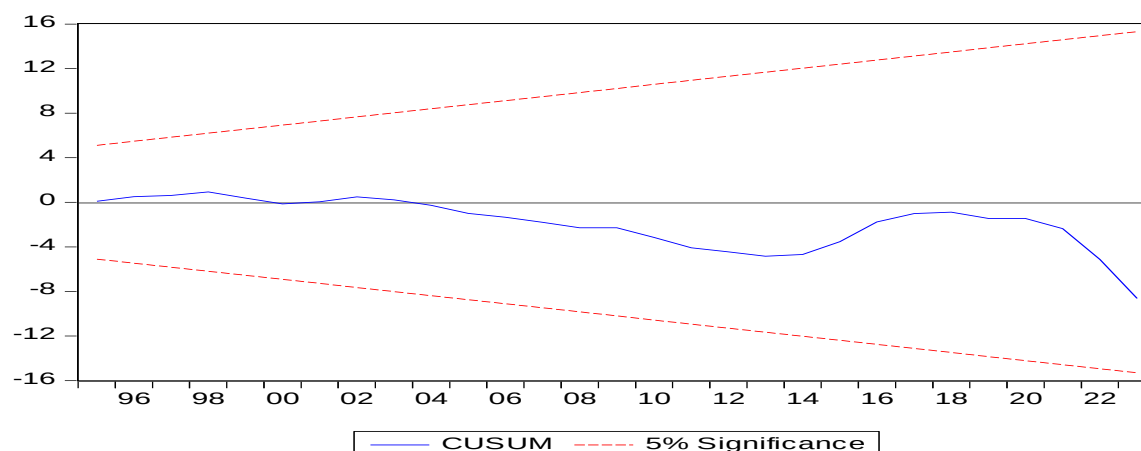
Table 5: Result of Heteroscedasticity tests.

| Heteroskedasticity Test: Breusch-Pagan-Godfrey |          |                      |        |
|------------------------------------------------|----------|----------------------|--------|
| F-statistic                                    | 1.037605 | Prob. F(16,12)       | 0.4836 |
| Obs*R-squared                                  | 16.83288 | Prob. Chi-Square(16) | 0.3965 |
| Scaled explained SS                            | 2.910191 | Prob. Chi-Square(16) | 0.9999 |

Source: Authors' computation 2024

The probability measures from the Breusch-Pagan-Godfrey heteroskedasticity test—0.4836 for the F-statistic, 0.3965 for the Chi-Squared, and 0.9999 for the scaled explained sum of squares—indicate no significant evidence of heteroskedasticity, suggesting that the model's residuals exhibit constant variance.

**Figure 2: Test of Model Stability**



The CUSUM test results indicate that the blue line remains within the two red lines, suggesting that the parameters of the model are stable over time and that there are no structural breaks.

### **Conclusion and Policy Recommendations**

The ARDL analysis highlights that socio-economic development variables, such as industrial output, government social expenditure, and GDP growth, play crucial roles in reducing unemployment in Nigeria both in the short and long run. Specifically, the findings suggest that industrial growth and government social spending are effective long-term strategies for alleviating unemployment. Industrial value added not only fosters job creation but also promotes sustained economic activity that supports employment levels over time. Similarly, government social expenditure shows an immediate impact on reducing unemployment, reflecting the significance of social investment in addressing joblessness in the short run and creating lasting stability in the labor market.

GDP growth emerges as a particularly influential factor in reducing unemployment, as higher growth rates translate to lower unemployment in both the short and long term. This suggests that policies fostering economic growth are essential to creating more job opportunities and promoting sustainable development. Meanwhile, the lack of a significant impact from inflation on unemployment implies that while inflation remains an important macroeconomic consideration, it does not directly affect employment levels.

In summary, these results underscore that socio-economic development policies focusing on industrial expansion, social spending, and sustained economic growth are vital in reducing unemployment in Nigeria. For policymakers, this analysis advocates prioritizing industrial development, supportive social programs, and growth-oriented policies as central components of an effective strategy to combat unemployment and promote economic resilience.

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