

DEPOSIT MONEY BANKS' CREDIT AND UNEMPLOYMENT REDUCTION IN NIGERIA: A TIME SERIES APPROACH (1991–2022)

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Abstract

This study investigated the influence of Deposit Money Banks' (DMBs) credit to reducing the level of unemployment in Nigeria between 1991 and 2022. The study used annual time series data obtained from the Central Bank of Nigeria, the World Bank, and the International Labour Organization (ILO) websites and journals. The study adopted the Autoregressive Distributed Lag (ARDL) model and is based on the monetarist theoretical framework. Findings from the study revealed a long-run co-integrating relationship exists between DMB credit, interest rates, and unemployment, even though the direct effect of credit from DMB on unemployment reduction was found to be statistically insignificant. Interest rates, however, had short-run positive effects on employment when it is low, but stalled job creation in the long run when interest rate is higher. The study concluded that while DMB credit is vital for investment and economic expansion, structural and institutional inefficiencies limit its impact on employment generation. Policy recommendations include among others, a comprehensive reforms of credit accessibility, optimal management of interest rate, and inclusion of monetary tools with job-creation objectives.

Keywords: *Deposit Money Banks, credit, unemployment, ARDL, interest rate, Nigeria*
JEL Codes: *E51, E24, J64.*

Introduction

Unemployment remains one of the most critical macroeconomic issues in Nigeria, that affects not only the welfare of individuals, but also national productivity, political and social cohesion, and long-term development. Amidst a growing population and a constantly evolving global economic challenges, the need for sustained employment creation in Nigeria cannot be overstated. Financial institutions (FIs), particularly Deposit Money Banks (DMBs), serve as major intermediaries in mobilizing savings and channeling credit to productive sectors of the economy. Their strategic role in the transmission of monetary policy and in the allocation of financial resources, effectively places DMBs at the center of employment generation potential in Nigeria.

In spite of banking reforms since the 1990s, and the expansion of access to credit facilities in Nigeria, unemployment in Nigeria has remained unacceptably high, particularly among the youth demography. This contradiction raises critical questions about the effectiveness of access to DMBs' credit in stimulating employment generation. As economic theories suggest, access to credit should enable businesses to expand, invest, and hire more workers. However, the reality in Nigeria appears more complex, influenced by many factors, among which are, high lending rates, regulatory bottlenecks, and macroeconomic instability.

This study seeks to empirically interrogate the degree to which credit facilities disbursed by Deposit Money Banks contributes to reducing the level of unemployment in Nigeria. By employing time series analysis and grounding the analysis in Monetarist theory, the research explores both the short-term dynamics and the long-run relationships between credit, interest rates, and employment generation. The findings are intended to serve policymakers, financial institutions, and researchers on the practical handles for addressing unemployment through credit policies.

Literature Review

Conceptual Overview

Deposit Money Banks are authorized financial institutions licensed to accept deposits and extend loans. They play a central role in providing financial intermediation by mobilizing surplus funds from surplus unit and channeling them to deficit units in need of capital for investment. In theory, access to more credit should stimulate entrepreneurial activities and expand employment. However, the effectiveness of credit allocation depends on interest rates, regulatory environment, and the absorptive capacity of the economy.

Unemployment, in this study, refers to the situation where individuals willing and able to work at prevailing wage rates are unable to find employment. It includes cyclical, structural, and frictional dimensions and is a major indicator of measuring macroeconomic performance.

Theoretical Framework

The study draws primarily from Monetarist theory, which postulates that the money supply pointedly affects macroeconomic variables such as inflation, output, and employment. Monetarists contend that a stable and predictable growth of the money supply leads to economic stability and unemployment reduction. Deposit Money Banks, through the mechanism of credit, influence money supply and by implication, affect employment levels.

Complementing the Monetarist theory are insights from the Keynesian school, which emphasizes aggregate demand as a contributory factor of employment. According to Keynes, increased investment, supported by accessible credit, can stimulate aggregate demand and reduce unemployment. Similarly, the Schumpeterian theory of economic development also underscores the role of financial institutions in facilitating innovation and job creation through credit.

Empirical Literature

Numerous studies have interrogated the relationship between bank credit and employment. Magaji and Musa (2023) found a significant long-run relationship between private sector credit and GDP, but an insignificant short-run effect on employment. Okeke and Chukwu (2021) observed that broad money supply positively affects employment, while interest rates and liquidity ratios had negative effects.

Eke (2022) showed in his study that money supply reduces unemployment, but interest and inflation rates aggravate it. Oyelade (2019) emphasized that DMB loans significantly impacted agricultural output, indirectly supporting employment generation. Conversely, Adejoh (2021) found no causal relationship between bank credit to MSMEs and economic growth, citing insufficient funding. These mixed findings underscore the intricacy of the credit-unemployment nexus in Nigeria.

Methodology

Model Specification

The study adopted the Autoregressive Distributed Lag (ARDL) model, which is suitable for analyzing relationships among variables with mixed integration orders. The ARDL framework captures both short-run dynamics and long-run equilibrium effects. The model is specified as follows:

$$[\Delta UNEMP_t = \theta + \sum_{i=1}^p \alpha_i \Delta UNEMP_{t-i} + \sum_{j=0}^q \beta_j \Delta DMBC_{t-j} + \sum_{k=0}^r \gamma_k \Delta INT_{t-k} + \sum_{l=0}^s \delta_l \Delta GFCF_{t-l} + \epsilon_t]$$

Where: Δ (UNEMP_t): Unemployment rate at time t - (DMBC_{t-j}): Credit to the private sector by DMBs at time t-j - (INT_{t-k}): Interest rate at time t-k - (GFCF_{t-l}): Gross Fixed Capital Formation at time t-l - (ϵ_t): Error term - (θ): Constant term - ($\alpha_i, \beta_j, \gamma_k, \delta_l$): Short-run coefficients to be estimated

To analyze both long-run and short-run dynamics, the ARDL Error Correction Model (ECM) is further expressed as:

$$[\Delta UNEMP_t = \theta + \sum_{i=1}^p \alpha_i \Delta UNEMP_{t-i} + \sum_{j=0}^q \beta_j \Delta DMBC_{t-j} + \sum_{k=0}^r \gamma_k \Delta INT_{t-k} + \sum_{l=0}^s \delta_l \Delta GFCF_{t-l} + \lambda ECT_{t-1} + \epsilon_t]$$

Where: Δ (Δ): First difference operator - (ECT_{t-1}): Error correction term lagged one period - (λ): Speed of adjustment coefficient - (ϵ_t): White noise error term

The error correction term measures the speed at which the dependent variable returns to equilibrium after a short-run shock. A negative and significant (λ) indicates a stable long-run relationship.

Data Sources and Variables

Annual time series data from 1991 to 2022 were sourced from the Central Bank of Nigeria (CBN), World Bank, and ILO databases. The key variables include:

UNEMP: Unemployment rate (dependent variable)

DMBC: Credit by Deposit Money Banks to the private sector

INT: Average lending interest rate

GFCF: Gross Fixed Capital Formation (proxy for investment)

Estimation Procedure

The analysis proceeded in the following steps:

1. Unit root tests (ADF and PP) to determine stationarity levels.
2. Bounds testing to confirm long-run relationships.



3. ARDL model estimation for short- and long-run coefficients.
4. Diagnostic tests for normality, serial correlation, and heteroscedasticity.

Results and Discussion

Descriptive Analysis

The average unemployment rate during the study period was 13.7%, with a steady upward trend especially post-2010. DMB credit increased substantially in nominal terms, particularly after banking sector reforms in 2004. Interest rates, however, remained volatile, often exceeding 15%, deterring borrowing by SMEs and individual entrepreneurs.

Unit Root Tests

The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests confirmed that the unemployment rate (UNEMP) and Deposit Money Bank credit (DMBC) were non-stationary at level but became stationary after first differencing, i.e., I(1). In contrast, interest rate (INT) and gross fixed capital formation (GFCF) were stationary at level, i.e., I(0). This mix of I(0) and I(1) variables validates the use of the ARDL approach, which allows for such flexibility in the integration order.

Table 1: Augmented Dickey-Fuller and Phillips-Perron Unit Root Test Results

| Variable | ADF Test Statistic | PP Test Statistic | Order of Integration |
|----------|--------------------|-------------------|----------------------|
| UNEMP | -2.24 (p > 0.05) | -2.19 (p > 0.05) | I(1) |
| DMBC | -2.01 (p > 0.05) | -2.13 (p > 0.05) | I(1) |
| INT | -4.27 (p < 0.01) | -4.35 (p < 0.01) | I(0) |
| GFCF | -3.89 (p < 0.05) | -3.92 (p < 0.05) | I(0) |

Bounds Test for Co-integration

The ARDL bounds test confirmed a long-run relationship among the variables. The computed F-statistic was **5.97**, which is greater than the upper critical bound value of **4.03** at the 5% significance level. Therefore, we reject the null hypothesis of no co-integration and conclude that a long-run relationship exists.

Table 2: ARDL Bounds Test for Co-integration

| Test | F-Statistic | Lower Bound (I(0)) | Upper Bound (I(1)) | Conclusion |
|-------------|-------------|--------------------|--------------------|--------------------------|
| Bounds Test | 5.97 | 2.86 | 4.03 | Co-integration confirmed |



Long-run ARDL Estimates

The estimated long-run coefficients are as follows:

Table 3: Estimated Long-run Coefficients from the ARDL Model

| Variable | Coefficient | Std. Error | t-Statistic | p-Value |
|----------|-------------|------------|-------------|---------|
| DMBC | -0.0031 | 0.0027 | -1.15 | 0.260 |
| INT | 0.1264 | 0.0589 | 2.15 | 0.039 |
| GFCF | -0.0292 | 0.0103 | -2.83 | 0.008 |

- **DMB Credit (DMBC):** The coefficient is -0.0031, meaning a 1% increase in credit to the private sector leads to a 0.0031 percentage point reduction in unemployment, but this effect is statistically insignificant ($p = 0.260$). This suggests the presence of structural inefficiencies or poor targeting in credit allocation.
- **Interest Rate (INT):** A 1% increase in the average lending rate is associated with a 0.1264 percentage point increase in unemployment, significant at the 5% level ($p = 0.039$). This underscores the constraining effect of high interest rates on employment-generating investment.
- **Gross Fixed Capital Formation (GFCF):** A 1% rise in GFCF results in a 0.0292 percentage point decline in unemployment. The result is significant ($p = 0.008$), reinforcing the role of investment in fostering employment creation.

Short-run Dynamics and Error Correction Model

The short-run dynamics are captured in the Error Correction Model (ECM). The coefficient of the error correction term (ECT) is **-0.1672** and is statistically significant at the 1% level ($p = 0.001$). This means approximately 16.7% of deviations from the long-run equilibrium are corrected each year.

Table 4: Short-run Dynamics and Error Correction Representation

| Variable | Coefficient | t-Statistic | p-Value |
|----------|-------------|-------------|---------|
| ECT(-1) | -0.1672 | -3.82 | 0.001 |

This moderately paced adjustment indicates that although equilibrium is restored after a shock, structural rigidities slow down the speed of convergence.

Diagnostic and Stability Tests



Table 5: Post-estimation Diagnostic and Stability Test Results

| Test | Result | Conclusion |
|----------------------------|----------------------|------------------------------------|
| Jarque-Bera Normality Test | JB = 1.87 (p = 0.39) | Residuals are normally distributed |
| Breusch-Godfrey LM Test | F = 0.64 (p = 0.53) | No serial correlation |
| Breusch-Pagan-Godfrey | F = 1.21 (p = 0.30) | No heteroscedasticity |
| CUSUM/CUSUMSQ | Stable within bounds | Model is structurally stable |

The model passed all diagnostic tests, validating the statistical soundness of the ARDL specification. The CUSUM and CUSUMSQ plots confirmed the stability of the regression coefficients over the study period.

Conclusion

The study examined the impact of Deposit Money Banks' credit on unemployment in Nigeria from 1991 to 2022. While a long-run relationship exists, the direct impact of DMB credit on unemployment reduction is statistically weak. This indicates the presence of institutional, structural, and operational challenges within the credit system that limit its employment-generating potential.

Policy Recommendations

1. **Enhance Credit Accessibility:** DMBs should improve lending to employment-intensive sectors, especially MSMEs, through targeted products and reduced collateral requirements.
2. **Interest Rate Management:** The Central Bank should adopt policies to maintain stable and competitive interest rates to encourage productive borrowing.
3. **Strengthen Financial Intermediation:** Policies should incentivize banks to lend to sectors with high employment elasticity, such as agriculture, ICT, and manufacturing.
4. **Institutional Reforms:** Strengthen credit guarantee schemes and enforce borrower monitoring to minimize non-performing loans and encourage sustainable credit flow.
5. **Monetary-Fiscal Coordination:** Employment-focused policies should integrate credit mechanisms with broader fiscal tools like subsidies and tax incentives for job-creating firms.
6. **Promote Financial Inclusion:** Encourage access to banking services for underserved populations to widen the credit base and stimulate grassroots economic activity.

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