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FINANCIAL INNOVATION AND UNEMPLOYMENT: DOES DIGITAL FINANCE REDUCE JOBLESSNESS IN NIGERIA?

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This paper examines the relationship between financial innovation and unemployment in Nigeria from 1993 to 2023, utilizing data from the Central Bank of Nigeria and World Development Indicators. It employs an Autoregressive Distributed Lag (ARDL) model to analyze both short- and long-term effects. The results indicate that increased internet usage is associated with reduced unemployment in the short term, facilitating job searches and online entrepreneurship. Short-term usage of mobile money transactions correlates positively with unemployment due to initial adjustments during the digital payment adoption phase. Conversely, in the long term, mobile money negatively impacts unemployment as persistent lagged effects contribute to job creation and financial inclusion. GDP growth is found to decrease unemployment rates in both timeframes, affirming its role as a crucial driver of job opportunities. Inflation shows limited effects on unemployment, with a slight positive short-term relationship indicating temporary employment challenges amid rising prices. The study highlights the importance of financial innovation and macroeconomic stability in reducing unemployment and recommends strategies such as improving internet access, enhancing digital literacy, promoting mobile money usage, supporting economic growth, and implementing policies aimed at financial inclusion.

Keywords: *Financial Innovation, Unemployment, Inflation, Nigeria, ARDL*

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1. INTRODUCTION

Unemployment has been one of the tensest economic issues that affect the developing nations, and Nigeria is not an exception. Notwithstanding numerous policy interventions by the consecutive governments, unemployment in Nigeria has been continuously high that has led to an economic unsteadiness, social instabilities as well as low standards of living (Adewale & Sanni, 2025).

As Adewale and Adeyemo (2024) explain, over the years, the unemployment rate in Nigeria has been rising, and it is among the youths that unemployment is a major problem. The problem must be addressed with new ideas and solutions beyond the conventional economic policy that include emphasizing the need to consider new financial mechanisms that can be used to stimulate employment and economic participation.

It has also been found that financial innovation is a key engine of economic change in the world where digital finance is becoming the most important trend where digital finance leads to the adoption and use of technology-driven financial services, including mobile money platforms, online banking, and other online financial services, which enable financial inclusion and the ease of access to credit, savings, and payment services (Yermoshkina *et al*, 2025 ; Adewale *et al*, 2025). The fast growth of the internet permeation and the mobile money have presented new opportunities to businesses, entrepreneurs and individuals in Nigeria to participate in economic activities that were once restricted by the inability to access the traditional banks services (Adewale, *et al*, 2025).

The concept of financial innovation and employment is based on the fact that it is possible to reduce the barriers to entrepreneurship, serve small and medium-sized enterprises (SMEs), and increase the productivity of different sectors of the economy due to the better access to financial services (Yildirim, *et al* 2022). Financial innovation has the potential to generate employment and curb unemployment by changing how businesses access credit, their payments, and finances, which is digital and efficient (Law & Law, 2024).

Mobile money usage in Nigeria has been increasing very fast particularly in rural and semi-urban regions where conventional banking infrastructures are scarce (Adewale, 2024). CBN has been an action-oriented Central Bank in terms of fostering financial inclusion by initiating different programs that seek to increase the use of digital finance (Adewale *et al*, 2025). In the same vein, internet connectivity has increased significantly in the last ten years, and people and companies can use online platforms to trade and provide services and transactions (Raji, 2020). The growth of GDP and inflation, is necessary in order to seclude the impact of financial innovation on employment creation and to understand whether changes in unemployment have been actually due to digital finance or other economic trends.

The problem of unemployment is one of the biggest economic and social problems in Nigeria as the National Bureau of Statistics (NBS) continuously records high rates especially among young people and graduates. Even though the government intervenes and create economic policies to help in creating jobs, the labor market is still grappling with the issues of structural inefficiencies, lack of time in the formal sector and the swelling number of job seekers. Concurrently, financial innovation, particularly online finance via the use of internet-based platforms and mobile payment systems, has grown at a fast rate, providing new way of access to financial inclusion, entrepreneurship and business growth. The degree to which such innovations would generate quality working opportunities is, however not well understood. Though, there are some reasons to believe that digital financial tools can contribute to job creation, other researchers state that their effect is hampered due to infrastructural limitations, economic volatility, and skills shortage. This paper aims to examine how financial innovation is associated with unemployment in Nigeria into providing empirical data on the topic of whether digital finance can be effective to curb joblessness.

This research is primarily aimed at analyzing how financial innovation has affected unemployment in Nigeria. Other targeted objectives are to: determine the impact of the use of internet in determining the rate of unemployment in Nigeria, examine how mobile money adoption affects unemployment in Nigeria, investigate macroeconomic variables, including the growth and inflation in the analysis of the relationship between financial innovation and unemployment.

2. LITERATURE REVIEW

Concept of Financial Innovation

Financial innovation can be characterized as the development and use of new financial instruments, technologies, and services that can make financial resources more accessible, efficient, and conduct economic operations (Pasichnyk, 2025). It consists of product innovation, which involves mobile money, online banking, and online payment systems, and process innovation, which enhances delivery and management of financial services. Financial innovation has emerged as a very important instrument in the development economies such as Nigeria in enhancing financial inclusion especially in populations with low access to traditional banking. The internet use, which is the percentage of the population that has access to the internet, provides business and individuals with a chance to take online transactions, get credit, and use digital markets (Effiom & Edet, 2022). On the same note, the use of mobile money enables safe and easy financial settlements without the need to have an official bank account (Nejad, 2022). These innovations cause a reduction in transaction costs, the increase in financial access, and indirect impact on employment

through the creation of entrepreneurship and small business development.

Concept of Unemployment

Unemployment is described as the inability of people who possess the desire and capability to work to secure an appropriate job (Adewale & Adeyemo, 2024). It is usually quantified in terms of the unemployment rate that is the percentage of the working population that is unemployed and is actively seeking employment (Adewale, *et al*, 2025). There are various types of unemployment, such as structural unemployment, which is caused by the lack of compatibility between skills and job demands; cyclical unemployment, which is associated with a decrease and increase in the economy; and youth unemployment, which is high in Nigeria (Hall & Kudlyak, 2022). Unemployment has adverse consequences on the economy of a country, decreases the income of households, and is a source of social issues, including poverty, crime, and inequality (Priambodo, 2021).

Relationship Between Financial Innovation and Unemployment

There are mechanisms through which financial innovation and unemployment are related to job creation and economic participation. The financial inclusion is enhanced with digital financial tools, including internet banking and mobile money platforms where people and small businesses access credit, make payments, and enter the world of entrepreneurship (Mookerjee *et al.*, 2025). These activities have the potential of creating jobs either by directly through establishment of businesses and indirectly by improving productivity in other industries (Adewale, *et al*, 2025). Research in emerging markets indicates that the greater the use of internet and mobile banking, the greater the level of employment particularly in the informal sector (Ayalew & Xianzhi, 2020). Financial innovation could however have a moderating effect on unemployment due to structural limitation that could include poor infrastructure, economic instability, and skills imbalance in the labor market (Wu, *et al* 2023).

Theoretical Review

Financial Innovation Theory

The Financial Innovation Theory describes the facilitation of the development and use of new financial products, services, and technologies to increase the efficiency of the economy and financial inclusion. The theory explains that innovations (e.g. mobile money, internet banking, and digital payments) lower the transaction costs, diversify access to the financial resources and provide new economic opportunities. Financial innovation offers opportunities to individuals and small enterprises in developing economies such as Nigeria to engage in formal and informal economic activities. Financial innovation can affect the level of employment and create economic growth by enhancing access to credit and facilitating safe transactions as

well as by supporting entrepreneurship. This theory highlights how digital financial services would help to cut down unemployment by creating workplaces, improving business performance, and expanding economic involvement. It offers a theoretical basis on how to analyze the relationship between internet-based use, mobile money use, and employment in Nigeria.

Labour Market Theory

The Theory of Labour Markets deals with the supply and demand of labour and with the issues which influence the economy by influencing employment and unemployment. It describes the relationship between wages, productivity, skills, and economic policies and the distribution of labor resources. The theory further asserts that unemployment may be caused by structural inefficiencies, skills mismatches, and ineffective economic opportunities despite the presence of financial resources. With the incorporation of financial innovation in the labor market, some of these inefficiencies can be mitigated through the digital tools that create access to capital, entrepreneurial opportunities, and labor access in formal and informal markets. This theory assists in elucidating how the financial innovation could be geared towards decreasing unemployment by linking the technological access and the labor market performance.

Theoretical Framework

In this research, the Financial Innovation Theory is more appropriate to be chosen as a theoretical framework. It has a straight forward explanation on how the internet and mobile money use can impact the creation of jobs using the digital industry. The model assumes that improved access to financial services will lower the entrepreneurship barriers and promote small and medium enterprises (SMEs) and the efficiency of the economy. Financial innovation can offer people a chance to venture into productive business ventures that create jobs by enabling the conduct of safe transactions, reducing the cost of transactions, and enhancing financial inclusion. The theory can be used in the Nigerian context to explore the possibility of reducing unemployment through the greater use of digital financial services. It offers a prism through which one may examine the connection between internet access and mobile money usage and the labor market performance conditioning macroeconomic variables like GDP growth and inflation.

Empirical review

In their study, Augustine *et al.* (2023) described the impact of the Point of Sale (POS) operations on the creation of job opportunities in the Nsukka Urban, Enugu State, Nigeria, in 2012-2021. The study adopted the theory of Diffusion of Innovation (DOI) to assess the role played by mobile banking in economic activities using documentary and descriptive survey method and content and quantitative analysis. The findings revealed that the expansion of POS machines (155,462 in 2017

to 542,109 in 2021) led to massive growth of the small-scale business and contribution to the reduction of the level of youth unemployment in the region. More POS utilization, also, brought in further revenue among vendors. The study recommends that financial institutions should initiate special sensitization and education on the activities of POS and security in order to encourage its further application. This paper has presented the deployment of the digital financial innovations in improving employment prospects and entrepreneurship in urban Nigeria as a requisite.

In Adewale and Adeyemo (2024), the authors investigated how unemployment and inflation resulted in the growth of the Nigerian economy during the era of 1999 to 2021 on the time-series basis. The study applied the descriptive statistics, trend analysis, and regression to study the relationships of the variables. The findings indicate that unemployment has a negative relationship with growth of the GDP but inflation has high positive relationship with the economic growth. The model estimates approximately 54.1 percent of the fluctuation of GDP growth and this means that unemployment and inflation are significant in the determination of the performance of the Nigerian economy. The study proposes the policies to control the inflation, improve the creation of jobs and diversification of the economy to enhance sustainable and inclusive development. These findings underscore the need to have macroeconomic stability in enhancing the economic growth.

Purnamasari et al. (2025) discussed how technological infrastructure and finances influence the adoption of digital innovation and how digital innovation influences the outcomes of the public sector in Indonesia. The study employed quantitative design to determine that powerful technological infrastructure and adequate financial resources have a strong and positive influence on the uptaking of digital innovations. In their turn, these inventions help to improve the quality of the work of the government and society, in general. The findings show that government outcomes to digital innovation is not the linear relationship as it was considered to be. The paper has indicated that to achieve substantial changes; governments ought to think and invest heavily in infrastructure and allocate resources to do so. It also meant that constant monitoring, personal evaluation, and long-term orientation are needed so as to make sure that the digitalisation of the rendering of public services is maximised.

Yermoshkina, Makurin, and Doroshenko (2025) studied the effect of the financial innovations on the unemployment level in the Ukrainian financial sphere during 2021-2023. Based on both quantitative data, i.e., employment statistics, funds invested in fintechs, and labor productivity, and qualitative data, i.e., regulatory analysis and case studies, the study demonstrated a twofold impact of financial innovations on employment. Automation does not eliminate the need of traditional

jobs, but introduces new jobs of high skill level creating a skills gap. The paper also notes that unregulated innovations would increase unemployment in case of financial crisis as experienced in 2008. The changes in the registered unemployment rates in Ukraine showed negative growth due to digitalization and the ability to work remotely despite the problems of the war and demographics. The study highlights that the innovations in finance transform the labor market, demanding the skills adjustment and the regulatory supervision.

Yildirim, Yildirim, Erdogan and Kantarci (2022) tested the dependence of innovation on unemployment in 12 EU countries in the period 1998-2015 based on a panel threshold model to identify high and low innovation regimes. The study established that technological innovation though leading to economic and social change, may also enhance unemployment due to labor substitution as machines will substitute the human labor. The effect was recorded in the high- and low-innovation countries thus demonstrating that innovation is not necessarily the cure to joblessness. The literature however indicates that there exist a dual role in which some of the innovations can lead to new employment opportunities in new sectors. The results demonstrate the relevance of policy interventions that can regulate the process of technological change and workforce upskilling to alleviate the negative employment impacts of innovation.

Okeke, Ifebi and Ekesiobi (2023) investigated the effect of financial inclusion on unemployment in Nigeria between 1991 and 2021, collected secondary data through the world bank and analyzed by Autoregressive Distributed Lag (ARDL) model. The research did not establish a significant long-run correlation between the financial inclusion and unemployment, but statistically significant short-run correlation was realized, which shows that financial inclusion can potentially affect the employment levels in the short-run. The results indicate that the higher the availability of financial services, the higher the mobilization of local savings, loanable funds, and investment of the private sector, which creates temporary employment opportunities. The research proposes that the government and the central banks should encourage financial literacy and credit allocation systems so that the citizens and businesses can make the best use of the financial inclusion in the creation of employment.

Tochukwu, Eze, and Okoye (2025) explored how the financial development affects the unemployment rate in Nigeria between 1980 and 2023, its financial access, depth, efficiency, and stability. The article involved the analysis of long-run and short-run impacts using the Nonlinear Autoregressive Distributed Lag (NARDL) model. The results show that, negative shocks to financial access and efficiency play an important role in enhancing unemployment in the long run, whereas financial depth and stability did not play a significant

role. There were no short-run effects of the same, but a negative and significant error correction term means that the relationship is stable in the long-run. The article highlights the fact that financial development indirectly and slowly lowers unemployment. There are recommendations that can be made to the policy, which would encompass financial inclusion, better market efficiency, and financial reforms being synchronized with labor market interventions to ensure sustainable employment growth.

3. RESEARCH METHODOLOGY

The research design in this study involves ex-post facto research design because the research makes use of historical data that cannot be altered by the researcher. In this research, the study considers the role of financial innovation on unemployment in Nigeria between 1993 and 2023. The research is based on the secondary data obtained in Central Bank of Nigeria (CBN) Statistical Bulletin and the World Development Indicators (WDI). The internet usage and the mobile money transactions are used to measure financial innovation and the national unemployment rate respectively measures unemployment. The control variables include gross domestic product growth and inflation. Autoregressive Distributed Lag (ARDL) model is used to examine the short-run and long-run dependence taking into consideration the variables of mixed integration order. Conditional Error Correction model is used to take short-run adjustments to equilibrium. Data characteristics, the relationship between variables, and the strength of the estimated results are analyzed using descriptive statistics, correlation analysis and regression analysis.

Model Specification

The research aims at investigating how financial innovation can influence unemployment in Nigeria. The dependent variable (DV) is the unemployment rate (UNEMP), and the independent variables (IVs) are Internet Usage (INU) and the Mobile Money Transactions (MMT). There are also control variables of the model: GDP growth rate (GDPG), and inflation rate (INF).

The functional form of the model is given as;

$$UNEMP_t = f(INU_t, MMT_t, GDPG_t, INF_t)$$

The econometric specification can be written as:

$$UNEMP_t = \beta_0 + \beta_1 INU_t + \beta_2 MMT_t + \beta_3 GDPG_t + \beta_4 INF_t + \varepsilon_t$$

Where:

$UNEMP_t$ = Unemployment rate at time t

INU_t = Internet usage at time t

MMT_t = Mobile money transactions at time t

$GDPG_t$ = GDP growth rate at time t

INF_t = Inflation rate at time t

β_0 = Intercept, $\beta_1 - \beta_4$ = Coefficients of the variables

ε_t = Error term

4. RESULTS AND DISCUSSION

Descriptive Statistics

	UNEMP	INU	MMT	GDPG	INF
Mean	4.084129	12.62211	1.14E+08	4.464359	17.93051
Median	3.91	8	53318381	4.052034	12
Maximum	5.742	39.2136	6.17E+08	14.60438	76.75887
Minimum	3.074	0	0	-1.92	0.223606
Std. Dev.	0.586653	13.33481	1.56E+08	3.75508	16.29233
Skewness	1.39428	0.619435	2.019485	0.54015	2.436192
Kurtosis	4.407851	1.968707	6.302826	3.085164	8.296717
Jarque-Bera	12.60422	3.35622	35.16168	1.516803	66.90231
Probability	0.001832	0.186727	2.32E-08	0.468414	2.97E-15
Sum	126.608	391.2853	3.53E+09	138.3951	555.8459
Sum Sq. Dev.	10.32485	5334.516	7.33E+17	423.0188	7963.2
Observations	31	31	31	31	31

Source: Author's Computation, (2026)

The table of descriptive statistics gives a closer look at the behavior and distribution of the key variables that are used within the study. The mean value of the unemployment rate is 4.084129 percent meaning that, on average, the level of unemployment in the country was slightly above the four percent mark in the period that the study took place. The lowest unemployment rate was experienced at 3.074 percent and the highest was 5.742 percent, and that indicates that there was fluctuation in unemployment rate though within a moderate and narrow range. The standard deviation of 0.586653 indicates that the differences in unemployment were not so high among the thirty-one observations. Unemployment rate skewness is positive with skewness of 1.39428 which means that there will be more high values of unemployment as opposed to the very low values. It also has a kurtosis 4.407851, which again suggests more peaked distribution than a normal distribution.

The average use of internet is at 12.62211 percent with minimum of zero percent and maximum of 39.2136 percent indicating times of very low and high adoption of internet. Its standard deviation of 13.33481 is large indicating the large changes in internet use over the time. The mean value of mobile money transactions is very large, amounting to 114,000,000 units, with a maximum value of 617,000,000 units, and minimum value of zero, so that it grows rapidly over a low beginning. The value of skew is negative and kurtosis is high, indicating that there are extreme values of mobile money transactions at certain times. The mean of gross domestic product growth is 4.464359 percent and that of inflation is 17.93051 percent with very large variations. The Jarque Bera probability values reveal that, unemployment, mobile money, and inflation are non-normally distributed whilst the internet use and the growth of gross domestic product follow distributions that are more or less normal.

Correlation Matrix

	UNEMP	INU	MMT	GDPG	INF
UNEMP	1	0.456391	0.270455	-0.6075	-0.00955
INU	0.456391	1	0.869121	-0.42717	-0.16778
MMT	0.270455	0.869121	1	-0.35311	-0.0337
GDPG	-0.6075	-0.42717	-0.35311	1	-0.30721
INF	-0.00955	-0.16778	-0.0337	-0.30721	1

Source: Author's Computation, (2026)

The correlation table has given a vivid picture of the correlation among the variables of unemployment, internet connectivity, mobile money transfer, gross domestic product and inflation. There is a positive relationship between unemployment and internet use (0.456391) indicating that as there is an increase in internet usage the unemployment moves in the same direction, the relationship is moderate as opposed to being strong. Another positive relationship that exists with mobile money transactions is less significant and this is 0.270455 where unemployment is strongly associated with mobile money transactions and this implies that as the level of digital financial activity increases, the level of unemployment does not naturally decline. Conversely, the gross domestic product growth and unemployment show a negative correlation of -0.6075 indicating that the time when gross domestic product is increasing is highly correlated with low levels of unemployment. Unemployment and inflation have an almost zero correlation of -0.00955 meaning that the two variables do not have any meaningful relationship.

The relationship between internet use and mobile money transaction is very strong with a correlation coefficient of 0.869121 and this implies that the development of the digital payment system is highly supported by the increased access to the internet. The internet use is also negatively correlated with the gross domestic product growth at a moderate negative level of -0.42717 and negatively correlated with inflation at a weak level of -0.16778. Mobile money transaction is negatively correlated with the gross domestic product growth by a value of -0.35311 and negatively correlated with inflation at a very weak level of -0.0337. The growth in gross domestic product by itself is negatively associated with inflation at a moderate of -0.30721. In general, the digital financial indicators and macroeconomic conditions have significant interdependencies based on the matrix.

The autoregressive distributed lag model gives the insight on the relationship between unemployment and financial innovation in Nigeria. The coefficient of 1.211 indicates that the lagged value of unemployment has a significant positive impact, which translates to the strong influence of the past rates of unemployment on the current unemployment rate and this has a showing

of persistence in joblessness. The usage of internet has a positive and statistically significant coefficient of 0.0419 implying that an increase in internet penetration is linked to a minute growth of unemployment in the short term. This can mean that as the internet access enlarges economic opportunities, it is yet to translate wholly into job creation perhaps because of structural problems in the labor market.

Long-Run ARDL Regression Results

Dependent Variable: UNEMP

Method: ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
UNEMP(-1)	1.211115	0.082651	14.65337	0.0000
INU	0.041878	0.005747	7.28733	0.0000
MMT	1.06E-09	5.95E-10	1.776332	0.092584
MMT(-1)	-1.56E-09	4.06E-10	-3.85447	0.001161
MMT(-2)	-8.28E-09	1.03E-09	-8.05259	0.0000
GDPG	-0.03518	0.010811	-3.25444	0.004402
GDPG(-1)	0.016283	0.01326	1.228004	0.235262
GDPG(-2)	0.016608	0.01076	1.54E+00	0.140126
INF	0.008202	0.004736	1.731647	0.100439
INF(-1)	-0.00355	0.002975	-1.19396	0.24799
C	-0.80589	0.369021	-2.183848	0.042451
R-squared	0.966963	Mean dependent var		4.085931
Adjusted R-squared	0.948609	S.D. dependent var		0.607177
S.E. of regression	0.137645	Akaike info criterion		-0.84658
Sum squared resid	0.341031	Schwarz criterion		-0.32795
Log likelihood	23.27539	Hannan-Quinn criter.		-0.68415
F-statistic	52.68373	Durbin-Watson stat		1.675019
Prob(F-statistic)	0.0000			

Source: Author's Computation, (2026)

The mobile money transfers have mixed impacts. The current period value would be 0.00000000106 which is not significant but the first and second lag values would be -0.00000000156 and -0.00000000828 which are very significant and the past increase in mobile money adoption will reduce unemployment over time. The coefficient of the gross domestic product growth is negative and significant as it is equal to -0.0352, and it indicates that economic growth decreases unemployment, and the lagged values are not significant. The effects of inflation are weak and in most cases, insignificant. On the whole, the model accounts 96.7 percent of the change in unemployment with the implication that the financial innovation especially the adoption of mobile money over time is relevant in the elimination of joblessness though the use of the internet alone has failed to yield immediate changes.

Short-Run Conditional Error Correction Results

Variable *	Coefficient	Std. Error	t-Statistic	Prob.
INU	-0.19837	0.083757	-2.36834	0.0263
MMT(-1)	4.16E-08	1.56E-08	2.664142	0.0136
GDPG(-1)	0.010854	0.059263	0.18315	0.856219
INF(-1)	-0.22022	0.016848	-1.30709	0.203567
C	3.817287	0.499487	7.642421	0.0000

Note: * Coefficients derived from the CEC regression.

Source: Author's Computation, (2026)

The Conditional Error Correction regression results give an idea about the short run dynamics between the financial innovation and unemployment in Nigeria. The coefficient of internet usage is negative and statistically significant of -0.19837 with probability value of 0.0263 meaning that one percent point increase in internet penetration is related to a decrease in unemployment of around 0.198 percent in the short run. This implies that the increased availability of the internet will increase chances of being employed, presumably through information access, online jobs and entrepreneurship.

The mobile money adoption lag of the first lag has a positive and significant coefficient of 0.0000000416, with a probability of 0.0136, which means that the increase in mobile money adoption in the past is linked to a small increase in unemployment in the short run, which may be attributed to the adjustment phases in the economy, as digital finance is adopted. The initial lag of the gross domestic product growth coefficient is 0.010854, which is not statistically significant and means that past changes in the economic growth do not have an immediate impact on the unemployment. The same can be said about the first lag of inflation, which is not significant, as the coefficient is negative and equals to -0.22022. The constant term is 3.817287, and it is very significant, which is the under

level of unemployment in the case that other factors are assumed the same. These findings indicate that the use of the internet is important in short-term mitigation of unemployment and that mobile money may take further time before it can make any significant impact on the employment status.

Bounds Test for Cointegration

Test Statistic	Value
F-statistic	20.481971

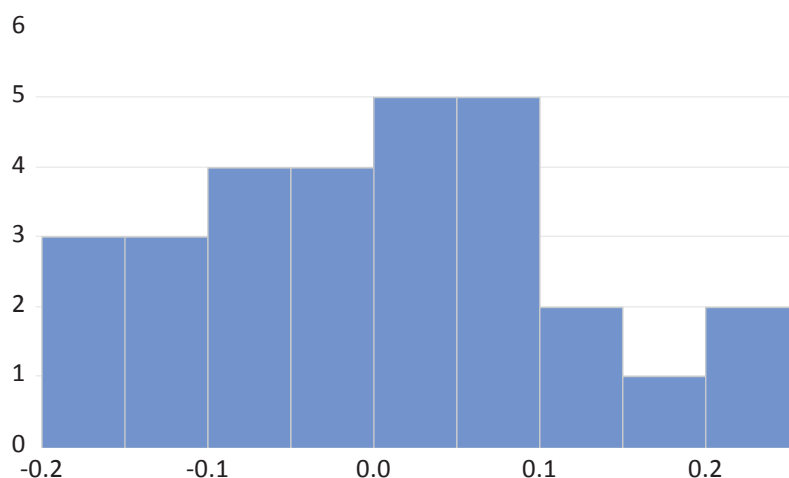
The cointegration test shows that the long-run relationship of the variables in the study is statistically significant. The F-statistic result of 20.482 is significantly greater than the conventional critical values of the null hypothesis, and thus one rejects the null hypothesis that no level relationship exists. This implies that there is a long run relationship between unemployment, internet use, mobile money transactions, gross domestic product growth and inflation, and this is proving that there is a long run equilibrium relationship between the variables in Nigeria. The outcome is worth the application of the ARDL methodology to determine both short and long-term dynamics of financial innovation on unemployment.

Bounds Test for Critical Values for Cointegration

	10%		5%		1%	
Sample Size	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
30	2.525	3.56	3.058	4.223	4.28	5.84
Asymptotic	2.2	3.09	2.56	3.49	3.29	4.37

* I(0) and I(1) are respectively the stationary and non-stationary bounds.

The table shows critical values of ARDL cointegration test at the 10, 5 and 1 percent. The I(0)-values are the lower bounds, when all the variables are stationary whereas the I(1)-values are upper bounds, when all the variables are of order one. The critical values at 5 percent level in 30 samples are 3.058 in case of I(0) and 4.223 in case of I(1). When this is compared with the calculated value of the F-statistic, which is



Series: Residuals	
Sample 3 31	
Observations 29	
Mean	1.81e-16
Median	0.003776
Maximum	0.225519
Minimum	-0.173994
Std. Dev.	0.110362
Skewness	0.319726
Kurtosis	2.495012
Jarque-Bera	0.802228
Probability	0.669574

Fig. 1. Residual Normality Test
Source: Author's Computation, (2026)

20.482, it is evident that the F-statistic is significantly greater than the upper limit of the traditional values of significance. This proves the null hypothesis that the variables are not related in the long-run to be rejected. Hence, the finding endorses the hypothesis of a steady long-term correlation amidst unemployment, the use of the internet, mobile money, gross domestic product growth, and inflation, which justifies the use of the ARDL method to estimate the short-term as well as the long-term effect of the research.

The histogram and the summary statistics that are provided analyze the hypothesis of whether the residuals of the ARDL model follow a normal distribution. The mean of the residuals is too close to 0 (0.000000000000000181), which is also to be expected in a well-specified regression model. The fact that the median is about 0.0038 also supports the point that the residuals are symmetrically distributed around 0. By the maximum residual (0.2255) and the minimum residual (-0.1739), the spread of the residuals is not much, and it does not have any serious outliers. The standard deviation in the values of 0.1104 indicates a moderate variation of the residues around the mean. The skewness of the result at 0.3197 is near to zero, which means that the skewness of the residuals is not very much skewed to the right. Its value (2.4950) of the kurtosis is not far off the benchmark value of 3 in normal distribution, and hence, no indication of extreme peakedness or flattening. Most significantly, Jarque-Bra statistic makes 0.8022 and a probability value of 0.6696, which is much higher than the traditional 5 percent significance level. This implies that the null hypothesis of normally distributed residues could not be rejected. On the whole, the statistical findings and histogram indicate that the residuals are normally distributed. This is the confirmation that the ARDL model is defined in a proper manner and that the regression estimates can be reliable in terms of interpretation and policy analysis.

Discussion

The results of the study are that financial innovation has both short-run and long-run implications on unemployment in Nigeria, although to a certain extent are consistent with the current empirical research. Short-term, the research concludes that the use of the internet produces a considerable decrease in unemployment, which means that the accessibility to online platforms and digital resources has an immediate impact on the employment and entrepreneurship. This aligns with the observations of Augustine et al. (2023), who reported that the higher POS systems and mobile banking adoption in urban Nigeria, the more small-scale businesses grew and the less young people lost their jobs. However, mobile money payments demonstrate a positive impact in the short run, which implies a transition phase prior to the full employment advantages of digital finance. The growth at the gross

domestic product leads to a minor decrease in the unemployment rate, which demonstrates that even the short-term economic growth could create jobs, whereas inflation has weak and statistically unimportant implications on the unemployment rate, and the price changes cannot significantly influence the labor market performance in a short period.

These results are consistent with the findings of Okeke, Ifebi, and Ekesiobi (2023), who discovered financial inclusion as having short-run employment benefits. Financial innovation, and especially mobile money adoption, in the long run, will make a considerable dent in unemployment rates testifying to the fact that digital financial systems stabilize and increase the employment opportunities in the long term. Use of internet still contributes towards employment, even though the impact in the long run is not as significant as the use of mobile money. According to Adewale and Adeyemo (2024), gross domestic product growth in most instances lowers the rate of unemployment because it is one of the determinants of growth of employment in the long term. Inflation is not so meaningful in the long-run, which means that it does not have a significant effect on the level of employment. Such findings emphasize that financial innovation, in conjunction with macroeconomic stability, is a key aspect in terms of long-term job creation in Nigeria, implying that there is the need to support policies, develop infrastructure, and offer digital skills training.

5. Conclusion and Recommendations

Conclusion

This paper has explored how financial innovation affects unemployment in Nigeria, 1993-2023. The results indicate that financial innovation, as indicated by the use of internet and the adoption of mobile money has considerable impacts on the employment both in the short and long term. The internet access is a highly strong negative factor that affects unemployment in the short run and mobile money adoption is a lagged adjustment effect, which means it takes time before digital financial innovations can change the labor markets. Financial innovation, especially mobile money transactions, in the long-run, causes a significant decrease in unemployment which proves that digital finance leads to long-term job creation and stability of the economy. Moreover, macroeconomic variables including gross domestic product development and inflation also impact unemployment, where economic development has always reduced unemployment both in the short-term and long-term studies though inflation has minimal effects. These results highlight the need to increase financial inclusion and digital financial services as the means of increasing opportunities in employment in Nigeria. On the whole, the analysis of the paper proves that financial innovation in collaboration with sound economic policies and the development of infrastructure are the keys to overcoming unemployment.

Recommendations

1. The research suggests that the government and other interested parties increase internet connectivity and advance digital literacy to enhance the opportunity to access the internet-based employment opportunities and facilitate entrepreneurial actions.

2. The use of mobile money should be promoted by providing specific awareness campaigns, improving the level of security, and facilitating the process of transactions so that more people would use it and benefit in terms of job creation.

3. The policy makers are expected to concentrate in the growth of the economy through investment in productive areas and keeping prices steady thus generating more employment opportunities and low unemployment rates.

4. The government and regulation bodies should intensify the policies of financial inclusion and offer training programs to impart the digital skills to people to make sure that financial innovations play a positive role in long-term employment creation.

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ФІНАНСОВІ ІННОВАЦІЇ ТА БЕЗРОБІТТЯ: ЧИ СПРИЯЄ ЦИФРОВЕ ФІНАНСУВАННЯ ЗМЕНШЕННЮ БЕЗРОБІТТЯ В НІГЕРІЇ?

У статті досліджується взаємозв'язок між фінансовими інноваціями та рівнем безробіття в Нігерії упродовж 1993–2023 років із використанням даних Центрального банку Нігерії та World Development Indicators. Для аналізу короткострокових і довгострокових ефектів застосовано модель авторегресії з розподіленими лагами (ARDL). Результати свідчать, що зростання рівня використання Інтернету пов'язане зі скороченням безробіття у короткостроковій перспективі, оскільки сприяє пошуку роботи та розвитку онлайн-підприємництва. Водночас короткострокове використання мобільних грошових переказів позитивно корелює з рівнем безробіття через початкові адаптаційні процеси на етапі впровадження цифрових платіжних технологій. Натомість у довгостроковому періоді мобільні платежі чинять негативний вплив на безробіття, оскільки накопичений ефект їх використання сприяє створенню нових робочих місць і розширенню фінансової інклюзії. Встановлено, що зростання валового внутрішнього продукту (ВВП) знижує рівень безробіття як у короткостроковому, так і в довгостроковому періодах, підтверджуючи його ключову роль як чинника створення робочих місць. Інфляція має обмежений вплив на безробіття: у короткостроковій перспективі спостерігається незначний позитивний зв'язок, що свідчить про тимчасові труднощі на ринку праці в умовах зростання цін. У дослідженні наголошується на важливості фінансових інновацій та макроекономічної стабільності для скорочення безробіття. Запропоновано рекомендації щодо розширення доступу до Інтернету, підвищення рівня цифрової грамотності, стимулювання використання мобільних фінансових сервісів, підтримки економічного зростання та реалізації політики, спрямованої на розвиток фінансової інклюзії.

Ключові слова: фінансові інновації; безробіття; інфляція; Нігерія; ARDL.

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