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IMPACT OF CONSTRUCTION INVESTMENT ON THE UNEMPLOYMENT RATE IN NIGERIA

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ABSTRACT

Nigeria being an export-driven economy with a primary focus on oil and gas has a high rate of unemployment. However, the construction industry as a labour-intensive economic sector may provide the prospect for full employment. Hence, this study investigates the effect of construction sector investment on the unemployment rate. Time series data was extracted from the World Bank's World Development Indicators (WDI) for the years 1991 through 2020. The study adopted multiple regression and Autoregressive Distributed lag (ARDL) models for analyzing the data. From the result, the models' estimate indicates that the only significant predictor of the current unemployment rate is the lagged unemployment of the previous year. Both the construction investment growth rate and the rate of economic growth do not have a substantial effect on the current unemployment rate which is contrary to Okun's law. Based on the findings, this study recommends diversification of the economy in favour of labour-intensive sectors like construction and manufacturing for sustainable solutions to unemployment in Nigeria.

Keywords: Construction industry, Construction investment, Economic growth, Nigeria, Unemployment rate

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1. INTRODUCTION

The unemployment rate captures the ability of an economy to generate employment opportunities for those who wish to work or are employable. The unemployment rate is thus a measure of the level of efficiency and effectiveness of an economy to actively engage its labour force and the performance of the labour market (International Labour Organization, 2021). Goods and services are produced by the labour force that embodies the growth and development of the economy. Without a doubt, unemployment is a fundamental socioeconomic challenge in most developing economies including Nigeria. The high and rising unemployment rate remains one of the most difficult problems of the Nigerian economy.

Most developing economies globally suffered stagnation as they became dumping ground for goods and services produced by developed economies. Many professionals and intellectuals migrated to more developed economies for better social and economic privileges. Besides, when the economic growth rate is below the population or when the supply of labour is above the demand for labour, economic crises such as recession, increase in wages, change in the structure of the economy, etc occur (Akeju and Olanipekun, 2015; Jajere, 2016). In developing economies, the economic structure is characterized by over-dependence on capital-intensive extractive industries, which are unable to generate a high growth rate to sustain industrialization and the elimination of unemployment challenges (Enejoh and Tsauni, 2017; Soylu et al., 2018; Kukaj, 2018). Consequently, this informs the growing rate of unemployment among countries in Sub-Sahara Africa. Some West African countries are among the worst in the world in terms of the unemployment rate, for example, Burkina Faso (77%) and Senegal (48%) as of 2017(O'Neill, 2021). In Nigeria, the unemployment rate is alarming as of 2018 q3 depicting that the Nigerian labour force was about 90.5million, full-time employment (at least 40hrs/week) was 51.3million, part-time employment/underemployed was 18.21million, total unemployed (at most 20hrs/week) 20.9million, which translates to unemployment rate of 23.1percent and underemployment rate of 20.1percent. The latest statistics of 22.8 per cent under-employment rate and 33.3 per cent unemployment rate for 2020q4 is no doubt frightening (NBS, 2020). Little wonder the country is facing a severe social crisis of kidnapping, armed robbery, cybercrime, banditry, extremism, destitution and prostitution which are very detrimental to the society. Thus, the need for government to provide leadership objectives towards full employment for peace and stability to reign (Ţoţan et al., 2013).

The negative effects of unemployment on social and economic development are no doubt huge and as such, most governments strive to implement policies to expand the economy or improve production as a means of increasing employment and meeting long-run macroeconomic objectives (Seth et al., 2018; Korkmaz, 2020). For the economy as a whole, studies have been conducted to investigate how unemployment impacts economic growth in Nigeria (Akeju and Olanipekun, 2015; Obi and Ugulu, 2022). However, the construction sector is no doubt a significant sector of any nation's economy with its high labour content in developing economies. Despite the challenges faced by the construction industry in terms of the over-dependence of the economy on foreign exchange (Saka and Moyanga, 2023), adverse government policies, etc, the construction sector is responsible for providing housing, building and infrastructure development. More importantly, the construction industry with its labour-intensive nature has the potential to address the challenges of unemployment. Furthermore, the demand for construction is very appalling with over 20 million housing needs and the condition of physical infrastructure like transport and energy across Nigeria (Okoye et al., 2016; Moore, 2019; Borgenproject, 2022). Thus, in contrast to the empirical literature centered on relating economic growth with unemployment, this current study investigates the impact of the construction sector in terms of investment on unemployment in Nigeria.

2. LITERATURE REVIEW

2.1 Theoretical Background and Review on Unemployment

One of the theories on unemployment is the Phillips Curve. Phillips (1958) used an OLS regression model for UK time series data on money wage rates and the unemployment rate for the period 1861 through 1957 and found a stable and inverse non-linear relationship between money wage rates and unemployment rate. The study also finds that money wage rates have significant relationships with the unemployment rate and the rate of change of unemployment except in years following a rapid rise in import prices. The study further reveals that in non-rapid import price years, if productivity increases by 2 per cent per year and aggregate demand is at a level to maintain a stable product price level, then the likely unemployment rate will be just below 2.5 per cent. However, if aggregate demand is at a level compatible with stable wage rates then the corresponding level of unemployment rate is below 5.5 per cent. The Phillips curve suggests that the rate of unemployment reduces with a high inflation rate. This implies that policy can trade off a high inflation rate for a low rate of unemployment and conversely. Thus, the Phillips curve is adopted in policy to study unemployment and inflation rates for the optimal performance of the economy.

A growing number of studies focused on the Phillips curve. Llaudes, (2005) examines the effects of long-term unemployment on prices and wages using OECD data. The paper uses a modified Phillips curve with an index for time-varying unemployment length in the framework of non-accelerating inflation rate of unemployment (NAIRU). In other words, unemployment length in the curve is assigned a specific weight. The study discovered that unemployment significantly affects prices and wages. The paper concludes that the modified Phillips curve is more efficient in forecasting inflation and estimating the NAIRU. The paper recommends that the assigned weight should be inversely related to the unemployment length. Russell and Banerjee (2008) estimate a Phillips curve that incorporates non-stationary properties of inflation and finds significant relationships between inflation and unemployment. Vlekke et al., (2020) examine the stability of the coefficient on the unemployment gap using time-varying linear Phillips curve models. The study evaluated inflation and inflation expectations and used the state space method and Bayesian estimation for the US and five leading EU economies. The study concludes that for the US the Phillips curve has been useful for headline inflation but not as useful in core inflation. In the euro area, how inflation affects employment is based on time and country though it has been unstable since the 1990s.

Another theory of unemployment is Okun's Law. The lowest sustainable unemployment rate is achievable in full employment given the economic institutions and structure of the labour force. The natural rate of unemployment includes frictional and structural unemployment. Potential output is the output at the NRU and the target level of capacity utilization. The extent to which unemployment relates to output is being captured by Okun's law. Okun's law helps policymakers to relate the unemployment rate with output. Okun's law suggests that during the business cycle, unemployment is inversely related to output. In other words, as output increases unemployment decreases and conversely. Okun's law states that for a 2% increase in the actual gross domestic product (GDP) above the probable GDP, the rate of unemployment declines by 1%. This implies that to sustain the same level of unemployment, the actual GDP must grow at the same rate as the potential GDP. If the growth of the actual GDP is faster than the probable GDP, unemployment falls. Similarly, if the growth of the potential GDP is faster than the actual GDP, unemployment increases. However, unemployment and output may sometimes be positively related. This is the case when productivity increases to the extent that it can cover unemployment (Aynaoui and Aomar, 2016; Obodoechi and Onuoha, 2019).

A growing number of studies investigated Okun's law in different economies. Rahman and Mustafa (2016) investigate the validity of Okun's law in the context of Australia. The study finds that Okun's law presents an easy and perfect approach to managing the rate of unemployment and potential growth of output in Australia. It estimates potential output growth that is imperfect and varies/changes over time. Dankumo et al., (2019) examine Okun's law using Nigerian TSD on unemployment, growth, corruption and political instability for the period 1996 through 2017. The paper uses the ARDL model for analysis. The study finds a relationship between growth, corruption, unemployment and political instability in the long run. Additionally, political instability negatively and significantly affects growth while unemployment and corruption do not significantly affect growth. The study concludes that the nexus between unemployment and growth in Nigeria was not explained by Okun's law. It suggests the reduction of unemployment through subsidies and concessional loans to improve productivity and sustainable growth. An et al., (2021) investigate Okun's law across economies and workers. The study finds that unemployment is more responsive to the developed economy than emerging economies and developing economies, youth unemployment is more significant to economic growth than adults and women unemployment is less responsive to developed economy than men. The study thus concludes in favour of heterogeneous relationships between the economy and unemployment across various economies and workers. Vang, (2021) examines Okun's law in the context of the five Nordic countries. The study analyses the association between growth and unemployment in the welfare state. The study finds significant associations between growth and unemployment rate which is consistent with Okun's law. The study concludes that though significant relationships exist, the Okun law may only be applied as a rule of thumb.

2.2 The Construction Industry and Demands for Construction

The construction sector in Nigeria had a modest beginning under the British colonial administration with public works including roads, railways, ports, housing public buildings etc. The 1960s independence era witnessed an increase provision of infrastructure for the young nation through the first national development plan (NDP). Additionally, local production of construction materials has improved significantly in cement, steel, aluminium and petrochemical materials (AfDB/OECD, 2003; Oghifo, 2010; Vetiva, 2011). Besides, the construction industry is suffering from several constraints that have been stumbling blocks to its development and economic impact. These constraints include jobless economic growth; weak linkages to other sectors of the economy; the growing dependence on foreign inputs; the deployment of inappropriate foreign practices; scarcity and high cost of construction resources including labour, material and technology obsolescence and so on (Iheme and Chiagorom, 2018). One of the factors

of high unemployment is the declining provision of construction facilities including housing, transport energy etc. However, the labour-intensive nature of construction is very important for minimizing unemployment.

Construction investment is due to the need for the provision of capital goods. The public sector is responsible for at least 60 construction works and over 90 per cent of engineering works. Furthermore, the government through its fiscal and monetary policy exerts an overbearing influence on private construction demand. Construction demand is therefore highly unstable and susceptible to policy and business cycles. More recently, the level of internationalization of construction demands is increasing with the growing importance of International Capital Flows (ICFs) in developing economies.

3. METHODOLOGY

This study adopted the econometric method in investigating the impact of construction investment on the unemployment rate in Nigeria. Econometrics involves the method by which mathematics and statistics are applied to study economic phenomena. The methodology of econometrics encompasses the procedure of statement of economic theory, mathematical and statistical modelling of the theory, data preparation, empirical estimation, testing hypothesis, forecasting or prediction and the application of the model. Through the econometric method, this study used the multiple regression and Autoregressive Distributed lag (ARDL) models to estimate the time series data. This time series data on the gross domestic product, unemployment rate, construction growth rate, etc were extracted from the World Bank's World Development Indicators (WDI) for the period of 30 years (the year 1991 through to the year 2020). Regression models help analyse the dependence relationships between the regressand (dependent variable) and the regressor (independent variable). In other words, the regression model helps to estimate and predict the value of regressand from the known value of the regressor. The popular method of estimation used in a regression model is the ordinary least square (OLS) method. The least squares method has proven to be very powerful and attractive in econometrics. The ARDL model is described based on the combination of two models, which include;

a) Distributed Lag Model (DLM) - This is a regression model with both the current and lagged values of the regressors (independent variables).
b) Autoregressive (AR) Model - This is a model with a lagged value of the regressand as regressors.

The DLM and AR models are used widely in econometrics to investigate relationships among dynamic variables for policy.

In this study, the econometric procedure used is the tests of stationarity and co-integration to model the relationships among the time series data. Whereas for the lag selection, the number of lagged values in the regression model is achieved by Akaike (AIC) or the Bayes (BIC) information criteria, Schwarz Information Criteria (SIC) etc. The study adopted the number of lags that are common among the test criteria. However, for robustness of the dynamic specification the model lags length is determined using AIC, BIC SIC etc.

3.1 Test for Stationarity and Cointegration

Regression models are based on the assumption that the underlying time series data are stationary or at least cointegrated. In the test for stationarity, a random process is said to be stationary if its mean and variance are invariant with time and the covariance between any two given periods is invariant to the exact time of the covariance but only dependent on the distance between the two time periods. Put differently a stochastic process is said to be stationary if the mean, variance and autocorrelation are constant irrespective of the measurement time. The various means of testing for stationarity of time series data are graphical analysis, correlogram and the unit root test. The study adopts the unit root test. The unit root test is a very popular test for stationarity. The study deploys the Augmented Dickey-Fuller (ADF) test and the Phillips–Perron (PP) test.

a) Augmented Dickey-Fuller (ADF) Test
The ADF is an improvement over the Dickey-Fuller (DF) test by augmenting with the addition of the lagged values of the dependent variable when the error term is serially correlated. The ADF test is presented in Equation 1 (Dickey & Fuller, 1979).

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \alpha_i \sum_{i=1}^{m} \Delta Y_{t-i} + \varepsilon_t \qquad \text{eqn. 1}$$

Where ε_t is the error term, ΔY is the difference of Yt.

b) Phillips –Perron(PP) Test
This is similar to ADF but the nonparametric approach is used to manage the serial correlation of the error term et. (Phillips & Perron, 1988).

3.2 Co-integration Test

Co-integration literature has evolved in the last hundred years (Engle & Granger, 1991; Johansen & Juselius, 1995). Co-integration is used to establish the validity of relationships between two or more-time series data. If the linear combination of two time series data individually I(1) is stationary i.e. I(0), then they are said to be co-integrated. This implies that the regression model for the two-time series data is free from spurious results and meaningful. There are several tests for co-integration including the Engle-Granger test, the co-integration regression Durbin Watson (CRDW) test and the Johansen test (Mazzi et al., 2016). The study adopts the Johansen test methodology.

a) Granger Causality Test
A regression model to test whether a variable is useful in predicting another variable significantly. Thus in a regression model with both autoregressive (Yt) and DL (Xt). If X improves the predictability of Y, then X is said to granger cause Y (Gujarati, 2003) as given in equations 2 and 3.

$$Y_t = \sum_{i=1}^{n} \alpha_i Y_{t-1} + \sum_{j=1}^{n} \beta_j X_{t-j} + u_{1t} \quad \text{eqn. 2}$$

$$X_t = \sum_{i=1}^{n} \lambda_i Y_{t-1} + \sum_{j=1}^{n} \delta_j X_{t-j} + u_{2t} \quad \text{eqn. 3}$$

3.3 Model Specification

The effect of construction investment on unemployment was operationalized through four (4) hypotheses as presented in equations 4 to 7. Model 1 describes the regression model with only one qualitative or dummy variable regressor, operationalizing the relationship between the unemployment rate and the construction industry growth rate. For models 2 – 4, the regression model estimated the lagged variables as well as the regressors for both quantitative and qualitative variables. The regressors were operationalized for more than one year to determine the lagged effects.

Model 1: Simple regression

$$URILO_t = \alpha + \beta_t CNSIGR_t \quad \text{eqn. 4}$$

Model 2: Distributed lag model

$$URILO_t = \alpha + \beta_0 CNSIGR_t + \beta_1 CNSIGR_{t-1} + \beta_2 CNSIGR_{t-2} + u_t \quad \text{eqn. 5}$$

Model 3: Autoregressive Distributed Lag (ARDL) model

$$URILO_t = \alpha + \beta_1 CNSIGR_{t-1} + \beta_2 CNSIGR_{t-2} + \gamma_1 URILO_{t-1} + \gamma_2 URILO_{t-2} + u_t \quad \text{eqn. 6}$$

Model 4: Autoregressive distributed lag (ARDL) model

$$URILO_t = \alpha + \beta_1 CNSIGR_{t-1} + \beta_2 CNSIGR_{t-2} + \gamma_1 URILO_{t-1} + \gamma_2 URILO_{t-2} + \lambda_1 GDPGR_{t-1} + \lambda_2 GDPGR_{t-2} + u_t \quad \text{eqn. 7}$$

Unemployment Rate -International Labour Organisation (URILO) is the proportion of the total unemployed to the total employable labour force as calculated by the ILO.
Gross Domestic Product (GDP) is the aggregate monetary value (in US$) of all economic activities for the production of goods and services within Nigeria irrespective of the nationality of the labour within the fiscal year at 2015 price.
GDP Growth Rate (GDPGR) is the annual growth rate of GDP2015, in other words, the annual rate of change of the GDP2015.
Construction Sector Investment(CNSI) is the total monetary value(US$) of all activities for the production of goods and services in the Nigerian construction industry (NCS) including all inputs from other sectors (industries) irrespective of the nationality of the labour within the fiscal year at 2015 price.
CNSI Growth Rate (CNSIGR) is the growth rate of the CNSI; In other words, the annual rate of change of the CNSI.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistic

The statistics in Table 1 indicate that URILO has a mean and standard deviation of 4.571000 and 1.721770; the GDPGR has a mean and standard deviation of 4.094155 and 3.916751; and lastly, the CNSIGR has a mean and standard deviation of 1.098530 and 4.893997. This indicates that among the series the smallest mean value is the CNSIGR (1.098530) and the highest mean value is the URILO (4.571000). This implies that during the period, unemployment grew faster than the economy and construction. The spread of the series as measured by the standard deviation is highest with CNSIGR (4.893997) and lowest with the CNSIGR (1.721770). This implies that during the period under review, the most volatile was the construction industry and the most stable was the unemployment rate. This may not be unconnected with the volatility of the Nigerian economy due to the over-dependence on the international commodity market. This overdependence on oil-driven growth has been favourable to minimising unemployment due to its jobless growth. The oil sector is capital-intensive and alien to the Nigerian economy.

Table 1: Descriptive statistics of the series URILO, CNSIGR and GDPGR

	URILO	GDPGR	CNSIGR
Mean	4.571000	4.094155	1.098530
Median	3.830000	4.430733	1.816336
Maximum	9.010000	15.32894	12.16009
Minimum	3.590000	-2.035047	-8.850351
Std. Dev.	1.721770	3.916751	4.893997
Skewness	1.835270	0.426478	0.012579
Kurtosis	4.550835	3.522829	2.626711
Jarque-Bera	19.84744	1.251104	0.174972
Probability	0.000049	0.534966	0.916232
Sum	137.1300	122.8247	32.95590
Sum Sq. Dev.	85.97027	444.8872	694.5850
Observations	30	30	30

4.2 Line graph

The graph of the series in Figure 1 indicates that the lowest and highest points of URILO are 1991 and 2020 respectively. The URILO indicates a trend. The graph of GDPGR is volatile with the lowest and highest points are 2002, and 2016/2020 respectively. The line graph of CNSIGR is even more unstable/volatile with the lowest point in 2016 and the highest point in 2003.

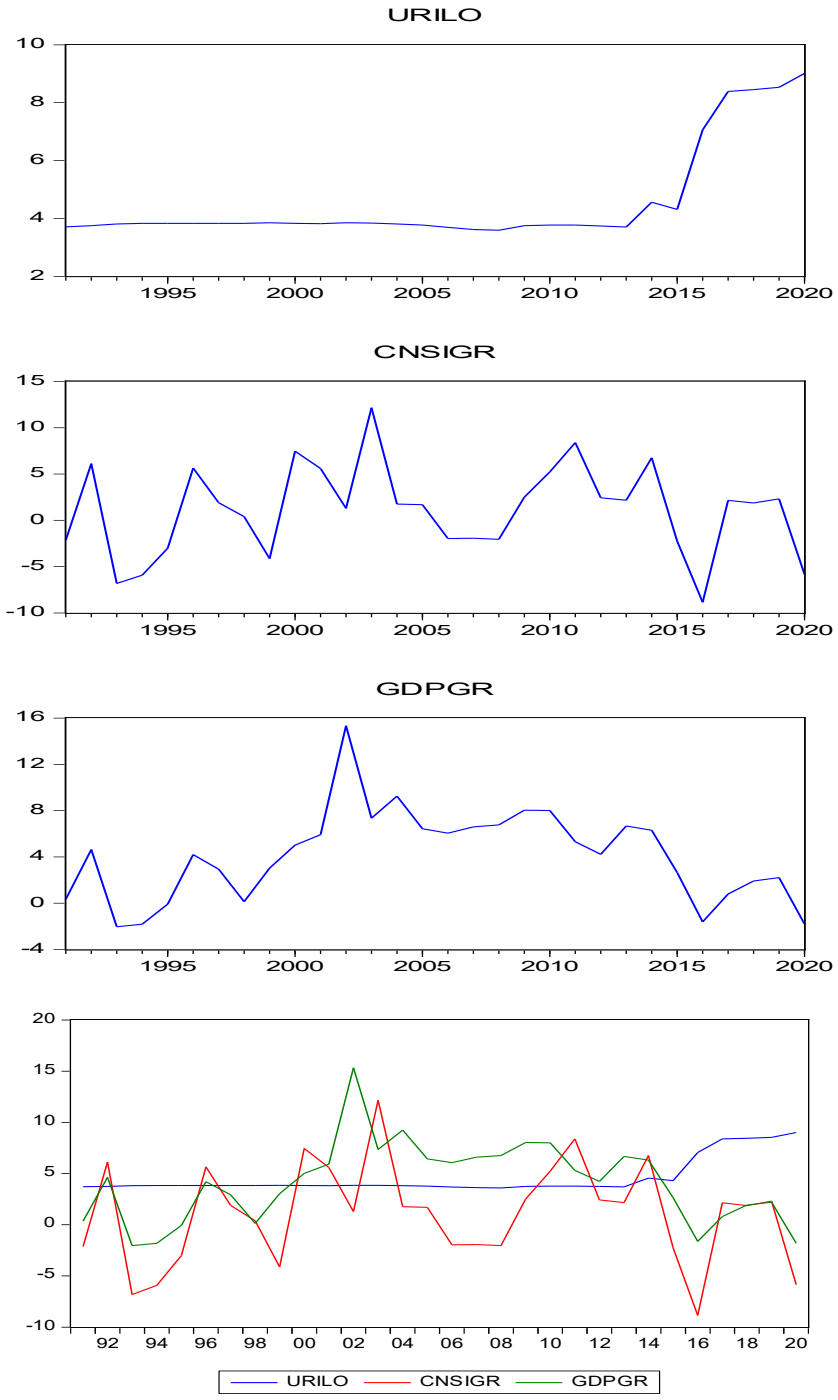

Figure 1: Line Graph of URILO, CNSIGR and GDPGR between the years 1991 and 2020

4.3 Test for Stationarity

The estimate of the test for unit root using the popular ADF and PP tests indicates that the GDPGR is I (1), whereas the CNSIGR and URILO are stationary at I(0) (refer to Table 2).

Table 2: Estimates of ADF and PP tests for unit roots

	ADF level		ADF 1st diff.		PP level		PP 1st diff.		
	Intercept	Trend & Interc	Intercept	Trend & Interc	Intercept	Trend & Interc	Intercept	Trend & Interc	
GDPGR	0.3592	0.1069	0.0000	0.0000	0.0160	0.0663	0.0000	0.0000	I(1)
CNSIGR	0.0000	0.0003	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	I(0)
URILO	0.0227	0.8191	0.9793	1.0000	0.9964	0.9849	0.0035	0.0046	I(0)

4.4 Lag Selection for VAR Model

Table 3 shows the test estimate for lag selection suggests two lags for the criteria including LR (likelihood ratio), FPE (final prediction error), AIC (Akaike Information Criterion), SC (Schwarz Information Criterion) and HQ (Hannan-Quinn Information Criterion).

Table 3: Lag order selection criteria

VAR Lag Order Selection Criteria: Endogenous variables: URILO CNSIGR GDP2015GR						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-190.9098	NA	603.4235	14.91614	15.06130	14.95794
1	-154.6432	61.37425*	74.62403*	12.81871*	13.39937*	12.98591*
2	-146.1943	12.34831	80.50284	12.86110	13.87726	13.15372
3	-142.9253	4.023425	136.1032	13.30195	14.75360	13.71997
4	-138.8744	4.050851	236.2417	13.68265	15.56979	14.22608

4.5 Estimates of Regression Model

Model 1 (Simple Regression Model)

The estimate of model 1 indicates that the CNSIGR has a negative but insignificant effect on URILO. The CNSIGR indicates that a 1 per cent point increase in CNSIGR reduces the unemployment rate by 0.07 per cent point but is not significant (t= -1.122533; p-value =0.2712). The model fit is abysmally low with R^2=0.043065, F-statistics = 1.260080 and p-value =0.271170 (refer to Table 4).

Model 2 (Distributed Lag Model (DLM))

The estimates of the DLM indicate that none of the three regressors is significant. Current and lagged CNSIGR though insignificant are however inversely related to the unemployment rate. For every one per cent growth in the current CNSIGR, there is a 6.6954 per cent fall in the unemployment rate but not significant. Similar outcomes were recorded for CNSIGR (-1, -2). This implies that the growth of construction reduces the problem of unemployment but is not significant. Thus the construction industry has the potential to eliminate the unemployment rate in Nigeria. The model fit is too low with an R^2 of 11.00 per cent, F-statistics of 1.071818 and p-value of 0.378188 (refer to Table 4).

Model 3 (Autoregressive Distributed Lag (ARDL) Model)

The empirical estimates of model 3 indicate that only the one-year lagged or previous year unemployment rate (URILO (-1)) is significant on the current unemployment rate out of the four regressors (t= 5.603150; p-value=0.0000). The lagged URILO (-2), and CSNIGR (-1, -2) have no significant effect on the current unemployment rate. The model estimate points to the cumulative or inertia nature of the unemployment rate in Nigeria given the low and declining growth rate of the construction industry. The model fit is excellent with R^2 of 0.908647 per cent, F-statistics of 57.19265 and p-value of 0.00000 (refer to Table 4).

Model 4 (Autoregressive Distributed lag (ARDL) model)

The estimate of model 4 indicates that once again the only significant regressor among the six regressors is the one lag or previous year unemployment rate –URILO (-1) (t=5.156077; p-value =0.0000). The estimate further shows that URILO (-2), CNSIGR (-1,-2) and GDP (-1, -2) have no significant effect on the current unemployment rate. This once again implies that the unemployment rate is cumulative and keeps piling up from the previous year. An indication that both construction and economic growth rates are unable to generate enough jobs to significantly reduce the unemployment rate. The model fit is excellent with R^2 of 91.15 per cent, F-statistics of 36.05165 and p-value of 0.0000 (refer to Table 4).

Table 4: Regression Model Estimates

Model 1: Simple Regression Model Dependent Variable: URILO Method: Least Squares	Variable	Coefficient	Std. Error	t-Statistic	Prob.
	C	4.651202	0.321003	14.48960	0.0000
	CNSIGR	-0.073008	0.065039	-1.122533	0.2712
	R-squared	0.043065	F-statistic		1.260080
	Adjusted R-squared	0.008889	Prob(F-statistic)		0.271170
Model 2: Distributed Lag Model (DLM) Dependent Variable: URILO Method: Least Squares	Variable	Coefficient	Std. Error	t-Statistic	Prob.
	C	4.852392	0.352034	13.78386	0.0000
	CNSIGR	-0.066954	0.065244	-1.026214	0.3142
	CNSIGR(-1)	-0.060977	0.056756	-1.074362	0.2925
	CNSIGR(-2)	-0.051456	0.056604	-0.909053	0.3717
	R-squared	0.110060	F-statistic		1.071818
	Adjusted R-squared	0.007375	Prob(F-statistic)		0.378188
Model 3: Autoregressive Distributed Lag (ARDL) Dependent Variable: URILO Method: Least Squares	Variable	Coefficient	Std. Error	t-Statistic	Prob.
	C	-0.095955	0.381674	-0.251405	0.8037
	URILO(-1)	1.170426	0.208887	5.603150	0.0000
	URILO(-2)	-0.106855	0.237838	-0.449277	0.6574
	CNSIGR(-1)	-0.037342	0.024121	-1.548095	0.1353
	CNSIGR(-2)	0.028812	0.024178	1.191664	0.2455
	R-squared	0.908647	F-statistic		57.19265
	Adjusted R-squared	0.892760	Prob(F-statistic)		0.000000
Model 4: Autoregressive Distributed Lag (ARDL) Dependent Variable: URILO Method: Least Squares	Variable	Coefficient	Std. Error	t-Statistic	Prob.
	C	-0.158386	0.520977	-0.304018	0.7641
	URILO(-1)	1.133371	0.219813	5.156077	0.0000
	URILO(-2)	-0.058481	0.254428	-0.229852	0.8204
	CNSIGR(-1)	-0.038655	0.029621	-1.304967	0.2060
	CNSIGR(-2)	0.021583	0.029196	0.739256	0.4679
	GDPGR(-1)	-0.024505	0.041327	-0.592937	0.5596
	GDPGR(-2)	0.032150	0.043686	0.735935	0.4699
	R-squared	0.911508	F-statistic		36.05165
	Adjusted R-squared	0.886225	Prob(F-statistic)		0.000000

4.6 Granger Causality Estimate

Table 5 shows that the estimates of the pairwise Granger causality test indicate that the only significant causality in the system is that the GDPGR significantly Granger caused the CNSIGR (χ=11.05008; p-value=0.0040).

Table 5: VAR Granger Causality/Block Exogeneity Wald Tests

Excluded	Chi-sq	Df	Prob.
CNSIGR→ URILO	2.749940	2	0.2528
GDPGR →URILO	0.678973	2	0.7121
URILO →CNSIGR	1.548795	2	0.4610
GDPGR →CNSIGR	11.05008	2	0.0040
URILO →GDPGR	0.945450	2	0.6233
CNSIGR →GDPGR	0.357781	2	0.8362

4.7 Discussion of Results

The convergence among the four (4) regression models is that only the unemployment rate of the previous year (URILO (-1)) can significantly predict the current unemployment rate (URILO). Both the current and lagged construction industry investment growth rate (CNSIGR) and economic growth rate (GDPGR) may affect the current unemployment rate (URILO) but are not significant. Furthermore, the Granger causality estimates buttress the fact that economic growth Granger causes construction growth. The implications of all the results(model 1 to 4) is that the Nigerian construction industry (NCS) a supposedly labour intensive sector with the potential to lift Nigeria out of its

perennial unemployment problem is groaning under low capacity utilization due to several challenges that beset the sector's economic contribution which include - volatile and declining GDP contribution of construction; volatility of the international commodity market; overdependence on foreign inputs and adverse effect on BOPs; volatile and falling foreign exchange rate; weak linkages to other sectors of the economy; overbearing influence of government - adverse fiscal and monetary policies; declining public expenditure on construction; the state of the economy; waste and inefficiency in the construction process (cost/time overrun, delays & abandonment); inadequate and expensive labour and low productivity; scarcity and high cost of construction material; technology obsolescence; weak public institutions and the lack of transparency in public project administration; lack of Research and Development (R&D); and finally poor financial management and financial system etc. (Ugochukwu and Onyekwena, 2014; Osondu-Oti, 2016; Iheme and Chiagorom, 2018).

The finding that the GDPGR significantly granger caused the CNSIGR agrees with the extant literature that the fortune of the construction industry is dependent on the state of the economy or business cycle (Abubakar et al 2018; Saka and Ayokunle, 2020). Model 4 estimates indicate that a 1 per cent economic growth reduces the unemployment rate by 2.4 per cent after one year which agrees with Okun's law. However, the Model 4 estimate indicates that economic growth is unable to significantly reduce the unemployment rate due to chronic, structural, cyclical, seasonal, friction and technological unemployment in the economy. Nigeria's resources are largely underdeveloped and underutilized, this coupled with rapid population growth rate and primitive technology underlies the cycles of joblessness and poverty. For example, low domestic fixed capital (infrastructure) particularly in energy, transport, housing manufacturing etc. has been one of the major reasons for the lack of consistent growth of the labour-intensive businesses that would have provided mass employment to the citizens (Kazi and Leonard, 2012; Akinsola, 2021). The Nigerian economy has a structural problem that restricts its ability to generate employment for the teeming youth. Some of the structural problems include the criminal abandonment of labour intensive agricultural sector since the 1970s; the dominance of the capital-intensive oil and gas sector as the main growth driver since the 1970s; the adoption of harsh policy e.g. SAPs and the resulting de-industrialisation of the economy in the 1980s; the volatility of revenue from oil export and its cycles of booms and bursts implies that government cannot maintain a consistent development policy on economic growth and unemployment. Thus the economy has consistently been on the path of jobless growth since the 1970s (World Bank, 2022; Onakoya et al., 2020; Ekpo, 2019; Moore, 2019). The intermittent recessions and high unemployment rate since the mid-1970s (e.g. 1975, 1978, 1981 through 1984; 1993 through 1995; 2016 & 2020 etc.) due to the volatility of foreign exchange and revenue earnings from overdependence on oil export. During a global recession and fall in oil prices the economy normally descends into recession and high unemployment due fall in aggregate demand. This is one of the reasons the economy is unable to consistently develop and generate jobs to eliminate the high unemployment rate (NBS, 2020).

5. IMPLICATION OF STUDY

Given that construction is labour-intensive and potentially stands to contribute to mass employment generation, the government should focus on the constraints militating against the development of the construction industry as a way of strengthening the sector to contribute maximally to the economy and sustain an end to the high unemployment rate in Nigeria. An economy driven by commodity export can never be reliable enough to bring sustainable growth for a large country like Nigeria with a population of over 200 million and a high unemployment rate. The government has to end the era of jobless economic growth through restructuring or diversification of the economy. Economic growth driven by labour-intensive and industrial sectors e.g. mechanized agriculture, manufacturing and construction sector is a sure means to a sustainable end to high unemployment. The Nigerian government needs to focus on mass production by providing support for the private sector and the industries through appropriate macro and micro economic policies. The industrial economy creates massive labour-intensive activities through its value chain and linkages to all sectors of the economy and segments of society. This should lower the unemployment rate and increase the output of goods and services.

To address cyclical or Keynesian unemployment, the government must expend more during recessions and weak aggregate demand to shore up the economy. Fiscal policy to increase aggregate demand may affect the demand for labour by the private sector. Complementary expansionary monetary policy is also important for private businesses. It is important to develop and utilize the potential of the Nigerian economy to expand growth and job opportunities. Nigeria can achieve more through policy that engenders consistent and sustainable long-run economic growth free from intermittent recessions to eliminate chronic unemployment. Furthermore, the state of the Nigerian infrastructure is not capable of supporting the rapid long-run growth that is needed to overcome the Nigerian unemployment crisis. The government needs to implement policy on infrastructure that is compatible with the modern economy. This policy would address these infrastructure deficits with locally sourced inputs and create a value chain that will permeate all

sectors of the economy and all segments of society. This will also launch the economy to the status of newly industrialized economies (NIEs) like Malaysia, Thailand, Philippines Indonesia etc. Furthermore, the policy of the government to address unemployment must include support to construction firms to acquire capital goods to increase production and the demand for labour and increase the equilibrium wage rate. Government support may include investment/tax credits, grants, tax breaks favourable monetary policy etc.

Government policies must address the de-seasonalisation of the sector through the adoption of modern practices for example irrigation, mechanization chemicals etc. Also, efforts must be made to eliminate frictional unemployment through improved information management of job opportunities, improved transportation and the use of employment exchanges. Education and skill development of workers to prepare workers for the challenges of technology innovation and the labour market. There must be programmes on youth development, business start-ups and supports, and unemployment support to address youth unemployment, etc.

6. CONCLUSION

The study investigates the effect of the construction investment growth rate on the unemployment rate in Nigeria for the period 1991 through 2020. The econometric method was adopted and time series data obtained from WDI was analysed using regression and Autoregressive Distributed lag (ARDL) models. The study discovered that construction investment has been desolate with a mean growth rate of 1.0985percent, while the economic growth rate has been on average (4.0942percent), which compares unfavourably with the mean unemployment rate of 4.5710 during the period under review. This implies that if efforts are not made to change the status of construction investment, unemployment will remain a permanent challenge in Nigeria. The empirical estimate consistently across the four models for this study reveals that the only significant predictor of the current unemployment rate is the previous or lagged unemployment rate. Current or lagged construction and economic growth rates may only have an insignificant effect on the unemployment rate. The study concludes that the supposedly labour-intensive Nigerian construction industry suffers from severe constraints and lacks investment to make meaningful contributions to employment generation and the economy. Additionally, the lack of long-term economic growth has been a major hurdle to the sustainable development of the Nigerian construction industry and its job creation capacity. Furthermore, the Nigerian economic structure that is driven by the capital-intensive oil sector and service sector continues to generate jobless growth that is not compatible with the economic objective of full employment for a sustainable means to eradicate unemployment in Nigeria.

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