## ECONOMIC GROWTH AND EMPLOYMENT IN NIGERIA'S SERVICES SECTOR

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### ABSTRACT

The paper examines the effect of economic growth on employment in Nigeria's services sector during the period from 1991 to 2020. The ARDL approach to cointegration and error correction modeling is employed for the analysis. The study finds that economic growth spurs employment generation in the services sector in the short-run and in the long-run. It further finds that employment generation in the services sector is also spurred by trade openness and financial sector development, but adversely affected by inflation. In view of these, it is recommended that Nigeria's government intensify effort in accelerating the nation's economic growth, bringing inflation under control, developing the nation's financial system and cautiously integrating the economy with the global market.

**Keywords**: Employment, Service sector, Unemployment, Economic Growth, Labour, Services Employment, International Trade, Financial Development, Nigeria.

JEL classification codes: E24, F13, F15, L80, O47.

### 1. Introduction

Attainment of near-full employment of resources, particularly labour resources is a major macroeconomic goal. The eighth sustainable development goal of the United Nations has to do with attainment of decent employment for all by year 2030. Thus, employment (of labour or human resources) occupies central stage in economic development discourse. Inadequate or lack of gainful employment poses serious threats to the development of every nation, through adverse economic, psychological and social effects. Consequently, governments all over the world strive to achieve reasonable level of employment as they aim at improving the welfare of their citizens. However, there have been many impediments to realization of this goal, particularly in less developed or developing countries.

Economic growth is a necessary, though not sufficient requirement for achieving desired level of (productive) employment (ILO, 2020). The Okun's Law which relates

unemployment to economic growth predicts that economic growth (with improvement in factor (especially labour) productivity) invariably engenders reduction in unemployment or increase in employment all things being equal.

This study focuses on Nigeria. Economic growth in the country has been low, unstable, and unbalanced as it has been unevenly distributed across the various sectors of the economy. Figure 1 shows that the country's per capita income generally followed downward trends in the 1991-1998 and 2014-2020 sub-periods owing probably to government macroeconomic policies and other growth-inhibiting social, political factors. The trend was positive during the 1999-2015 period, as policies and programmes implemented during this period were favorable to growth.

#### Figure 1





Source: Data from World Bank's World's Development Indicators (WDI), 2020.

Whereas economic growth (reflected in the positive trend in per capita real income) may have engendered reduction in unemployment or improvement in job creation or employment generation in the country, the employment effects of economic growth appear to have varied across different sectors of the economy. Figure 2 shows the trends in employment in Nigeria's key sectors – agriculture, services and industry – during the period from 1991 to 2020 as reported in the WDI (2020).

Employment in industrial sector has been quite low, compared with employment in agricultural and services sectors. Maximum employment rates in industry, agricultural and services sectors were 13.04% (recorded in 1991), 50.25% (recorded in 1991) and 53.10% (recorded in 2020) respectively during the 1991-2020 period. Average employment rates in same period were respectively 11.86%, 43.84% and 44.30% in industrial, agricultural and services sectors. Employment in agriculture sector followed a declining trend in the period under consideration, while services employment consistently trended upwards. During the

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1991-2005 period, agricultural sector employment was higher than services sector employment. However during 2006-2020, services employment exceeded agricultural employment. These could be attributed to the expansion in activities in services sector (which currently has more activity subsectors than other sectors in the country) as the economy tends to be more services-driven with the services sector accounting for the largest share of the GDP as reported by the country's Central Bank in its Statistical Bulletin (2020); and the unattractiveness of the nation's agricultural sector which is dominated by peasant farmers, and which recently began to experience drift of (youthful) labor to other sectors.

#### Figure 2.



Nigeria:Trends in Sectoral Employments as Percentage of Total Employment

# *EMPIND* = Industrial employment % of total employment *EMPAGR* = Agriculture employment % of total employment *EMPSER* = Services employment % of total employment Source: Data from the WDI (2020).

An examination of the trends in Figures 1 and 2 reveals positive association between per capita real income and services sector employment, and negative or inverse association between economic growth and employment in the agriculture sector. This suggests that economic growth in the country tends to generate employment in the services sector, and depletes or erode employment in the agriculture sector. No stylized or clear-cut relationship has existed between growth in per capita income and industry employment in the country.

The real value of output of the services sector has tended to rise faster than value of output from the other sectors of the economy, particularly from 2003 upwards. This is shown in Figure 3, and can be attributed to the persistent, rapid expansion of the sector.

## Figure 3.

Nigeria: Trends is Real Value of Sectoral Output (1981-2019)



Source: Data from Central Bank of Nigeria's Statistical Bulletin (2020).

Though the effect of economic growth on employment and unemployment has been investigated by various researchers including Choi (2007), Sodipe and Ogunrinola (2011), Oloni (2013), Ioan (2014), Ayinde, *et al.* (2018) and Olamada (2020), to our knowledge, sectoral employment effects of economic growth in Nigeria is yet to be investigated. This leaves gaps in the literature. This study focuses on employment in Nigeria's services sector. The objective of the study therefore is to examine the effect of economic growth on employment in the services sectors in Nigeria.

The focus on the services sector is motivated by the facts that the sector has been the greatest contributor to the nation's output in recent times, having more activities sub-sectors than the other sectors (Aigheyisi, 2020); it has also been a key sector providing employment for the country's population. Additionally, achieving service-driven economic growth requires identification of factors affecting employment in the services sector, hence other factors affecting employment in the study.

### 2. Literature Review

### **2.1.Brief Theoretical Literature**

The Keynesian theory of employment relates employment to the level of output in an economy, and predicts positive effect of output growth on employment, especially in the short run. This is because the economy is assumed to be at full employment level in the long run. Price, which is a short run determinant of employment, is assumed to be sticky in the long run. Thus economic growth is predicted to engender improvement in employment levels as a result of short run expansion in effective demand.

The Okun's law posits negative relationship between economic growth and unemployment. This suggests that economic growth is expected to engender improvement in job creation or employment generation as a result of expansion in the level of economic activities in an economy. However, it is possible for economic growth to either have adverse effect or no significant effect on employment. This is the case of the so-called jobless growth which many developing countries including Nigeria have experienced at one time or the other (Ajakaiye *et al.*, 2016; Dada, 2018). In this situation, unemployment keeps rising (or employment keeps declining) in spite of economic growth.

The short run Philips's curve predicts negative relationship between inflation and unemployment. Increase in inflation is predicted to reduce unemployment in the short run. However, no significant relationship is predicted between inflation and unemployment in the long run.

### **2.2.Empirical Literature Review**

Several studies have examined the (un)employment effect of economic growth in Nigeria and other countries and regions. The studies include Sodipe and Ogunrinola (2011), Oloni (2013), Aigheyisi (2015), Ayinde *et al.* (2018) and Olomade (2018). These studies found employment in Nigeria to be spurred by growth, except the study by Ayinde *et al.* (2018) which found the employment effect of economic growth to be statistically not significant. In this section we review some of the previous studies.

The effect of economic growth on employment in Nigeria during the 1981-2006 period was examined in the study Sodipe and Ogunrinola (2011). The study involved application of the OLS technique for estimation of a simple employment model. The study found that employment in the country is positively affected by economic growth.

Oloni (2013) estimated a multiple regression model using the least squares technique in a study to examine the employment effect of economic growth in Nigeria. The study found the effect of economic growth on employment to be positive, but not statistically significant.

Aigheyisi (2015) employed the methodology of cointegration and error correction to test the validity of the Okun's Law in Nigeria during the period from 1982 to 2012. The study found that economic growth significantly reduces unemployment in the short run. Economic growth however had no significant effect on unemployment in the long run. Same evidence was given in the study by Onyeoma (2020) for the period 1980-2018.

Burggraeve, *et al.* (2015) investigated the effect of economic growth on employment in Belgium during the period from 1980 to 2014. The study found stable and positive effect of economic growth on employment. The researcher however noted that the stable relationship between the variables conceals 'job quality' considering the rapid expansion of part-time jobs in the country.

Ayinde, *et al.* (2018) examined the effect of economic growth on employment in Nigeria during the 1985-2011. The OLS technique was used to estimate a multiple linear regression model. The study found that employment in the country was spurred by economic growth.

Habanabakize and Muzindutsi (2018) employed VAR methodology to examine test the validity of the Keynes' theory of employment in South Africa's manufacturing sector during the 1994-2015 period. The study found that private investment and government spending had been job-creating, while private consumption spending had job-destroying.

Olamade (2020) employed the least squares technique and ARDL modeling to investigate the employment effect of economic growth in Nigeria during the 1961-2017 period. The analysis indicated that the effect of employment is positive and significant; though the employment elasticity of economic growth was too low to generate adequate employment.

## 3. Methodology

# **3.1.Theoretical Framework**

The Keynesian theory of employment postulated by Keynes (1936) which predicts positive effect of economic growth on employment provides the theoretical framework for this study. Improvement in aggregate demand or aggregate expenditure (including government expenditure) is considered an engine of job-creation as it is envisaged to engender increased demand for labour thereby leading to expansion in output. The study is also partly premised on the Okun's Law which posits that economic growth engenders reduction in unemployment rate, and the Philip's curve relation which posits inverse relationship between inflation and unemployment, especially in the short-run.

## **3.1.1.** Model Specification

Based on the Keynesian theory of employment, a functional model of services employment is specified in line with the objective of this study as:

EMPSERV = f(RPCY, INF, TOPN, FINDEV)[1]

Where EMPSERV stands for services sector employment as a percentage of total employment, RPCY = real per capita income, INF represents inflation, TOPN represents trade openness and FINDEV represents financial development.

Equation [1] hypothesizes that services sector employment is affected by per capita income, inflation, trade openness and financial development.

The analysis involves cointegration and error correction modeling based on an autoregressive distributed lag model (ARDL). This approach also referred to as the bound's test approach was developed by Pesaran *et al.* (2001). The choice of the approach was informed by its flexibility in application as it can be applied in cases involving data series that are integrated of different or mixed order, such as order 0 and order 1, with exception of order 2. The approach is also applicable in cases of small (finite) datasets, and it is designed to yield efficient and consistent long-run coefficients even where is there endogeneity associated with cointegrated regressors (Harris & Sollis, 2003).

The approach involves least squares estimating of an unrestricted error correction (UEC) version of ARDL model specified as:

$$\begin{split} \Delta \text{EMPSERV}_{t} &= \beta_{0} + \sum_{s=1}^{m} (\gamma_{1s} \Delta \text{EMPSERV}_{t-s}) + \sum_{s=0}^{m} (\gamma_{2s} \Delta \text{LnRPCY}_{t-s}) + \\ \sum_{s=0}^{m} (\gamma_{3s} \Delta \text{INF}_{t-s}) + \sum_{s=0}^{m} (\gamma_{4s} \Delta \text{TOPN}_{t-s}) + \sum_{s=0}^{m} (\gamma_{5s} \Delta \text{FINDEV}_{t-s}) + \lambda_{1} \text{LnRPCY}_{t-1} + \\ \lambda_{2} \text{INF}_{t-1} + \lambda_{3} \text{TOPN}_{t-1} + \lambda_{4} \text{FINDEV}_{t-1} + \xi_{t} \end{split}$$
[2]

The cointegration test involves using the computed Wald's F-statistic to test the joint significance of the parameters of the model. The null hypothesis ( $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = 0$ ) which

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implies "No long-run relationships exist" is tested against the alternative hypothesis ( $\lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq 0$ ). Two sets of asymptotic critical values for the F-statistic at different levels of statistical significance have been computed by Pesaran *et al.* (2001). One set comprises the lower bound critical values (LBCV) while the other set comprises the upper bound critical values (UBCV). The decision rule is:

F-statistic > UBCV, reject null hypothesis F-statistic < LBCV, do not reject null hypothesis LBCV < F-statistic < UBCV, inconclusive

The error-correction model (ECM) is derived as:

$$\Delta \text{EMPSERV}_{t} = \beta_{0} + \sum_{j=1}^{\eta} (\delta_{1j} \Delta \text{EMPSERV}_{t-j}) + \sum_{j=0}^{\eta} (\delta_{2j} \Delta \text{LnRPCY}_{t-j}) + \sum_{j=0}^{\eta} (\delta_{3j} \Delta \text{INF}_{t-j}) + \sum_{j=0}^{\eta} (\delta_{4j} \Delta \text{TOPN}_{t-j}) + \sum_{j=0}^{\eta} (\delta_{5j} \Delta \text{FINDEV}_{t-j}) + \varphi \text{ECT}_{t-1} + \varepsilon_{t}$$
[3]

The  $\delta s$  represent estimates of the respective short run effects of per capita income, inflation, trade openness and financial development on service sector employment.ECT represents the error correction term whose coefficient ( $\phi$ ) measures the speed of adjustment to equilibrium in the event of short run deviations therefrom.  $\phi$  is expected to be statistically significant and negatively signed.  $\epsilon$  represent the residuals.

The steady state equation is derived as:

$$EMPSERV_{t} = \theta_{0} + \theta_{1}LnRPCY_{t} + \theta_{2}INF_{t} + \theta_{3}TOPN_{t} + \theta_{4}FINDEV_{t} + \mu_{t}$$
[4]

 $\theta_1$ ,  $\theta_2$ ,  $\theta_3$ , and  $\theta_4$  are estimates of the respective long run effects of per capita income, inflation, trade openness and financial development on the service sector employment.  $\mu$  represents the model's residuals.

The *a priori* expectations are:  $\theta_1 > 0$ ,  $\theta_2 < 0$ ,  $\theta_3 > 0$ ,  $\theta_4 > 0$ .

Economic growth is expected to engender improvement in service sector employment as a result of increase in demand for service providers consequent on increase in level of economic activities. Inflation is expected to adversely affect service sector employment as demand for some services may fall due to increase in price level. Openness of the economy to the global market is expected trigger increase in demand for trade-related and other services thereby engendering increase in employment in the services sector. The development of the financial system is also expected to engender increase in demand for services as a result of increased investment in various sectors of the economy benefiting from financial sector credit.

Prior to the cointegration test, the unit root test was performed to determine the stationarity property of the variables. For this, the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root

test was employed because it directly tests for stationarity, and it is suitable for shorter time series (Arltová & Fedorová, 2016).

# 3.2.Data

Annual data spanning the period from 1991 to 2020 are employed for the study. The data were all obtained from the WDI (2020). The scope of the study was dictated availability of data at the source. Specifically, available data on services employment is for 1991-2020 period. Measurements of the variables are shown in Table 1.

# Table 1.

Measurements of variables

Variable	Measurement
EMPSERV	Service sector employment as % of total employment
RPCY	Real GDP per capita divided by total population
INF	Annual % $\Delta$ in consumer price index
TOPEN	Ratio of the value of total trade to GDP
FINDEV	Monetary sector credit to the private sector as % of GDP.

# 4. Results and Discussion of Findings

The estimated models are presented and discussed in this section. The section begins with presentation and discussion of the stationarity test and cointegration test results. These are followed by presentation and discussion of the estimated models, the diagnostic checks and the test for model stability.

# 4.1. Stationarity and Cointegration Tests

Table 1 shows the stationarity test results. The test involves the KPSS. EMPSERV and Ln (PCY) are integrated of order 1 (non-stationary at level, but stationary at first difference). INF, TOPN, FINDEV are stationary at level.

# Table 1

Stationarity Tests

KPSS Test							
Variables	Levels			1 <sup>st</sup> Difference			I(d)
	test Stat	Critical	Inference	test Stat	Critical	Inference	
		Value			Value		
		(5%)			(5%)		
EMPSERV	0.69	0.46	NS	0.20	0.46	S	1
Ln(PCY)	0.61	0.46	NS	0.18	0.46	S	1
INF	0.13	0.15	S	-	-	-	0
TOPN	0.22	0.46	S	-	-	-	0
FINDEV	0.11	0.15	S	-	-	-	0

I(d) = order of integration

NS = Non-stationary

S = Stationary

Since the variables are integrated of varying orders, the appropriate approach to test for cointegration relationships is the bound test approach. The test was performed, and the result is presented in Table 2. F-statistic > UBCV even at the 1% significance level. This implies rejection of the formulated null hypothesis. The inference therefore is that the variables are cointegrated.

#### Table 2

**ARDL Bounds Test** 

Test stat.	Value	Critical Value Bounds (1% sig. level)			
		Lower Bound	Upper Bound		
F-stat.	5.33	3.74	5.06		

### 4.2. Estimated Service Sector Employment Models

The estimated models are presented and discussed in this subsection. The estimated ECM presented in Table 3 shows that per capita income positively and significantly affects employment in the services sectors. A 1% rise in real per capita income is associated with 0.06% rise in services sector employment rate in the short run. This suggests that economic growth engenders employment generation in Nigeria's services sector. The short-run effect of inflation on employment is negligible and non-significant. The implication is that, in the short run, employment in the country's services sector is unaffected by inflation. Trade openness positively and significantly affects services sector employment with a one-year lag in the short run. The lagged effect is significant at the 2.5% level. Trade openness engenders expansion in employment in the services sector as trade liberalization opens up opportunities for service providers in the economy. The short run contemporaneous effect of financial development on employment is positive, but statistically not significant. However, its one-year lagged effect is negative and significant at the 10% level. The counterintuitive short-run outcome may be attributed to the pattern of distribution of financial sector credit to the private sector which has been skewed in favour of the real (goods) sectors particularly the industrial sector.

The ECT conforms to expectation, and it is significant at the 5% level. This further confirms existence of cointegrating relationship between the dependent variable and its hypothesized determinants. However, the absolute value of its coefficient is quite low, and suggests that adjustment to equilibrium in the event of short run deviation therefrom is quite slow. The low speed of adjustment indicates low pace of employment generation in the services sector. This is not unexpected in view of the fact that considerable amount of time is required to acquire the skills required to render services, particularly sophisticated and high-tech skills in developing countries.

The coefficient of determination ( $\mathbb{R}^2$ ) indicates the model has a high goodness of fit as the model explains nearly 97% of the variation in employment in services sector. The F-statistic of 29.501 which is highly significant at the 1% level indicates that the explanatory variables are jointly significant in determining the response variable. The Durbin Watson (DW) statistic of 2.118 indicates absence of problem of autocorrelation in the model.

# Table 3.

ARDL-based Err	or Correcti	on Model
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Dependent Variable: ΔEM	PSERV			
Selected Model: ARDL(2,	1, 1, 2, 2)			
Sample: 1991 2020				
	Cointegrati	ng Form		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\Delta$ (EMPSERV(-1))	0.462	0.10	4.337	0.001
$\Delta LOG(PCY)$	6.181	0.912	6.775	0.000
$\Delta(INF)$	-0.000	0.002	-0.033	0.974
$\Delta$ (TOPN)	-0.004	0.003	-1.493	0.159
$\Delta(\text{TOPN}(-1))$	0.008	0.003	2.759	0.016
$\Delta$ (FINDEV)	0.015	0.010	1.458	0.169
$\Delta$ (FINDEV(-1))	-0.027	0.013	-2.076	0.058
CointEq(-1)	-0.069	0.032	-2.157	0.050

 $R^2 = 0.965, \bar{R}^2 = 0.932, F-stat = 29.501 (p = 0.00), DW stat. = 2.118$ 

 $\overline{R}^2$  stands for adjusted  $\mathbb{R}^2$ 

The results presented in Table 4 show that the long run effect of economic growth on employment in the services sector is positive and statistically significant at the 2.5% level. A 1% permanent rise in per capita income engenders 0.11% rise in services sector employment. Thus, as in the short run, economic growth also engenders improvement in services sector employment in the long-run. These conform to *a priori* and are in sync with previous empirical findings such as Sodipe and Ogunrinola (2011), Aigheyisi (2015), and Ayinde, *et al.* (2018) which also found positive employment effects of economic growth.

Inflation and trade openness adversely affect services sector employment. The adverse long run service-sector employment effect of trade openness which runs contrary to the observed positive short run effect implies that the positive effect of international trade on employment in the services sector is only transient. This calls for caution in formulation and implementation of trade liberalization policies. The development of the financial system will enhance aggregate demand for services in the long run thereby enhancing employment generation in the services sector.

### Table 4

Long Run Coefficients

Dependent Variable: EMPSERV						
Variable	Coefficient	Std. Error	t-Statistic	Prob.		
LOG(PCY)	11.351	4.315	2.631	0.021		
INF	-0.085	0.026	-3.243	0.006		
TOPN	-0.342	0.142	-2.412	0.031		
FINDEV	0.366	0.194	1.882	0.082		
С	-27.578	36.836	-0.749	0.467		

### **4.3.Diagnostics**

The model diagnostics are presented in Table 5. The residual normality test result indicates the residuals of the model are normally distributed. The serial correlation test result indicates absence of problem of serial correlation in the model. The heteroskedasticity test result indicates absence of the problem of heteroscedasticty. The RESET test result indicates that the model specification is error-free. Thus the results are quite reliable.

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Tests	<b>Test Stat</b>	p-value
Residual Normality (Jarque-Bera)	1.033	0.597
Serial Correlation (Breusch-Godfrey LM test)	0.815	0.468
Heteroscedasticity (Breusch-Pagan-Godfrey)	0.529	0.860
Ramsey RESET	1.196	0.296

### 4.4.Model stability

The paper relied on the cumulative sum of recursive residuals (CUSUM) developed by Brown, *et al.* (1975) to test the stability of the model. The plot is shown in Figure 4. The result shows that the plot lies between the critical bounds at the 5% significance level. The inference is that the model is stable.

### Figure 4.



### 5. Conclusion and Recommendations

The effect of economic growth on services sector employment in Nigeria has been examined. The study found that economic growth spurs employment in the services sector in the shortand long run. Further evidence from the study are that inflation adversely affects services sector employment, while trade openness and financial sector development spur growth in employment in the services sector in the long run. In view of these findings, it is recommended that Nigeria's government make effort to accelerate the growth of the nation's economy as this will enhance employment generation in the services sector of the nation's

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economy. Inflation should be brought under control, the nation's economy should be (cautiously) integrated with the global market and the financial system regulators should strive to further develop develop the financial system through appropriate programmes and policies.

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