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Is Economic Growth Working for Jobs? An Investigation of the Employment Generating Capacity of the Nigerian Economy

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Abstract
Nigeria has been best with the incidence of concurrent unemployment and a good run of economic growth thus calling to question the efficacy of economic growth to create jobs in the country. In this paper, we examine first whether there exists any relationship between economic growth and employment in the manner espoused by Okun's law and then interpret the coefficient of the relationship as indicative of the capacity of the economy to translate growth into employment. Due to the unreliability of unemployment data in many developing countries we use the growth rate of employment as the dependent variable and thus expect to find a positive relationship with economic growth. A second model was specified with the growth rate of employment-to-population ratio as the dependent variable. Data were extracted from World Development Indicators and Penn's World Table for 1961 to 2017. All the variables were level stationary from two different tests of their statistical properties. We thus estimate the Ordinary Least Squares for the short-run coefficients and explore the robustness of the ARDL to different orders of integration for the long-run form. Both establish the application of Okun's law to Nigeria with the employment elasticity of GDP growth too small to generate discernible growth in employment. We estimated an average GDP growth of 16.22% over the long-run for the economy to keep a steady growth in employment.

Keywords: Economic Growth, Employment, Jobless Growth, Population, Okun's Law, Nigeria

1. Introduction

Productive employment and sustainable income growth remain a fundamental objective of development in many developing countries of the world as they grapple with a high and increasing incidence of poverty. Economic policymakers have come to terms with the grim reality of increasing output loss resulting from a persistently high rate of unemployment and the pervasive poverty that follows. Arthur Okun in what is now known as the Okun's law (Okun, 1962) presents the statistical evidence of a weak negative relationship between changes in the real gross domestic product (GDP) and changes in unemployment relative to its natural rate. His postulation holds that

a one percentage point increase in real GDP growth above the potential GDP growth rate would induce a 0.3 percentage point reduction in unemployment. In essence, the law provides a tool to measure a country's GDP loss when the unemployment rate is above its natural rate, according to Wen and Chen (2012). New studies addressing different aspects of variables and methodological issues have thrown new light into the law. Currently, acceptable versions of the law posited that real GDP should grow approximately two percentage points faster than the growth rate of potential GDP to reduce the unemployment rate by one percentage point in a year. Hence, the GDP growth rate set the bounds within which employment growth can occur.

The postulations of Okun's law present two interesting implications for macroeconomic management. First, it lends credence to pro-growth economic policies as it provides a practical guide for policymakers to improve the GDP level by further reducing unemployment (Wen and Chen, 2012) under the assumption that a low level of unemployment is a sine qua non for income growth and poverty reduction. Second, if indeed the level of unemployment is held low, ceteris paribus, economic growth must be sustained over the long-run to maintain or decrease the nominal level of unemployment. Inherent in Okun's law, therefore, is the necessity for the continuous growth of the GDP (Garavan, 2017). In recent times, the reality of simultaneous persistent unemployment and economic growth in an experience called jobless growth has further put to the test the stability and usefulness of Okun's law. The point of the jobless growth phenomenon is that economic growth rate alone does not determine the bounds of employment expansion, the character or pattern of economic growth also matters. Each sector of the economy contributes differently to economic growth and is subject to different capital/labour intensity in the production process. Because some sectors are more employment-intensive than the others, it important that policymakers determine the labour absorptive potential of each sector of the economy and design policies to enhance both the labour absorptive capacity and labour productivity of all sectors.

The principal focus of this paper is to examine the economic growth and employment relationship in Nigeria. Specifically, the paper will attempt to determine the capacity of the economy to translate growth into employment by testing Okun's law for Nigeria over a period of fifty-seven years starting from 1961. Thus, this paper covers a longer period than previous works in Nigeria. The longer period should improve the reliability of our results and the following inferences. Due to the high level of aggregation, the long period covered presents, we will first attempt a descriptive decadal analysis of employment and economic growth rates for some stylised facts. The remainder of the paper proceeds thus: in the following sub-section, we present some stylized facts of the growth-employment relation in Nigeria and benchmarked the observed relation against four selected countries. Section 2 conducts a brief review of the extant literature and provides both the theoretical and empirical underpinning for the work. While section 3 introduces the models and tests the statistical properties of the data, we present and discuss the empirical findings from our regressions in section 4. Section 5 concludes the work with policy recommendations.

1.1Trend behaviour of employment and economic growth

In this section, we examine the time path of employment and economic growth rates. From 1961 to 2017, the mean growth rate of employment in Nigeria stands at 2.43%, while the economy grew at the average rate of 3.85%, in between, both variables exhibit divergent paths as employment growth and economic growth do not trend together closely.

Table 1: Employment and GDP Growth

	Employment growth (%)	% Change	GDP Growth (%)	% Change
1961 – 1969	2.76	-	2.85	-
1970 – 1979	2.01	*-0.75*	7.00	*4.15*
1980 – 1989	1.42	*-0.59*	-0.93	*-7.93*
1990 – 1999	2.83	*1.41*	2.31	*3.24*

2000 – 2009	2.47	*-0.36*	7.68	*5.37*
2010 – 2017	3.34	*0.87*	4.05	*-3.63*
1961 – 2017	2.43	*-0.91*	3.85	*-0.2*

Table 1 shows that Nigeria enjoyed a good run of positive economic growth in the decades between 1961 and 2017. Only in the 1980s was the average growth rate negative. Employment on the other hand maintained positive average growth rates all through the decades. The following stylised facts can be deduced from Table 1. First, the positive average economic growth rate in each decade was accompanied by a positive average employment growth rate, with 1980 – 1989 the only exception. Second, changes in the average employment growth rates between the decades appear unrelated to changes in economic growth rates between the decades. Between the 1960s and 1970s, a positive change in the economic growth rate (4.15%) was accompanied by a negative change in employment growth (-0.75%). Similarly, between the 1990s and the first decade of the 2000s, employment growth fell by -0.36% while the economy grew by 5.37%. There was a reverse relationship in decades 2000–2009 to 2010 −2017, the employment growth rate was positive and the economic growth rate was negative. Third, the annual growth rates of the two variables show a stronger correlation (0.38) than the decadal rate of change of the two variables (0.05). This may suggest that employment and economic growth rates correlate better in the short run than in the long run. We may at first approximation suggest that employment growth is not related to the dynamics of economic growth in the long run. We explore this position further in Figure 1 showing the annual growth rates of the two variables. The figure presents us with an alternative way of looking at the association between employment growth and economic growth without quantifying the association.

The pattern exhibited in Figure 1 appears to support the analysis of a correlation between the two variables. As expected, the economic growth rate measured as the rate of change of the GDP showed discernible episodes of positives and negatives, but the growth pattern of employment was very stable without the cycles that are associated with the GDP growth. For instance, during the prolonged periods of economic growth spanning 1969 to 1974, and 1996 to 2015 the growth rates of employment hovers around the same range as the periods of economic slump of 1966 to 1968 and 1993 to1995. It does appear unless econometrically proven otherwise, that the economy's capacity to stimulate growth in employment is very weak. Two possibilities may be at work. First, the magnitude of the economic growth rates witnessed over the years may be too weak to stimulate a strong positive change in employment growth. Alternatively, the unemployment level in Nigeria over the years may be so high so much that the magnitude of economic growth rates required to stimulate a strong positive change in employment growth is much higher than those witnessed over the study period. Second, there may be a very weak link between the sectors driving economic growth and employment growth so that the two are feebly associated. We will query the first possibility by examining the rate of change of the employment-to-population ratio (EPR) as an alternative measure of a country's ability to create employment. The International Labour Organisation (ILO) recommended the EPR also as a measure of an economy's employment generating capacity.

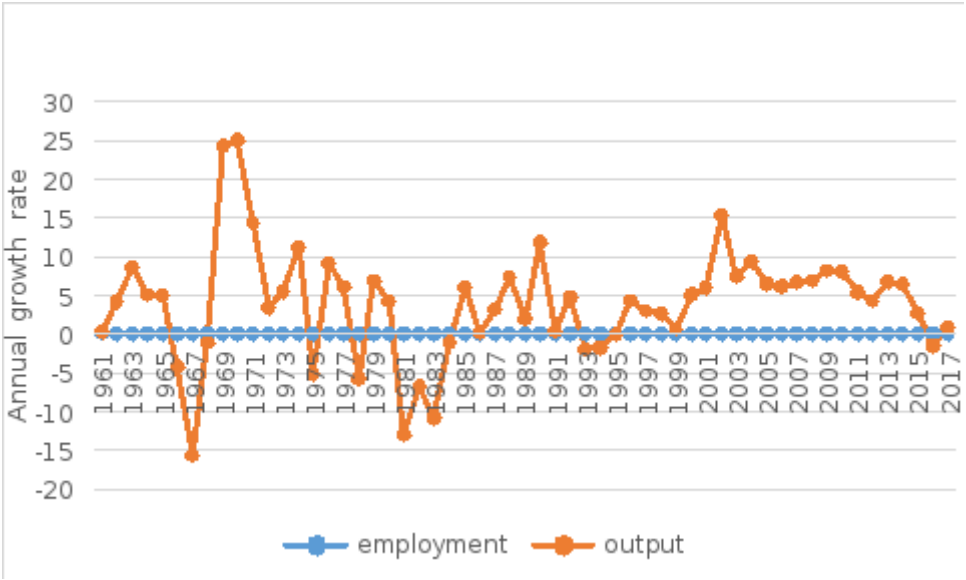

Figure 1: Trend pattern annual growth rates of employment and economic growth

Table 2: Employment-to-population ratio (EPR) 1961 - 2017

Country	Highest	Lowest	Average
High Income			
Germany	80.25	67.49	73.89
United Kingdom (UK)	75.56	64.70	70.48
United States (USA)	75.15	64.27	69.98
Middle Income			
Egypt	54.37	40.37	45.85
Nigeria	74.07	60.67	64.88
South Africa	72.48	43.95	54.03

Source: Author's computation

The employment-to-population ratio (EPR) describes the percentage of a country's working-age population that is employed or engaged directly in market-related activities and as a result contributing to the production of goods and services. The ratio typically falls between 50% and 75%. A high percentage is an indication that a country's working-age population is actively contributing to the national output. United Nations (2012), however, warned that EPR as high as 80% may occur in developing poor countries due to the abundance of low-quality jobs. In this situation, both the EPR and poverty rate may concurrently be high. Since there is no universal definition of high and low EPR for international comparison of economies, we will benchmark Nigeria against countries at higher and at comparable level development. The population base for the EPR for the six countries in the analysis is 15 – 64 years as compiled by the WDI. This will allow us to make a meaningful comparison of EPR in the countries. The EPR was computed using the WDI's data on the working-age population of 15 – 64 years and total employment data compiled by the Penn's World Table (PWT 9.1). Table 2 summarized the EPR for three high-income countries (Germany, United Kingdom and the United States) and three middle-income African countries (Egypt, Nigeria and South Africa).

At any time over the study period, approximately 61% of Nigeria's working-age population engaged in producing the national output. The USA and UK as high-income countries were just approximately five percentage points higher in EPR than Nigeria at the lowest point. Nigeria's highest level of EPR (74%) compares favourably with

the USA's 75% and UK's 76%. While both the USA and the UK for the period 1961-2017 averaged approximately 70% and Germany 74%, Nigeria's EPR averaged 65%. Seemingly, the capacity of the Nigerian economy to generate employment favourably compares with some developed countries and undoubtedly superior to some African economies of comparable GDP size. Thus, the possibility of low magnitude of economic growth, resulting in a weak capacity of the economy to generate employment may not be tenable to explain the week association of economic growth and employment expansion.

The United Nations (2012) recommended pairing EPR's rate of change over time and economic growth rates to determine the capacity of economic growth to generate employment. This approach produced a much better result than the pair of employment growth rate and economic growth (see Figure 1). Figure 3 shows that employment expansion and economic growth indeed are related and exhibits a similar trend pattern if we measure employment in terms of the EPR. Generally, the growth rate of EPR and economic growth rate moved in the same direction but followed opposite paths in 1971 – 1974 and 2000 - 2004, with the growth rate of the economy being positive and EPR negative.

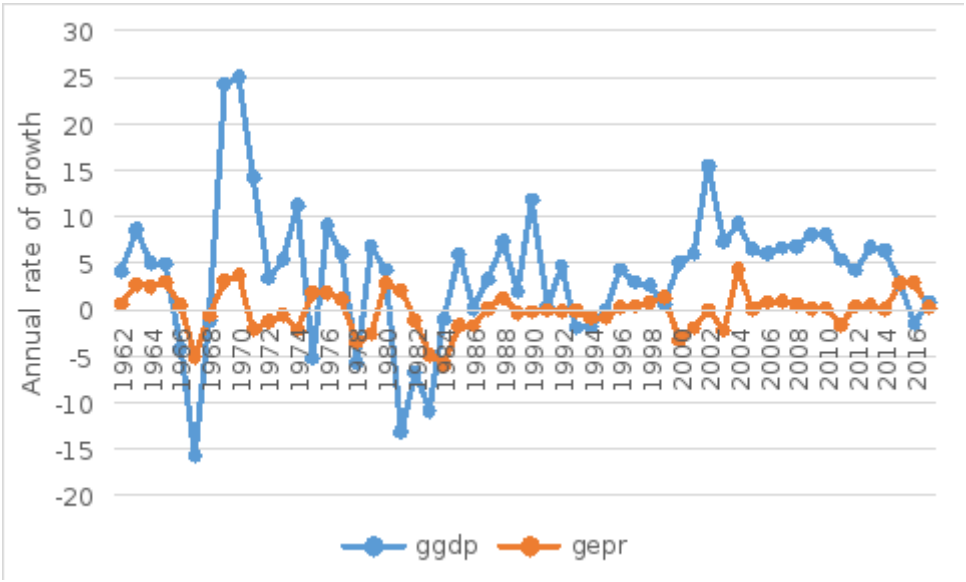

Figure 2: Trend pattern of economic growth and employment-to-population ratio

Overall, while the trend pattern of economic growth rate and employment growth rate suggests that both are unrelated, economic growth rate and the EPR showed a largely closely related trend pattern.

2. Review of literature

Generally, economic growth tends to be positively associated with employment**.** Shocks to the economy cause output to fluctuate around the economy's potential. These output fluctuations cause movement of labour in and out of jobs, changing employment. Changes in employment, in turn, move the employment rate in the same direction or the unemployment rate in the opposite direction (Farole, Ferro & Gutierrez (2017). Okun (1962) first empirically estimated the relationship between cyclical unemployment and output using quarterly US data and reached conclusions now famously known as Okun's law. Okun estimated two versions of the relation between unemployment and production. The "difference" version relates percentage change of real GDP to changes in the rate of unemployment, and the "gap" version relates the difference of actual unemployment with respect to its natural value to the difference between actual and long-run output (production gap). Okun concluded that output growth of one percentage point decreased unemployment by around 0.3 percentage points (Pizzo, 2019). Since the seminar work of Okun, several researchers have subjected the law to tests in individual countries groups of countries, and regions at different levels of economic development. Results generally showed that the nature and strength of the relationship varies and is determined by country or regional context.

Ball, Leigh & Loungani (2017) estimated the Okun's coefficient for 20 developed countries for the period 1980 to 2013 using both annual and quarterly data. The average coefficient for both datasets is -0.40, though the coefficients vary considerably across countries and spread between –0.27 and –0.55 for the annual data. Ball et al, contrary to the claims of breakdowns in the Law - see IMF (2010), Bakker and Zeng (2014), and McKinsey Global Institute (2011) - concluded that Okun's Law is a strong relationship that is fairly stable over time in most countries. Several other researches based on advanced economies data which upholds the Okun's Law includes Ball, Jallas & Loungani (2014) in a study of nine countries; Kargi (2016) in a study of OECD countries; Kitov & Kitov (2012) in a study of six countries; Dixon, Lim, & van Ours (2016) which disaggregated labour across age bands in a study of 20 OECD countries.

Results in studies of developing countries have generally ranged between the works of An, Ghazi & Prieto (2017) and Ball, Furceri, Leigh, & Loungani, (2019). Whist the law does not fit the data in low and lower-middle countries in An et al (2017), the fit of the law in developing economies is half as good as for advanced economies with Ball et al (2019). Bartolucci, Choudhry, Marelli, & Signorelli, M. (2018) as well as Farole et al (2017) also finds a fit for developing countries consistent with the evidence of some industrial countries with unemployment less responsive to output in developing countries. Findings on the growth – employment relation for African countries have been mixed. Okun's law has been found to hold in some studies albeit with very low coefficient in Algeria (Furceri, 2012), Ghana (Baah-Boateng, 2013, 2016) and Egypt (Elshamy, 2013). Moroke, N., Leballo, G P., Mello, D M. (2014) estimated the Okun's Law for South Africa reported a positive relationship between growth and unemployment and concluded the inapplicability of the law to South Africa. Phiri (2014) found a uni-directional causality from unemployment to economic growth thus complementing Moroke et al (2014) of the breakdown of Okun's Law in South Africa. However, Geldenhuys & Marinkov, 2007; Loungani & Mishra, 2015; Karim & Aomar, 2016 validated the law for South Africa. Studies on Nigeria like most other developing countries have turned up with mixed results. The studies of Bankole & Fatai (2013); Adenuga, Babalola & Saka (2013); Akanbi (2015); Ojapinwa & Lawanson (2016) Obodoechi & Onuoha (2019) invalidated Okun's law. Whereas, Ola-David, Oluwatobi & Ogundipe (2016); Adeyeye, Odeleye & Aluko (2018) found support for a significant inverse relationship between economic growth and unemployment in Nigeria.

Generally, for all climes, the Okun's law appears sensitive to data coverage, data frequency, the method of decomposition as well as the estimation technique. For African countries, in particular, results have largely been tempered by the fact that unemployment is often related to the structure of the economy, restrictive labour market legislation, and the availability of competencies. As African countries witnessed a greater level of structural transformation to more technology-intensive industries, production and employment will tend to move more closely together.

3. Methodology

3.1 Model and Data

Though the association between economic growth and employment growth is very weak, the precise nature of relationship and magnitudes can only be determined through econometrics procedures. Thus, we quantitatively examine the nature of the relationship under two assumptions that economic growth engenders employment growth, and the effect of economic growth on employment is not instantaneous. To evaluate Okun's law for Nigeria between 1961 and 2017, a time series dataset comprising the rate growth of output and employment was selected using a simple difference version of Okun's Law, as described by Knotek (2007). Given that output depends on the amount of labour used in the production process, there is a positive relationship between output and employment. Hence, Okun's law can also be measured as a positive relationship between changes in output and changes in employment. This approach was used by An, Ghazi & Prieto (2017) who considered the unemployment rate statistics in developing countries as not reliable. This paper followed adopted the same approach. The estimator 81 that shows the basic relationship between GDP growth and change in employment will be expected to be positive such that GDP and employment growth moves in the same direction. Thus, we estimate:

$$Egt = \theta 0 + \theta 1 GDPgt + \varepsilon t \quad 1.1$$

Under the method proposed by Knotek (2007) it is possible to estimate from equation 1.1 the level of output growth that would be required on the average to maintain stable employment growth:

$$gt = \theta 0 / \theta 1 \quad 1.2$$

where gt is the rate of output growth that the economy must maintain to avoid declining employment growth, ceteris paribus.

We estimate a second model based on the EPR as a measure of employment. In our descriptive analysis, economic growth rate and the EPR growth rate exhibits a similar trend pattern unlike the pair of economic growth and employment growth. Based on the recommendation of the United Nations (2012) of pairing EPR's rate of change over time and economic growth rates to determine the capacity of a country's economic growth to generate employment, we will test the model:

$$EPRgt = \phi 0 + \phi 1 GDPgt + \mu t \quad 1.3$$

The estimator $\phi 1$ which show the basic relationship between GDP growth and change in EPR should be positive such that as GDP grows employment grows. The larger the magnitude of $\phi 1$ the greater employment generating capacity of the economy. Similarly, under ceteris paribus conditions we can obtain the rate of output growth that the economy must sustain to keep a stable employment generating capacity

$$gt = \phi 0 / \phi 1 \quad 1.4$$

Employment growth rate was computed from employment data extracted from Penn's World Table (PWT 9.1). The working-age population data supplied by the World Development Indicators (WDI) were combined with PWT employment data to generate data for the EPR. The dataset covers 1960 to 2017.

3.2Econometrics procedure

We set out with the test of the stationarity properties of the time series to determine the suitability of each variable for inclusion in the regressions, establish the possibility of cointegration and to choose the appropriate estimation technique. Two unit-root tests were applied. The Augmented Dickey-Fuller – ADF (xxx) test for the null hypothesis of unit root, while the Kwiatkowski, Phillips, Schmidt, and Shin (1992) (KPSS) test for the null hypothesis of stationarity. For the ADF test, we fail to accept the null hypothesis of unit root if the test statistic is significant at 5% level of significance. Similarly, the null hypothesis of stationarity is valid for the KPSS test if the test statistic is smaller than the critical value at the 5% level of significance. The results shown in Table 3 fail to accept the null hypothesis of unit root under the ADF for the two trend specifications. Similarly, we accept the null of stationarity under the KPSS test and conclude each variable stationary at levels.

Table 3: Test of stationarity properties of time series.

Variable	ADF		KPSS		Trend Specification	Order of Integration
	Test-statistic	Probability	Test-statistic	Critical value @ 5%		
Eg	-5.659067	0.0000	0.223940	0.463000	Intercept	I(0)
	-5.791973	0.0001	0.127771	0.146000	Intercept & Trend	I(0)
EPRg	-5.824655	0.0000	0.167085	0.463000	Intercept	I(0)
	-5.802394	0.0001	0.155865	0.146000	Intercept & Trend	I(0)
GDPg	-4.605072	0.0004	0.099122	0.463000	Intercept	I(0)
	-4.565408	0.0029	0.086193	0.146000	Intercept & Trend	I(0)

4. Regression results and discussions

4.1 Regression results and diagnostics

If all variables are stationary at level, it means that the statistical properties of the dataset are all constant over time. We can therefore proceed to estimate the model using the Ordinary Least Squares (OLS) without the risks associated with spurious regressions.

Table 4: Regression results and diagnostics.

Table 4A: Least squares estimate
Dependent Variable: EG

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPG	0.001182	0.000389	3.039894	0.0036
C	0.019730	0.003178	6.208092	0.0000

Table 4A: ARDL long run form estimates
Dependent Variable: EG
Selected Model: ARDL(2, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPG	0.001183	0.000558	2.118595	0.0391
C	0.019193	0.003937	4.875080	0.0000
CointEq(-1)*	-0.816879	0.124469	-6.562923	0.0000

F-Bounds Test

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	13.80512	1%	4.94	5.58

Diagnostics

	OLS		*ARDL*	
Normality test				
	Test statistics	Probability	*Test statistics*	*Probability*
Jarque-Bera	0.801757	0.669731	*0.274554*	*0.871729*
Breusch-Godfrey Serial Correlation LM Test				
	Test statistics	Probability	*Test statistics*	*Probability*
F-statistic	3.732107	0.0306	*0.383731*	*0.6834*
Obs*R-squared	7.029370	0.0298	*0.849807*	*0.6538*
Breusch-Pagan-Godfrey Heteroskedasticity Test				
	Test statistics	Probability	*Test statistics*	*Probability*
F-statistic	3.249404	0.0770	0.376515	0.7703
Obs*R-squared	3.178490	0.0746	1.192958	0.7547
Ramsey RESET Test				
	Test statistics	Probability	*Test statistics*	*Probability*
t-statistic	0.578878	0.5651	*1.900085*	*0.0633*
F-statistic	0.335099	0.5651	*3.610321*	*0.0633*
Likelihood ratio	0.352953	0.5524	-	-

All variables being level stationarity ordinarily suggests the absence of cointegration, we know however that the effect of economic growth on employment is not instantaneous. Thus, with the introduction of lags possibility exists for a long-run relationship. Given the robustness of the Auto Regressive Distributive Lag (ARDL) methodology to different orders of integration I(0), I(1) and their combinations, we will estimate both the OLS

and the ARDL for the two models. Tables 4A and 4B show the OLS and ARDL results and their diagnostics for equation 1.1. Results for equation 1.3 are displayed in Tables 5A and 5B.

Table 5: Regression results and diagnostics

Table 5A: Least squares estimate
Dependent Variable: EPRG

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPG	0.112841	0.037193	3.033925	0.0037
C	-0.505304	0.303996	-1.662209	0.1023

Table 5B: ARDL long run form estimates
Dependent Variable: EPRG
Selected Model: ARDL(2, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPG	0.107136	0.050467	2.122886	0.0387
C	-0.553856	0.361778	-1.530925	0.1321
CointEq(-1)*	-0.846801	0.126207	-6.709624	0.0000

F-Bounds Test

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	14.42918	1%	4.94	5.58

Diagnostics

	OLS		*ARDL*	
Normality test				
	Test statistics	Probability	*Test statistics*	*Probability*
Jarque-Bera	0.411674	0.813966	*0.015898*	*0.992082*
Breusch-Godfrey Serial Correlation LM Test				
	Test statistics	Probability	*Test statistics*	*Probability*
F-statistic	3.626133	0.0336	*0.383731*	*0.6834*
Obs*R-squared	6.854201	0.0325	*0.849807*	*0.6538*
Breusch-Pagan-Godfrey Heteroskedasticity Test				
	Test statistics	Probability	*Test statistics*	*Probability*
F-statistic	2.987098	0.0896	*0.851409*	*0.7337*
Obs*R-squared	2.935357	0.0867	*1.850040*	*0.7167*
Ramsey RESET Test				
	Test statistics	Probability	*Test statistics*	*Probability*
t-statistic	0.107299	0.9150	*1.331417*	*0.1892*
F-statistic	0.011513	0.9150	*1.772672*	*0.1892*
Likelihood ratio	0.012164	0.9122	-	-

4.2 Discussion of results

The negative and significant coefficient of the cointegration equation of the ARDL and the F-bounds tests both established the long-run relationship of GDP and employment growths in Nigeria as specified in equation 1.1. The diagnostics reinforced confidence in the non-violation of the regression assumptions and the stability of the estimated model. Valid inferences can therefore be made both from the short-run OLS estimates and the long-run form of the ARDL. The economic growth coefficient as well as the intercept are positive and significant in the short- and long-run indicating that economic growth and employment move together in Nigeria. Economic growth consequently leads to employment growth in Nigeria validating the applicability of Okun's law to Nigeria as Ola-

David, Oluwatobi & Ogundipe (2016), and Adeyeye, Odeleye & Aluko (2018) also found. As the focus of this paper is the employment-generating strength of growth, we look into the magnitudes of the coefficients in the short- and long-run. Curiously, there is no difference in the ability of the economy to turn economic growth into jobs in the short- and long-run. At a coefficient value of 0.001, the stylized fact derived from our descriptive analysis is confirmed that Nigeria's capacity to translate economic growth into employment is abysmally very weak. For every one-percentage-point growth in GDP employment changes by 0.001%.

While this result does not support the case of jobless growth for Nigeria it does reinforce the assertion that economic growth alone does not necessarily translate into more and better jobs. ILO (2019) raised two important factors as determinants of the efficiency by which growth translates into productive jobs: the sector composition of growth and the capital-labour intensity of growth within each sector of the economy. We will attempt to analyse these two factors to explain the very low capacity of growth translating into employment in Nigeria. CBN (2006) showed that factor accumulation accounted for 80% of growth in Nigeria of which labour is 65% and capital 15%. Productivity accounts for 20% of growth. In terms of sectoral decomposition, agriculture drives growth 41.49% (of which crop production is 36.95%), crude petroleum 25.72%, and manufacturing 4.5%. Agriculture and crude oil production thus account for approximately 70% of growth. By this account, Nigeria's growth is essentially driven by labour-intensive agriculture with its low productivity and the capital-intensive crude oil production with very low labour-absorptive capacity. Olamade (2017, 2019) presented evidence of structural transformation with both the share of agriculture in the GDP and employment declining. In the period 2011 – 2015 services has overtaken agriculture with a thirty percentage point lead in contribution to the GDP. However, this transformation is towards labour-intensive transport and travel services sub-sectors. As the economy transforms from one labour-intensive sector to another and productivity remains low, the efficiency of the economy to translate growth into more employment stay weak.

Given that the statistical significance of the estimated coefficients from equation 1.1 for both the OLS and the ARDL, we can obtain according to our equation 1.2 the growth rate (80 / 81) required for the Nigerian economy to achieve a stable rate of employment. In the long-run, on the average, the economy would require annual growth rates of 16.22%, to maintain a stable employment rate. Historical antecedents of growth in the country showed that the country can attain and sustain double-digit growth rates. Growth was 24.19 % in 1969 and 25.00% in 1970. In recent times, a growth rate of 15.32 was recorded in 2002. It follows that with the right economic and institutional frameworks economic growth can be made effective in creating more and better jobs.

Results from equation 1.3 return significant and much stronger Okun's coefficients than those of equation 1.1. Equation 1.3 explores an alternative measure of employment using the rate of change of the employment-population ratio as the dependent variable. The short-run and long-run coefficients are also very close. The intercepts are negative and insignificant making it impossible to calculate the average rate of growth required to keep employment rate steady and growing. However, the results obtained from estimating this alternative measure of employment further lend credence to pro-growth policies as a means of creating employment in Nigeria.

5. Conclusion and policy recommendations

In terms of the expected sign of coefficient, the analysis presented in this paper refutes the phenomena of jobless growth for Nigeria. It, however, upholds that the efficacy of growth to generate jobs is abysmally very low thus, suggesting that Nigeria has been plagued by a very high and pervasive rate of unemployment such that the rate of economic growth experienced over the years is not high enough to translate into a visible change in the employment. This may account for the estimated 16.22% average growth rate that policymakers will be required to maintain over the long run to keep employment rate steady and growing.

Since economic growth and employment growth are cointegrated, pro-growth economic policies capable of sustaining double-digit growth rate over the long run should be vigorously pursued. Such policies must be designed to target the:

1. Deliberate structural transformation of the economy in the direction of high productivity labour-intensive sectors. In this regards, agriculture and the services sectors that are the main drivers of economic growth should be repositioned for technology adoption and productivity enhancement.
2. Labour-intensive manufacturing in agro-processing, textiles, food and beverages, and mineral processing should be revived and coupled by backward integration into the country's vast natural resources endowment.
3. Harmonisation of sectoral industrial policies with other national policies such as science, technology and innovation policy, education policy, and trade policy to evolve a functional national system of innovation.
4. Creation of requisite institutional structure for market efficiency, contract enforcement, and an environment supportive of continuous improvements in start-ups, growing, and mature industries.

The ultimate goal of pro-growth policies in Nigeria therefore should be the enhancement of concurrent sustained growth in output, productivity, and employment if economic growth is to work for better and more jobs.

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