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Sectoral Analysis of Employment Intensity of Growth in Nigeria ^(*)

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Abstract

This study assessed employment intensity of growth (EIG) in the agriculture, industry and service sectors in Nigeria from 1991 to 2019 within the context of Okun's theory/law. Data from the 2020 World Development Indicators were employed for analysis, using elasticity procedure after decomposing the scope into different periods and regimes. The findings showed negative EIG in the agriculture and industrial sectors while the service sector returned positive EIG. Therefore, government should invest significantly in the service sector while the agricultural sector should be mechanized to boost output and supply of raw materials to industries to enhance employment generation.

Keywords: unemployment, employment intensity of growth, agriculture, industry, service, Nigeria.

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I. Introduction

Nigeria is endowed with numerous mineral resources, such as crude oil, natural gas, iron, coal, lead, gold, water and zinc among others in addition to highly fertile soil for agriculture and vibrant youth population. These to a large extent have contributed to the growth of her economy in the recent past, ranging from 7.84% in 2010 to 6.31% in 2014, and averaging around 6.5% between 2000 and 2017. In 2014, Nigeria became the largest economy in Africa owing to the rebasing of her Gross Domestic Product (GDP). Moreover, "the rebased GDP, using updated prices and improved methodology, also revealed amongst others that the economy became more diversified than previously thought, with rising contributions of previously undocumented service (including the entertainment industry) to GDP" (Ajakaiye et al., 2016).

This growth feat going by the stance of theory and empirical findings elsewhere perhaps should have contributed positively to employment generation (Dauda, 2020). However, the reverse appears to be the case, as unemployment remains high and growing; moving from 5.1% in 2010 to 23.1% in 2018, and 27.1% in 2020 (NBS- National Bureau of Statistics, 2018, 2020; Dauda, 2020). Similarly, combined unemployment and underemployment rates rose from 40.0% in 2017 to 55.7% in 2020 (NBS, 2020; Dauda, 2020). Ajakaiye et al. (2016) note that since 2000,

unemployment rate in Nigeria “has grown at a compound annual average of 4.8%, even as it has continued to fluctuate and intensify.” This ‘jobless growth’ situation shows the low labor absorptive capacity of the nation’s economy (Dauda, 2020).

In the spirit of Okun’s law (Okun, 1962), economic growth should generate employment. This issue has been studied within the context of employment elasticity of growth (EEG) also known as employment intensity of growth (EIG). The term denotes the relationship between output growth and employment. It measures this relationship numerically to obtain “useful information on labor markets in the area of how output and employment growths evolve over time, and how employment varies among different population groups (Kapsos, 2006; Dauda, 2020).

Although studies examining employment/unemployment-growth relationship abound in the literature, most of them however have been carried out outside the Nigerian economy. Majority of the available ones in the country are economy-wide and distract from EIG because they merely regress employment/unemployment on output (see Amassoma & Nwosu, 2013; Onwanchukwu, 2015; Omitogun & Longe, 2017; Adelowokan, Maku, Babasanya & Adesoye, 2019). Only seven works (Oloni, 2013; Abraham, 2014; Akeju & Olanipekun, 2015; Ajakaiye et al., 2016; Nevin, Akinbiyi & Bakare, 2018; Dada, 2018; Dauda, 2020) in the country can be situated within the context of EIG, with just one (Dauda, 2020) assessing EIG distinctly while three (Ajakaiye et al; Nevin, Akinbiyi & Bakare; Dada) out of these are sectoral studies, using different methodologies with none disaggregating the scope to periods and political regimes as carried out in this paper.

The current study diverges significantly from the above works on the ground that it examines EIG across three sectors (agriculture, industry and service). This is to ascertain the critical sectors that are capable of generating employment through growth. Moreover, it provides information on the structural transformation occurring in the economy of Nigeria. The paper also disaggregates the scope into different periods and political regimes. None of the existing studies in Nigeria and elsewhere has been able to do this, except Dauda (2020), which is not sectoral but an economy-wide study. The remainder of the paper is structured thus: section two presents employment and output profiles of Nigeria over the period 1990-2019; section three reviews related literature; section four focuses on the methodology; section five presents empirical findings while section six concludes the study.

II. Output and Employment Profiles of Nigeria: Economy-wide and Sectoral Statistics

Output profile: economy-wide and sectoral

Nigeria’s economy has recorded unprecedented in recent past (Dauda, 2020). As evident in Figures 1 and 2, output witnessed positive, consistent and faster growth beginning from 2001 till 2016 before the economy was plunged into a recession (Figure 1). Nevertheless, it recovered a year after before the outbreak of COVID-19 in 2019, which took its toll on the economy in 2020.

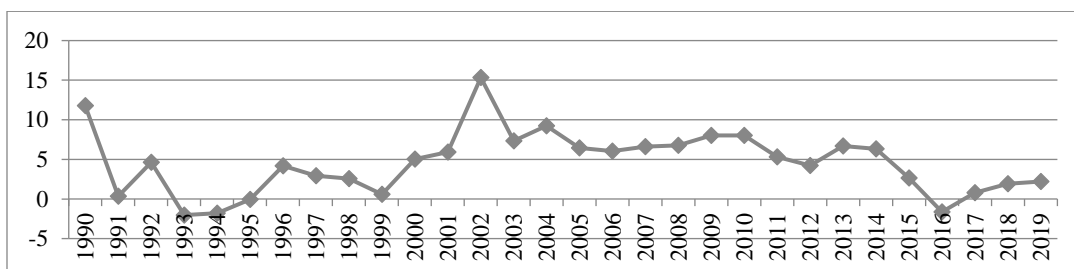
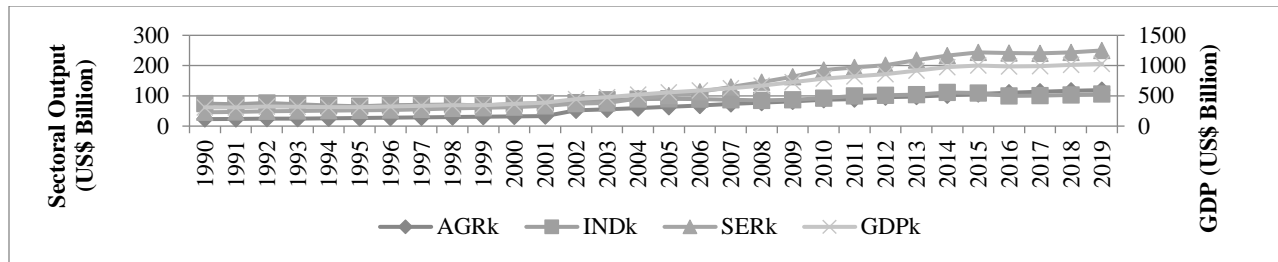


Figure 1 GDP growth rate for Nigeria, 1990-2019

Source: Generated by Authors from World Bank (2020)

In terms of sectoral performance as shown in Figure 2, output in the service sector recorded astronomical growth than agriculture and industrial sectors. Although from 1990 to 2004, the service sector performed below industry; beginning from 2004, the sector recorded high and rising growth and continued to rise higher above agriculture and industry. The industrial sector, which was performing better than agriculture and service sectors between 1990 and 2004, began to dwindle. By 2005, it was overtaken by service with a very wide gap. However, its growth was above agriculture marginally till 2015 before it was overtaken by the agricultural sector.



AGRk = Agriculture, forestry, and fishing, value added (constant 2010 US\$); INDk = Industry (including construction), value added (constant 2010 US\$); and SERk = Service, value added (constant 2010 US\$).

Figure 2: Economy-wide and sectoral (agriculture, industry and service) output profile of Nigeria, 1990-2019

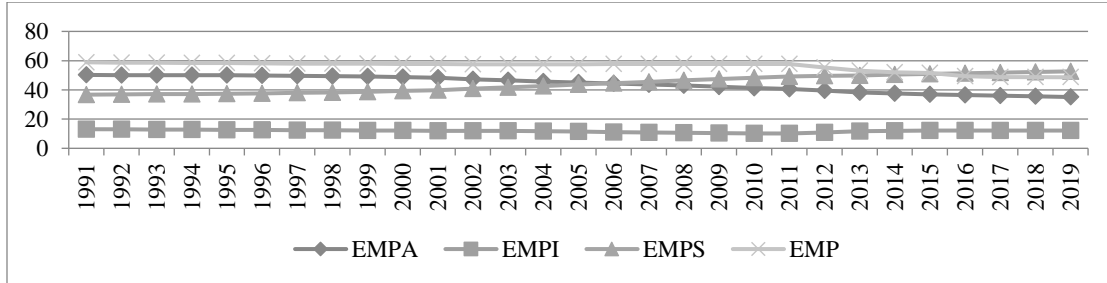
Source: Generated by Authors from World Bank (2020)

Employment profile: economy-wide and sectoral

Figure 3 shows trend of economy-wide and sectoral employment in the country from 1991 to 2019. The overall employment trend appears relatively flat and decreasing slightly from 1991 to 2011. From this point forward, it started experiencing sharp decline even during the period of high economic growth (2012-2015).

In summary, the growth performance of Nigeria’s economy between 2012 and 2015 was high and encouraging. However, employment suffered declining trend, with the exception of the service sector. This counters the Okun’s law and empirical findings elsewhere, where growth has generated employment.

Employment generation by the industrial sector has been abysmally low and fluctuating. It consistently remained below 13.5% since 1991 till date. Employment in the agriculture sector was as high as 50% in 1991, rising far above the figure in both industrial and service sectors. It remained above them till 2005 when it was overtaken by the service sector; and since then it has fallen steadily. It however, remained above the industry sector.



EMP = Employment to population ratio, 15+, total (%) (modeled ILO estimate); EMPA = Employment in agriculture (% of total employment) (modeled ILO estimate); EMPI = Employment in industry (% of total employment) (modeled ILO estimate); and EMPS = Employment in service (% of total employment) (modeled ILO estimate)

Figure 3: Economy-wide and sectoral (agriculture, industry and service) employment profile of Nigeria, 1991-2019

Source: Generated by Authors from World Bank (2020)

III. Literature Review

Employment-growth hypothesis is studied within the framework of the famous Okun’s theory/law. This law postulates a negative/inverse relationship between a country’s output growth and unemployment level. This is synonymous to a direct relationship between economic growth and level of employment. In his work, Okun (1962) demonstrates that “a 3% output growth is required for a 1% reduction in unemployment rate” (Dauda, 2020).

Empirical studies across literature have tested this law in various economies and reported divergent results. While some found the law to hold in certain economies (Padalino & Vivarelli, 1997; Seyfried, 2005; Kapsos, 2006; Slimane, 2015; An, Prieto, Loungani & Mishra, 2016) others reported counter-intuitive outcomes (Herman, 2011; Ancharaz, 2011; Ajilore & Yinusa, 2011; Dauda, 2020). The third strand shows a near zero or none relationship between growth and employment (Pianta, Evangelista & Perani, 1996; Padalino & Vivarelli, 1997). It is however evident that while the law holds in developed countries, it does not in developing economies.

Given that the current paper is sectoral, attempt is made to review sectoral studies on EIG across literature.

Studies outside Nigeria

Empirical studies outside Nigeria cut across developed and developing economies, with greater percentage of them reporting employment intensity of growth in the service sector than any other.

A study conducted by Islam & Nazara (2000) in Indonesia spanning the period 1977-1996, and using the Ordinary Least Squares (OLS) and arc elasticity techniques covers five sectors (agriculture, industry, trade, service and others). The results however were mixed, influenced majorly by the techniques employed. For instance, findings from the OLS analysis showed agriculture having the highest EIG (1.05) whereas; the outcome of the analysis with arc elasticity gave the highest EIG to other sectors.

Kapsos (2006) analyzed EIG in 160 countries, using multivariate log-linear regression over the period 1991-2003. Three sectors (agriculture, industry and service) were covered in the study. The findings suggest that a wide variation in sectoral EIG exists across regions and countries. Africa and the Middle East registered the most EIG during the study period due to large surplus of labor. On the other hand, evidence of “a structural divide between North America and Western Europe” was found while structural economic change was apparent in the developed and transition economies of Latin America and the Caribbean as well as Asia and the Pacific.

In an attempt to examine the link between real GDP and employment generation in the industrial sector in the US economy, Sawtelle (2007) regressed real GDP on industrial employment data within 1991-2001, using two models. The outcome revealed jobless growth (negative EIG) in five industries. This result contrasts with findings of Perugini (2009), which studied the aggregate and sectoral EIG in Italy, employing descriptive statistics from 1970 to 2004. From the findings, the service sector had higher EEG than the agriculture and industry.

Asides from the above, studies have also reported declining EIG, especially in developing economies. For instance, Pattanaik & Nayak (2011) examined EIG in the service sector in India from 1960 to 2004. It was reported that although the sector has grown appreciably in terms of its output, employment by the sector has dwindled significantly, which invariably led to considerable drop in EEG in the sector.

The study is consistent with an earlier one conducted by Ajilore & Yinusa (2011), which focused on the various sectors in the economy of Botswana, using simple elasticities and econometric procedures. The authors found very low sectoral EIG between 1990 and 2008. The findings of both studies on diamond-rich Botswana confirm earlier ones which argued that mineral resource abundant countries suffer from jobless growth syndrome (Ancharaz, 2011). Accordingly, most of the impressive growth of African countries could not generate jobs because such growth has been driven largely by natural resource exportation (Ancharaz (2011). This also is true of the oil-rich Nigeria.

El-Hamadi, Abdouni & Bouaouz (2017) also analyzed sectoral EIG in Morocco between 1970 and 2012, employing the error-correction model (ECM). The authors reported a long-run growth and employment relationship in the country, driven largely by the manufacturing, construction and service sectors.

Guisan & Exposito (2017) studied sectoral employment, production and wage generation in five 5 European countries (Germany, Spain, France, Italy and UK) from 1965 to 2015, using the ordinary and generalized least squares. The results showed negative EIG in both agriculture and industry sectors. This performance in the agricultural sector was due to real income stagnation and rise in the capital-output ratio at the expense of labor absorption. However, in the industrial sector, the economic policies put in place by the European Union after the 2008 crisis contributed to the low and declining employment in the sector. On the other hand, employment in the building sector was stable while the service sector witnessed upsurge in employment due to increase in demand for service, rise in the family stock of capital and development of social service in these countries.

A similar study by Ghazali & Mouelhi (2018) was undertaken on the Tunisian productive sectors with the view to determining their job creation capacity. Using a multivariate log-linear regression model and covering 1980-2012 period, it was reported that although non-manufacturing, construction, trade, tourism, and agriculture and fishing sectors have capacity to absorb high number of unskilled labor, they however generate low output. Whereas sectors such as manufacturing transport, telecommunication and finance, which are highly productive have low EIG.

Investigating employment intensity of output growth in eight non-agricultural sectors in South Africa, Mkhize (2019) found that on the long run, jobless growth occurred when the total non-agricultural employment and growth were considered. However, with respect to sectoral composition, growth generated employment, especially in the tertiary (service) sector, comprising finance and business service, as well as transport and utilities.

A latest study by Zaki, Alshyab, Goaid & Seleem (2020) on ten sectors in the Egyptian and Jordanian economies spanning 1983-2010 showed the highest EEG in the manufacturing sector and thus created jobs the most in Egypt while the service sector thrived mostly in terms of employment generation in Jordan during the period.

Similarly, Witt & Gross (2020) showed in their study that the service sector rose into dominance in terms of employment generation and value-added shares, particularly in “the second half of the twentieth century” in the US. This therefore presupposes that the sector had positive EIG during the said period.

Studies in Nigeria

Empirical studies examining EIG in Nigeria are not many. Out of the seven available ones (Oloni, 2013; Abraham, 2014; Akeju & Olanipekun, 2015; Ajakaiye et al., 2016; Nevin, Akinbiyi & Bakare, 2018; Dada, 2018; Dauda, 2020) only three (Ajakaiye et al.; Nevin, Akinbiyi and Bakare; Dada) are sectoral. The remaining four, which are reviewed in Dauda (2020) concentrate on the overall economy, using national output and employment/unemployment data.

In their work, Ajakaiye et al. (2016), applying a log linear regression equation found that in Nigeria except for service, EIG has been generally low in the overall economy as well as in the agricultural and manufacturing sectors between 1981 and 2014. Consistent with this, is the work of Nevin, Akinbiyi & Bakare (2018), which employed stylized facts and descriptive statistics to examine EIG in four sectors (agriculture, manufacturing, service and industry) in Nigeria from 2010 to 2014. The findings revealed that the service sector has the highest employment potential than other sectors in the economy.

The outcome of the research by Dada (2018) diverges from the two above. The author, who used unemployment rate with the Structural Vector Autoregressive (SVAR) framework, confirmed the existence of jobless growth in Nigeria. However, the agricultural sector has a great potential for job creation than the service sector. The methodology employed might have influenced the findings as these are inconsistent with the stylized facts presented in this paper where employment generation by the agricultural sector continues to decline even with upsurge in output generated by the sector (see Figures 2 and 3).

Summary of studies on sectoral employment intensity of growth

IV. Methodology

Analytical framework

Following Islam & Nazara (2000), Kapsos (2006), and Dauda (2020), the study adopts elasticity procedure to investigate sectoral EIG in the Nigerian economy covering three sectors- agriculture, industry and service- from 1990 to 2019. The elasticity procedure is defined as the “the ratio of a change in employment to a change in output” (Dauda, 2020). This approach enables the determination of EIG on a per period and regime basis. With this, the performance of each sector over different periods and regimes is determined and compared.

Symbolically, EIG is given as:

$$\mu = \frac{\% \Delta E}{\% \Delta Y} \quad (1)$$

where: μ stands for EIG, E implies level of employment generated per sector, Y is the output level per sector while

Δ is the change operator.

Equation (1) implies

$$\mu = \frac{(E_t - E_{t-1})/E_{t-1}}{(Y_t - Y_{t-1})/Y_{t-1}} \quad (2)$$

From equation (2), is E_t is current level of employment per sector, E_{t-1} implies lagged employment per sector, Y_t signifies current output per sector, and Y_{t-1} is lagged output per sector. When μ is positive, then employment has

risen as output rose in the sector under consideration. However, when μ is negative, it means growth in the affected sector has not generated employment. In other words the sector is experiencing jobless growth.

Data description and sources

Table 1: Data requirement, definition and source

Variable	Definition	Source
EMPA	Employment in agriculture (% of total employment) (modeled ILO estimate)	World Bank (2020)
EMPI	Employment in industry (% of total employment) (modeled ILO estimate)	World Bank (2020)
EMPS	Employment in service (% of total employment) (modeled ILO estimate)	World Bank (2020)
AGRC	Agriculture, forestry, and fishing, value added (current US\$)	World Bank (2020)
AGRK	Agriculture, forestry, and fishing, value added (constant 2010 US\$)	World Bank (2020)
INDC	Industry (including construction), value added (current US\$)	World Bank (2020)
INDK	Industry (including construction), value added (constant 2010 US\$)	World Bank (2020)
SERC	Service, value added (current US\$)	World Bank (2020)
SERK	Service, value added (constant 2010 US\$)	World Bank (2020)

Source: Authors' Compilation

V. Empirical Results and Discussions

Sectoral employment intensity of growth in Nigeria, annual estimation results, 1991-2019

Table 2 presents findings of the annual sectoral analysis of EIG in agriculture, industry and service sectors from 1991 to 2019, using two sectoral output figures (current and constant). The findings showed that the growths recorded in agricultural and industrial sectors did not generate enough employment during the period of the study.

For instance, more than 84% the coefficients of agriculture were negative. Even, out of the remaining nine which returned positive sign, six were due to simultaneous fall in both employment and output. The same pattern was observed in the industrial sector, where EIG was largely negative. From the table, more than 50 of the coefficients were negative while 12 out of those with positive sign were as a result of declines in both output and employment.

Table 2: Annual sectoral EIG for Nigeria (agriculture, industry and service), 1991-2019

Year	AGRCEig	AGRKEig	INDCEig	INDKEig	SERCEig	SERKEig
1991-1992	0.057	-0.130	0.479	-0.058	-0.124	0.156
1992-1993	-0.002	0.033	0.021	0.154	-0.007	0.079
1993-1994	0.001	0.011	-0.073	0.187	0.016	0.186
1994-1995	-0.004	-0.034	-0.020	0.340	0.042	0.261
1995-1996	-0.025	-0.122	-0.028	-0.093	0.077	0.328
1996-1997	-0.037	-0.103	-2.068	-0.400	0.087	0.225
1997-1998	-0.229	-0.120	0.050	-2.360	0.054	0.198
1998-1999	-0.257	-0.071	-0.122	0.332	0.077	0.226
1999-2000	0.257	-0.354	-0.014	-0.063	0.085	0.437
2000-2001	-0.046	-0.270	0.107	-0.209	0.114	0.221
2001-2002	-0.022	-0.038	0.060	0.234	0.275	0.216
2002-2003	-2.410	-0.224	-0.037	-0.074	0.197	0.811
2003-2004	-0.414	-0.307	-0.016	-0.387	0.057	0.117
2004-2005	-0.055	-0.186	-0.111	-1.856	0.065	0.214
2005-2006	-0.050	-0.182	-0.137	1.560	0.059	0.177
2006-2007	-0.090	-0.205	-0.257	1.382	0.107	0.166
2007-2008	-0.063	-0.253	-0.094	1.108	0.081	0.159
2008-2009	0.2148	-0.305	0.071	-0.724	-0.406	0.166
2009-2010	-0.182	-0.350	-0.018	-0.166	0.124	0.156
2010-2011	-0.374	-0.652	-0.039	-0.121	0.208	0.3766
2011-2012	-0.270	-0.405	1.070	3.166	0.044	0.164
2012-2013	-0.475	-1.043	1.222	3.724	0.040	0.079
2013-2014	-0.328	-0.485	0.316	0.266	0.082	0.170
2014-2015	0.150	-0.413	-0.042	-0.538	-0.093	0.178
2015-2016	0.054	-0.222	-0.004	-0.010	-0.048	-0.785
2016-2017	0.166	-0.374	0.016	0.107	-0.065	-0.946
2017-2018	-0.186	-0.683	0.006	0.075	0.127	0.536
2018-2019	-0.082	-0.565	0.005	0.046	-0.018	0.399

AGRCEig = EIG with respect to Agriculture, forestry, and fishing, value added (current US\$); AGRKEig = EIG with respect to Agriculture, forestry, and fishing, value added (constant 2010 US\$); INDCEig = EIG with respect to Industry (including construction), value added (current US\$); INDKEig = EIG with respect to Industry (including construction), value added (constant 2010 US\$); SERCEig = EIG with respect to Service, value added (current US\$); and SERKEig = EIG with respect to Service, value added (constant 2010 US\$).

Source: Computed by Authors (2020)

The case of service was nevertheless different, as growth generated substantial employment given the positive sign of most of the coefficients. This presupposes that growth in the sector contributed substantially to employment.

Sectoral employment intensity of growth in Nigeria, per period/political regime analysis and results, 1991-2019

In this section, results of the analyses performed per period and political regimes are presented. For instance, the performance of each sector with respect to EIG was considered on different period intervals, ranging from five years to ten years as well as military and civilian regimes. These are presented in Tables 3 to 5.

*Agricultural sector***Table 3:** Per period/regime sectoral EIG for Nigeria (agricultural sector), 1991-2019

Year	AGR _C eig	AGR _K eig	Period
1991-2019	-0.075	-0.035	Twenty-nine years interval
1991-2000	-0.088	-0.069	Ten years interval
2001-2010	-0.089	-0.029	Ten years interval
2011-2019	-0.401	-1.779	Nine years interval
1991-1995	-0.031	-0.036	Five years interval
1996-2000	-0.133	-0.210	Five years interval
2001-2005	-0.075	-0.044	Five years interval
2006-2010	-0.243	-0.138	Five years interval
2011-2015	-0.482	-0.765	Five years interval
2016-2019	-0.494	-0.257	Four years interval
1991-1998	-0.069	-0.035	Military rule
1999-2019	-0.102	-0.054	Civilian rule
1999-2007	-0.084	-0.033	Olusegun Obasanjo regime
2007-2010	-0.279	-0.192	Umaru Musa Yar'Adua regime
2010-2015	-0.485	-0.616	Goodluck Jonathan regime
2015-2019	-0.389	1.289	Muhammadu Buhari regime

AGR_Ceig = EIG with respect to Agriculture, forestry, and fishing, value added (current US\$); and AGR_Keig = EIG with respect to Agriculture, forestry, and fishing, value added (constant 2010 US\$).

Source: Computed by Authors (2020)

From Table 3, it is apparent that the agriculture sector did not generate commensurate employment as output grew. This is apparent in the negative values of all the coefficients except one, which was due to simultaneous decline in output and employment generated by the sector. Thus, regardless of the period and political regime, growth in the agricultural sector during these periods was jobless.

*Industrial sector***Table 4** Per period/regime sectoral EIG for Nigeria (industrial sector), 1991-2019)

Year	INDCeig	INDKeig	Period
1991-2019	-0.136	-0.011	Twenty-nine years interval
1991-2000	-15.299	-0.250	Ten years interval
2001-2010	-0.729	-0.042	Ten years interval
2011-2019	3.440	3.575	Nine years interval
1991-1995	0.357	0.307	Five years interval
1996-2000	-0.646	-0.153	Five years interval
2001-2005	-0.249	-0.032	Five years interval
2006-2010	-2.042	-0.144	Five years interval
2011-2015	2.159	-1.413	Five years interval
2016-2019	0.074	0.007	Four years interval
1991-1998	2.268	0.409	Military rule
1999-2019	0.013	0.001	Civilian rule
1999-2007	-0.398	-0.040	Olusegun Obasanjo regime
2007-2010	-0.860	-0.131	Umaru Musa Yar'Adua regime
2010-2015	1.016	2.224	Goodluck Jonathan regime
2015-2019	-0.192	0.025	Muhammadu Buhari regime

INDCeig = EIG with respect to Industry (including construction), value added (current US\$); and INDKeig = EIG with respect to Industry (including construction), value added (constant 2010 US\$)

Source: Computed by Authors (2020)

The performance of the industrial sector across different periods as shown in Table 4 was mixed. For example, EIG for the periods 1991-2019; 1991-2000; 2001-2010; 1996-2000; 2001-2005; 2006-2010; 1999-2007; and 2007-2010 was negative. The positive coefficients for 1991-1995 and 1991-1998 were due to simultaneous fall in output and employment. Overall, the negative sign outweighs the positive. This means that not much employment was generated as industrial output grew during the periods. Regarding political regimes, the military rule, 1991-1998 saw both output and employment in the sector falling, occasioning positive EIG. During the civilian rule (1991-2019) and the regime of former president Goodluck Jonathan (2010-2015), growth in the industrial sector generated employment, going by the positive sign of the EIG returned for these periods. Whereas, during the reigns of Olusegun Obasanjo, Umaru Musa Yar'Adua and the current president, Muhammadu Buhari, the industrial sector witnessed jobless growth.

Service sector

Table 5: Per period/regime sectoral EIG for Nigeria (service sector), 1991-2019

Year	SERCeig	SERKeig	Period
1991-2019	0.100	0.102	Twenty-nine years interval
1991-2000	0.206	0.154	Ten years interval
2001-2010	0.122	0.051	Ten years interval
2011-2019	0.237	-0.157	Nine years interval
1991-1995	0.150	-0.077	Five years interval
1996-2000	0.252	0.062	Five years interval
2001-2005	0.183	0.073	Five years interval
2006-2010	0.138	0.129	Five years interval
2011-2015	0.129	0.086	Five years interval
2016-2019	45.015	-2.646	Four years interval
1991-1998	0.182	0.425	Military rule
1999-2019	0.115	0.111	Civilian rule
1999-2007	0.157	0.044	Olusegun Obasanjo regime
2007-2010	0.144	0.163	Umaru Musa Yar'Adua regime
2010-2015	0.163	0.102	Goodluck Jonathan regime
2015-2019	1.487	1.487	Muhammadu Buhari regime

SERCeig = EIG with respect to Service, value added (current US\$); and SERKeig = EIG with respect to Service, value added (constant 2010 US\$).

Source: Computed by Authors (2020)

The performance of the service sector with respect to EIG has been encouraging. As distinct in Table 5, only 3 coefficients were negative for all the periods and regimes. This means that the growth of the service sector generated substantial employment across all the periods and regimes regardless of the output measures employed for analysis.

VI. Discussion of Results

The findings presented in this study indicated that the growth of agricultural and industrial sectors in Nigeria over the period 1991-2019 as well as during various political regimes did not generate employment. This is evident in the negative EIG reported for various periods for the two sectors. Thus, employment declined as the sectors experienced growth in their outputs. This shows that the capacities of both sectors to absorb labor during the periods were low, and this diverges from the postulation of “a positive linear relationship between output growth and employment” by Okun’s law (Dauda, 2020). This result is consistent with the finding of Guisan & Exposito (2017) who reported declines in agriculture and industry sectors in Germany, Spain, France, Italy and UK from 1965 to 2015 as output expanded in the sectors. Sawtelle (2007) also reported negative EIG in five industries between 1991 and 2001 in the US while Ajakaiye et al. (2016) found low EIG in the agricultural and manufacturing sectors in Nigeria over the period 1981-2014. However, in contrast, Dada (2018) reported that the agriculture sector has potential for job creation in Nigeria than other sectors.

For the service sector, growth generated employment across the periods and political regimes considered in the study. The result is in consonant with that of Mkhize (2019) which discovered that in South Africa, the service sector generates employment. Moreover, Nevin, Akinbiyi & Bakare (2018) also indicated that the service sector in Nigeria has the highest employment potential than other sectors within the period 2010-2014 while Ajakaiye et al (2016) reported high EIG in the service sector for the Nigerian economy between 1981 and 2014. Moreover, El-Hamadi, Abdouni & Bouaouz (2017) also found a long run EIG in Morocco in the manufacturing, construction and service sectors during the period 1970-2012 while Zaki, Alshyab, Goaid & Seleem (2020) and Witt & Gross (2020) confirmed that the service sector thrived the most in terms of employment generation in Jordan and US respectively.

Notwithstanding the above, Pattanaik & Nayak (2011) discovered that in India, the growth of the service sector within the period 1960-2004 did not translate into employment generation, rather, employment by the sector dwindled significantly.

The jobless growth situation reported for the agricultural and industrial sectors in Nigeria are not surprising. The agriculture sector is underdeveloped. Activities in this sector are carried out at subsistence level, using crude implements. Investment in the sector has been very low due to oil discovery, which appears to have contributed to the neglect of other sectors in the economy. Many of the graduates released into the labor market could not be absorbed by the agricultural sector due to its underdeveloped nature while government policies aimed at developing the sector are not sufficient enough to attract this sect of people.

The industry sector, which could absorb the large army of unemployed youths, faces serious challenges. The power supply in the country has been a major challenge, having negative impact on the entire economy. Most industries spent huge sum of money to generate power, thereby increasing the cost of production and lowering productivity, which all limit the number of persons they can employ. In addition, the high exchange rate has led to increase in cost of production, since many industries in the country source the raw materials they use from abroad. Furthermore, majority of them result to employing labor on casual basis thereby paying ridiculous wage. Also, the rate at which companies lay off their staff is quite alarming, and this continues to raise the level of unemployment in the country. All these have impacted negatively on development, as poverty level continues to increase due to high rate of unemployment and low household income.

The service sector however is able to generate employment more than the other sectors, because it appears the pattern experienced in advanced economies is playing out, in which the share of agricultural and industrial outputs in the GDP decline as the economy grows, thereby freeing labor for the service sector. This is consistent with the Lewis theory of economic development which proposes that structural transformation of an economy frees surplus labor from the subsistence sector to the modern industrial sector. In support of this, Ajakaiye et al. (2016) argued that labor in Nigeria has been reallocated from agriculture and manufacturing to service sector. This may explain why growth and employment generation in the sector relate directly.

VII. Conclusion

The study examines the sectoral employment intensity of growth in Nigeria, using elasticity procedures. It analyzed output and employment data in three specific sectors-agriculture, industry and service. The overall findings suggest that employment elasticity of growth in the agricultural and industrial sectors in Nigeria is negative, and implies that growths in both sectors have not generated employment substantially during the period covered in the study. However, the results for the service sector showed substantial employment generation as the sector grew, and this was apparent in the positive EIG reported for the sector across different periods.

Thus, the study recommends that government should invest substantially in the service sector to create employment. The agricultural sector should be mechanized to boost output, which constitutes raw materials for the industrial sectors. This will raise output of the industry and enhance employment generation. Furthermore, interest free loans, grants, subsidized fertilizers and seedlings should be made available to farmers in the country while regular training and education on farming techniques and improved seedlings should be provided for them. Attempt should also be made to improve infrastructure such as power generation and road network to enhance industrial development in the country.

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