IOSR Journal of Economics and Finance (IOSR-JEF)
e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 11, Issue 3 Ser. III (May – June 2020), PP 31-39
www.iosrjournals.org

Does Structural Change Have Any Effect On Economic Growth In Nigeria?

FASHANU Adeniyi Felix[+], Prof. GEORGE Oladapo Emmanuel
OlabisiOnabanjo University Faculty of the Social Sciences, ago-Iwoye, Nigeria
OlabisiOnabanjo University Faculty of the Social Sciences, ago-Iwoye, Nigeria

Abstract: *Economic growth has generally been found to result from both the consequences of technological advancement and structural change components. However, empirical evidence from Nigeria has revealed conflicting results on the presence and pattern of structural change in her growth process. This study, therefore, examined the nexus between structural change and economic growth in Nigeria. The study adopted ex post facto research design using time series data which were analysed with the application of Growth Decomposition model. Contrary to suggestions from some previous studies that structural change is growth-reducing in Nigeria, the results revealed that it is actually growth-enhancing. The study suggested the introduction of policies that would encourage labour-intensive high productivity in the manufacturing and service sectors, and increase in government spending to foster increase in aggregate demand, especially for manufactured products.*
Key Words: *Economic growth, structural change, growth decomposition, growth-enhancing, Manufacturing and high productivity.*

Date of Submission: 13-05-2020 Date of Acceptance: 25-05-2020

I. Introduction

Economic growth has traditionally been found to have resulted from the consequences of savings and investments, improvement in quality and quantity of labour, capital formation and technological advancement. These have formed the trajectory of growth for theeconomies thatindustrialisedby pure learning and innovations in the absence of any formal production techniques during the first and second industrial revolutions. However, empirical studies have shown that the different economic and socio-political environments of the presently emerging and developing economies have revealed that even though these growth propelling factors are necessary to achievesustainable growth and development of these economies, they are not sufficient conditions. In addition to these, some certain and definite interrelated changes in the economic structure of such economy are required for the transition from a traditional economic system (agricultural sector) to a more modern and highly productive sector (industrialand service sectors). This postulate is within the purview of structural change growth theory. Therefore, an exogenous structural change theory has been advanced as the ways forward for the developing countries to, not only achieve sustainable growth, but also catch up with the advanced economies.

Structural change growth theory is a growth strategy that advocates that an economy moves from underdevelopment to full development by transforming its domestic economic structure, with emphasis on traditional subsistence agriculture sector, to a more modern and more diverse manufacturing and service sectors (Fisher, 1935; Clark, 1940). Structural change has been expressed as the variations that occur in the sectoral structure of a nation's economy as a result of the existence of particular rates of technological progress and demand for each final consumption goods (Pasinetti, 1981).

Structural change theory emphasises a movement of labour in particular, and other productive resources in general, from the primary agricultural sector to the more modern industrial sector (Lewis, 1954; Chenery, 1960; Kuznet, 1966;Kaldor, 1966).Empirical evidence from the more developed economies has laid credence to the truism of this structural change theory to an extent. While the economies of the United States, Canada, Australia and China present support for these structural change postulates with their experiences of deindustrialisation (Michael-John &Jianmin, 2014; Walts&Valedkhani, 2001; Alessandrini&Buccellato, 2008; Fedderke, 2014; de Vries, Erumbam, Timmer, Voskoboynikov, & Wu 2011), Japan and Indian have, however, presented different results (Walts&Valedkhani, 2001 and Vries*et al*, 2011). Empirical evidences from the review of literature on developing economies, including Nigeria, have revealed conflicting results on the presence and effects of structural change on economic growth.

As evidenced by the trend in the structure of the Nigerian economy since independence, the three basic economic sectors, which consisted of the agriculture, industry and service sectors, have revealed variations in their relative importance measured by their relative contributions to the nation's economic growth. In the absolute term, the agriculture sector had continued to dominate the other sectors up till the year 2013 when it

accounted for 38.45% of the total GDP (National Bureau of Statistics (NBS), 2014). Between the period from 2005-2014, the economy was growing at an average rate of 3.7% without any significant contribution to growth from the oil sector. The growth was found to be coming mainly from the agriculture, service and trade sectors respectively (Sanusi 2016)

A consideration of the above in terms of sectoral growth rate, however, revealed that the service sector seems to have taken the lead by the end of the year 2013. While the service sector recorded a growth rate of 12.52%, the agriculture and manufacturing sectors grew at the rate of 4.82% and 7.8% respectively (NBS, 2014). In fact, a recent report from the NBS (2014) claimed that the service sector accounted for 52.16% of the total GDP growth in Nigeria.

Another evidence of the importance of the service sector, relative to the agriculture and industrial sectors, can be noticed from the empirical structure of the employment capabilities of the three major sectors. Between 2005 and 2009, while agriculture's total employment increased marginally by 0.73%, and manufacturing dipped by 0.17%, the service sector rose significantly by 4% (NBS. 2011). Further still, while the formal sector job created in the fourth quarter of 2014 was 37.31% of the total job created, the agriculture and industry sectors accounted for 6.47% and 23.49% respectively. The service sector accounted for 70.04% of the total formal job created for the quarter. By the second quarter of 2016, however, the formal sector accounted for about 26.49% of the total job created. For this, agriculture and industrial sectors accounted for 14.92% and 4.72% respectively. The service sector, on the other hand accounted for 80.36% of the total formal job created in the second quarter of 2016.

A comparison of theindividual sectoral contributions to real GDP with individual sectoralemployment revealed that in 1981, the agricultural sector's real GDP-employment ratio is 0.35 while manufacturing and service sectors have 1.65 and 0.77 respectively. By the year 2012, while the agricultural sector output-employment ratio was 0.49 manufacturing and service sectors reported 0.97 and 1.27 respectively.At end of 2015, the service sector had the highest output-labour ratio with 1.18. This was followed by manufacturing with 1.06 and agricultural sector at 0.54. This implies that while there is excess labour in the agricultural sector, labour movements to the manufacturing and service sectors could enhance growth of labour productivity, and hence promote economic growth. This, therefore, throws up the question of the presence and effectiveness of structural change in the Nigerian economy. What has been the impact of structural change on economic growth in Nigeria? Empirical review of literature has revealed conflicting reports on the presence and impact of structural change in Nigeria's growth process. While some studies found that structural change is growth-reducing in Sub-Sahara Africa, including Nigeria (McMillan &Rodrick, 2011; Okezie& Amir, 2011; Umaru&Zubairu,2012; Naiya, 2013), other studies reported that structural change is actually present and growth enhancing in Nigeria (Adeyinka, Salau&Vollrach,2013; Rodrick 2013 andZulkhibri, Naiya& Ghazal, 2016). In view of the lack of consensus on the presence and impact of structural change on the growth of the Nigerian economy, and coupled with the availability of more recent data, this study, therefore,investigated the presence of, and the likely effects of structural change on economic growth in Nigeria.

While our review of empirical literature has shown that many studies have been carried out on the processes of economic growth in Nigerian by researchers within and outside the country, we found that, to the best of our knowledge, no study has been done on finding the presence and effects of structural change on economic growth in Nigeria using the growth decomposition model for disaggregated data of up to 2015. Although Adeyinka*et al* (2013 2016) applied the growth decomposition model to find the existence and magnitude of structural change in Nigeria's growth process, their study was limited in its scope which was limited to 2009. However, the economic issues of GDP rebasing oil price crisis that characterised the period between 2009 and 2016 would definitely affect their results if the scope was extended to 2016. This constituted a major gap which this study attempted to fill. To fill this gap, therefore, this study investigates the presence and likely effects of structural change on economic growth in Nigeria for a period between 1981 and 2015.

The significance of this study lies in our belief that the results of this study shall be beneficial to the policy makers by providing them with valuable tools to determine the growth pole sector for the economy, and as well benefit from the likely impacts of the reallocation of economic resources away from the low productive agriculture to high productive manufacturing and service sectors.

Also, the application of data disaggregated at sub-sectoral levels has further revealed the relative strength of each sub-sector, thus providing policy makers with reliable information to guide in policy formulation and implementation.

Finally, the result of this study will also benefit economic analysts, economic managers, students and the entire populace by emphasising the importance of disaggregated economic sectors and data. The scope of this study covered the period from 1981 to 2016 (36 years). The choice of this period is to capture the effects of various efforts that were made by successive governments immediately after the reconstruction periods that followed the civil war. Further still, this period will enable the study to take into consideration the effects of the

GDP rebasing for the economy in 2014, as well as capture the oil price challenges that has faced the economy since 2014 without showing any sign of early improvement.

The rest of this study consists of four sections made up of literature review in section two, methodology in section three. While section four focuses on empirical results and discussion, section five gives the conclusion and recommendations of the study

II. Literature Review

Memedovic and Lapadre (2010) attempted to justify the structural change theory of growth and development by presenting a quantitative analysis of structural trends and features in the global economy. They analysed the six continental regions in terms of their relative sectoral shares of the world value added. Their findings revealed that in terms of value added at current price and exchange rates, the service sector rose from 52% in 1970 to 68% in 2005. In this same period, agriculture fell from 10% to 3.6% respectively, while manufacturing also fell from 38% to 29% within the same period. However, the specific economies presented different results from one economy to another.

Thompson, Murray and Jomini (2012) also conducted an empirical research on Australia with a view to illustrating the mechanism that link trade, income and employment with a view to finding evidence for structural change in the growth of the economy. Their results revealed that trade liberalisation and other microeconomic reforms contributed to significant structural change throughout the Australian economy. Further still, they found that the contributions of services and mining activities have increased further, while manufacturing has contracted. The greatest increase in income involves some structural adjustment, as labour and capital moved to the industries and regions where their use is more highly valued. Alonso-Carrera and Raurich (2014) further attempted to show that a simple multi sector growth model can explain the two features of structural change only when wages are different across sectors. Their research adopted an exogenous growth model with agriculture and non-agriculture as two sectors. Among other things, their findings revealed some patterns of development that revealed a structural change in the sectoral composition of both employment and GDP. deVries*et al,* (2011) attempted to study the implications of structural transformation for productivity growth in the countries of Brazil, Russia, India and China (BRIC). In measuring the contributions of structural change to growth, the authors adopted a canonical decomposition model originally formulated by Fabricant. Rather than using aggregated data like McMillan and Rodrik (2011), they applied a detailed 35-sector level data from the countries studied. Their findings for China, Russia and India revealed that reallocation of labour across sectors contributed to aggregate productivity growth. However, this was not the case with Brazil. By further making a distinction between formal and informal activities, their earlier findings were overturned. While increasing transformation of the Brazilian economy since 2000 appeared to be growth-enhancing, the same was found to be growth-reducing for India. In an attempt to account for the sources, and elucidate the driving force behind past economic growth in China, Fan, Zhang and Robinson (2003) adapted and enlarged the traditional Solow model to include structural change as another source of growth, on a panel data of 504 observations for a period of 18 years from 28 provinces. Their findings, however, revealed that while 17% of aggregate growth in China was due to structural change, shifting resources from the agricultural sector to the manufacturing sector, sectorial productivity's growth further accounted for 42% of aggregate growth. Building on this, Dekle and Vandenbroucke (2011), made an attempt to quantitatively assess the roles played by each of the identified sectors. Their findings, though quantitative and not theoretical, specifically showed that the most important force that has driven China's structural change is the growth in agricultural productivity which resulted in freeing labour for the manufacturing sector. To them, reduction in the size of the Chinese government accounted for 15% of the reallocation of labour out of agriculture to the manufacturing sector. Firpo and Pieri (2013) applied McMillan and Rodrick (2011) decomposition model to the economy of Brazil to provide evidence for structural change and determine the factors behind the relative slowdown of productivity during the period. They found that while Brazil experienced structural change between the years 1950-1970, the periods after revealed that the impact of structural change on the explanation of economic growth in Brazil had a limited scope.

Jedwab and Osei (2012) attempted an investigation of the contributions of structural change to productivity growth, and considered the individual sectors to discover why growth-enhancing structural change did not occur in Ghana. They applied the methodology of McMillan and Rodrick (2011) on sectoral data from 1960-2010 for their estimations. Their result revealed that there has not been much of structural change in Ghana in the past 50 years, which explains why Ghana's economy remains significantly agricultural and relatively poor. According to them, the decrease in agriculture sector's share of both employment and GDP over time was as a result of a rise of the service sector, rather than that of successful industrialisation. This view was, however, contradicted by Fosu (1999) who maintained that Ghana's economy has portrayed a significant structural change.

Naiya (2013) adopted descriptive statistics to analyse and compare structural change in Indonesia, Malaysia, Nigeria and Turkey from 1960-2010. His findings revealed that Malaysia, Indonesia and Turkey succeeded in achieving sustained economic growth because of their effective transformation of their productive structure from low productivity agriculture sector to a high productivity manufacturing sector. On the other hand, however, Naiya (2013) maintained that the manufacturing sector that was expected to take over the leadership role from agriculture in terms of contributions to GDP and employment generation, before the service sector takes over, has failed to measure up to expectation in the Nigerian economy. Zulkhibri, Naiya and Ghazal, (2016) also pressed further on Naiya's (2013) work by investigating the relationship between structural change and economic growth in the economies of Malaysia, Nigeria, Turkey and Indonesia from 1960-2010. They employed the panel co-integration technique to estimate the existence of long run equilibrium of their model. Their result revealed that structural change and economic growth are co-integrated, implying a long run equilibrium relationship between the variables. To them, though this impact exists, it is considered to be small, or at best growing at a slow rate. Okezie and Amir (2011) attempted to assess the economic performance of Nigeria in comparison with Malaysia. Their conclusion was that economic growth in Nigeria has not produced the expected structural change that would enable the manufacturing sector to take the leadership role in promoting economic growth. For Adeyinka*et al*, (2016), in a research carried out for the International Food Policy Research Institute, their findings revealed that structural changes accounted for 25% of the total change in labour productivity in Nigeria from 1996 to 2009. According to Adeyinka*et al,* (2016), labour moved out of the agriculture, wholesale and retail trade into manufacturing, transportation, communications and business services. The expected gain from structural changes was, however, limited by poor agriculture production, inefficient infrastructure and lack of appropriate skills in the labour force.

While empirical evidence has shown that economic growth is derived from factors from within and across the sectors in any given economy, McMillan and Rodrick (2011) and de Vries*et al* (2011) have been able to provide different decomposition models to capture these effects. Apart from Adeyinka*et al* (2013) who adopted the decomposition model of McMillan and Rodrick (2011), there appears to be no other study that applied any of these models to the Nigerian economy. Adeyinka*et al* (2013) was also limited in scope by considering data not later than 2009. In view of the various economic changes,like GDP rebasing and major drop in oil price,that have characterised the Nigerian economy in the last few years, we consider an extension of this period of study to 2015 a gap to fill.

III. Methodology

3.1 Research Questions

Recalling from the introductory part to this study, we raised two related research questions. These were intended to find out whether or not there is the presence of structural change in the Nigerian economy, and what the pattern of such, if present, is.

3.2 Model Specification

For our research design, this study applied econometric technique using the growth decomposition model (McMillan &Rodrick, 2011) to achieve our objective of investigating the nexus between structural change and economic growth in Nigeria. The study applied this model because of its ability to decompose growth into the structural change and 'within' components between the portions of growth that results from structural change. It is also preferred on the basis of the capacity for disaggregated sectorial analysis. The theoretical review of the literature has revealed that the various theories of economic growth have presented different models to explain the process of economic growth.

These varieties in the models of economic growth have been determined by two different factors; growth within a given sector as a result of improvement in skills and other institutional capabilities that result from technological advancement; and the structural change components that result from movement of resources from low productive sector to a more modern and high productive sector (Rodrick 2013). Arising from the theoretical review of literature, therefore, the theoretical framework of this study is the structural change growth theory.

Evidence from empirical reviews of literature has shown that economic growth results from either or both of two distinct phenomena. Firstly, economic growth arises from improvements in capital formation, technology and other technical capabilities within the specific sectors. The second source of economic growth is the structural change which involves the reallocation of productive resources from a low productivity, primary sector to a high productivity secondary or tertiary sector (McMillan and Rodrick, 2011).

Models of economic growth have been expressed along these two views. While the Classicals and their neo-Classical offshoot have emphasised growth arising from within the specific sectors, the early structuralists (Kaldor, 1957, 1961;Chenery, 1960; Kuznet, 1966; Passinetti, 1981) have maintained that growth is a function of reallocation effect of resources across sectors (structural change).

The first real attempt at decomposing economic growth into the two sources earlier mentioned was made by McMillan and Rodrick(2011) as expressed in model 3.1. While the model is able to reveal the portion of growth that results from structural change, it also has the capacity for disaggregated sectorial analysis. Although the Canonical Shift Share Decomposition model (de Vries*et al* 2011) seeks to present another model that can separate between formal and informal sectors in its analysis, this study adopted the decomposition model of economic growth advanced by McMillan and Rodrick (2011), and is specified as:

$$\Delta Y_t = \sum \emptyset_{i,t-k} \Delta y_{i,t} + \sum y_{i,t} \Delta \emptyset_{i,t} \quad \ldots\ldots\ldots\ldots\ldots\ldots 3.1$$

Where,

ΔY_trepresents growth in the economy's aggregate labour productivity in time t.

$\Delta y_{i,t}$refers to the growth in sector i share of labour productivity at time t.

$\emptyset_{i,t}$ is the share of sector 'i' in total employment at time t.

Model 3.1 above shows that economic growth is a function of growth within specific sectors ($\sum \emptyset_{i,t-k} \Delta y_{i,t)}$ and growth from structural change ($\sum y_{i,t} \Delta \emptyset_{i,t.)}$

To achieve the objective of this study, we employed model 3.1 as earlier specified. Our choice of a 10-sector model is a result of the availability of data on sectoral and total employment (or job creation) for the period of study (1981-2015).

The study considers a 10-sector economy consisting of the disaggregated sectors of the Nigerian economy. The variables are expressed as **drgdp**, dagric, dminqua, dmanuf, dconst, dutilit,dthrserv, dtscserv, dfrbserv, dcspserv, dgovserv). The above definitions and measurement of variables are summarised below:

Table 3.1: Definition and Measurement of Variables

VARIABLES		**DESCRIPTIONS**	**UNITS OF MEASUREMENT**
ΔP_t		Growth in real GDP in year t	Real GDP (GDP at 2010 constant price)
SECTORS	**SUB-SECTORS**		
AGRICULTURE SECTOR	AGRIC	Agriculture, forestry and fishing	As a percentage (%) of total real GDP
	MINQUA	Mining and quarrying	As a percentage (%) of total real GDP
INDUSTRIAL SECTOR	MANUF	Manufacturing	As a percentage (%) of total real GDP
	CONST	Constructions	As a percentage (%) of total real GDP
SERVICES SECTOR	UTISERV	Utility Services	As a percentage (%) of total real GDP
	TRHSERV	Trade, Restaurants and Hotels	As a percentage (%) of total real GDP
	TSCSERV	Transport, Storage and Communications	As a percentage (%) of total real GDP
	FRBSERV	Finance, Insurance, Real Estate and Business Services	As a percentage (%) of total real GDP
	GOVSERV	Government Services	As a percentage (%) of total real GDP
	CSPSERV	Community, Social and Personal Services	As a percentage (%) of total real GDP
ΔY_t		Growth in aggregate labour productivity	Real GDP divided by total employment
Δy_t		Growth in sub-sector i's share of aggregate productivity	$(y_{it-} y_{t-1})/$
$\emptyset$		share of sub-sector i in overall employment	Sub-sector employment as a ratio of total employment

Sources: Author, 2017.

3.3 Data

The study employed secondary data because of its availability and relevance to the objective of this study. All relevant data were sourced from the National Bureau of Statistics (NBS), World Development Indicators and Africa Sector Database (de Vries, de Vries, Gouma and Timmer, 2013). The relevance of the data collected is informed by the theoretical framework of the study as reflected in the model specifications.The study employed econometric techniques to a time series data generated for the period of the study from such sources as the National Bureau of Statistics, World Development Index (WDI) and Africa 10-Sector Database (de Vries*et al*, 2013).To find the nexus between structural change and economic growth, we simulated the McMillan and Rodrick (2011) Decomposition model for our analysis.

IV. Results and Discussions

4.1 Results

Arising from the model proposed in the previous section for achieving the objective of this study, this section presents the results and discussion of empirical findings.

Empirical researchers have shown that the channels through which the impact of structural change is felt on growth in the real GDP can either be through movement of resources within or across the sub-sectors (McMillan &Rodrick2011; de Vries*et a*, 2011). This section, in achieving our earlier stated objective simulated Model 3.1 with time series data derived from Nigeria for a period between 1981 and 2016.The estimated results for our objective are presented in this section. Model 3.1 decomposes growth in the aggregate Labour productivity into two different components. The left side of it ($\sum \emptyset_{i,t-k} \Delta y_{i,t}$) represents the weighted sum of growth in Labour productivity for each of the sub-sectors, with the sector's share of employment serving as the weight. We used it to account for the portion of growth resulting from improvement in technical capacities within the respective sectors. On the other hand, however, the right side of the model ($\sum y_{i,t} \Delta \emptyset_{i,t.}$) measures the portion of growth that results from movement of labour across sub-sectors (structural change). It is the weighted sum of growth in the sectorial share of employment, with the sector's share of real GDP serving as the weight.

Our variables of study are as defined earlier in section three. Several researchers in the literature have measured Labour productivity with some slight variations. The NBS (2015) measured labour productivity as the ratio of GDP (at current price) to total number of labour hours per year. Others measured it as the ratio of annual value added to the number of employees per annum (McMillan &Rodrick2011, Rodrick 2013and OECD, 2013). For this study, however, we applied the approach employed by de Vries*et al* (2011, 2013) and Firpo and Pieri(2013). In this regard, our labour productivity is measured as the ratio of real GDP to the total labour employed per annum. This is premised on the availability of more recent data for the study.

Applying the time series data obtained for Nigeria to our Model 3.1 reports the following.

Table 4.1 reports the annual growth of labour productivity at both the aggregated and sub-sectoral levels between 1981 and 2016. For growth at the sectorial level, while the mining and quarrying sub-sector, largely dominated by the oil and gas, revealed positive growth from 19.44 percent in 1981-1990 to 323.24 per cent in 1991-2000, its contributions to aggregate labour productivity growth became negative from 2001 to 2016. For the period of this study, however, the agriculture and other service sectors have remained consistent in their positive contributions to growth in the aggregate labour productivity. The noticeable variations in the contributions from the various sub-sectors explain our interest in evaluating the relative impacts of the 'within' (intra-sectorial) and across (structural change) components of aggregate growth

Table4.1: Aggregate and Sectoral Growth in Labour Productivity (1981-2015)

GROWTH IN LABOUR PRODUCTIVITY (1981-2016)					
VARIABLES	1981-1990	1991-2000	2001-2010	2011-2016	1981-2016
Agriculture	0.01	-0.04	0.09	0.16	0.19
Minqua	19.44	323.79	-289.66	-29.45	-45.46
Manuf	0.31	0.03	-0.48	-0.58	-0.58
Const	0.06	1.65	-1.83	0.14	-0.2
Utility	0.02	0.15	0.32	-0.51	1.13
THRserv	-0.1	0.15	0.36	-0.44	0.19
TSCserv	-0.17	0.68	2.29	-1.44	1.86
CSPserv	0.16	0.1	0.04	-0.15	0.31
FRBserv	-5.29	7.35	-16.84	-0.01	-18.64
GOVserv	0.01	0.31	-0.29	0.48	0.57
Agg. LProd *	6.08	0.09	-3.02	-3.04	-0.62
AggLProd **	3.51	2.24	13.72	2.3	22.64

Source: Author, 2017

Note: * includes the oil and gas sub-sector

** does not include oil and gas sub-sector

Table 4.2 here reveals that the 'within' effect was more significant in the growth of labour productivity in the agriculture, utility, trade-hotels-restaurant service (thrserv), transport-storage-communications services (tscserv), community-social-personal services (cspserv) and government service (govserv) sub-sectors.
The period between 1981 and 2016 has witnessed some variations in the patterns of the relative contributions to labour productivity growth from structural change, and within or intra sectorial effects. Between 1981 and 2000, growth in labour productivity resulted more from intra sectoral effects than structural change effects. We found that during the period, structural change was actually growth reducing. While the structural change effect between 1981 and 1990 was -1.68 points, it became -11.76 points from 1991 to 2000. Our results further revealed that structural change became dominant in contributions to labour productivity growth between 2001 and 2005. Although both effects were found to be growth enhancing within this period, structural change effect was found to be much more than intra sectorial effects. In the aggregate, however, the growth in labour productivity from 1981-2016 was largely due to structural change effect.

Table 4.2: Decomposition of Growth in Labour Productivity (1981-2016)

VARIABLES	COMPONENTS DUE TO:									
	Within					Structural Change				
	1981-1990	1991-2000	2001-2010	2011-2016	1981-2016	1981-1990	1991-2000	2001-2010	2011-2016	1981-2016
Agriculture	0.44	-2.06	5.83	9.88	8.43	2.04	3.92	-1.17	-10.16	-0.76
Minqua	8.94	93.9	-26.07	-7.95	-20.91	-6.37	-96.05	9.33	2.61	-2.35
Manuf	1.93	0.14	-1.55	-2.59	-3.6	-3.45	-3.3	1.51	4.77	2.93
Const	0.16	1.7	-1.46	0.26	-0.54	-3.46	-1.3	1.45	0.48	-1.15
Utility	0.01	0.06	0.09	-0.14	0.68	-0.03	-0.06	-0.13	0.16	-0.27
THRserv	3.85	3.98	6.24	-6.53	4.3	1.84	-4.65	-0.42	7.15	1.53
TSCserv	-0.42	2.09	5.68	-4.15	7.89	-1.07	-0.91	0.57	1.73	0.37
CSPserv	1.85	0.58	0.25	-0.88	3.59	-2.27	0.28	-0.06	2.71	-0.68
FRBserv	-2.7	5.66	-12.46	-0.03	-9.51	5.02	-3.66	10.37	1.23	12.35
GOVserv	0.07	1.85	-1.19	2.16	3.78	-0.3	-2.08	0.17	-3.75	-6.7
Agg. LProd	14.13	107.9	-24.64	-9.97	-5.89	-8.05	-107.81	21.62	6.93	5.27

Source: Authors' Computation 2017

For instance, while the 'within' effects component of growth in total labour productivity experienced negative growth from 2001 to 2016(-5.89), there was still a positive effect of 5.27% from structural change components for the period. At the sectorial level, structural change was found to be growth enhancing in the agriculture sub-sector from 1981 to 2000. From 2001 to 2016, however, structural change became growth reducing. While the contributions of intra sectorial effects to agriculture's share of the growth in labour productivity was 8.43 from 1981 to 2016, growth from structural change effect was found to be negative at -0.76 points. Even in the oil and gas (minqua) sub-sector, we found that while within effect was growth reducing, structural change effect was found to be growth enhancing between 2001 and 2016.

In the manufacturing sub-sector, we found that while growth in manufacturing labour productivity resulted more from intra sectorial effects from 1981 to 2000, the structural change effect became dominant between 2001 and 2016. In general, an examination of 1981-2016 revealed that contributions from structural change to labour productivity growth in the manufacturing sub-sector was given as 2.93 points as against the negative value of -3.6 from intra sectorial effects.

From the sub-sectors in the service sector, except for the government and utility services, our results revealed that in the average, the structural change is not only growth enhancing, but has also contributed slightly more than the intra sectorial effects to growth in labour productivity.

4.2 Discussions

This study sought to evaluate the nexus between structural change and economic growth in Nigeria. To achieve this, we employed econometric techniques to analyse time series data from Nigeria over a period from 1981 to 2016. This section presents a discussion of the findings from our study on the nexus between structural change and economic growth. Our results revealed that structural change is growth enhancing in Nigeria. This result is found to negate the earlier ones (McMillan and Rodrick 2011; de Vries*et al* 2011) that reported that structural change is growth reducing in Africa because of the positive value of the structural change component (5.27) of our growth decomposition analysis. Our finding is, however, in agreement with the recent studies by Adeyinka*et al* (2016), de Vries (2013) and Rodrick(2013) who also found that structural change has been growth enhancing. However, structural change in Nigeria was initially found to be growth reducing between the periods 1981 to 2000. Thereafter, that is from 2001 to 2015, structural change has since become growth enhancing.

V. Conclusions and Recommendations

The main goal of this study is to evaluate the nexus between structural change and economic growth in Nigeria. In particular, the study views economic growth as a phenomenon that arises from both improvement in the technical capacities within each sector and reallocation of productive resources across the sectors, particularly from low to high productivity sector (structural change). The study, therefore, examined how the later has significantly contributed to economic growth in Nigeria.

Results revealed that while labour has moved significantly from agriculture to the low productivity service sector, the relatively high productivity manufacturing sector was bypassed. However, the decomposition of the growth in the real GDP to within and across factors revealed that structural change has been positive in its contributions to economic growth. In essence, the study found that structural change is growth enhancing in Nigeria. This finding negates the earlier postulation that structural change is growth reducing in Sub-Sahara Africa (McMillan &Rodrick, 2011), but agrees with the findings of de Vries*et al* (2011), Adeyinka*et al* (2013) and Rodrick (2013) who found that structural change is, in fact, growth enhancing in Nigeria.

Major findings of the results are:

- There is the existence of structural change with the release of labour from low productivity agriculture sector to another low productivity service sector.
- That structural change is growth enhancing in Nigeria as it holds in other developed economies.
- That growth arising from structural change is more than what comes from technical improvements within sectors.

VI. Conclusion

The preceding summary of this study's results has indicated that while labour moved away from the agricultural sector, the destination was the service sector instead of the high productivity manufacturing sector. This further implies that for the economy to achieve sustainable growth with reduction in unemployment, the service sector provides a better alternative to the agriculture sub-sector.

Finally, the positive value of the structural change effect (5.27) shows that structural change is growth enhancing in Nigeria as against the earlier views held by McMillan and Rodrick (2011) that structural change is growth reducing in Africa. In fact, the result of our analysis showed that while the growth in labour productivity from 1981-2016 was -0.62, the structural change effect was positive at 5.27 points as against the growth that resulted from technical improvements within the sectors, which was given as -5.89 points. Structural change is, therefore, considered necessary for the policy makers.

5.2 Recommendations

The findings of the study have some important implications for the achievement of sustainable growth and development through productive structural change in the Nigerian economy. Since one of the significance of this study is to provide policy makers with tools to achieve the goals of sustainable development, we present hereafter the policy recommendations from the findings of this study.

a. Our results revealed that the mining and quarrying sub-sector, especially the oil and gas component, has continued to be significant in its contribution to the growth of the real GDP. But the sub-sector's share of total employment generation reduces from year to year, thus indicating that reliance on this sub-sector cannot lead to the desired goal of sustainable or inclusive growth. We, therefore recommend a policy of urgent diversification to other labour intensive sectors like the industrial and service. This is necessary to absorb excess labour that is being released from both agricultural and mining-quarrying sub-sectors.

b. Also, since our growth decomposition revealed that structural change is growth enhancing in Nigeria, we, therefore, recommend that the government should pursue policies that encourage labour intensive technology in both the manufacturing and service sectors. This will not allow the excess labour released from the agricultural sector to remain redundant.

References

[1]. Adeyinka A., Salau S. &Vollrach 2013, Structural change in the economy of Nigeria.*International Food Research Policy Institute Working Paper* 24.

[2]. Adeyinka, A., Salau, S &Vollrach 2016, Structural change and possibilities of growth in Nigeria. In M. McMillan, D. Rodrick& C. Sepulveda (eds). *Structural change, fundamentals and growth.*Washington D.C: A Peer-Reviewed Publication, 197-234.

[3]. Alessandrini, M. &Buccellato, T. 2008, China, India and Russia: Economic reforms, structural s and regional disparities. *Centres for the Study of Economic and Social Change in Europe Working Paper* 97, 1-35.

[4]. Alonso-Carrera,J.&Raurich, X. 2014, Labour mobility, structural change and economic growth, viewed 12 March, 2017, http:www.nottingham.ac.uk/…./xavier.

[5]. Chenery, H. B. 1960, Patterns of industrial growth. *American Economic Review*, 50(2), 624-654.

[6]. Clark, C. 1940, The *conditions of economic progress.* London: Macmillan.

[7]. Dekle, R. &Vandenbroucke, G. 2011,*A quantitative analysis of China's structural transformation.* Federal Reserves Bank of San Francisco Working Paper 2006-37, viewed 12 April, 2016, http//:www.frbsf.org /publications/papers/2006/wp06-37k

[8]. deVries, G.J., Erumbam, A.A., Timmer, M.P., Voskoboynikov, H.X. & Wu, H.X. 2011, Deconstructing the BRICs: structural transformation and aggregate productivity grow*th.Basic Research Program Working Paper. University of Higher School of Economics*, WPBRP 04/EC/2011, 1-44

[9]. deVries, K., de Vries, G., Gouma, R.&Timmer, M. 2013, Africa sector database: contents, sources and methods.*Groningen Growth and Development Centre.*University of Groningen, 9700 AV Groningen, The Netherlands, viewed 24 August, 2016 , https//rug.nl/ggdc/docs/10sd.jan15.2014.xlsx.

[10]. Domar, E. 1946,*Capital expansion, rate of growth and employment.*Econometrica, 14(2), 137-147.

[11]. Fan S., Zhang X. & Robinson S. 2003, Structural change and economic growth in China. *Review of Development Economics.* 7(3), 360-377.

[12]. Fedderke, J.W. 2014,Exploring unbalanced growth in South Africa: Understanding the sectoral studies of the South Africa economy.*ERSA Working Paper* 468, 1-59.

[13]. Firpo, S. &Pieri, R. 2013, Structural change, productivity growth and trends policy in Brazil.*Centre for Applied Microeconomics, Sao Paolo School of Economics Working Paper* 8/2013, 1-37.

[14]. Fisher, A. 1935,*The Clash of Progress and Security.* London: Macmillan.

[15]. Fosu, A. K. 1999,*Emerging Africa: The case of Ghana*, viewed 17 March, 2016, http://www.oecd.org/…/ghana/2674859.

[16]. Harrod, R. F. 1939, An essay in dynamic theory.*The Economic Journal*, 49(193), 14-33

[17]. Jedwab, R. and Osei, R. D. 2012, Structural change in Ghana 1960-2010. Country Case Study Workshop, World Bank, viewed March 17, 2016, http://www.gwu.edu…/Jedwab.

[18]. Kaldor, N. 1957, A model of economic growth.*The Economic Journal*, 67(268), 591-624.

[19]. Kaldor, N. 1961, Capital accumulation and economic growth, in F. A. Lutz & D. C. Hague, (eds). The Theory of Capital, New York: St. Martin's Press, pp. 177-222.

[20]. Kaldor N 1966,*Causes of the slow rate of economic growth of the United Kingdom*. An inaugural lecture. Cambridge: Cambridge University Press.

[21]. Kurz, H.D. and Salvadori, N. 2001 Theories of economic growth: Old and new, viewed 12 April, 2015, www.researchgate.net/publication/252313772.

[22]. Kuznet, S. 1966*Modern Economic Growth.* New Haven, CT: Yale University Press.

[23]. Lewis, A. 1954 Economic Development with Unlimited Supplies of Labor. *The Manchester School.*22(1), 3-42.

[24]. McMillan M. and Rodrik D. 2011, Globalisation, structural change and productivity growth, viewed 18 July, 201, http://nber.org/papers/w17143

[25]. Memedovic, O. and Lapadre, L. 2009, Structural change in the world economy: main features and trends.*Research and Statistics Branch Working Pape*r 24, UNIDO pp. 1-45.

[26]. Michael-John, A. &Jiagnmin, T. 2014, Industry structural change and the post-2000 economic growth slowdown: A Canada-US comparative. *Economic Research and Policy Analysis Working paper* no. 23014-03, 1-36.

[27]. Naiya, I. I. 2013, Structural change, economic growth and poverty in OIC countries: the case of Indonesia, Malaysia, Nigeria and Turkey.*MPRA paper* no. 53954, viewed 13 March, 2016, http://www.mpra.ub.uni-muenche.de/53954.

[28]. National Bureau of Statistics (NBS) 2011, *Annual abstract of statistics.*Federal Republic of Nigeria.

[29]. NBS 2014, Statistical Bulletin, Section C final. Nigeria, National Bureau of Statistics.

[30]. NBS 2015, Nigeria in 2014: economic review and 2015-2017 outlook. Nigeria, National Bureau of Statistics.

[31]. NBS 2016, Job creation survey second and third quarters*:* summary findings and selected Tables. Nigeria, National Bureau of Statistics.

[32]. Okezie, C.A. and Amir, B.H. 2011, Economic crossroads: the experiences of Nigeria and lessons from Malaysia. *Journal of Development and Agriculture Economics*, 3(8), 368-378.

[33]. Pasinetti, L. 1981, *Structural Change and Economic Growth – A Theoretical Essay on the Dynamics of the Wealth of the Nations.* Cambridge, UK: Cambridge University Press. Cambridge, UK.

[34]. Ricardo, D. 1817,*On the principles of political economy and taxation.* Batoche Books, Ontario Canada, viewed from http://www.socserv.mcmaster.ca/…/ricardo/principle.

[35]. Rodrik D. 2013, *Structural change fundamentals and growth: an overview*. Washington: Peer-Reviewed publications, viewed 24 April, 2016 from http://sss.ias.edu/.../Rodrik/

[36]. Smith, A. 1776,*An inquiry into the nature and cause of the wealth of nations.* London: The Electric Book Company Limited.

[37]. Solow, R. M. 1956,A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, MIT Press 70(1), 65-94.

[38]. Swan, T. 1956) Economic growth and capital accumulation. *The Economic Record*, 32(2).334-361.

[39]. Thirlwall, A. P. 1979,The balance of payments constraint as an explanation of international growth rate differences. *BancaNazionaledelLavoro Quarterly Review*, 128(1), pp.45-53.

[40]. Thompson, G., Murragy, T. &Jomini, P. 2012, *Trade, employment and structural change: The Australia experience.* OECD, 113-143, viewed 12 November, 2016, http:www.oecd.org/site/ tadicite/50287285.

[41]. Umaru, A. and Zubairu, A. 2012,An empirical analysis of the contribution of agriculture and petroleum to the growth and development of the Nigerianeconomy from 1960-2010.*International Journal of Social Science& Education.*2(4).

[42]. Walts, M. &Valedkhani, A. 2001,*The impact of deindustrialisation on employment outcomes in Australia, Japan and USA.*Proceedings from Workshop at the Centre of Full Employment and Equity, Australia.

[43]. Zulkhibri, M., Naiya, I. & Ghazal, R. 2016, Structural change and economic growth in emerging economies. *International Journal of Development Issues*, 14(2), 96-116

Stanley OGOUN PhD, et. al. "Does Structural Change Have Any Effect On Economic Growth In Nigeria?." *IOSR Journal of Economics and Finance (IOSR-JEF)*, 11(3), 2020, pp. 31-39.