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Service sector potentials in the transformation of the Nigerian economy

Abstract

This paper focuses on sectoral contributions to economic growth in Nigeria using quarterly data from 1981 to 2015. Multiple regression analysis is employed to examine the relationship between the Gross Domestic Product (GDP) and some of its non-oil components (agriculture, non-oil manufacturing and services). The results of the analysis indicate that agricultural sector is the highest contributor to GDP followed by the service sector during the pre-rebasing period (1981-2013) but the results differ slightly when the period is extended to cover post-rebasing period (1981-2015). The extension of estimation to post-rebasing period shows an increase in the service sector's contribution to GDP, which is an indication that the service sector has potentials to contribute immensely to GDP if more attention is given to it. It is suggested that more attention be focused on investment in the service sector to boost the growth of GDP.

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1. Introduction

Over the years, Nigeria's economy has depended so much on its oil sector and, as such, has been facing challenges of macroeconomic volatility driven largely by external terms of trade shocks and large reliance on oil export earnings. To this end, World Bank (2003) ranked the economy among the most volatile in the world for the period 1960 to 2000. As a result, several calls have been made for the country to diversify the productive base of her economy in order to sustain long term growth. The necessity for expansion of non-oil sector cannot be overemphasized because of the fact that crude oil, which is the main source of Nigeria's foreign exchange earnings, is not inexhaustible and its price is volatile in nature. However, following the rebasing of her Gross Domestic Product (GDP) in 2014, the new figures show that increase in the growth rate has made the country to be the largest economy in Africa. This growth has

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brought changes in sectoral contributions to GDP. Report from the National Bureau of Statistics (NBS) shows that the services sector contributed the largest share of real GDP in the first quarter of 2014. The share amounted to N8, 181,239.94 million or 52.99% (NBS, 2014).

The service sector is a *sine qua non* to the socio-economic growth and development of any nation. Research (Latha, 2016) shows that the growth rate of this sector is second to none, contributing much more to output globally, increasing income and providing jobs more than any other sectors. For some time, economists were accustomed to a disintegration of the economy into three folds, a disintegration which can be traced to the time of Plato and Aristotle (Latha, 2016). This was reawakened in the works of Fisher (1935) and Clark (1940), where the economy was segmented into primary sector, secondary sector, and tertiary (service) sector. The primary sector deals with physical goods which have their roots in agriculture, fishing, forestry and hunting. The secondary sector, on the other hand, consists of activities such as gas, electricity, water supply etc. The service sector activities include trade, commerce, transport, communications, hotel and restaurant, banking and finance, health and education, tourism, share market, film industry, insurance, astrology industry, advertisement industry, sports, legal service, publishing industry, mass media etc. Economic growth in any country depends on these three sectors.

However, in recent years, the services (tertiary) sector is fast outshining the other two sectors in developing economies, in terms of its growth rate. The rising trend of urbanization, privatization and higher demand for intermediate and final consumer services, are all factors considered to be the real reasons for the growth of this sector. Theoretically and logically, improving the life of the people is dependent on the availability of quality services. The availability of quality services in turn depends on growth advancement of services ranging from commerce, trade, banking, insurance, health, education, entertainment to community services (Latha, 2016).

Various theories have emerged in the literature trying to explain the reason for the growth of the services sector. One of these is the stage theories, which suggest that economies pass through a coordinated series of phases while trying to attain development and a developed economy has features of larger contribution of services to employment and national income (Fisher, 1935). Clark (1940) pointed out that an increase in the average level of income per head is usually associated with a high percentage of the active labour force engaged in tertiary/service sector and vice versa. In other words, a high income elasticity of demand for services as opposed to goods, and a relatively low productivity per worker in services, as opposed to other sectors; explain the growth rate of the service sector. Services comprise various activities with differing income elasticity of demand (Shleifer, Bernheim and Summers, 1985). However, there is no valid proof that growth of the service sector in developed countries had been as a result of higher income elasticity of demand for services, rather than goods (Stigler, 1956; Fuchs, 1968; Worton, 1969; Gershuni and Miles, 1983).

Clarks (1941), Kuznets (1957) and Fuchs (1980) observed that transformation from agriculture to manufacturing and structural change from manufacture to service is the process of economic development. Similarly, Nassif, Feijó and Araújo (2013), posits

that structural change is a process of economic development. The implication of the above is that there is economic potential in the service sector if well developed. Extant literature reveals that most of the studies in the field of service sector concentrated on limited common objectives which were restricted to income and employment, bank and insurance. This informs the focus of this paper: potentials of service sector for the transformation of Nigerian economy. The paper is structured as follows: following the introduction is section 2 which contains conceptual/theoretical framework and literature review while section 3 presents methodology. Section 4 focuses on presentation and analysis of results while section 5 concludes the paper.

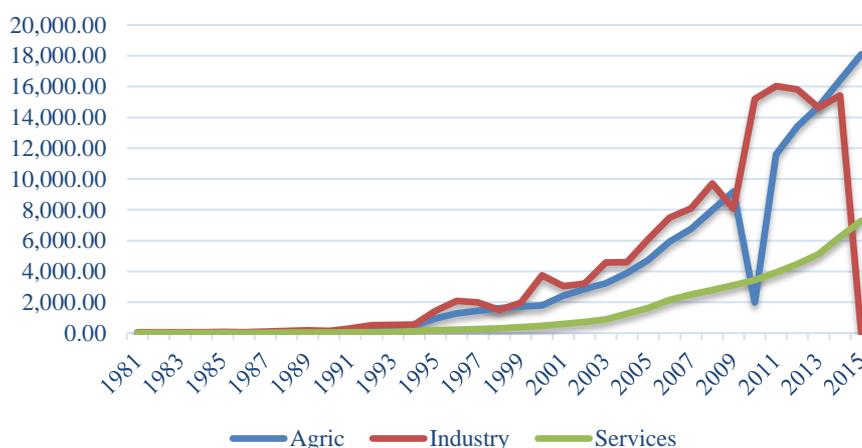
2. Conceptual/ Theoretical Framework and Literature Review

2.1 Conceptual Framework

Oyejide and Bankole (2001) posits that Nigerian services sector comprises electricity; water; building and construction; road, rail, ocean, and air transport; communication; wholesale and retailing business; hotel and restaurants; financial services; real estate; housing (dwelling); private non-profit activities; as well as repairs and other services. Its contribution to gross domestic product in the pre-SAP era is: 30% in 1985 and 31.7% in 1986 respectively. The trend changed tremendously as its value (25%) nosedived as a result of the reform. The sector recorded highest contribution of 40% in 1993 probably as a result of the establishment of the mass transit system and increased inflow of people due to the political unrest that year. Stability came to the service sector GDP after the political crisis and rose to approximately 27% in 1998.

• 26 •

Figure 1. Sectoral Contributions to GDP (N, Billions) between 1981 and 2015



Source: Authors using data from CBN, various Issues

Figure 1 above shows the share of agriculture, industry and services sectors respectively in GDP (current basic prices) over the period 1981-2015. The three sectors' shares respectively in the GDP were relatively low in the 1980s and marginally constant between 1981 and 1991 but rose slightly between 1992 and 1994. Since that period, agricultural and industrial contributions have been fluctuating while only services sector witnessed an upward trend. In addition, the same two sectors' contributions nose-dived respectively between 2009 and 2010 while service sector

maintained its trend. This could be attributed to effects of the financial crisis of 2008; however, the crisis did not negatively impact the service sector. This downward trend continued up till 2003. Agricultural sector experienced slight appreciation from 2010 to reach the highest level in 2015 while industry appreciated slightly between 2012 and 2013 but depreciated sharply from 2014 to 2015. The clarity that emerges from figure 1 is that agricultural and industrial contributions to GDP have been on inconsistent trends while service sector maintained consistent upward trend throughout the period of investigation. Given the above scenarios, it is imperative to investigate potentials of service sector for the transformation of Nigerian economy.

2.2 *Theoretical framework*

The theoretical underpinning of the study is the big push theory which is an extension of the balanced growth approach. The big push theory as presented by Rosenstein Rodan shows that a comprehensive investment package can be helpful to bring economic development. In other words, a certain minimum amount of resources must be devoted to overall developmental growth in an economy, implying that big push is needed by a government to help her economy grow in a balanced way. The theory is based on the assumption that an economy must have many sectors that can be developed for growth instead of relying on few one. This is to forestall disequilibrium that may ensue in case of shocks from one or few sectors. To sustain economic growth, a massive investment is necessary in the development of several sectors. The big push theory is adopted because it identifies obstacles in the way of economic diversification/development; and envisages the need for investment across different channels of growth so that each channel sustains the growth of others by providing the necessary demand-base. Consequently, diversification will lead to balanced growth of the economy. This theory could be of absolute/relative and short-term or long-term oriented.

2.3 *Literature Review*

The literature has emphasised the importance of service sector to inclusive growth because its output is perceived to be positively correlated with per capita income and employment shares at the global level. To date, little evidence has been found associating potentials in service sector with inclusive growth in Nigeria. This informs the rationale of our study. There are different views and theoretical approaches to the structural transformation facts in the literature. Yilmaz and Oskenbayev (2015) posits that there are two key patterns of development process: structural transformation and diversification. Structural transformation is reallocation of resources to more productive activities while diversification is a process of broadening the range of economic activities both in the production and distribution of goods and services. Fagerberg (2000) submits that structural transformation and the growth of the total productivity are expected to move in positive direction due to changes in the sectoral composition of labour. Dasgupta and Singh (2006) argues that service sector's expansion positively affects overall productivity.

Evidence abounds globally on the increasing growth in the shares of service sector. World Bank (1995) shows that more than 60 per cent of manufacturing employment is services-based in the United States of America on the average. In fact, the growth rate of trade in services is higher than other trade components. A considerable publication on the subject matter in developed economies since 1950 agrees that service sector has been the dominating sector in terms of growth (Warton, 1974). ADB (2007) also notes that the service sector plays a significant role in the growth of some economies such as South Asian countries and the Philippines. The panel analysis of ADB (2007) depicts that GDP per capita of 123 countries within a 10-year period benefits from high contribution of services sector. Corroborating, Eschenbach (2005) portrays that service sector impacted economic growth in two ways: job creation as well as backward linkage to other sectors in the economy (also, see Mujahid and Alam, 2014; Kandampully, 2009; Francois and Hoekman 2009). The submission of Francois and Hoekman (2010) in their panel data analysis between 1980 and 2005 is that service sector performance indicate productivity growth and could be regarded as a key driver in economic development of sub-Saharan Africa (SSA) countries. Their conclusion was in tandem with Park et.al (2012), based on survey of Asian region economies that found the service sector as a major employment provider in the Asian region.

However, Curtis and Murthy (1991) investigation of service sector's impact on productivity in Canada between 1997 and 1996 reveals a relatively low productivity growth. They employed regression analysis to depict the relationship. The productivity changes used in the simulations did not result in overall productivity levels or growth rates outside the range of sample period experience. The analysis considered the effects of sector-specific increases in labour productivity. Productivity change was introduced into a specific sector (the goods-producing sector), by replacing the employment equation for that sector with an identity giving employment based on output and output per employee. Two model solutions were derived. The first based on historical output/employee in the target sector provided a base solution. The second, based on productivity of 1-per-cent higher than its historical values. The two results were similar and revealed an inverse relationship between service sector's contribution and labour productivity in Canada in the period of analysis.

In spite of the positive correlation in studies on advanced economies, there are limits to how far their idea/concept can be taken due to selection bias which is a potential concern. Ramakrishna (2010) submits that Indian service sector is the highest contributor to economic growth in comparison with industrial and agricultural sectors respectively. Based on the author's time series regression analysis, the study found that productivity growth rate and service sector's contribution to GDP of the country are positively related. His investigation corroborates Lashmi and Kumar (2012), which observes that the service sector is regarded as the main driver of economic growth in both developed and developing countries in the 1990s and 2000s respectively. Their submission is in accordance with their comparative approach of the cross-country panel analysis conducted between 1991 and 2010. The results are contestable because of differential of countries' characteristics.

Eichengreen and Gupta (2009) in examining the relationship between service sector's productivity and living standards in Asia finds a positive correlation between output share of services and income per capita. However, this relationship only holds for service activities that are either a combination of traditional and modern services consumed mainly by households. Moreover, their findings show that modern services have the highest productivity growth among the service industries and their share in output rises rapidly at high income levels. There is consistency in the assertion of authors who investigated Asia on the subject matter. A serious weakness however, is that different methods were used in their analyses. Therefore, their results cannot be generalised.

Based on sectoral analysis, Barungi et. al (2015) found dramatic growth in the service sector of Kenya, it contributed about 57 percent, while manufacturing and agriculture contributed about 9% and 21% respectively to the nation's gross domestic product. Although, Barungiet. al (Ibid) is qualitative but the concern is the sustainability of such growth. The evidence suggests that service sector share of GDP and economic growth move positively in the same direction, thus, affirming the importance of the sector in any economy.

Services sector contributes a high percentage of GDP in nearly all developing countries; it contributed 47 percent in Sub-Saharan Africa between 2000 and 2005, whereas industry and agriculture contributed 37 percent and 16 percent respectively (OECD, 2008). The role of the services sector toward the development of other sectors in Nigeria cannot be over-emphasised. "Services provide complementary consumption; generate auxiliary outputs as inputs for the other sectors; and generally create more employment than any of the other sectors producing tangible goods" (Oyejide and Bankole, 2001). However, inadequate dis-aggregation of data prevented quantitative analysis in their study. UNCTAD (2017) submits that the largest segment and driving force of the economy is the service sector and that it creates opportunities for structural transformation by contributing to a growing share of GDP and employment. This study seeks to confirm the assertion in Nigeria.

3. Data and Methods

3.1 Data Sources

Quarterly time series data from 1981 to 2015 used in this paper were obtained from 2014 Statistical bulletin of the Central Bank of Nigeria and 2016 quarterly GDP report from the National Bureau of Statistics (NBS). This paper examines the comparative contributions of three sectors (agriculture, manufacturing and services) to Nigeria's GDP in the period under review. The data on manufacturing was decomposed and the traces of oil removed completely by removing oil refining from manufacturing component of GDP to give us the true picture of the non oil component. The reason for this is the fact that the economy has depended on oil sector for revenue generation over the years but the current analysis of the contributions of various sectors to GDP shows that oil contributes about 30 percent to GDP but constitutes 80 percent of revenue generation in the economy. Our analysis is broken into two periods to accommodate pre and post rebasing periods. Structural breaks and regime shift were

also considered by breaking the earlier period into second republic, military era and present democratic dispensation. The theoretical underpinning of the study is the big push theory as discussed by Sethi (2010) that there is need for a big push on investment in the service sector of the economy to enable it join the group of high growth economies.

3.2 Model specification

Multiple regression analysis was used to examine the relationship between the dependent variable and the independent variables. The model estimated is stated as:

$$\ln GDP_t = \alpha_0 + \alpha_1 \ln Agric_t + \alpha_2 \ln Noilman_t + \alpha_3 \ln Services_t + \varepsilon_t \quad (1)$$

Where *GDP* is gross domestic product for current year. *Agric* represents agricultural component of GDP. *Noilman* indicates non-oil manufacturing component of GDP while *Services* represents services component of GDP. *ln* is natural logarithm. $\alpha_0, \alpha_1, \alpha_2$ and α_3 are the parameters. ε indicates the random error term, assumed to be Gaussian white noise as *t* represents time (1, 2, 3...n).

3.3 Estimation Technique

The following steps were used in estimating the model in equation 1. Order of integration obtained by testing for stationarity of variables; cointegration test for long run relationship; and estimation of the model

4. Analysis of Results

The results of the estimation in this section were obtained through the procedures highlighted in the previous section. Table 1 shows that the order of integration is I(1) using Augmented Dicky Fuller Statistics. The cointegration results using trace and maximum Eigenvalue show that there is one cointegration equation at 5%, which is an indication of the existence of long run relationship between economic growth and economic sectors over the period of analysis. Agricultural sector has highest effect on GDP growth followed by the service sector on quarterly basis. Non-oil manufacturing component has the least effect and not significant. The coefficient of determination (R^2) shows that 99% of the variation in GDP can be explained by these three independent variables. A one percent increase in agriculture and service affects the growth of GDP by 0.73 percent and 0.24 percent respectively between 1981 and 2013, (before the rebasing). Extension of the analysis to the fourth quarter of 2015 to cover the rebasing period shows a reduction in the effect of the component of agriculture from 0.73 percent to 0.71 percent. Service sector component increases from 0.24 to 0.25 percent while the effect of the non-oil manufacturing sector remains at 0.02 percent; but significant at 10 percent (appendix 3). Furthermore, the analysis was broken down to reflect structural breaks and regime shift during second republic, SAP/military era and the present democratic era respectively (See Table 2).

Table 1. Unit root test

Variable	PP level	at 1 st diff	ADF level	at 1 st diff	Order of Integration
LnGDP	-1.039	-13.142*	-1.099	-4.495*	I(1)
Lnagric	-1.187	-19.552*	-1.378	-3.054**	I(1)
Lnnoilman	-8.398*	-61.721*	-1.156	-3.606*	I(1)
Lnservices	0.105	-25.277*	-0.124	-10.735*	I(1)
Critical value @ 1%	-3.482	-3.482			
Critical value @ 5%	-2.884	-2.884			
Critical value @ 10%	-2.578	-2.578			

*Significant @ 1% ** Significant @ 5%

Source: Authors' Computation

Table 2. Effect of Sectoral Contributions on GDP

Dependent variable: GDP

Variable/Period	1981q2-1986q4	1987q1-1999q4	2000q1-2015q4	1981q1-2013q4	1981q1-2015q4
Agriculture	-0.093(0.12)	0.109(0.13)	0.554(0.04)*	0.72(0.04)*	0.710(0.21)*
Non-oil Manufacturing	0.302(0.02)*	0.060(0.02)	0.037(0.02)*	0.019(0.02)	0.024(0.13)**
Services	0.989(0.28)**	0.303(0.12)*	0.318(0.03)	0.239(0.03)*	0.254(0.02)*
GDP(-1)	0.306(0.07)*	0.568(0.11)*	0.106(0.05)*		
Constant	0.531(0.30)*	0.854(0.19)*	1.69(0.19)*	1.548(0.04)*	1.55(0.04)*
R ²	0.94	0.99	0.98	0.99	0.99
DW	1.98	1.66	1.49	1.63	1.64

*Significant @ 1% ** Significant @ 5% () Standard errors

Source: Authors' Computation

5. Discussion of Findings

The results indicate that the effect of service sector was the highest (0.98 percent) between 1981 and 1986, followed by manufacturing sector (0.30 percent), while agriculture was negative (-0.09 percent). Analysis for 1987 to 1999 also indicates that effect of service sector fell to 0.30 per cent while agriculture rose to 0.10 percent but was not significant. Non-oil manufacturing fell significantly to 0.06 percent. From 2000 to 2015, agricultural sector increased to 0.55 percent while service sector improved slightly to 0.3% from those of 1987 to 1999 period, while the non-oil manufacturing sector had negative effect but was significant. The current report and data from the National Bureau of Statistics shows that agriculture contributed 20.4 percent while service contributed 55.2 percent to GDP (NBS, 2016) in the first quarter

of 2016. Trend analysis of disaggregated data on service sector from 1981 to 2015 shows that utilities took the lead in the contribution of service sector to GDP, followed by transport and real estate from 1981 to 1985. Finance and insurance took over the leadership position between 1986 and 1993 with the exception of 1989 and 1990. There was a dramatic change from 1994 to 2013 when real estate and business services led by contributing on the average 35.9 percent of the service sector 's contribution to GDP. Education, which was 1.7% in 1981 rose to 3.3% in 1993, fell to 1.3% in 2007, picked up to 1.8 percent in 2013. Meanwhile, the data for 2014 shows that information and communication and real estate contributed 28.4 and 22.2 percent respectively while education contributed 5.3 percent to service sector component of GDP.

The implication of the results is that service sector has the potential to transform the economy if more attention is given to it. In addition, it will be necessary to focus more attention on the activity sub-sectors that have been performing well in the past to boost the GDP. For example, utilities and transport require attention because of their linkage to other sectors of the economy. Utilities' contribution fell drastically from 26 percent in 1981 to 1.8% in 2014, ditto for transport. Attention should also be given to education sub-sector because it exhibited improvement from 1.7% in 1981 to 5.3% in 2014.

6. Conclusion

This study focuses on sectoral contributions to economic growth in Nigeria using quarterly data from 1981 to 2015. Agriculture, manufacturing and service sectors are selected because our attention is on the potential of the service sector. The results of the study indicates that agricultural sector has the highest effect on GDP growth, followed by the service sector during the pre rebasing period but the result differs slightly from the post-rebasing era. The extension of estimation to post-rebased period shows that there is an increase in the effect of the service sector on GDP growth. From the analysis of the result, it was found out that the service sector is positively related to the growth of GDP. This is an indication that the service sector has potentials to contribute more to GDP if adequate attention is given to it. It is therefore recommended that there should be increase in the investment in the service sector with more focus on utilities, transport and education to boost the growth of the GDP.

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Appendix 1

Sample (adjusted): 1982Q2 2013Q4
 Included observations: 127 after adjustments
 Trend assumption: Linear deterministic trend
 Series: LNGDP LNOILMAN LNSERVICES LNAGRIC

Lags interval (in first differences): 1 to 4

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.230556	61.33676	47.85613	0.0017
At most 1	0.102045	28.05172	29.79707	0.0784
At most 2	0.093068	14.38208	15.49471	0.0730
At most 3	0.015437	1.975750	3.841466	0.1598

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.230556	33.28504	27.58434	0.0083
At most 1	0.102045	13.66964	21.13162	0.3927
At most 2	0.093068	12.40633	14.26460	0.0963
At most 3	0.015437	1.975750	3.841466	0.1598

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values



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