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PUBLIC EXPENDITURE AND INCLUSIVE GROWTH IN NIGERIA

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Abstract

Nigeria has recorded tremendous and steady rise in public spending and economic growth over the years. However, the rates of poverty and unemployment are on the increase. This raised public concern on the inclusiveness of Nigeria's economic growth. This paper therefore examined: (i) the inclusiveness of Nigeria's economic growth; and (ii) the impact of public expenditure on inclusive growth in Nigeria. The paper used secondary data for the period between 1960 and 2012. Principal Component Analysis was used to compute the inclusive growth index, while time series regression analysis was used for the second objective. The results showed that only the impact of state governments' expenditure was significant at 10 percent. However, expansionary fiscal policy could undermine inclusive growth if it triggers to inflation. Also, the results suggested that excessive trade openness could inhibit the inclusiveness of the growth process.

Keywords: Public Expenditure, Inclusive Growth, Nigeria
JEL Classification Codes: H50, O40

Introduction

Over the last decade, Nigeria has experienced a steady rise in its public expenditure profile and Gross Domestic Product (GDP). The expenditures of the three tiers of government (i.e., Federal, States and Local Governments) have increased tremendously. The federal government spending for instance increased by about 12.3 percent in 2011, the states' by 8.4 percent and the local governments' by 18 percent (CBN, 2011).The overwhelming dominance of the recurrent expenditure over public capital investment in the spending profiles of the three levels of government has become a defining feature of Nigeria's public finance. At the federal level for instance, recurrent expenditure (including transfers) constituted over 70 percent of total federal government expenditure, while capital expenditure accounted for the balance of less than 30 percent in 2011 (see CBN, 2011). The public as well as the government is perturbed by the pattern of spending, given the dilapidating conditions of physical infrastructures such as roads. The federal government has taken steps to increase the share of capital spending but with dismal result.

Amid the perturbing pattern of public spending, the annual Gross Domestic Product (GDP) figures for the country have been on the increase over the last two decades. However, the socioeconomic conditions of majority of people in the country have not improved. Poverty incidence and unemployment rate remain very high. In 1986 Nigeria's GDP stood at ₦ 257.78 billion (in 1990 constant prices) and tripled to ₦ 776.33 billion by 2010, but poverty rate increased from 54.05 percent to 62.03 percent during same period. The rate of unemployment also increased to about 27.36 percent in 2012 (See Table A.1 in the Appendix I). The distribution of income among households shows that the share of the lowest 20 percent in the total income has been oscillating between 4 and 6 percent while the share of highest 20 percent increased from 45.01 in 1986 to 48.93 in 2010 (World Bank, 2014). These statistics suggest that the decades of sustained economic growth recorded in Nigeria has not been inclusive. The scenario also contradicts the position of Keynesian economics that an

increase in public spending stimulates not only growth but also tends to reduce the level unemployment and consequently the incidence of poverty. The common man on the street continues to wonder what impact the rising public and economic growth have had on the lives of people.

The above scenario raises two research issues. First, how inclusive has been Nigeria's economic growth? And second, what is the impact of the rising public expenditure on inclusive growth in Nigeria? Although, the bulk of available empirical evidences on Nigeria suggest that public expenditure matters for growth but that may not be applicable to inclusive growth (e.g., Ekpo, 1994; Fajingbesi & Odusola, 1999; Bogunjoko, 2004; Adeoye, 2006; Nurudeen & Usman, 2010; Usman, Kilishi, Yaru & Yakubu, 2011; and Adelajare, 2013). Even evidences from other related studies that looked at the impact of public expenditure on the other elements such as unemployment may not also suffice (e.g., Yaru, Mobolaji, Kilishi & Yakubu, 2011). The reasons are: (i) inclusive growth is multidimensional—it is concerned with both pace and pattern of economic growth; and there is incongruence of opinions in the literature on what it should constitutes and the standard for gauging it at country level (McKinley, 2010; Klasen, 2010; and Ranieri & Ramos, 2013), and (ii) Nigeria's growth over time has not translated positively to other elements of inclusive growth, particularly poverty reduction, creation of productive employment opportunities and reduction income inequality.

The contribution of this paper to knowledge in the inclusive growth literature is in two folds. First, it computed a single and integrated measure of inclusive growth for Nigeria. This measure compresses economic growth and other key elements/dimensions of inclusive growth including poverty reduction, creation of productive employment opportunities and more equitable distribution of income which were not captured collectively in the previous studies. Second, it examined the impact of public expenditures on the unified inclusive growth index which previous studies did not do.

The rest parts of the paper are organised as follows. Section two presents the concept and measurement of inclusive growth, while section three reviews related empirical studies. Section four presents the theoretical framework and research methodology. Section four presents the descriptive analysis of the inclusive growth index for Nigeria obtained through principal component analysis (PCA). Section five presents the results and discussion, and section six concludes.

Conceptual issues and measurement of inclusive growth

The two main concepts of interest to this paper are public expenditure and inclusive growth. The concept of public expenditure, its measurement and classification is well documented in the literature (Guest, 1967; GFSM, 2001). But the debate on the concept of inclusive growth is still inconclusive (Khan, 2012, White, 2012; and Raneiri & Ramos, 2013). Some literature describe inclusive growth as an increase in national income that at least benefits the poor (e.g Ravallion & Chen, 2003) or a 'pro-poor growth'- growth episode that translates into reduction in poverty (Ravallion & Chen, 2003). A growth is considered as pro-poor if its leads to a relatively higher growth in the incomes of the poor as compared to the national average (IMF, 2011).

Other strands of literature stress that increase in output due largely to increase in productive employment opportunities of labour and a favourable business environment are necessary features of inclusive growth (e.g., Bhalla, 2007; Ianchovichina & Lundstrom, 2009; Klasen, 2010; Mckinley, 2010 and African Development Bank, AfDB, 2012). This strand of literature is concern with both the process and outcome of a growth episode. For instance, McKinley (2010) and AfDB (2012) describe a growth episode as inclusive if it creates and expands sustainable economic opportunities, and ensures broader access to these opportunities for majority of the populace including the vulnerable groups. Beyond all these, the latter included access to social and economic infrastructures (e.g., health facilities, education, telecommunication, water and sanitation) which could improve their capabilities

to participate and function in the growth process as integral elements of inclusive growth. Overall, the literature shows that inclusive growth is a multi-dimensional concept and recognises expansion in output as the primary condition. There must be growth before it could be inclusive. However, the other elements and conditions of inclusive growth are still open to debate. Different authors proposed different elements and conditions. Raneiri and Ramos (2013) reviewed some of the definitions of inclusive growth.

The challenges of arriving at an acceptable definition and measure of inclusive growth stem from the disagreements over what an inclusive growth should entail. A common measure for inclusiveness of economic growth in a country still remains a major challenge in both literature and practice. The problem is also compounded by the inherent trade-offs between some of the elements and components of inclusive growth, e.g., efficiency and equity which are both outcome indicators of inclusive growth. How should a growth episode be classified, if it translates into a reduction in poverty incidence but keeps income and non-income inequalities wide and/or unemployment rate very high? Anand, Mishra and Peiris (2013) for instance, noted that in countries like China, India and Nigeria remarkable growth in per capita income with high income inequalities persistent along side. Yet the inclusive growth index was positive for these countries.

Efforts and proposals for measuring inclusive growth in the recent past include Ali and Son, (2007); McKinley (2010), Klasen, (2010), Ianchovichina and Gable (2012); and Anand, et.al. (2013). Among these, McKinley (2010) proposed the broadest dimensions and indicators (See Table A.1). McKinley (2010)'s inclusive growth index was constructed based on four broad dimensions which are: (i) success in achieving growth, productive employment and access to economic infrastructure; (ii) success in reducing extreme poverty, moderate poverty and inequality, including gender inequality; (iii) success in enhancing human capabilities; and (iv) success in providing social protection. He attached weights to the various components of the respective dimensions. The first and second dimensions carry about 50 percent and 25 percent of the weights respectively. Anand et. al. (2013) concentrated on the income dimension of inclusive growth. They integrated the changes in per capita and income distribution to compute a single index for inclusive growth. A positive change in the index for any of the countries considered indicates an inclusive growth. Anand et. al. (2013) in addition to computing an index, also delved into determining what was responsible for positive change in the inclusive growth index for the sample of countries.

However, Anand et. al. (2013)'s index was based on social mobility index and it is more of a "pro-poor growth" index. Another obvious limitation of Anand et. al. (2013)'s index is that it concentrated only on growth outcomes without considering the process or the environment that could make growth more inclusive in a country. The non-income dimensions of inequality and general socioeconomic wellbeing of the people which are considered as integral element of inclusive growth were not considered. McKinley (2010) was broader and more comprehensive but it subjectively attached weights to the various components. One major challenge of using this method is lack of reliable data on the relevant dimensions for most countries. Despite this, the paper's measure of inclusive growth largely includes the indicators and dimensions considered by McKinley (2010).

Review of empirical evidences

Empirical studies on the impact of public expenditure on inclusive growth are generally scanty. The bulk of the few studies are on Asian and Latin America countries (e.g., Hur, 2014; and Lee & Park, 2014). Hur (2014) showed that public expenditure that contributes to human capital development-health and education particularly matter for inclusive growth. While some others raised issues about the potential disproportionately negative effects of fiscal policies (especially when they are pro-cyclical) on the vulnerable groups who are the targets of inclusive growth (e.g., Lee & Park, 2014).

Anand et. al. (2013) showed that government consumption expenditure has a negative and significant impact on inclusive growth in a sample of advanced countries but not for the emerging market economies. It also found that most of the fundamental determinants of growth in literature were also significant determinants of inclusive growth.

However, most studies on Nigeria that are closely related to inclusive growth have considered impacts of public spending on one element of the inclusive growth (e.g., Ekpo, 1994; Fajingbesi & Odusola, 1999; Bogunjoko, 2004; Adeoye, 2006; Nurudeen & Usman, 2010; Usman, Kilishi, Yaru & Yakubu, 2011, Adelajare, 2013; and Yaru, Mobolaji, Kilishi & Yakubu, 2011). Studies that examined the impact of public expenditure on economic growth showed that public expenditure matter for economic growth in Nigeria (Ekpo, 1994; Bogunjoko, 2004; Adeoye, 2006; Nurudeen & Usman, 2010; Usman, et. al, 2011; Adewara & Oloni, 2012; and Aladejare, 2013). With regards to poverty, Paternostro, Rajaram and Tiongson, (2007) showed that composition of public expenditure matters for poverty reduction in developing countries. However, Yaru, Mobolaji, Kilishi and Yakubu (2011) showed that public expenditure had no significant impact on the rate of unemployment in Nigeria, instead composition of national income had. The study argued that unemployment rate in Nigeria would reduce significantly with a substantial increase in manufacturing sector output in Nigeria.

The review indicates the dearth of empirical evidence on the impact of public expenditure on a unified and comprehensive measure of inclusive growth in Nigeria that integrates fundamental elements and dimensions of inclusive growth, i.e., success in economic growth, poverty reduction, income inequality and creation of productive employment. The reviewed studies used either one or two elements of inclusive growth. This study fills this gap by computing a comprehensive measure of inclusive growth that encapsulates the key elements of interest to inclusive growth, and then examines the impact of public expenditure on the resulting index using time series econometric analysis.

Theoretical framework and methodology

Theoretical framework

The theoretical frame work for this study is rooted in classical, neoclassical, endogenous and the new growth theories. The classical and neoclassical growth theories stressed capital accumulation and technical progress as major sources of growth (Solow, 1956; Swan, 1956). The endogenous growth theories identified human capital, physical infrastructure and knowledge as important factors for growth (Romer, 1986; Lucas, 1988; Rebelo, 1991). Meanwhile Barro (1990) argued that productive public expenditure is also essential for growth. Other works (such as Barro & Sala-i-Martin, 1995; Devarajan, et. al, 1996; Chen, 2006) provide empirical support for Barro (1990). However, the Keynesian view of the impact of public expenditure on economic growth is fundamentally different from the neoclassical and endogenous growth theories. Keynes (1936) argued in the 1930s that rather than serving as a production input, public expenditure impacts on growth through the aggregate demand.

Methodology

To achieve its first objective i.e., examine how inclusive Nigeria's economic growth has been, the paper uses Principal Component Analysis (PCA) to compute a composite inclusive growth index for Nigeria. Meanwhile, time series econometric regression models were specified and estimated to achieve the second objective which is to examine the impact of public expenditure on inclusiveness of Nigeria's economic growth.

Principal component analysis (PCA)

Principal Component Analysis (PCA) is used to construct the inclusive growth index for Nigeria. The dimensions, components and indicators of inclusive growth used largely follow Mckinley (2010) (See

Table A.2 in Appendix II). This was mainly due to its wider coverage compared to Anand et. al. (2013). But instead of his subjectively attached weights, the indicators, components and dimensions were compressed through Principal Component Analysis (PCA). Principal Component Analysis allows us to avoid the arbitrary weighting of the dimensions which is one of the identified shortcomings of previous studies such as McKinley (2010). The appropriateness of PCA in compressing multi-dimensional measurements such as inclusive growth and human development in a single or fewer dimensions is well documented in Rao (1964) and Lai (2003). For instance, Lai (2003) used PCA to examine the progress of human development in China.

Table 1 presents the indicators used in computing the composite inclusive growth index for Nigeria. In all, nineteen indicators were used based largely on data availability. Four (4) indicators for the first dimension (D1), two (2) for the second, seven (7), four (4) and two (2) indicators for third, fourth and fifth dimensions respectively. Principal component analysis on the various indicators for each of the five dimensions produced five indices. The indices gauge the various dimensions of inclusive growth considered.

Table 1: Inclusive Growth Dimensions and Indicators

Dimensions	Indicators used for this study
Economic Growth and structural change (D1)	i. Rate of growth of GDP per capita ii. Share of manufacturing value added in the total GDP iii. Services value added in the total GDP iv. Share of agriculture value added in the total GDP
Generation of Productive Employment (D2)	i. GDP per capita of the employed(at 1991 constant US dollars) ii. Total employment to population ratio
Possession of human capabilities necessary to take advantage of opportunities created by the growth process (D3)	i. Children (under <) survival rate per 1000 ii. Life expectancy iii. Proportion of population with safe drinking water iv. Proportion of population with improved sanitation facilities v. Secondary school enrolment vi. Electricity consumption per capita vii. Number of telephone subscribers per 100 people
Reduction in absolute poverty and income inequality (vertical and horizontal) (D4)	i. Proportion population living above $1.25 dollars per day. ii. Proportion of population above $ 2.00 per day iii. Gini index iv. Income share of the poorest 60 percent of the population
Success of government in mobilising domestic revenue of finance and political inclusion (D5)	i. Percentage share of non-oil revenue collected by the federal government in total revenue ii. Polity II

Source: Authors, 2015

Empirical model and data

The empirical model for this study is based largely on Anand, et al. (2013). Anand, et. al. (2013) used a number of macroeconomic fundamentals and structural factors as regressors. The bulk of these variables are largely based on the Solow (1956) growth model. However, the measure of inclusive growth used in this paper is more encompassing than Anand et. al. (2013)'s. Anand et. al. (2013) used the two elements, i.e., growth in per capita income and equity in distribution of income while this study in addition, includes creation of production employment, economic and social infrastructure, and economic diversification and political inclusion. The details of the indicators, component and dimensions are presented in Table A.2 in the Appendix.

To guide against endogeneity problems some of the regressors used in Anand et. al (2013) were dropped. These include variables used as indicators of some dimensions of inclusive growth and form constituents of the broad inclusive growth index used as the dependent variable in equation 1. The variables in Anand et. al (2013) that are not included in the model are education, infrastructure quality, manufacturing and services sophistication. Others are ICT software and hardware investment, and initial income which measures conditional convergence. Since our focus in this paper is country specific, inclusion of the convergence variable would not make sense. None availability of data prompted the exclusion of ICT investment.

The structural form the model for the study is as in equation 1.

$$IG_t = \alpha + \beta_1 TO_t + \beta_2 FI_t + \beta_3 INF_t + \beta_4 FDI_t + \beta_5 FD_t + \beta_6 GEX_i + \varepsilon_t \quad (1)$$

However, the use of error correction models was consequent upon the results of Augmented Dickey Fuller (ADF) and cointegration tests conducted on the series (Hill, Griffiths & Lim, 2012). The resulting Autoregressive Distributive Lag (ARDL) error correction model used for the study is as specified in equation 2. The Ordinary Least Squares (OLS) method was used to estimate all the models—the ADF models for the unit root test and the Autoregressive Distributive Lag (ARDL) error correction models.

$$\Delta IG_t = \aleph + \sum_{i=0}^{L} \tau_i \Delta TO_t + \sum_{i=0}^{L} \rho_i \Delta FI_{t-i} + \sum_{i=0}^{L} \Pi_i \Delta FDI_{t-i} + \sum_{i=0}^{L} \Upsilon_i \Delta FD_{t-i} + \sum_{i=0}^{L} \varphi_{ji} \Delta GEX_{j,t-i} + \partial ECT_{t-1} + \varepsilon_t \quad (2)$$

Where IG = Inclusive Growth Index; TO = Trade Openness; FI = Domestic Investment; INF = Inflation; GEX_j = jth type of Public Expenditure; FDI = Foreign Direct Investment; FD = Financial Deepening; ECT = Error Correction term and ε = Random Error Term. $j = 1,2,3; i = 1,2,3,..,L$. t= time, and L = Lag length. $\aleph$, $\tau, \rho, \Pi, \Upsilon, \varphi$ and ∂ are the respective parameters for the variables. More detailed definitions of variables, measurement and sources data are presented in Table 2.

The data set for this study were sourced from the Central Bank of Nigeria (CBN) Annual Statistical Bulletins, Annual Abstract of Statistics published by National Bureau of Statistics (NBS), African Development Indicators (ADI) and World Development Indicator (WDI) for various years.

Table 2: Variables, Measurements and Sources of Data

Variables	Measurement	Source(s) of Data
Inclusive Growth(IG)	Index obtained through PCA	See Table 1
Domestic Investments (FI)	Gross Capital Formation as Percent of GDP	WDI 2014
Trade Openness (TO)	Trade as percentage of GDP	WDI, 2014
Foreign Direct Investments (FDI)	Net FDI (inflow) as percentage of GDP	WDI, 2014
Financial Deepening (FD)	Credit to Private sector as percentage of GDP	WDI, 2014
Inflation rate (INF)	Annual Percentage Change in CPI	WDI, 2014
Public Expenditure (GEX)	Aggregate Public expenditure (GEX_1). Federal Government Public Expenditure (GEX_2). State Government Public Expenditure (GEX_3).	CBN, 2012

Source: Compiled by Authors

Results and Discussion

This section is sub-divided into two. The first sub-section presents the descriptive analyses of the inclusive growth index obtained based on PCA, while the second sub-section presents the results of the time series econometric regressions.

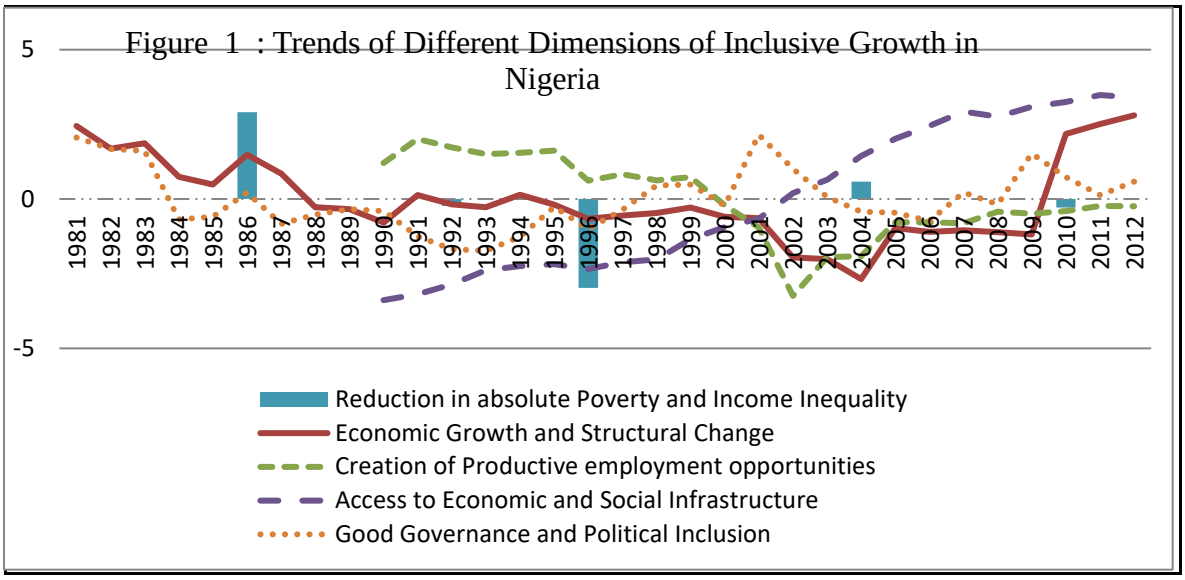
Descriptive analysis of the inclusive growth index for Nigeria

Figure 1 shows the trend of each of the index representing the dimensions of inclusive growth, while figure 2 shows the trends of two composite indices for inclusive growth. The first composite index of inclusive growth for Nigeria, which is referred to as bigi1 was derived from PCA of the five dimensions/indices of inclusive growth, while the second, bigi 2 was obtained from the PCA of four dimensions. The trends of the indices of the five dimensions in Figure 1 are characterised by substantial fluctuations except, access to economic and social infrastructures which has been on a steady rise over time. Economic growth and structural change also show steady rise since 2004.

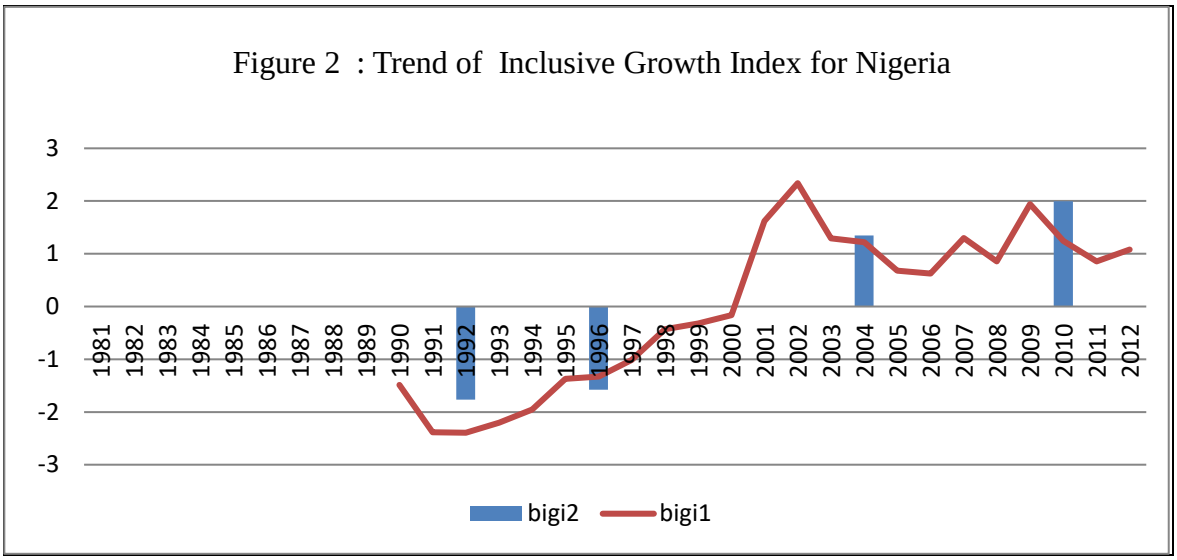
However, the index for success in poverty reduction and inequality (dimension 4) has only four data points and this reduced the composite index (bigi2) to four points. Thus, the index suffered from small sample and/or omitted observations bias. Yet, poverty and inequality are too critical to be excluded in any discourse on inclusive growth. Therefore, two broad dimensions of inclusive growth are computed are shown in Figure 1. One without dimension 4 (bigi1) and one with dimension 4 included (bigi2). The trends of the two broad composite inclusive growth indexes (bigi1 and bigi2) as shown in Figure 1 are similar. This implies that the exclusion of dimension 4 has not significantly affected the trend of bigi1.

The values of the composite indexes (bigi1 and bigi2) for inclusive growth had been negative until 2000. Afterwards, the trend of bigi1 has shown a significant rise. t reached its peak in 2003, while bigi2 got to its peak in 2010 (see Figure 2). The success recorded in this period may be linked to the change in political regime from military to democratic rule and retinue of economic reforms put in place by the new democratic government. Prominent among them include the poverty alleviation programmes, National Economic Empowerment and Development strategy (NEEDS) and public sector reforms.

A cursory look at the trends of bigi1 and the index measuring the success on economic growth and structural change (D1) shown in Figure 2 reveals different patterns of relationship between the two indices at different intervals. For instance, between 1981 and 2002, the trend of Dimension 1 shows a downward trend, while that of bigi1 has been increasing till 2002. However, the index has shown a downward trend afterwards, while there is a sharp rise in values of D1 during the period. The observed patterns of the two trends again suggest that the recent growth episode has been less inclusive. This is also corroborated by weak and negative correlations between the composite indices of inclusive growth and D1 in Table 3 and 4 respectively.



Source: Computed by Authors.



Source: Computed by Authors.

Table 3: Correlation Analysis between Inclusive Growth (bigi1) and Its Dimensions

Correlation	bigi1	D1	D2	D3	D5
bigi1	1.000000				
D1	-0.134116	1.000000			
D2	-0.906087	0.373386	1.000000		
D3	0.818241	0.191080	-0.642696	1.000000	
D5	0.789674	0.038167	-0.569614	0.468049	1.000000

Source: Computed by the Authors.

Table 4: Correlation Analysis between Inclusive Growth (bigi2) and the Different Dimensions

Correlation	bigi2	D1	D2	D4	D3	D5
bigi2	1.000000					
D1	0.179289	1.000000				
D2	-0.817494	0.383018	1.000000			
D4	0.585415	-0.125350	-0.445656	1.000000		
D3	0.992736	0.288193	-0.760243	0.520862	1.000000	
D5	0.909391	0.476250	-0.626854	0.250069	0.950200	1.000000

Source: Computed by the Authors.

Model estimation, results and discussion

Table 5 shows the results of unit root tests, while Table 6 shows the results of the estimated models. In Table 5, all the variables are I(1) based on the results of ADF unit root test. These results therefore, call for test for cointegration among the variables. Either Engle –Granger (1987) or Phillips–Ouliaris (1990) methods of testing cointegration could be used. This study used the Engle–Granger (1987) procedure. This residual based test shows that the variables are cointegrated. Hence, the final forms of the three estimated models take ARDL Error Correction forms. Model 1 examines the impact of aggregate public expenditure on inclusive growth, Model 2 examines the impact of federal government expenditure on inclusive growth, and Model 3 looks at the impact of state governments' expenditure on inclusive growth. Table 6 shows the results of the three models.

Table 5: Results of the ADF Unit Root Tests

Variable	ADF Statistics	Prob.	Order of Integration
IG	-4.836367	0.0047	I(1)
FI	-7.304656	0.0000	I(1)
FDI	-12.24612	0.0000	I(1)
TO	-8.638752	0.0000	I(1)
INF	-5.316206	0.0000	I(1)
FD	-6.804837	0.0000	I(1)
GEX_1	-5.516147	0.0002	I(1)
GEX_2	-5.763340	0.0001	I(1)
GEX_3	-5.516147	0.0002	I(1)

Source: Computed by Authors.

Table 6: Results of ARDL Error Correction Models

Explanatory Variables	Dependent Variable: Inclusive Growth Index (IG)		
	Model 1	Model 2	Model 3
Intercept	0.166448	0.081374	
	(0.083181)	(0.078676)	
ΔINFL	-0.019825***	-0.020520**	-0.029583***
	(0.008815)	(0.007722)	(0.008784)
ΔFI	-0.821798***	-0.825931***	-0.713671***
	(0.147229)	(0.177100	(0.084078)
ΔFD		-0.000177	0.014554**
		(0.022374)	(0.011554)
ΔFDI		0.453873	
		(0.438151)	
ΔTO	-0.009975	0.040442***	-0.046585***
	(0.009120)	(0.011117)	(0.008774)
ΔGEX_1	0.182088		
	(0.420480)		
ΔGEX_2		0.158437	
		(0.454889)	
ΔGEX_3			0.950698*
			(0.436905)
ΔIG (-1)	-0.018113		
	(0.190223)		
ΔINFL(-1)		-0.205731	0.005376
		(0.147371)	(0.005896)
ΔFD(-1)	0.042072	0.024391	0.006821
	(0.014047)	(0.015441)	(0.017077)
ΔFI(-1)			-0.149667
			(0.180603)
ΔFDI(-1)		0.405382***	0.378420*
		(0.107854)	(0.189214)
ΔTO(-1)	0.033313	0.016504	
	(0.010946)	(0.015278)	
ECT(-1)	-0.370114**	-0.481706**	-0.747335***
	(0.163874)	(0.198542)	(0.230680)
R^2	0.733765	0.837827	0.873370
Adjusted R^2	0.556276	0.659437	0.758253
DW test	2.61	2.55	2.46

Source: Computed by Authors. ***Significant at 1%, ** Significant at 5%, *Significant at 10. Standard Errors of estimated coefficient in Parenthesis

The regression results reported in Table 6 show that the inflation rate and domestic investment are the only explanatory variables that are statistically significant in all the models. Inflation had negative and significant impact on inclusive growth. The coefficients of domestic investments were also significant in the three models, while that of foreign investment was significant only in Model 3. Public expenditures at aggregate and federal level had no significant impact on inclusive growth in Model 1 and 2 the respectively. However, state governments' expenditure was significant at 10 percent level of significance in Model 3. This implies that the rising public spending is not stimulating inclusive growth in Nigeria.

However, the negative signs of the coefficients of domestic investment in the models are contrary to theoretical expectation. This however, depends on where the funds were invested. The negative coefficient of the trade openness suggests that globalisation undermined the inclusiveness of Nigeria growth process. This is possible because Nigeria's external trade is dominated by capital intensive oil sector. And the earnings from oil export are used to import goods that often compete with those

produced in the country. The dominance of informal sector in the economy may have also been responsible for the finding. Investment in the informal sector is rarely covered in the national investment statistics. The operators in the informal sector are individuals who do not register their businesses. Authorities do not have information about their activities.

Conclusion

The study therefore concludes that Nigeria's economic growth has been less inclusive. Other studies with similar findings for other countries include Klasen (2010), Osmani and Naseem (2009), Rao (2009) and Ianchovichina and Lundstrom (2009). For example, Klasen (2010) noted that disadvantaged groups, including members of ethnic minorities, people in remote rural locations, and women, have not benefited proportionately from the rapid economic growth experienced in Asia over the last two decades. Similarly, Osmani and Naseem (2009), Rao (2009) and Ianchovichina and Lundstrom (2009) also indicated that the growth of selected countries in East Asia, India and Zambia respectively were not inclusive.

The results of the estimated models also suggest that the rising public expenditure appeared not to be stimulating inclusive growth in Nigeria. However, the negative and significant impact of inflation on inclusive growth suggests that expansionary fiscal or monetary policy could undermine inclusive growth in the country if it triggers inflation. Similarly, excessive trade openness could be inimical to the inclusiveness of Nigeria's growth. Effective mechanisms should be put place to control diversion of public funds meant for infrastructural development for private use by public official. The government should control inflationary pressures in the economy by removing supply side constraints to enhance inclusive growth.

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Appendix I

Table A.1: Trend of GDP, Poverty, Unemployment and Income Distribution for Some Selected Years in Nigeria

Year/Indicator	1986	1992	1996	2004	2010	2011	2012
GDP in 1990 Constant Prices (₦ Billion)	257.78	337.29	367.22	527.58	776.33	834	888.89
Poverty Rate	54.05	61.9	68.65	61.84	62.03	-	-
Unemployment rate	-	-	-	14.8	21.9	23.9	-
Share of Income of highest 20 %	45.01	49.37	52.11	46.07	48.93	-	-
Share of Income of Lowest 20 %	6.02	4	5	5.63	5.39	-	-

Source: NBS, CBN, WDI

Table A.2: Summary of the Proposed Composite Index of Inclusive Growth by McKinley (2010)

Broad Dimensions	Components	Weight (in %)	Aspect of Inclusiveness	Proposed Indicators	Indicators used for this study
Success in achieving Growth, Employment generation and access to Economic Infrastructure	Economic Growth	25	Pace and pattern of growth	i. rate of growth of GDP per capita ii. Share of industry, services, and agriculture in the total value added	i. rate of growth of GDP per capita ii. Share of industry, services, and agriculture in the total value added
	Productive Employment	15	Creation of productive employment opportunities	i. Share of the employed in industry ii. Share of the employed in manufacturing iii. Share of own-account workers and formally unpaid family workers in total employment iv. Share of worker who are part of households with income level below 2.50 per day per person international PPP poverty line	i. GDP per Capita of the employed ii. Total Employment to population ratio
	Economic Infrastructure	10	Access of the population to economic infrastructure (roads, electricity, telecommunication etc)	i. Proportion of the population with access to electricity ii. number of telephone subscribers per 100 people	i. Proportion of the population with access to electricity ii. number of telephone subscribers per 100 people
Success in reducing extreme Poverty, moderate poverty, and Inequality (including vertical, horizontal &	Income Poverty, income inequality & Gender equity	25	Reduction in absolute Poverty and income inequality(vertical and horizontal) and gender inequality	i. The proportion of the population living below nationally determined poverty lines ii. proportion of the population living below the 2.50 per day per person international poverty line iii. Gini coefficient iv. income share of the poorest 60 percent of the population v. the income or expenditure gap between rural and urban areas vi. where feasible, the income or expenditure gap among regions or among major ethnic groups	i. Proportion population living above $1.25 dollars per day. ii. Proportion of population above $ 2.00 per day iii. Gini index iv. income share of the poorest 60 percent of the population

Gender inequality)	vii. The ratio of literate females to literate males among those aged 15- 24 years viii. ratio of girls to boys in secondary education ix. the percentage of births attended by skilled personnel/ maternal mortality rate x. share of women in non-agricultural wage employment

Broad Dimensions	Components	Weight (in %)	Aspect of Inclusiveness	Proposed Indicators	Indicators used for this study
Success in enhancing Human Capabilities	Health & Nutrition, Education and access to safe drinking water and sanitation	15	Possession of human capabilities necessary take advantage of opportunities by the growth process/population access to public goods and services such as education, health and other vita infrastructure such as safe drinking water and sanitation Degree of equality of opportunities that a country's population enjoys	i. Under -5 mortality rate ii. mortality rate for under age 40 iii. percentage of those under age 5 years who are under weight iv. net primary enrollment ratio v. proportion of the population with access to safe water vi. proportion of the population with access to adequate sanitation	i. Children (under <) survival rate per 1000 ii. life expectancy iii. proportion of population with safe drinking water iv. proportion of population with improved sanitation facilities v. electricity consumption per capita vi. number of telephone subscribers per 100 people
Success in providing basic Social Protection(especially for eliminating	Basic forms of social protection or safety nets	10	Access to social protection including labour market policies, social insurance programs, social assistance and welfare schemes	i. the total expenditures on all social protection programs as a ratio to GDP ii. the number of beneficiaries of social protection programmes as a ratio of reference populations for key target groups iii. the number of social protection beneficiaries who are poor as a ratio to the total poor population	

extreme poverty)				iv. the average social protection expenditure for each poor person as a ratio to the poverty line	
Promoting good Governance		-	Success of government in mobilizing domestic sources of finance Capacity and willingness of government to invest in development	i. Revenue-GDP ratio ii. public investment –GDP ratio	i. Percentage of Non oil federally revenue collected in total federal government revenue ii. polity II

Source: Adapted from McKinley, 2010.