Inclusive Growth and Distribution of Growth Opportunities in Nigeria

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Abstract

This study examines growth inclusiveness in Nigeria, and investigates optimum distribution of growth opportunities in a typical developing economy like Nigeria, using the framework of equity in the distribution of opportunities. Analyses of benefits from growth, and participation in growth show that consistent growth recorded in Nigeria for more than a decade has not been inclusive. Further employment investigations (aggregate and sectoral) using employment elasticity technique, reveal that aggregate employment's responsiveness to output is not large enough to reduce unemployment in Nigeria. Sectoral analyses show that manufacturing contributes negatively to employment growth. However, agriculture, extractive, building and construction, and services contribute positively to employment growth, with services taking the lead. Building on utilitarian social welfare function, the study concludes that in order to achieve an optimum distribution of growth opportunities, government must redistribute growth opportunities to wane sector(s) of the economy.

Key words: Inclusive growth; Distribution of opportunities; Benefits from growth; Participation in growth; Employment elasticity

INTRODUCTION

In the recent times, the concept of inclusive growth has received much attention in development economics. The concept evolved due to the sustained economic growth experience in some developing countries over the past one decade, with unmatched level of development in terms of employment generation, poverty reduction, quality of education and health facilities.

Literally, inclusive growth is defined as a concept that advances equitable opportunities (such as employment, education, good health, and so on) for economic participants during economic growth, with benefits experienced by every sector of the economy (Ranieri & Ramos, 2013; Anand, Mishra, & Peiris, 2013). There are certain outcomes of inclusive growth in the literature. Ali and Son (2007) identified four outcomes of inclusive growth which they referred to as ultimate; they are sustainable and equitable growth, social inclusion, empowerment, and security[1]. These outcomes show that economic growth is a requirement for inclusive growth. Also, growth must be well distributed across sectors and regions within the economy, if it is to be inclusive.

Nigeria has been experiencing consistent positive growth for more than one decade now. However, adequate distribution of the various growth opportunities, through positive investment from such growth remains questionable. Theoretically, investment is a crucial element in the process of economic growth and transformation towards sustainable development. In addition to aggregate investment in the economy, the distribution of the several opportunities from growth, to various sectors in the form of investment is also central for inclusive growth.

There are many proposed indicators in the literature as in McKinley (2010) that determines the inclusiveness of growth. Among the common ones are economic growth, productive employment, income inequality, economic

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[1] See Ali and Son (2007) for brief discussion of the four outcomes.

infrastructure, poverty, gender inequality, health outcomes, education outcomes, and so on. Several notable measures point to the fact that Nigeria's growth experience has not been inclusive enough. For instance, Unemployment rate ranged between 13.1 in year 2000 and 23.9 in year 2011. Population below poverty line of $1.25 a day was 62.03% in 2010, which ranked Nigeria as the 9th poorest country out of 117 countries in the world[2].

Against the background, this study empirically investigates the evidence of growth inclusiveness in Nigeria. Also, it investigates how optimum distribution of growth opportunities can be achieved. In the course of investigations, giving detail accounts of income inequality, poverty, literacy rate, and employment, findings showed that consistent growth recorded in Nigeria had not been inclusive. Further investigations of employment (aggregate and sectoral) were carried out using employment elasticity technique. Results revealed that aggregate employment's responsiveness to output was not large enough to reduce unemployed pool. Sectoral analysis showed that manufacturing sector contributed negatively to employment growth in Nigeria. Other four sectors (agriculture, extractive, building & construction, and services) contributed positively to employment growth but at varying capacities. Building on the utilitarian social welfare function, the study concluded that in order to achieve an optimum distribution of growth opportunities, which are an evidence of inclusive growth, the government must redistribute growth opportunities to wane sector(s).

The rest of the paper is organized as follows: Section 1 focuses on Brief Review of Literature. Section 2 presents the Methodology of the Study. Data used are explained in Section 3. Results of the Study are presented in Section 4. Section 5 presents the Analytical Framework for Inclusive Growth. Finally, Concludes the Study.

1. BRIEF REVIEW OF LITERATURE

Extant studies have argued that GDP and GDP per capita are limited in measuring wellbeing of residents in a country. For instance, studies like Kraay (2004) and Berg and Ostry (2011), among others have argued that for growth to be sustainable and effective in reducing poverty, it needs to be inclusive. According to European Union (2014, p.378), concerns over the limitations of using GDP to measure wellbeing are not just limited to technicians, with citizens also expressing doubts about the use of GDP growth alone to evaluate the progress of society. According to the report, a 2008 Eurobarometer poll showed that more than two thirds of EU citizens felt that social, environmental and economic indicators should also be used to evaluate progress. This position was also consistent with the opinion of Ali and Son (2007), where they identified three key elements of employment and productivity, human capabilities and, social safety nets and targeted intervention as requirements to achieve outcomes of inclusive growth. In addition to the three key elements, Ali and Son (2007) further identified institutional and governance issues as more fundamental to achieving the key elements.

Over time, two strands of literature on inclusive growth have emerged: (i) studies that constructed inclusive growth indices and (ii) studies that developed framework of analysis without constructing an index. Following the study by Ali and Son (2007), which has its root in utilitarian social welfare function, where inclusive growth hinges on two major factors, namely income growth (see Kakwani & Pernia, 2000) and income distribution. The study proposed a methodology for measuring growth inclusiveness in terms of increasing the social opportunity function, which also depends on two factors of average opportunities available to the population, and how opportunities are shared or distributed among the population. The social opportunity function gives greater weight to the opportunities enjoyed by the poor than those enjoyed by the rich. Other studies that have attempted to construct an index for inclusive growth include McKinley (2010). He proposed a number of indicators of inclusive growth such as economic growth, productive employment, income inequality, economic infrastructure, poverty, gender inequality, health outcomes, education outcomes, and so on. Building on this, he further proposed a multidimensional inclusive growth index that can be used for assessing inclusive growth within and across countries. However, all the studies that have made a ground breaking effort at constructing an inclusive growth index all suffered from the common shortcoming in connection to the weights ascribed to each of the indicators used for constructing the index. Among the studies that developed a framework of analysis on inclusive growth is Lanchovichina and Lundstrom (2009) where they proposed a framework of analysis that focussed on identifying barriers to greater inclusiveness. These studies did not construct any index as measurements for inclusive growth. The main strength of such studies is that they are free from the challenges of index construction, however, common shortcomings is that it is impossible to make comparisons within country and across countries.

Kakwani and Pernia (2000) conceptualized that inclusive growth involves both participation in and benefiting from growth. Participation in growth involves analysis on the process of growth, which centres on the contribution of various aspects of the economy to the growth process. Investigating inclusiveness indicators such as employment in studies like Mckinley (2010) measures participation. On the other hand, benefit analysis focuses on the outcomes or benefits derived from growth. Empirical investigations on indicators like income inequality and poverty measure benefits from growth. Inspired by the literature, this study

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[2] The source of this statistics is index mundi and is done based on the availability of data across countries.

investigates its objective by emphasizing on participation in and benefit from growth to determine the inclusiveness of growth in Nigeria.

In addition to the above, in relation to participation in growth analysis, studies have argued that labour abundant economies, especially with high incidence of poverty need to engage labour intensive method of production than less labour abundant economies (Kahn, 2001). The implication of this is that the employment elasticity of output depends on the technology of production. Thus, if a labour abundant economy erroneously employs capital intensive technology, the outcome is jobless growth or non-inclusive growth. Related to this, empirical studies such as Basu and Das (2015) investigated the phenomenon of jobless growth in India and the US through the lens of employment elasticity. Their findings showed that agricultural sector was the key determinant of both the level and change of the aggregate elasticity till the early 2000s in India. In USA, service sector is the most important determinant of the level of, but manufacturing remains an important driver of changes in, aggregate employment elasticity. This study also identifies the need to carry out aggregate and sectoral investigations of employment elasticity in Nigeria to further establish the position of growth inclusiveness in Nigeria.

2. METHODOLOGY

The methodology adopted for this study is in three folds. For the first objective that investigates the evidence of growth inclusiveness, the study adopts the methodology employed by Ramos, Ranieri and Lammens (2013). As a result, a simple analytical tool that investigates outcomes or benefit from growth (such as income inequality[3], poverty[4], life expectancy, and literacy rate) and participation in growth (such as employment[5]) is used. In addition to the variables examined in Ramos et al. (2013), this study identifies and included health and education outcomes as important indicators of inclusive growth (benefit from growth) that needed to be analysed, especially for a developing country like Nigeria.

To have a robust analysis on participation in growth investigation, this study employs the methodology by Basu and Das (2015). As a result, employment elasticity which measures the responsiveness of employment to changes in output is employed. As in Mishra and Suresh (2014), employment elasticity can be calculated using two major approaches. The first approach calculates point elasticity by regressing log of employment on log of output. The point elasticity in this case is the coefficient of log of output. However, the second approach calculates arc elasticity as the ratio of the growth rate of employment

and growth rate of output over period of time. In order to use the first approach, there is need for large data points to carry out regression. Due to challenges on data availability, especially in developing countries, past studies have restricted their investigations to arc elasticity approach. Consequently, this study employs arc elasticity approach to investigate employment elasticity.

In order not to drift away from the specific objective here, that is, an investigation of the evidence of inclusive growth, the analysis is carried out along presentations of sectoral contributions to RGDP growth and sectoral contributions to employment in Nigeria. This will ensure robust analysis of the investigation.

Arc employment elasticity is computed as:

$$\eta = \frac{\Delta E}{\Delta Q} \times \frac{Q_{new} + Q_{old}}{E_{new} + E_{old}}, \qquad (1)$$

where E is employment, Q is real output, *new* and *old* at the subscripts indicates that a variable is measured over time, Δ signifies change, and η measures the elasticity value. The second part, $\frac{Q_{new} + Q_{old}}{E_{new} + E_{old}}$ of Equation (1) departs from Basu and Das (2015). They measured it as point and not over time (arc). The strength of this over Basu and Das (2015) and some extant studies is that empirically, it allows for stability in the result derived from the specification. In line with Kapsos (2005), the table below presents the summary of employment elasticity interpretation.

Table 1
Summary of Employment Elasticity

Employment elasticity	RGDP growth	
	Positive RGDP growth	Negative RGDP growth
$\eta<0$	(-) employment growth (+) productivity growth	(+) employment growth (-) productivity growth
$0\leq\eta\leq1$	(+) employment growth (+) productivity growth	(-) employment growth (-) productivity growth
$\eta>1$	(+) employment growth (-) productivity growth	(-) employment growth (+) productivity growth

When there is positive RGDP growth, negative employment elasticity (that is $\eta<0$) denotes that the economy is experiencing negative employment growth and positive productivity growth. However, when there is negative growth, negative employment elasticity depicts that the economy is experiencing positive employment growth and negative productivity growth. The opposite of the above is the case of an economy with employment elasticity greater than one, as seen in the fourth row of the table. In a case where employment elasticity lies between zero and one, an economy with positive RGDP growth will experience positive employment growth and productivity growth. However, a country with negative RGDP growth will experience negative employment growth and positive productivity growth. Note that productivity growth is

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[3] This is measured by Gini coefficient.
[4] This is defined as headcount ratio at US$2 a day PPP.
[5] Unemployment as percentage of total labour force is used.

included in the explanation of employment elasticity. The reason for this is that, according to Khan (2001) and Kapsos (2005), while employment elasticity growth gives the quantitative part of employment growth, productivity growth is the qualitative characteristic of employment growth.

Finally, to analyse how optimum distribution of growth opportunities can be achieved, an analytical framework on optimal distribution of opportunities is employed. The analytical framework has its root in utilitarian social welfare function, in line with Ali and Son (2007), where it is assumed that only two types of people (rich and poor) live in the society, and inclusive growth depends on two factors namely economic growth and growth opportunity distribution. In this case, government aims to redistribute opportunities between these two individuals if and only if redistribution will increase welfare.

3. DATA

Data for analyses comes from two sources. Data to analyse benefit from growth is sourced from World Development Indicators 2015. The study analyses data from two points, 2004 and 2010. These two data points are selected for two reasons: One, due to data availability

and two, because they fall within the period when the country experienced consistence positive growth. To have a comparative analysis, this study compares Nigeria with average OECD members (where data is available). The variables used from this source are income inequality, poverty, life expectancy, and literacy rate.

Data for participation in growth is sourced from *Central Bank of Nigeria (CBN) Statistical Bulletin, 2014* and *Annual Abstract of Statistics, 2012*, published by National Bureau of Statistics, Federal Republic of Nigeria. The variables from CBN statistical bulletin are aggregate real gross domestic product (RGDP) and real sectoral output, which spans from 2001 to 2013. The variables from ABS are aggregate and sectoral employment (agriculture, extractive, manufacturing, wholesale & retail trade, building & construction, and services), labour force, and unemployment rate, which span from 2005 to 2009.

4. RESULTS

4.1 Analyses of Benefit from Growth

Analyses of income inequality, poverty, life expectancy, and literacy rate is presented in Table 1. After which they are all compared with economic growth, measured by GDP per capita growth.

Table 2
Comparative Analysis of Benefits From Growth

Year	Income inequality	Poverty	Lifee expectancy	Literacy rate[a]
2004	40	44.67	48	54.77
2010	42.95	44.79	51	51.08

Note. a – figures are for 2003 and 2008.
Source: World Development Indicators 2015.

As shown in Table 1, all the indicators with the exception of life expectancy show that the economy has not been performing well. Income inequality shows that Nigeria moves from a point of 40 in 2004 to 42.95 in 2010. This shows that instead of bridging the gap between the rich and the poor in the country, the gap continues to widen up. This portrays that higher portion of the growth experienced[6] in Nigeria is perhaps shared among the rich. A match of this statistics with the analytical framework presented in Section 5[7] shows that Nigeria's growth experience may not be inclusive as expected. Poverty statistics also support income inequality data. Poverty level in Nigeria increased from 44.67% in 2004 to 44.79% in 2010.

In terms of health outcomes, life expectancy of the country improved with increasing level of growth between 2004 and 2010, rising from 48 in 2004 to 51 in 2010. This is the only exception among the growth outcome indicators analysed. However, health improvement

in developing countries cannot be attributed only to domestic economies' efforts, as multilateral and bilateral organizations are always in the business of ensuring improved health status in the countries. The last indicator for growth outcome considered is the impact of economic growth on education. By the statistics, literacy rate dropped from 54.77% in 2003 to 51.08% in 2008[8].

Based on the statistics of the various indicators presented above, it is clear that growth outcomes have not been well distributed in the country. Thus, this study establishes that growth in Nigeria over the period covered has not been inclusive considering the distribution of outcomes or benefits from growth.

4.2 Analyses of Participation in Growth

The major indicator of participation in growth in this study is employment. Presentations of output trends and employment are first carried out before elasticity of employment is calculated.

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[6] Between these two points, average GDP per capita growth was 7.57.
[7] The model concluded that for growth to be inclusive, redistribution of oppotunity should be targeted at the poor.

[8] Availability of data restricts analysis to 2003 and 2008 as against 2004 and 2010.

4.2.1 Overall Trends

The interest here is to analyse growth trend and sectoral contributions to growth on one hand, and to see the participation of each of the sectors in terms of employment on the other hand. Table 2 presents RGDP growth rate and sectoral output growth. Over the period covered (2001 to 2013), output growth is positive throughout. Also, all the sectors recorded positive growth accordingly, except for extractive industry that recorded negative growth in 2002, 2006, 2007, 2008, and 2012.

Table 3
RGDP Growth Rate and Sectoral Output Growth

Year	RGDP	Agriculture	Extractive	Manufacturing	Wholesale & retail trade	Building & construction	Services
2001	4.7	3.9	5.3	6.9	2.5	12.0	7.2
2002	4.6	4.2	-5.5	10.1	6.5	4.3	22.5
2003	9.6	6.6	23.4	5.7	5.8	8.7	0.4
2004	6.6	6.5	3.4	10.0	9.7	10.0	8.8
2005	6.5	7.1	0.7	9.6	13.5	12.1	8.0
2006	6.0	7.4	-4.2	9.4	15.3	13.0	9.2
2007	6.4	7.2	-4.1	9.6	15.2	13.0	9.9
2008	6.0	6.3	-5.6	8.9	14.0	13.1	10.4
2009	7.0	5.9	0.9	7.9	11.5	12.0	10.8
2010	8.0	5.8	5.5	7.6	11.2	11.9	11.9
2011	7.4	5.6	0.6	7.5	11.3	12.1	13.2
2012	6.6	4.0	-0.2	7.6	9.6	12.6	13.9
2013	6.9	4.8	0.2	7.8	9.1	14.7	12.5
Average	6.6	5.8	1.6	8.3	10.4	11.5	10.7

Source: Central Bank of Nigeria Statistical Bulletin (2014).

Reference to their averages over the period, in descending order, building & construction, services and wholesale & retail trade grow more than RGDP, while, agriculture and extractive grow less than RGDP.

In terms of sectoral contributions to RGDP and growth pattern of the contributions, Table 3 shows that agriculture contributes the highest, followed by extractive, services, wholesale & retail trade, manufacturing, and building & construction in descending order. However, growth of sectoral contributions (column Bs in Table 3) shows that agriculture and extractive recorded average negative growth, while other sectors recorded positive growth. The implication of this is that even though agriculture and extractive sectors lead the chart of average contributions to RGDP, being primary sectors, theory has argued that their contributions are expected to taper down with development, gives way for manufacturing to take the lead in the medium term, and services in the long term. Thus, it is easy to accept such development in Nigeria. However, the concern is that instead of manufacturing sector to take the lead, improve the industrial base of the economy, it is surprising that services are performing better than manufacturing in terms of contribution to RGDP.

Table 4
Sectoral Contributions (%) to RGDP and Growth of Sectoral Contributions (%)

Year	Agriculture		Extractive		Manufacturing		Wholesale & retail trade		Building & construction		Services	
	A	B	A	B	A	B	A	B	A	B	A	B
2001	42.3	-0.8	26.6	0.6	3.5	2.1	12.8	-2.1	1.4	7.0	13.7	2.4
2002	42.1	-0.4	24.0	-9.7	3.7	5.2	13.0	1.8	1.4	-0.3	16.0	17.0
2003	41.0	-2.7	27.0	12.7	3.6	-3.6	12.5	-3.5	1.4	-0.7	14.7	-8.4
2004	41.0	-0.1	26.2	-2.9	3.7	3.2	12.9	2.9	1.4	3.2	15.0	2.1
2005	41.2	0.5	24.8	-5.4	3.8	2.9	13.8	6.6	1.5	5.2	15.2	1.4
2006	41.7	1.3	22.4	-9.7	3.9	3.2	14.9	8.7	1.6	6.6	15.7	3.0
2007	42.0	0.7	20.2	-9.9	4.0	2.9	16.2	8.2	1.7	6.2	16.2	3.2
2008	42.1	0.3	18.0	-11.0	4.1	2.7	17.4	7.6	1.8	6.7	16.8	4.1
2009	41.7	-1.0	17.0	-5.7	4.2	0.8	18.1	4.2	1.9	4.7	17.4	3.6
2010	40.9	-2.0	16.6	-2.3	4.2	-0.4	18.7	3.0	2.0	3.6	18.1	3.6
2011	40.2	-1.7	15.5	-6.3	4.2	0.1	19.4	3.6	2.1	4.4	19.0	5.4
2012	39.2	-2.4	14.5	-6.4	4.2	0.9	19.9	2.8	2.2	5.6	20.3	6.8
2013	38.4	-1.9	13.6	-6.2	4.2	0.9	20.3	2.1	2.4	7.3	21.4	5.3
Average	41.1	-0.8	20.5	-4.8	3.9	1.6	16.1	3.5	1.8	4.6	16.9	3.8

Note. A columns represent sectoral contributions (%) to RGDP and B represents growth of sectoral contributions (%).
Source: Central Bank of Nigeria Statistical Bulletin (2014).

It can be concluded that the development process in Nigeria has jumped the second phase of development, where manufacturing is expected to take the lead, and approaching the third phase where services take the lead. This has serious implication on the economy—it is like a baby who wants to jump the stage of crawling and start running. This has implication for inclusive growth, especially in the case of employment generation.

Table 4 presents data on employment issues from 2005 to 2009. Relating this data with Table 1 where this same period recorded an average RGDP growth of 6.4%, it is easy to argue that growth has not been inclusive in Nigeria. Having a closer look at Table 4, if total

employment has grown by the same average of 6.4% from 2005 to 2009, total employment would have been 62,932,901 as against 54,470,005 by 2009. Giving this figure, unemployment rate in Nigeria in 2009 would have been 1.9 as against 19.7 recorded. It is also clear from Table 3 that all other sectors lack the capacity to engage the disengaged labour from agriculture[9], as well as to fill the gap between total labour force and total employment. For instance, despite the fact that manufacturing sector's contribution to RGDP experience consistent marginal increase from 2005 to 2009 (see table 3), its contribution to employment consistently decrease marginally from 1.8 in 2005 to 1.3 in 2009 (see Table 5).

Table 5
Labour Force, Unemployment, Total Employment and Sectoral Employment (2005-2009)

Year	Total labour force	Unemp* rate	Total emp*	Total emp* growth	Agriculture	Extractive	Manufacturing	Building & construction	Services
2005	55,735,940	11.9	49,103,363		58.3	0.1	1.8	0.6	33.0
2006	57,333,208	12.3	50,281,223	2.40	57.5	0.1	1.7	0.6	33.7
2007	56,246,693	12.7	51,501,091	2.43	56.4	0.2	1.6	0.6	34.8
2008	59,084,868	14.9	54,001,022	4.85	54.6	0.2	1.5	0.7	36.7
2009	64,135,854	19.7	54,470,005	0.87	54.5	0.1	1.3	0.7	36.9

Note. Unemp* means unemployment and emp* means employment.
Source: National Bureau of Statistic's Annual Abstract of Statistics (2012) and Author's Calculation.

4.2.2 Employment Elasticity

The importance of this section is to show clear picture of dynamics in the various sectors as regards employment elasticity. For instance, between 2005 and 2009, contribution of agriculture to output reduced marginally;

however, its contribution to employment reduced more. Analysis of employment elasticity will reveal workable policy to tackle the problem of non-inclusive growth that has been established in this study so far.

Table 6 presents the result for employment elasticity.[10]

Table 6
Contributions to Employment Elasticity in Nigeria

		2005/2006	2006/2007	2007/2008	2008/2009
Overall elasticity		0.40	0.38	0.82	0.13
Sectoral employment elasticity	Agriculture	0.14	0.06	0.24	0.11
	Extractive	-1.29	-2.50	0.01	0.95
	Manufacturing	-0.60	-0.50	-0.32	-1.10
	Building & construction	0.46	1.08	0.64	0.08
	Services	0.50	0.60	1.01	0.15

From the results in Table 6, it is important to note the growth trend of RGDP that produces the results. Over the period covered, RGDP growth recorded consistent growth. Thus, explanation of employment elasticity will be done with reference to positive RGDP growth as explained in the methodology.

It is observed from the result that overall employment elasticity in Nigeria is below mid-point of 0.5, except for 2007/2008 where it is close to one (0.82). The implication of this result is that even though the economy performed well due to positive employment elasticity during this period, the performance was not good enough to improve unemployment status of the economy. That is, aggregate employment's responsiveness to output was not large enough. The period of high employment elasticity was driven by high employment growth (4.85%) and low

RGDP growth rate (6%) in 2008. Thus, for quick recovery of the economy, all efforts should be put in place to ensure that employment elasticity moves close to one in order to quickly engage the unemployed in the economy.

The analysis of sectoral employment elasticity shows that manufacturing sector contributed the least in terms of growth in employment generation among the sectors covered, due to the negative employment elasticities recorded for all the period. This result does not mean that manufacturing sector employs the least number of people among the sectors considered, but only means that it has

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[9] Reduction in the contributon of agriculture employment is perhaps a result of the reduction in its contribution to RGDP.
[10] Data on output and employment used for computations is presented in the appendix.

negative employment growth. This result is consistent with the situation of the economy. Infrastructure necessary for industrial growth is dilapidated in the country. As a result, instead of expansion, some companies contract, while some folded up and re-established in neighbouring countries like Ghana. This causes workers' downsizing and lay-off. Consequently, efforts need to be put in place to improve manufacturing sector of the economy by making available enabling environment for operations so as to increase the amount of labour needed for production activities, knowing fully well that this is the sector with the largest capacity to employ human capital. Also, more of labour intensive technology should be adopted in order to reduce the pool of unemployed.

However, all other sectors perform better than manufacturing. That is, they all contributed to employment growth in Nigeria during the period covered. Note that absolute figures greater than one is undesirable because it either reduces productivity growth or reduces employment growth, depending on the sign of RGDP growth. This is not further discussed in this paper as the focus is on employment growth. However, it is important to identify that negative employment elasticities in extractive industry have the same positive employment growth impact as the positive employment elasticities. This is because; the period of the negative employment elasticity coincides with negative extractive industry output growth. It is also important to note that technology used in extractive industry is capital intensive and requires highly skilled labour, thus, the sector employs least number of workers among all the sectors investigated. Building and construction performs well above overall elasticity, except for 2009. Different from extractive industry, this sector has the potential of employing large number of workers. Thus, efforts to explore this sector in Nigeria should be encouraged. Service sector performs best among the sectors as findings show that its employment elasticities are above overall averages for all the years under study. Finally, sectoral employment elasticity for agriculture fall below overall averages in all the years. This shows that Nigerian economy is moving away from agrarian. This is not too bad, but manufacturing should take the lead at this stage if output growth will be inclusive.

5. ANALYTICAL FRAMEWORK FOR INCLUSIVE GROWTH

In this study, the framework adopted for analysing inclusive growth is based on optimal distribution of opportunities. The analytical framework has its root in utilitarian social welfare function, in line with Ali and Son (2007), where it is assumed that only two types of people (rich and poor) live in the society, and inclusive growth depends on two factors namely economic growth and opportunity distribution. In this case, government aims to redistribute opportunities between these two individuals if and only if redistribution will increase welfare.

Given a society's welfare function where social welfare, W, is a function of the rich and poor individuals' utility:

$$W = w(U_R, U_P,) \ , \tag{2}$$

where U_R and U_P represent rich's utility and poor's utility, respectively. Equation (1) is expressed below to represent an additive social welfare function.

$$W = U_R + U_P. \tag{3}$$

Similar to the social welfare function, social income function, Y is defined as

$$Y = y(O_R, O_P) \ , \tag{4}$$

where O_R and O_P are rich and poor individuals' opportunities, respectively. Opportunities here can be defined as various prospects such as employment opportunities, access to education, good health services, investment opportunities, and so on. In the real sense, opportunities for the rich are more than what the poor get in the society. This eventually creates the different classes for the rich and the poor. Thus, society's income, Y is not equally shared between the rich and poor individuals. The rich and the poor receive Y_R and Y_P, respectively.

$$Y_R + Y_P = Y. \tag{5}$$

For simplicity, we assume the following: individuals' welfare functions are identical and depend only on the opportunities they get. The proposition here is that any individual in the society can either be rich or poor. Thus, it is the amount of opportunities that differentiates status in the society. Welfare functions exhibit diminishing marginal utility—as individuals' opportunities increase, they become better-off, but at a decreasing rate. Finally, total opportunity available in the society at a point in time is fixed. Suppose government is interested in maximizing W, it redistributes opportunities by increasing what the poor gets. Ordinarily, economic growth is expected to increase average opportunities in the society. However, this is not a sufficient condition for inclusive growth as it becomes the role of the government to ensure equal distribution of the opportunities from growth.

Thus, given the above assumptions with the additive social welfare function, the target of the government is to continue to redistribute opportunities to achieve equality. By definition, inclusive growth not only concerns with increase in average opportunities, but the distribution of opportunities in such a way that will make the poor in the economy to grow above poverty line, thus reduces the number of poor.

To show how government can redistribute opportunities in order to increase society's welfare, we present this analysis geometrically as follows. From the figure below, two scenarios are possible. One, when there is growth in the economy, average opportunities increase. This further transmits to increase in average welfare

(measured by the space under the marginal utility (MU) curve) in the economy. This is represented by the shift in the MU curves to the dotted line. However, because the poor are constrained from benefiting from increased opportunities, the rich continues to get richer and leaves the poor to either remain the same or worse off. This shows that increase in average opportunities due to growth ordinarily may not translate to inclusive growth.
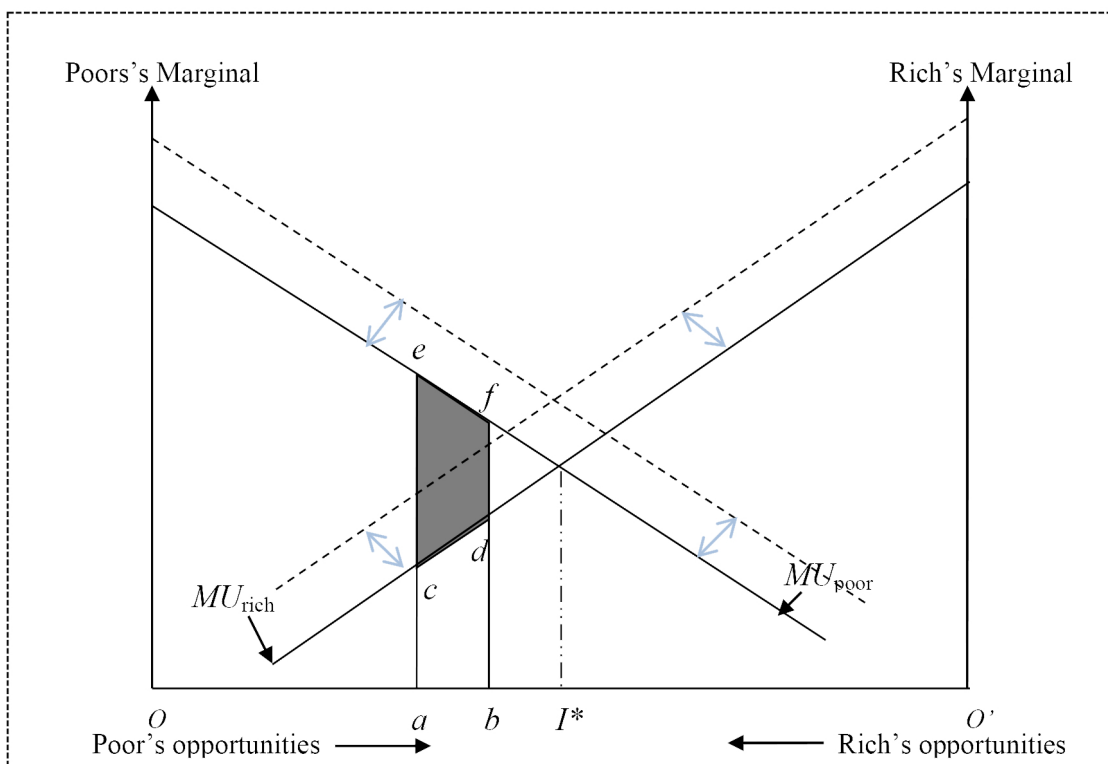
Figure 1
Optimal Opportunity Distribution

The second scenario depicts distribution of opportunities. From Figure 1 above, the horizontal distance *OO'* measures the amount of opportunities available in the economy. Thus, any point on *OO'* represents some distribution of opportunities between the rich and poor; the further an individual to its origin, the more its opportunities. The rich's *MU* is measured from right to left, where poor's *MU* is measured from left to right. Because these two people have identical welfare functions, their *MU* curve mirrors each other.

To find the distribution pattern that will be optimum, the one that ensure inclusive growth in the economy, we assume that the poor's opportunity was initially *Oa* and *aO'* for the rich. As previously identified in the first scenario, growth is not sufficient for inclusive growth. Thus, adequate distribution of opportunities in such a way that will make poor's welfare improves and at the same time increase aggregate welfare in the economy is paramount. Suppose *ab* opportunity is redistributed to the poor. This increases poor's opportunity from *Oa* to *Ob*. The implication of this is that poor's welfare increases by the size *abef* and economy aggregate welfare increases by the shaded area *cdef*. Obviously, at the static analysis, the redistribution does not come without a price. The rich individual's welfare reduces by *abcd*. As a result, this policy becomes *pro poor* and not *inclusive*. This redistribution continues until point *I* is reached where there is complete equity in the economy.

However, recall that the fundamental analysis centres on the effect of growth, when this happens, the situation above changes. Considering a dynamic situation where opportunities increase due to growth. This is depicted by the shift of the MU curves to the dotted line. This new development makes the welfare of both groups of people increase by the distance between the old MU curves and the new ones (recall that welfare is measured by the space below the MU curves to the origin); consequently, the rich individual no longer worse-off due to redistribution. Practically, this framework reveals that in order to achieve inclusive growth, government should endeavour to redistribute opportunities from growth to wane sectors in order to rejuvenate them, increase their output and employment capacities. Within the context of this study, empirical analysis earlier carried out shows that manufacturing sector is majorly a sector that requires attention in Nigeria.

CONCLUSION

This study analysed growth inclusiveness in Nigeria, and investigated how optimum distribution of growth opportunity can be achieved in a typical developing economy like Nigeria. Analyses of benefits from growth, and participation in growth as in Ramos et al. (2013) were carried out, findings showed that consistent growth recorded in Nigeria for more than a decade had not been inclusive, given detail accounts of income inequality, poverty, literacy rate, and employment. Further investigations of employment (aggregate and sectoral) were carried out using employment elasticity technique. Results revealed that aggregate employment's responsiveness to output was not large enough to reduce unemployed pool. Sectoral analysis showed that the manufacturing sector contributed negatively to employment growth in Nigeria. Other four sectors investigated contributed positively to employment growth but at varying capacities. Services took the lead, followed by building & construction, extractive, and finally agriculture. In terms of total employment, agriculture took the lead followed by services, manufacturing, building & construction, and finally extractive at the bottom end. The implication of these results is that Nigerian economy is developing, therefore moving away from agrarian. But manufacturing that is supposed to take the lead in driving the economy had given way to services, which were not good enough for the economy.

Building on the utilitarian social welfare function, the study concluded that in order to arrive at an optimum distribution of growth opportunities, which is an evidence of inclusive growth, government must redistribute growth opportunities to the waning sector(s) of the economy.

Based on this finding, it is recommended that government should make all efforts to ensure that employment elasticities move close to one for the aggregate economy and various sectors by quickly engaging the unemployed in the economy. This can be achieved by making available enabling environment like provision of infrastructures for operations. Also, more of labour intensive technology should be adopted where applicable in order to reduce the pool of unemployed. Finally, opportunities from growth should be redistributed to weaker and poorer sector in Nigeria, for its recorded consistent growth over the years to be inclusive. Such redistribution in the economy should focus on sectors such as manufacturing which contributed the second least to output and the least contributor to employment. And, especially concerning outcomes or benefits from growth, agriculture, which serves as the largest employer (subsistence farming) of labour but with the highest number of poor in the country should be concentrated upon.

This study identified that the technique used to estimate employment elasticity is due to data points available at the time of this research. However, further research can endeavour to employ time series techniques when large data points are available on sectoral employment.

REFERENCES

Ali, I., & Son, H. H. (2007). Measuring inclusive growth. *Asian Development Review, 24*(1), 11-31.

Anand, R., Mishra, S., & Peiris, S. J. (2013). Inclusive growth revisited: Measurement and determinants. *Economic Premise*. Number 122, World Bank.

Basu, D., & Das, D. (2015). *Employment elasticity in India and the US., 1977-2011: A sectoral decomposition analysis*. University of Massachusetts Amherst, Economics Department Working Paper Series, Paper 190. Retrieved from http://scholarworks.umass.edu/econ_workingpaper/190

Berg, A., & Jonathan, D. O. (2011). *Inequality and unsustainable growth: Two sides of the same coin?* IMF Staff Discussion Note 11/08 (Washington: International Monetary Fund).

European Union. (2014). *Employment and social developments in Europe 2013*. Belgium.

Kakwani, N., & Pernia, E. (2000). What is pro-poor growth? *Asian Development Review: Studies of Asian and Pacific Economic Issue*s, *18*(1).

Kapsos, S. (2005). *The employment intensity of growth: Trends and macroeconomic determinants*. Employment Strategy Paper, No.12 Geneva, ILO.

Kraay, A. (2004). *When is growth pro-poor? Cross-country evidence*. IMF Working Paper No.04/47, Washington, DC.

Lanchovichina, E., & Lundstrom, S. (2009). *Inclusive growth analytics: Framework and application*. Policy Research Working Paper, No. 4851. Washington, DC, World Bank. Asian Development Bank.

McKinley, T. (2010). *Inclusive growth criteria and indicators: An inclusive growth index for diagnosis of country progress*. Asian Development Bank Sustainable Development Working Paper Series, No.14. Mandaluyong City, Philippines, Asian Development Bank.

Misra, S., & Suresh, A. K. (2014). *Estimating employment elasticity of growth for the Indian economy*. Department of Economic and Policy Research Reserve Bank of India Working Paper Series.

Ramos, R. A, Ranieri, R., & Lemmens, J. W. (2013). *Mapping inclusive growth*. International Policy Centre for Inclusive Growth Working Paper 105. United Nations Development Programme, Brasil.

Ranieri, R., & Ramos, R. A. (2013). *Inclusive growth: Building up a concept*. International Policy Centre for Inclusive Growth Working Paper 104. United Nations Development Programme, Brasil.

APPENDIX

Description		2005	2006	2007	2008	2009
Agriculture	RGDP	231,463,610,000	248,598,960,000	266,477,180,000	283,175,430,190	299,823,863,467
	employment	28,633,653	28,936,534	29,049,058	29,484,557	29,664,365
Extractive	RGDP	139,400,000,000	133,500,000,000	128,000,000,000	120,800,000,000	121,900,000,000
	employment	69,001	72,962	81,045	81,002	81,705
Manufacturing	RGDP	21,305,050,000	23,305,870,000	25,535,500,000	27,806,762,720	29,990,924,089
	employment	907,877	859,990	821,256	799,215	735,345
Buiding & construction	RGDP	8,544,480,000	9,654,790,000	10,912,560,000	12,338,832,006	13,816,340,540
	employment	273,049	288,723	329,583	356,407	359,502
Services	RGDP	85,478,810,000	93,327,130,000	102,546,197,926	113,165,810,533	125,411,886,705
	employment	16,221,081	16,952,184	17,940,528	19,812,975	20,121,220
Total	RGDP	561,931,390,000	595,821,610,000	634,251,141,997	672,202,554,124	718,977,334,999
	employment	49,103,363	50,281,223	51,501,091	54,001,022	54,470,005

Source: RGDP data is sourced from WDI (2015), and employment data is sourced from ABS (2012).