Does Education matter for inclusive Growth? The Nigerian Case

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Abstract
This study examines the role of education in enhancing inclusive growth in Nigeria for the period 1980 to 2014. The study utilizes the Dynamic Error Correction model and the results show that tertiary enrolment positively and significantly enhanced average income, while secondary enrolment and literacy rate positively, but insignificantly, enhanced per capita GDP. Also, tertiary enrolment and secondary enrolment negatively and significantly enhanced unemployment, but literacy rate positively impacts unemployment confirming the existence of graduate unemployment in Nigeria. Skills development programmes are therefore recommended to be incorporated into the education system in order to increase economic growth participation and benefit sharing with a view to promoting inclusive growth in Nigeria.
Keywords: education, enrolment, literacy rate, inclusive growth, Nigeria

Introduction

Education has been described as a very key determinant that can spur the growth of any economy (Glewwe *et al,* 2014; Benos and Zotou, 2014; Mariana, 2015). However, due to the questions emerging from the literature as to whether the expansion of tertiary education can make growth to trickle down (Bohm *et al.,* 2015), it becomes expedient for economic scholars to re-echo the need to understand the puzzle surrounding the concept, importance and implications of inclusive growth. Inclusive growth has been described as the sole means to rectify the severely entrenched regional imbalances, inequities and to consolidate economic gains (World Bank, 2006). This assertion becomes very important because inclusive growth is not only concerned with growth in national income, per-capita income or economic growth generally, but it is concerned with how the national income is accumulated, how it is distributed and how are its benefits shared. It emphasizes the participation of everyone in the economic growth process, as it pertains to decision-making in the organization of the growth progress and in partaking in the process of growth itself. Moreover, it stresses the need for every member of the society to share impartially in the growth benefits.

Consequently, inclusive growth as a concept incorporates participation, as well as benefit-sharing. Accordingly, participation deprived of benefits sharing makes the growth process unjust, and then benefits sharing deprived of participation makes growth a welfare outcome (Ramos and Ranieri, 2013). It also emphasizes issues on empowerment, vulnerability and security. It also focuses on how natural resources are explored and exploited by the present generation, without reducing the quantity available for future generation. As indicated by Ali (2007a), "the new mantra at the heart of economic development now is inclusive growth." It is therefore expected to focus on the marginalized, the poor, the disadvantaged, the neglected and the deprived sections of the society (Tilak, 2007). Inclusive growth is not just about the trickling down effect of growth, but also concerns with its spread. To take it further, inclusive growth in the recent focus of economic enquiry has been linked to the issues of education and health (Ali, 2007a; Tilak, 2007; Manafi and Marinescu, 2013; Bohm *et al*, 2015).

The inclusiveness of growth to a very large extent depends on the extent of access to economic and social opportunities (Adedeji *et al,* 2013), most especially at education. Education has been described as a very important ingredient in inclusive growth. This is because education is critical to the human capital development. Ravallion (2004) linked investments in education to economic development outcomes. It is believed that once human capital is well developed in terms of access to quality education, income inequality reduces, because education is seen as the opium of the poor as it can help lift them out of poverty. This implies that human capital development should include investments in those activities that enhance vocational skills and income earning potentials of the citizens. A country's ability to educate its vast population must not only be determined by enrolment rates or schooling, but also on the capacity of such country to provide the skills, knowledge and competencies required to effectively perform in broader society (Adedeji *et al,* 2013).

In the light of the foregoing, this study attempts to determine if education matter in promoting inclusive growth in Nigeria, by analyzing the impact of school enrolment on inclusive growth variables and determining the effect of literacy rate on inclusive growth. The previous related studies in that field either only focused on education and economic growth (Barro, 1991; Bhargava, 2008; Benos and Zotou, 2014; Bohm *et al,* 2015; Mariana, 2015), or discussed the influence of education investment on inclusive growth (Manafi and Marinescu, 2013). This present study will attempt to bridge a noticeable gap in literature by decomposing education into literacy rates and school enrolment, and then determine their individual effects on inclusive growth variables. The study also expands the frontiers of knowledge by modeling inclusive growth, as previous studies have only conceptualized inclusive growth, or analyzed it descriptively.

Literature Review
This literature review is examined from conceptual, literature and theoretical review points of view. The conceptual review sheds light on the issues generating extensive discussion in literature, regarding the concept of inclusive growth. They include inclusive growth, social protection, inclusive green growth and human capital investment. These concepts play a pivotal role in making growth inclusive, social protection and inclusive green growth, respectively guarantees fairness

in sharing the benefit of growth and in striking a balance between taking care of the need of present generation without making future generation worse off. Human capital investment also plays a key role in making growth inclusive, by expanding the range of choices available to an individual, as well as increasing the rate of participation in the growth process.

1. Conceptual Review
Inclusive Growth

In the economic literature, most scholars agree that inclusive growth should include the following striking features: (i) Inclusive growth should reduce inequality, poverty and provide benefit to the marginalized in the society. (ii) It is more than national income or increase in output. (iii) It should place emphasis on benefit sharing and participation in the growth process. (iv) It requires sustainable growth. (v) It emphasizes equal opportunities for all, not just the poor, because it is concerned with making opportunities available and accessible to all (Ali and Zhuang, 2007; Ali and Son, 2007). Inclusive growth is therefore conceptualized as the pace and distribution of economic growth (Anand *et al,* 2014). It is also seen as the type of economic growth that focuses on creating economic opportunities to all, especially to the poor. To this end, inclusion has been defined as an improvement in the fraction of the bottom half of the population in the mainstream band, in the mainstream economic activity of a country (Suryanarayana, 2013). This implies that inclusion can be conceptualized in terms of the percentage of the bottom half of the population that are in the mainstream band.[1]

Social protection

A key concept in inclusive growth is social protection. This is because it is very important for promoting equality, justice and equity. Social protection is an important tool for the government to reduce poverty through the redistribution of income and direct transfers (CAFOD, 2014) [2]. As observed by the African Union and other national governments, social inclusion is seen as a policy tool to address

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[1] Anyone whose income is less than the threshold, that is, 60 per of the median is considered deprived (see Suryanarayana, 2013) for details.
[2] CAFOD is the official Catholic Aid Agency for England and Wales.

development challenges (Holmes *et al,* 2012; CAFOD, 2014). Social protection entails the policies and programmes that are designed to ameliorate vulnerability and poverty through the promotion of efficient labour markets, reducing people's exposure to risks, as well as enhancing their capacity to manage all forms of social and economic risks like old age, sickness, unemployment, disability and exclusion. The recent international calls for governments all over the world to invest in social protection is hinged on the argument that social protection programmes and policies will lend support to a more equitable pro-poor growth model, by supporting both, economic and social development (Holmes *et al,* 2012).

Inclusive Green Growth

Green growth is primarily concerned with securing the welfare of future generations, while inclusive growth, on the other hand, focuses on the welfare of current generations, as well as ensure an equitable distribution of welfare gains. This means that tensions are generated between green growth and inclusive growth, since green growth is not inclusive automatically and inclusive growth may not always be green (CAFOD, 2014). Green growth focuses on future generations' welfare and this may pose serious limits to growth for the current generation. If additional measures are not embarked upon, this could have serious adverse effect on the amount of wealth or economic resources that will be available for the current generation, thereby negatively affecting the welfare of the poor and the vulnerable. Moreover, green growth and inclusiveness may not always go together, because distributional fairness most often conflicts with the efficient use of resources (Bouma and Berkhout, 2015). Thus, it may be impossible to create synergies between green growth and inclusiveness and as such, the quest to balance the disparity will require additional efforts (Dercon, 2012).

Human Capital Investment

Human capital is very important to economic growth because of the economic value of knowledge, which can be expressed in concrete terms as in income levels (Shultz, 1971). In achieving inclusive growth as well as promoting social and economic development, the quality of human resources and an accumulated knowledge of labor acquired through skills development and quality education have a decisive role to play (Tilak, 2007). This implies that efforts to promote inclusive growth

should be targeted at improving educational quality and skills acquisition. As identified by Schultz (1971), education is equal to human capital investment. This follows that attempts by the government to invest hugely in education is also an attempt to invest in human capital, and this will translate to human capital development. If the result of human activities and work ethics can be improved upon by education, it has beneficial effects on competitiveness (Tandi, 2013). If, however, the issue of human capital is approached from the side of economic growth as a large part of the income gap is explained by differences in education, it is seen as an investment (Schultz, 1971). If the national income of a country is growing faster than the country's resources, then that is said to be efficiency (Tandi, 2013). This is because a country can only be able to increase its output above its natural resources if the human capital is well developed thereby making labor productivity to be very high leading to more income per unit of national resource or labor input. One important part of the increase in national income over and above national resources is the realization of economies of scale, but also to a large extent, a considerable proportion is caused by the improvement of human skills (Tandi, 2013). It has been established that large increases in the real income of workers can be attributed to the return on human investment (Schultz, 1971).

2. Theoretical literature review
Solow Neoclassical Growth Theory

This theory was exhaustively tested in Mankiw et al (1992) and later in McDonald and Roberts (2002). According to these studies, the Solow model will better fit the data, if an additional variable - human capital – can be introduced, thereby leading to significant improvement in the ability to explain the disparities in incomes across countries. In order to determine the limitations listed above, Mankiw *et al* (1992) employed another means of modern econometric techniques by selecting countries with series that show similar stochastic properties to be able to develop reliable estimates of appropriate physical capital. To this end, such procedure intensifies and stimulates a fresh empirical interrogation of the Solow growth theory, which has been able to generate new proof on the behavior of income inequality across countries. As of recent, the plethora of outstanding advances in econometric techniques has engendered a set of new assessments for

growth theories in the field of economics. To keep pace with this trend, Islam (1995) made a vital contribution by reporting parameter estimates of a neoclassical model that employed a cross sectional panel data method. By so doing, the study advocates for leveling effects in different countries as heterogeneous static intercepts in a dynamic panel analysis. In a nut shell, while the findings of Mankiw *et al* (1992) permit us to finalize that an important role is performed by human capital in the production function, Islam (1995) will suggest an opposing view if it is possible to introduce into the model, a country's specific technological progress.

The Endogenous Growth Theory

This theory suggests that growth is generated as a direct result of internal processes from within a system. In a specific way, the endogenous growth theory confirms that the enhancement and development of a country's human capital can help propel a higher growth of an economy through the development of modern technology as well as an effective and efficient production method. This contradicts the neoclassical economics' view which claims that economic growth is propelled by progress in technological competence and other external factors. Endogenous growth theorists (e.g. Romer, 1986, 1990, Lucas, 1998) contend that today's industrialized countries are experiencing a high productivity and economic progress compared to those in the pre-industrialized eras, due to the fact that such economic progress was developed and sustained within the country rather than through international trade. According to the theory, human capital investment (labor force quality) is an important component of economic growth.

Empirical literature review

Education has been identified in economic literature as a veritable tool that can enhance the social and economic development of a nation. To this end, some studies like Barro (1991), Bhargava (2008), Benos and Zotou (2014), Bohm et al (2015) and Mariana (2015) have focused on the role of education in enhancing economic growth. Others like Holm *et al* (2015), Tilak (2007), and Tandi (2013) beamed searchlight on the subject matter of education and inclusive growth, while Manafi and Marinescu (2013) looked at the influence of education investment on inclusive growth.

For instance, Holm *et al* (2015) researched into the role of education in the quest for sustainable development and quality assurance among Chinese and Nordic countries' universities. According to the study, the global purpose of education for sustainable development (ESD) is to incorporate it at every level of education. It thus implies that to ensure sustainable development, several changes have needed to be embarked on, for instance, through the transforming of the university system. It was reported that Nordic countries like Norway, Sweden, Iceland, Denmark and Finland struggle to be represented among the countries leading the way in promoting education for sustainable development, and therefore, seek to increase cooperation with China. The study compared the Nordic countries with China in terms of ESD and quality assurance. It looked into the possibilities to advance ESD in these countries in order to provide benefits from quality assurance requirements and observed that both regions improve education for sustainable development.

Tilak (2007) studied the relationship between education and inclusive growth on the approach to the eleventh plan. The study describes education as the focal point and the most important factor in human empowerment. It supports the fact that education can help bring people out of poverty by endearing people with the necessary knowledge and skills, as well as providing for them access to gainful employment which can help translate to inclusive growth. The paper critically examined the attention paid to education, the strategies that have been proposed for it and the goals set for it to propel growth inclusivity. It therefore called for good quality education, as the most important ingredient of inclusive growth.

Tandi (2013) looked at education as an important element of smart and inclusive growth. It identified smart and inclusive growth as the main elements of Europe 2020 target, and in order to achieve this target, a high quality and performance of the education systems is needed. Furthermore, the paper suggested an efficient education as the engine through which the goals of a smart and inclusive growth can be achieved.

Barro (1991) conducted a study on the role human capital plays in promoting economic growth. The study which covered a period of 1960 to 1985 focused its searchlight on 98 countries, employing school enrolment rates to proxy human capital. In the study, result showed that initial human capital enhanced the growth rate of real GDP. Marinescu

and Manafi (2013) researched into the role that education expenses play in Romania and European Union's inclusive growth. The study observed that most European Union countries will be able to reach the inclusive growth target set by 2020. It also suggested that for Romania to be able to achieve the EU 2020 inclusive growth target, it has to boost its efficiency in education through constant training of education managers, as well as optimizing school network.

Bhargava (2008) estimated the models for growth rates of GDP, the levels of poverty, and measures of inequality from 1990 to 2000 across 54 less developed economies at five-yearly intervals. The study investigated globalization issues through the analysis of the differential effects of imports and exports in these countries, through the use of trans-logarithmic models which makes possible for non-linear effects of literacy rates and openness measures. It was observed that literacy influenced the rates of growth in a quadratic manner. Similarly, countries with higher literacy rates were found to be more likely to profit from globalization. However, it was observed in the models of poverty measures employed, that globalization did not directly affect the level of poverty in these countries.

McKinley (2010) studied inclusive growth criteria and indicators. In the study, inclusive growth was identified as entailing the achievement of sustainable growth that will help to create and enlarge opportunities in the economy, as well as facilitates broader access to such opportunities in order to enable members of the society become included in both participation and sharing of economic progress. One of such indicators of inclusive growth identified in the study is quality education. This view was also supported by Ali (2007b) which focused on the imperativeness of inequality on inclusive growth in Asia. The paper identified the key elements in inclusive growth as productivity and employment, targeted intervention, social safety nets and development in human capabilities.

It is evident from the above review that previous studies have only been able to either link education to economic growth, or discussed the issue of education investment and economic growth. They have also not been able to determine if education plays a crucial role in making growth inclusive, with the exception of Tilak (2007), Tandi (2013) and more recently, Holm *et al* (2015), which failed to disaggregate education. This present study will not only decompose education into literacy rates and school enrolment to determine their individual effects

on inclusive growth, but will also extend the frontiers of knowledge by empirically modeling inclusive growth which most of the previous related studies have not done.

3. Methodology and Data
Model Specification and Method of Analysis

This study focuses on the relationship between education (proxied by literacy rates and school enrolment) and inclusive growth in Nigeria from 1970 to 2014. Following the works of Ali and Son (2007) as well as Anand *et al* (2013) where inclusive growth was measured in terms of the contribution of the increase in per-capita income, as well as the contribution of changes in income distribution (equity) as follows:

$$y^* = \omega \times y \qquad\qquad (1)$$

where y^* is the degree of inclusive growth, ω is the equity index of income, and y is the average income. It thus implies that Inclusive growth will require increasing y^*, which can be done by: (i) increasing the income equity index ω by increasing equity in income distribution; (ii) increasing per-capita income through increasing the real output in the economy; or (iii) by combining both (i) and (ii).

If equation (1) is differentiated totally, we have:

$$dy^* = \omega.d\omega + y.dy \qquad\qquad (2)$$

Equation (2) means that dy^* is the change in the degree of inclusive growth. And growth will be more inclusive if $dy > 0$ i.e. if there is a positive change in the degree of inclusive growth (Ali and Son, 2007; Anand *et al,* 2013).

Equation (2) also allows the decomposition of inclusive growth into change in equity and income growth (Ali and Son, 2007). In the equation, the first term represents the contribution of increase in per capita income while keeping the distribution of income constant. Moreover, the second term indicates the contribution of changes in the distribution of income while keeping per capita income constant (Ali and Son, 2007; Anand *et al,* 2013). For the purpose of the objectives of this present study, we expand the model to accommodate other variables that can contribute significantly to inclusive growth, such as literacy rate and school enrolment rate. It is already established that both

variables will contribute greatly to human capital development and make growth more inclusive. Therefore, equation (2) becomes:

$$y^* = \{GDPPC, UNEM\} \qquad (3)$$

Equation (3) is the inclusive growth determinants this study will focus on. It implies that the degree of inclusive growth is a vector inclusive growth determinant i.e. of average income and unemployment rate. Real GDP Per Capita (GDPPC) is a measure of welfare and it is used to capture benefit sharing while unemployment rate (UNEM) is used to capture the extent of participation in the growth process or income equity. Therefore, the model to be estimated in this study is specified as:

$$GDPPC = \alpha_0 + \alpha_1 TE + \alpha_2 SE + \alpha_3 LR + \alpha_4 INV + \alpha_5 INF + \varepsilon \qquad (4)$$

$$UNEM = \beta_0 + \beta_1 TE + \beta_2 SE + \beta_3 LR + \beta_4 INV + \beta_5 INF + \varepsilon \qquad (5)$$

Inclusive growth variables in equations (3) and (4) are Real Gross Domestic Product Per Capita (GDPPC) and Unemployment rate (UNEM). GDPPC is average income to m are Real GDP Per Capita and Unemployment rate respectively. TE is the Tertiary Enrolment, SE is the secondary enrolment, LR is literacy rate, while the control variables are investment (INV) which is captured with gross capital formation and inflation rate (INF). Log linear is employed in carrying out the analysis in order to avoid unnecessarily large values in the estimated result. The dynamic error correction model is also employed because it allows for deviation of the current state from long run relationship to be corrected with short run dynamics. This means that once the variables are first differenced, the dynamic error correction model is more appropriate.

Data Description and Sources
Data for this study, such as tertiary enrolment, secondary enrolment, literacy rate and unemployment were sourced from the Nigeria Bureau of Statistics (2015). Others such as investment (proxied with gross capital formation), inflation rate and real GDPPC were sourced from the World Development Indicators (2015).

Results and Discussion

**Trend Analysis of Education and Inclusive Growth in Nigeria**

Figure no. 1 illustrates the trend of secondary enrolment in Nigeria during the period 1980 to 2014. It clearly shows that secondary enrolment since 1980 has witnessed an upward surge until year 2005, when secondary enrolment dropped sharply in Nigeria. Figure no. 2 shows clearly that tertiary enrolment has also been on the rise since 1980, with occasional sluggishness around 2004 and 2008, but since 2009 up to 2014, tertiary enrolment in Nigeria continues to grow very fast. Comparing these two figures, it is clear that prior to the late 1990s as well as late 2000s, secondary enrolment in Nigeria was very huge, though with a fairly stable growth rate.
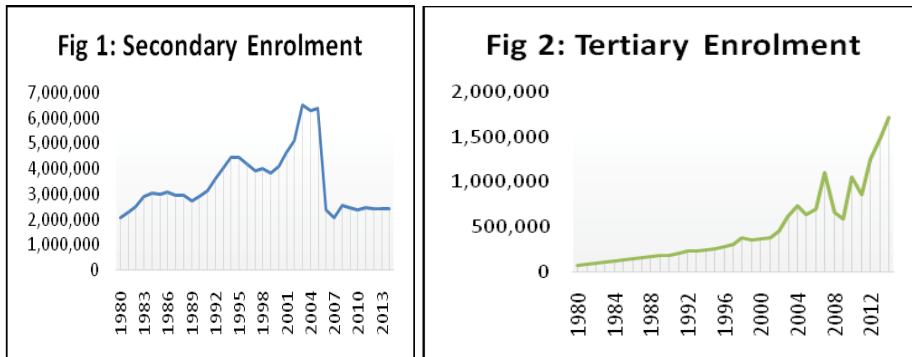

Source: Nigeria Bureau of Statistics (NBS)

Secondary enrolment grew very fast in Nigeria between 1999 and 2004 during the first return of democracy to Nigeria, when the government was able to stimulate more secondary enrolment in a quest to achieve one of the millennium development goals of raising the basic literacy rate in the country. However, the trend after 2006 until recently shows that the country needs to do more to boost secondary enrolment in order to increase participation in the growth process and make growth more inclusive. Conversely, fig. no. 2 suggests that tertiary education started very slowly from the early 1980s. This is unconnected with the fact that tertiary education was less pronounced in Nigeria, then due to several factors ranging from the fact that many families considered tertiary education as a luxury, or due to its affordability. This means that

it continued to grow slightly till the late 2000 again, when it begins to witness significant increases during the democratic era up to date.
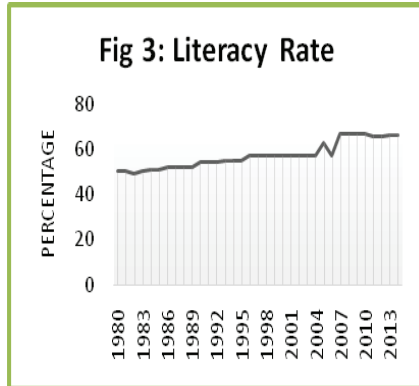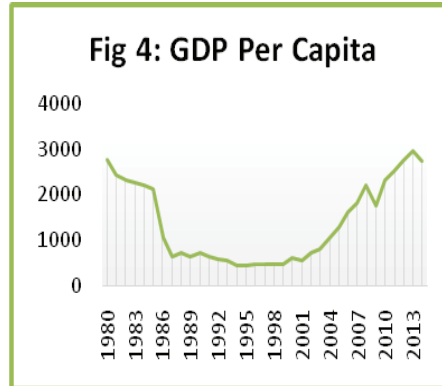
NBS (2015)   WDI (2015)

The trend of literacy rate and real GDP Per Capita are presented in figure 3 and 4 respectively. In figure 3, literacy rate in Nigeria has revolved around 50% since 1980 up till early 2000 where it rose to about 62%. Between 2004 and 2014, literacy rate has continued to witness significant growth in the country. This is unconnected with the fact that school enrolment, especially, tertiary enrolment, has continued to rise significantly in the country since the return of democracy in 1999. The trend of GDP Per Capita in figure 4 suggests that the average income of Nigerians has been on the decline despite economic growth being witnessed in the country. Despite the huge oil revenue of the country, the citizens are still among the poorest in terms of income up to date. It is a fact that the minimum wage in Nigeria is just eighteen thousand naira (N18, 000) which is almost ninety US dollars ($90). Among the Oil Exporting Countries, Nigeria has the lowest GDP Per Capita at $2,994 in 2013, compared to Qatar, UAE, Algeria and Angola, with GDP Per Capita of $100,829, $46,833, $5,845 and $6,282 respectively, in 2013 (OPEC Annual Statistical Bulletin, 2014). This is in spite of the fact that the country is the sixth largest oil producer in the world. Nigeria's GDP Per Capita was at its lowest ebbs between the late 1980s and the early 2000. This implies that the citizens' welfare or perhaps, standard of living over this period is very low. Even until recently that the GDP Per Capita continues to rise significantly, the minimum wage still attests to the fact that a lot needs to be done if benefit sharing is to increase for growth to become inclusive.

Source: Nigeria Bureau of Statistics (2015)

Figure no. 5 shows the unemployment rate over the period of 1980 to 2014. Unemployment rate in Nigeria shows a consistently rising trend. Unemployment rate in Nigeria initially witnessed a fairly stable and low rate between 1980 and 1988. It decreased greatly between 1988 and 1995, and this period signaled a good omen for the country. The period between 1995 and 2000 also witnessed a slight increase in unemployment, but it is still below 5% during this period. However, between year 2000 and 2014, unemployment rate in Nigeria has continued to rise uncontrollably. It even reached an all-time height in 2013, when unemployment rate in Nigeria rose to about 23.9%. This increase in unemployment, especially between 1999 up to date can be attributed to the increase in tertiary enrolment observed earlier in fig. no. 2. This means that the country has failed to make arrangement to accommodate graduates that are being turned out on a yearly basis by the various tertiary institutions. Also, the curriculum in these tertiary institutions put more emphasis on theoretical courses and less emphasis on practical courses, thereby making graduates to depend endlessly on white collar jobs.

Pre-Estimation Tests

Table no. 1. Stationarity Test

Variables	ADF-Statistic	Critical Values	Status
GDPPC	-4.603648	1% = -3.646342 5% = -2.954021	First Difference
SE	-5.067524	1% = -3.646342 5% = -2.954021	First Difference
TE	-7.229266	1% = -3.646342 5% = -2.954021	First Difference
UNEM	-5.340464	1% = -3.646342 5% = -2.954021	First Difference
LR	-10.93118	1% = -3.646342 5% = -2.954021	First Difference
INF	-5.776598	1% = -3.653730 5% = -2.957110	First Difference
INV	-7.693038	1% = -3.646342 5% = -2.954021	First Difference

Source: Authors' computation (2015)

The unit root test result in table no. 1 implies that the time series variables, Per Capita real GDP, secondary school enrolment, tertiary enrolment, unemployment, literacy rate, inflation rate and investment are not stationary at levels and after taking their first difference, they are all stationary for linear trend test models. This indicates that the incorporated series in the dynamic regression model have no unit-root at first difference and it implies that the series (in their first difference) are mean reverting and convergences towards their long-run equilibrium.

Table no. 2. Johansen Cointegration Test

Hypothesized No. of CE (s)	Trace Statistic	Prob.**	Hypothesized No. of CE (s)	Max-Eigen Statistic	Prob.**
None *	147.0510	0.0013	None *	50.04445	0.0187
At most 1 *	97.00653	0.0409	At most 1	35.31530	0.1562
At most 2	61.69123	0.1871	At most 2	20.62241	0.7122
At most 3	41.06882	0.1865	At most 3	16.67460	0.6080
At most 4	24.39421	0.1843	At most 4	14.37073	0.3354
At most 5	10.02348	0.2789	At most 5	7.485091	0.4335
At most 6	2.538393	0.1111	At most 6	2.538393	0.1111

Note: * denotes rejection of the null hypothesis at 5% level of significance

In table 2, the Trace statistic results indicates that there exist two co-integrating equations at 5% level of significance, while the Maximum-eigenvalue statistic shows that there is one cointegrating vector at 5% significance level. These results suggest that there is long-run relationship among all the variables employed in the study.

Dynamic Error Correction Model

Table no. 3. Education and Real GDP Per Capita in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.006544	0.014281	-0.458234	0.6557
D(LTE)	0.157204	0.061173	2.569827**	0.0404
D(LSE)	0.097504	0.074332	1.311737	0.1514
D(LLR)	0.356858	0.481216	0.741574	0.4739
D(LINV)	-0.125687	0.069772	-1.801391*	0.0991
D(LINF)	-0.010889	0.017038	-0.639108	0.5358
D(LGDPPC(-1))	0.815291	0.314806	2.589819**	0.0251
D(LTE(-1))	0.022271	0.052255	0.426208	0.6782
D(LSE(-1))	-0.000970	0.077987	-0.012437	0.9903
D(LLR(-1))	0.550621	0.356297	1.545400	0.1505
D(LINV(-1))	-0.029363	0.056010	-0.524236	0.6105
D(LINF(-1))	0.037367	0.015166	2.463885**	0.0315
ECM(-1)	-0.431655	0.155207	-2.781155***	0.0012
R-squared		0.605743		
Adjusted R-squared		0.525644		
Prob. (F-statistic)		0.009022		
Durbin-Watson stat		1.933199		

Note: ***, **, * means significant at 1%, 5%, 10% respectively

Table no. 3 shows that coefficient of the error correction model (ECM$_t$(-1)) conforms with apriori expectation because it is negative and also significant. It's value of -0.431655 means that the speed of adjustment towards long run equilibrium state is 43.17%. It also means that about 43.17% divergence due to the equilibrium error in the previous year was corrected in the next period meaning that the adjustment speed towards long run is good.

The results in table no. 3 shows that tertiary enrolment of the current period positively and significantly enhanced Per Capita real GDP in Nigeria over the period of study. Also, current secondary school enrolment and current literacy rate positively enhanced Per Capita real GDP, but insignificantly. This conforms to apriori expectation and the reason for this is not far-fetched, because if both tertiary and secondary enrolments are well managed, they will contribute to human capital development, which will in turn produce more economic growth for the country. From the trend analysis on tertiary enrolment, it is clear that it has continued to rise significantly over the last fifteen years, whereas secondary enrolment has been on the decline lately. Also, tertiary education has formed the yardstick for securing employment lately in Nigeria and this explain the reason why it is significant in stimulating Per Capita GDP. Secondary education is not significant because unlike the pre 1990 era when it was important in securing employment, that has since changed as most a secondary school certificate holder is only considered for menial jobs in the present day labor market in Nigeria. In the same vein, literacy rate has been insignificant, and is stimulating Per Capita real GDP because the effect education would have had on growth has been offset by graduate unemployment in Nigeria. The R-squared of 0.605743 means that it is a good model as over 60% changes in GDP Per Capita is explained in the specified model. The Durbin-Watson (DW) of 1.933199 suggests that the model does not suffer from serial correlation and it is not spurious because intercept (0.006544) is smaller than the DW.

Table no. 4. Education and Unemployment in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.206887	0.140691	1.470510	0.1694
D(LTE)	-0.187280	0.092943	-2.014998**	0.0380
D(LSE)	-0.455287	0.089738	-5.073514***	0.0000
D(LLR)	2.501734	2.659586	0.940647	0.2320
D(LINV)	-1.298517	0.596179	-2.178064*	0.0520
D(LINF)	-0.077704	0.164251	-0.473080	0.6454
D(LUNEM(-1))	-0.126216	0.247677	-0.509601	0.6204
D(LTE(-1))	0.098714	0.511398	0.193029	0.8505
D(LSE(-1))	0.158056	0.760815	0.207746	0.8392
D(LLR(-1))	0.912052	3.502457	0.260403	0.7994
D(LINV(-1))	-1.171917	0.535140	-2.189926*	0.0510
D(LINF(-1))	-0.091238	0.146768	-0.621647	0.5468
ECM(-1)	-0.967111	0.311436	-3.105328***	0.0000
R-squared		0.690748		
Adjusted R-squared		0.464799		
Prob. (F-statistic)		0.000000		
Durbin-Watson stat		2.073654		

Note: *, **, *** means significant at 1%, 5%, 10% respectively

Table no. 5 shows the impact of education on unemployment in Nigeria. It is clear from table no. 5 that tertiary enrolment of the current period and current secondary school enrolment negatively and significantly enhanced unemployment in Nigeria. This result conforms to apriori expectation because an increase in secondary and tertiary education is expected to endow the citizenry with the necessary qualification and skills that are required in the work place thereby increasing their employability and reducing unemployment in the process. Literacy rate, however, does not conform to expectation, because it positively impacts real GDP Per Capita. The reason that can be adduced for this is that as literacy rate increases in Nigeria, it makes more people becomes educated and ready for the labor market, but experience has shown that the labor market in Nigeria has become more saturated as the existing jobs offer in the country annually is far less than the number of graduates that are leaving various academic institutions, both secondary and tertiary. The implication of this is that more educated people are not able to get jobs and unemployment increases.

A cursory look at table no. 5, it is observed that the error correction equation ($ECM_t(-1)$) conforms to apriori expectation, because it is also significant and negative. It's value of -0.967111 means that the adjustment speed towards equilibrium long run state is 96.71% meaning that 96.71%% divergence owing to the equilibrium error in the past year has been corrected in the subsequent period implying that the adjustment speed towards equilibrium long run is fast. The R-squared of 0.690748 suggests that it is a good model as the explanatory variables jointly explained over 69% variation in real GDP Per Capita. The model is not spurious also as its intercept of 0.206887 is lesser than the DW of 2.073654. This DW value of 2.07 suggests that there is autocorrelation in the model and therefore, the error terms are not serially correlated.

Conclusions

The study examines if education matter in promoting inclusive growth in Nigeria between 1980 and 2014. Education was broken down into school enrolment and literacy rate. School enrolment was further decomposed into secondary school enrolment and tertiary enrolment. Inclusive growth was captured in the study with per capita real GDP, which is a measure of standard of living, welfare of the citizenry and benefit sharing, while unemployment was also employed to capture the extent of participation in the growth process. Thus, inclusive growth was captured with Real GDP per capita and unemployment rate in the study.

The dynamic error correction model was employed in the study to determine the various parameter estimates and how they impact inclusive growth. The unit root test conducted shows that all thee explanatory variables employed in the study have unit root at levels, but became stationary after first differencing. Also, the Johansen cointegration test shows that long run relationship exists among the variables because two cointegrating equations exist in trace statistic and one cointegrating equation exists in the Maximum-eigenvalue statistic. It was observed in the study that secondary school enrolment, tertiary enrolment and literacy rate have important role to play in promoting inclusive growth in Nigeria, owing to the fact that tertiary enrolment positively and significantly impacts GDP Per Capita, while secondary enrolment and literacy rate positively, but insignificantly enhanced GDP Per Capita. In the same vein, tertiary and secondary school enrolment negatively and significantly enhanced unemployment rate which implies

that improvement in education can help to increase participation in economic growth process, thereby reducing unemployment and making growth more inclusive. However, literacy rate was observed to positively impact unemployment in Nigeria, which is a confirmation of the fact that the products of the educational system in Nigeria have not been able to contribute to the growth process as they ought to because the labor market has not been able to absorb a large number of them and graduate unemployment has continued to increase from year to year.

It is therefore of importance that Nigeria should improve the quality of its education curriculum by incorporating skills acquisition courses that will make graduates less dependent on white collar jobs. Skills development initiatives should also be embarked on to discourage graduates from becoming job-seekers and transform them to employers of labor. This will not only reduce unemployment and boost per capita income, but will also increase participation in the growth process, increase benefit sharing and promote inclusive growth.

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