THE RELATIONSHIP BETWEEN EDUCATION AND SUSTAINABLE DEVELOPMENT IN NIGERIA

https://doi.org/10.47743/jopafl-2022-24-01

Felix ABERU
Department of Economics, Tai Solarin University of Education, Ijagun, Ijebu Ode, Nigeria
felixaberu@gmail.com

Yusuf Oke LAWAL
Department of Economics, Olabisi Onabanjo University, Ago-Iwoye, Nigeria
jega777@yahoo.com

Abstract: Essential changes in any knowledgeable and dependable social society are not unconnected to educational renaissance. However, education as a potential factor in determining sustainable development in Nigeria is grossly understudied. Consequently, this study investigates the relationship between education and sustainable development in Nigeria. The study adopted the ex-post-facto research design and utilized time series data which were sourced from CBN Statistical Bulletin from 1992 to 2021. The data were analyzed using the ARDL model to determine both the long run and short run relationships between education and sustainable development. Inferences were drawn at 5% level of significance. The estimated long run ARDL model showed that education crowd-out sustainable development in Nigeria with a negative and significant relationship. Population had a positive and significant relationship with sustainable development. Hence, based on the established relationship between education and sustainable development, the study concluded that education is significant with weaken effect on sustainable development. The study therefore recommended that the government of Nigeria should ensure quality control and result oriented policies at all levels of education in Nigeria, educational funding in Nigeria should be adequate, conducive learning environment should be enhanced.

Keywords: Education, Sustainable Development, ARDL, Nigeria

Introduction

The variations in an intellectual society have always tailored towards educational revitalization. Education for Sustainable Development (ESD) is commonly understood as education that encourages changes in knowledge, skills, values and attitudes to enable a more sustainable and just society for all (UNESCO, 2012). Its purpose is to allow present generations to meet their needs without impeding the future generation. Sustainable development goals, specified by UNESCO, 2017 as necessary conditions for nations to ensure economic sustainability for human beings are: No poverty, decent work and economic growth, zero hunger, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, industry, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, justice and strong institutions, partnership for the goals are not negotiable, then it becomes abundantly clear that most countries in Africa are still lagged in attaining the sustainable development agenda when compared to China.
India, Malaysia, South Korea, Singapore and the other Asian Tigers that uses industrialization and education to escape the trap of poverty and build world-class economies.

Therefore, education becomes a fundamental objective of sustainable development and a prominence source of sustainable development indeed. An input and output of development, education is fundamental to the wider belief to expand human competences which is the pivot of development (UNDP, 2017). At the same time, education plays a key role in the ability of a developing country to absorb modern technology and to develop the capacity for self-sustaining growth and development (Todaro & Smith, 2009). In other words, education holds the master key that unlocks a country’s potentials towards national transformation, and sustainable human national development.

There is an extensive disparity between educational standards and learning achievements in Nigeria. The system emphasizes theoretical knowledge at the expense of technical, vocational, and entrepreneurial education. School curricula almost remain unstandardized without review to make them relevant and practice oriented. Unfortunately, literature had only focused on many of the UNDP sustainable development goals but the empirical relationship between education and sustainable development has been grossly understudied in the literature for Nigeria which is a crux for this study. Education in Nigeria has faced several tailbacks, one of which is the poor funding. The government has not been providing adequate funds to stir up educational activities in the country. Annual budgetary estimates carry little proportions of allocation for education sector which ought to have been given more priority. UNESCO (2012) specified that developing nations should allocate at least 26 percent of their yearly budget to education. However, Nigeria is far away from attaining this benchmark specified by UNESCO, thereby impeding human development strength of the country which is supposed to activate growth and sustainable development. Thus, it is of great concerned to see countries like Kenya, Ghana, Cameroon and Equatorial Guinea overtake Nigeria in terms of educational standard, living Nigeria hopeless in integrating to the Conventional Education Strategies for Africa 2016-2025 agendum and the African Union’s Agenda 2063 which sets out a pan-African vision of transformative sustainable development with the aim to transform education system for commensurate wider vision.

Therefore, the study provides a critical analysis of the relationship between education policy agenda relating to sustainable development in Nigeria’s in tandem with the overall vision of African led Education for Sustainable Development (ESD) and a priority for implementing ESD in a way that is consistent with the Pan-African vision of an African Renaissance and the UNDP sustainable development goals for developing countries. Education at all levels and in all its forms constitutes a vital tool for addressing virtually all global problems. It is not only an end in itself, but also a key instrument for bringing about changes in knowledge, values, behaviours and life styles required to achieve sustainability and stability within and among countries (Bajaj & Chiv, 2009).

Education has been referred to as the greatest force that can bring about changes. Aminu (2006) observed that the greatest investment a nation can make for the development of its economic, sociological and human resources is that of education. While sustainable development is the development that meets the needs of the present without compromising the ability of the future generations to meet their own needs (Bruntland Commission, 1987) hence, education and sustainable development are intertwined such that good quality
education drives innovation, which in turn drives economic growth and sustainable development.

Nigeria is continually plagued with the upheaval advancement in the educational sector which is not unconnected to the sharp decline in government funding in the sector and the low esteem placed on education in Nigeria. However, these has adverse effects of dilapidation of education facilities at all levels, teachers’ salaries not paid and in its more pronounced forms are the various strikes actions engaged in by the universities teaching and non-teaching staff due to the worsening living and poor working conditions in the university system. Furthermore, these upheaval and unpleasant conditions resulting from government poor funding of the educational sector would no doubt produce and harvest increase rate of crime most especially cybercrime, promiscuity and declining literacy rates in the country. These outcomes therefore reveal low or poor investment in the educational sector not only having effects on the quality of education in terms of infrastructure but also on general human capital development at large in Nigeria. However, the problems raised above do not seem to be a very strong concern for successive governments in Nigeria. It becomes imperative to ask that; Does education has significant relationship with sustainable development in Nigerian?, which remains a critical questions for researchers and policy makers. However, this informed the following research hypotheses for this study:

Ho: Education does not have significant relationship with sustainable development in Nigeria.

HA: Education has significant relationship with sustainable development in Nigeria.

**Educational System in Nigeria**

British administration passed the first Education Ordinance in 1882, undoubtedly, the Ordinance was a landmark in the history of education in Nigeria, from then on, the Government came increasingly to play an active role in the provision and regulation of education at all levels. The Ordinance provided for a general Board of education consisting of the Governor, the Members of the executive Council and not more than four other nominated members. The general board was given power to establish local boards which were to advise it on the opening of new Government schools and also on whether conditions under which grants were made to schools were being fulfilled. More importantly, the application of the 1923 Phelps-Stokes Fund of the United State of America report, a survey on institutions in East and West African respectively, exposed among other things the impacts of the existing schools on the economy. The commission recommended that, education should be adapted to African conditions; emphasis should be on Agricultural education, that the village artisans should be given technical training, more money should be spent on education and that more regulation should be carried on education.

Furthermore, another aspect of the Government’s educational efforts was the educational policy of Sir Hugh Clifford Nigerian High Commissioner of 1919-1926. This was informed due to the dissatisfaction with the deplorable state of education in the Southern Nigeria, particularly with the very low standard of work in schools. Clifford decided to revolutionize the educational system through the joint efforts of his Director of Education and Advisory Committee. They presented a Memorandum based on the
deplorable state of education in Nigeria. They observed that the Government did not exercise enough supervision and regulatory act over the bulk of educational activities in Nigeria. Categories of schools were analysed. In the first category were schools established by the Government and maintained and controlled by Director of Education under the supervision of Lieutenant. The second category consisted of schools established and maintained by mission bodies subject to periodical supervision and regulation.

The constitution of Nigeria gives all citizens the right to education. But the delivery of education in Nigeria has suffered from years of neglect, compounded by inadequate attention to policy frameworks within the sector. These man-made problems include poor funding; shortage of quality staff; dearth of infrastructure; inadequate classrooms and offices for teaching and research; shortage of books and journals; indiscipline; inconsistent and ill-conceived policies; corruption at high and low places; cultism; irregular payments of salaries; examination malpractices; embezzlement of fund; low staff-student ratios; poor record keeping; fraud and self-deception with regard to accreditation; infringements of institutional autonomy and freedom and disharmony among unions in appointment of headmasters; or headmistresses, principals, provosts, rectors and vice chancellors; failure to send staff regularly on short courses to improve and enhances their competences; and the fact that government often reneges on the mutual agreements between it and the unions of educational institution. Similarly, UNICEF (2001) identified these challenges as: The near absence of a strong philosophical and socio-cultural foundation for education; Societal disaffection with the educational systems; inadequate access at all levels; the extremely depressed state of infrastructure and facilities; lack of relevance, appropriateness and responsiveness in the curriculum; Endemic strike by students and teachers; persistence of all the educational disparity between different zones of the country; persistence of gender gap in enrolment, participation and achievement; low female enrolment in basic education and body drop-out in certain areas of the country; wide gap between the intention and achievements with the National Policy on Education, which have all posted threat to the education sector with a multiplier effect on the economy.

**Literature Review**

Human capital development is generally recognized as a support for realizing wide-ranging development. Therefore, investment in education has been empirically connected to healthier economic development outcomes. Education enables poor men and women to participate in and benefit from economic growth (Ravallion, 2004). Ibukun and Aremo (2017) examined the long run and short run parameter among inclusive growth variables utilizing the Nigeria's annual data from 1981 to 2014, and employed both the autoregressive distributed lag model (ARDL) and Error Correction Method (ECM). They found a negative relationship between Government consumption education expenditure, and inclusive growth both in the short run and long run. Azra, (2016) in their study of measurement and determinates of inclusive growth integrated growth, inequality, accessibility and governance into one single measure. They found that macroeconomic stability and social financial deepening are important determinants to enhance inclusiveness, and reduce poverty and inequality. Ekwueme and Ezenwa-Nebife (2016) examined education for sustainable development through academic freedom using political economy approach. They found that academic freedom leads to the expansion and
discovery of new ideas of knowledge, transmits and preserves culture developed in the learner's independent judgment of an environment free from external control and domination. They further added that the educational opportunities that Nigerian children would have enjoyed through Education for all to achieve sustainability and self-reliance is lacking due to: Gender Equality, Cultural Diversity, among others. Robert, Yuko, Nonoyama-Tarumi, Rosalyn, and Charles (2016) examined the contributions of education for sustainable development (ESD) to quality education in 18 countries. Their findings were that major themes repeated across the 18 studies, shows that ESD contributes in many ways to quality education in primary and secondary schools. Teaching and learning transforms in all contexts when the curricula include sustainability content, and ESD pedagogies promote the learning of skills, perspectives and values necessary to foster sustainable societies. The research also identified the need to integrate ESD across all subjects, to provide professional development for teachers to ensure ESD policy implementation and to adopt ESD management practices to support ESD in the curriculum in order to broaden ESD across countries. Faouzi and Othman, (2017) examined the causal relationship between education expenditure and inclusive growth in Saudi Arabia from 1981-2013 using inequality adjusted human development index for inclusive growth, ratio of human resources development expenditure to GDP for education and structural Auto Regressive model of analysis. They found out that education expenditure has a positive impact on inclusive growth. Ilechukwu, Njoku and Ugwuozor (2014) examined education and development disconnects in Nigeria with emphasis for education for Sustainable Development (ESD) as the critical path to Nigeria's sustainable development and global competitiveness. They found that education is the pivot of national transformation and development, and added that Nigeria's dysfunctional educational system continues and deepens poverty and underdevelopment. Florian, Norma, Rodrigo, Daniela and André (2019) conceptualized the impacts of higher education institutions (HEIs) on sustainable development (SD). Inductive content analysis was used to identify major themes and impact areas addressed in the literature to develop a conceptual framework describing the relationship between HEIs' activities and their impacts on SD. Their findings shown six impact areas (research, education, outreach, campus operations and campus expenses) where direct (research uptake in business and policy making, qualified workforce, cultural dialogue, GHG emissions caused by operations and positive attitudes towards SD, immigration of students) and indirect (economic growth, change of societal and business practices, social cohesion, contribution to climate change and sustainable lifestyles) impacts of HEIs on SD may occur.

**Theoretical Framework**

This study adapted the Becker, 1975 Human capital investment theory. The theory delineated the link among government expenditure on education and human development. Increase government spending on the education sector has the propensity to increase level of human capital development and in turn increase sustainable development through innovation. Hence, poor funding of education leads to low human capital development and poor educational standard. However, that part of the Becker, (1975) theory that is of important to this study, is the notion that the higher a country’s budgetary for human capital development, the more the propensity to attain sustainable development.
Methodological Framework

ARDL model is used to determine the relationship between education and sustainable development in Nigeria; hence, the functional form of the model is given as:

$$ HDI = f(EDU, POP) $$

Therefore, equation 1 is transformed to logarithm to have;

$$ (HDI) = f(Log(EDU), Log(POP)) $$

Equation 2 ARDL specification is given as follows:

$$ \Delta \log(HDI) = \delta + \sum_{i=1}^{\alpha_1} \Delta \log(HDI)_{(t-i)} + \sum_{i=1}^{\alpha_2} \Delta \log(EDU)_{(t-i)} + \sum_{i=1}^{\alpha_3} \Delta \log(POP)_{(t-i)} + \beta_1 \Delta \log(EDU)_{(t-i)} + \beta_2 \Delta \log(POP)_{(t-i)} + \mu_t $$

Where $\alpha_1 - \alpha_3$ are the short run coefficients, and $\beta_1 - \beta_2$ captured long run relationships, $\delta$ represents the constant, $\Delta$ represent difference operator and $\mu$ is the error term.

Testing the hypothesis of no co-integration among the variables, the F-test of the joint significance of coefficients of the lagged levels of the variables was employed. The null hypothesis of no co-integration between sustainable development and the independent variables are given as:

$$ H_0 = \beta_1 = \beta_2 = \beta_3 = 0 $$

The alternative hypothesis is given as:

$$ H_0 \neq \beta_1 \neq \beta_2 \neq \beta_3 = 0 $$

The decision on the rejection or acceptance of the null hypothesis is based on the lower and upper bounds critical values (Pesaran et al., 2001). The null hypothesis of no co-integration is rejected if the calculated F-statistics is above the upper bound critical value. Also, if the F-statistics falls below the lower bound critical value, the null hypothesis cannot be rejected. But if the F-statistics is between the lower bound and upper bound critical values, the result becomes inconclusive.

The long-run relationship if a co-integration exists is specified as:

$$ [HDI]_{(t)} = \beta_1 + \beta_2 \log(EDU) + \beta_3 \log(POP) + \mu $$

After selecting the optimal lag length of the ARDL model using the Akaike information criteria or the Schwarz Bayesian criteria, the dynamic short run error correctional model is specified as;

$$ \log(HDI) = \delta + \sum_{i=1}^{\alpha_1} \Delta \log(HDI)_{(t-i)} + \sum_{i=1}^{\alpha_2} \Delta \log(EDU)_{(t-i)} + \sum_{i=1}^{\alpha_3} \Delta \log(POP)_{(t-i)} + \lambda [ECM]_{(t-i)} + \epsilon_t $$

Where $\alpha_1 - \alpha_3$ are the short run parameters, $\lambda$ is the parameter which indicates the speed of adjustment and ECM is the lagged error correction term derived from estimating equation (4) Where,

HDI represent human development index
EDU represent education
POP is population, a control variable in the model

The above model is a prototype of (Dauda, 2011; Schady, 2012; Ude, & Ekesiobi, 2014; Onwioduokit, 2020).

A priori Expectations

<table>
<thead>
<tr>
<th>Item</th>
<th>EDU</th>
<th>POP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Summary of A Priori Expectations

Issue 24/2022
Data sources and measurements

The study covers the relationship between education and sustainable development in Nigeria from 1992 to 2021. Data were sourced from Central Bank of Nigeria Statistical Bulletin. While sustainable development were proxy by Human Development Index, since it is the most ambitious attempt to analyze the comparative status of socioeconomic development systematically and comprehensively, United Nation Development Program (UNDP, 1990), while Education is measured by secondary school gross enrolment.

Results and discussions

Pre-estimation results

Descriptive statistics, normality test and correlation matrix

The mean and median of HDI, EDU and POP in the dataset as presented in table 1 remains the performance predictions for all the variables under consideration in this study, which falls within maximum and minimum values. All the variables are negatively skewed. The values of the Jarque Bera statistic show that the series are not normally distributed since the P value is less than 0.05 for all variables. Hence the null hypothesis that the residuals of these variables are normally distributed is rejected at the 5% level of significance. Therefore, the result indicates that all the variables in the dataset are not normally distributed around the mean. The implication of this result is that, over the period covered in this study, the distribution in terms of the movement in the values of HDI, EDU and POP significantly differs. Furthermore, the tables demonstrated that all the statistical measures for the various data series standard deviation of HDI, EDU and POP for Nigeria stood at 10%, 39% and 48% basis point respectively between 1992 to 2021.

Furthermore, studies such as (Agung, 2009) argued that testing of correlation among variables of estimates would enables researcher to detect high multicollinearity among themselves. Iyoha, (2004) argued that multicollinearity in variables occurs when the result of the correlation coefficient is greater than 0.95. Consequently, the correlation results presented in Table 2 shows that the correlation coefficients among the independent variables (HDI, EDU & POP) are below 0.95, hence there is no tendency of multicollinearity among the independent variables under study.

<table>
<thead>
<tr>
<th>Table 2: Descriptive statistics</th>
<th>HDI</th>
<th>EDU</th>
<th>POP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.475333</td>
<td>70.8</td>
<td>2.488</td>
</tr>
<tr>
<td>Median</td>
<td>0.47</td>
<td>89.5</td>
<td>2.55</td>
</tr>
<tr>
<td>Maximum</td>
<td>0.63</td>
<td>102</td>
<td>2.76</td>
</tr>
<tr>
<td>Minimum</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.097122</td>
<td>39.41766</td>
<td>0.481201</td>
</tr>
<tr>
<td>Skewness</td>
<td>-3.923436</td>
<td>-1.199063</td>
<td>-4.824091</td>
</tr>
</tbody>
</table>
Table 3: Long Run Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOGHDI(-1)</td>
<td>0.201474</td>
<td>0.411739</td>
<td>0.489325</td>
<td>0.6292</td>
</tr>
<tr>
<td>LOGEDU</td>
<td>-0.056435</td>
<td>-0.020934</td>
<td>2.70582</td>
<td>0.0208</td>
</tr>
<tr>
<td>LOGEDU(-1)</td>
<td>0.294883</td>
<td>0.471664</td>
<td>0.625196</td>
<td>0.538</td>
</tr>
<tr>
<td>LOGPOP</td>
<td>0.13813</td>
<td>0.022482</td>
<td>6.144119</td>
<td>0.0000</td>
</tr>
<tr>
<td>LOGPOP(-1)</td>
<td>-0.097614</td>
<td>0.025855</td>
<td>-3.77549</td>
<td>0.001</td>
</tr>
<tr>
<td>C</td>
<td>0.228112</td>
<td>0.135542</td>
<td>1.682957</td>
<td>0.1059</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.796782</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.752604</td>
<td>Durbin-Watson stat</td>
<td>1.737789</td>
<td></td>
</tr>
</tbody>
</table>

The result of the estimated long run ARDL model in table 3 shows that Secondary school enrolment proxied by (EDU) is negatively related to sustainable development and statistically significant. It has a crowd-out effect. The negative relationship implies that the declining education system in Nigeria impedes sustainable development processes. More so, the long run ARDL estimation verified the rejection of the null hypothesis in favour of the alternative hypothesis for this study. This finding is not in line with the a priori theoretical expectation during the study period. While, population has a positive relationship on sustainable development. The effect is also statistically significant.

Table 4: Short Run Error Correction Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D(LOGEDU)</td>
<td>-0.173352</td>
<td>0.270281</td>
<td>-0.64138</td>
<td>0.5276</td>
</tr>
<tr>
<td>D(LOGPOP)</td>
<td>0.13813</td>
<td>0.015746</td>
<td>8.772529</td>
<td>0.0000</td>
</tr>
<tr>
<td>CointEq(-1)*</td>
<td>-0.798526</td>
<td>0.275411</td>
<td>-2.89939</td>
<td>0.0081</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.818201</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.804217</td>
<td>Durbin-Watson stat</td>
<td>1.737789</td>
<td></td>
</tr>
</tbody>
</table>

The short run error correction model in table 4 shows that school enrolment is negatively related to sustainable development. The effect is insignificant implying that School enrolment proxied by (EDU) has no short run effect on sustainable development during the study period. Nevertheless, Population has a statistically significant positive short run effect on sustainable development. Finally, the error correction parameter is
negative and statistically significant. The coefficient of 0.79 shows that, 79% of the long run and short run disequilibrium is meant to be corrected in a year.

Conclusion

This study sought to investigate the relationship between education and sustainable development in Nigeria. The Becker, 1975 Human capital investment was used as theoretical foundation. The study adopted ARDL model to examine both the short run and long run relationships between education and sustainable development. Findings from the estimated long run ARDL model show that education is negatively correlated to sustainable development. The effect is also statistically significant. The negative relationship implies that as education continues to decline in Nigeria, consequently, sustainable development becomes a mirage. Therefore, the null hypothesis is rejected in favour of the alternative hypothesis of a significant relationship between education and sustainable development in Nigeria.

The short run error correction model indicates that education is negatively related to sustainable development. The effect is insignificant implying that education has no short run impact on sustainable development. Similarly, population has a statistically significant positive short run effect on sustainable development. However, this is in line with the long run situation where evidence of positive relationship was established between population and sustainable development. The coefficient of the lagged of HDI shows that past sustainable development does not improves current sustainable development in Nigeria.

Recommendations

Given the established relationship between education and sustainable development, the following recommendations are proffered for consideration by the government of Nigeria:

Quality control and result oriented policies should be considered for all levels of education in Nigeria. This will certainly guarantee cost recovery from schooling overseas. Government functionaries at all levels (Federal, States and Local) should have their children schooled in Nigeria. This will prioritize education and enhances quality control. Educational funding in Nigeria should be adequate. Government at all levels should ensure conducive learning environment. Thus, the dilapidated infrastructural facilities in schools must be improved.

References


This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution - Non Commercial - No Derivatives 4.0 International License.