

Effects of Socio-Economic Determinants on Educational Outcomes in Nigeria

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Abstract

The study examined the effects of socioeconomic determinants on educational outcomes in Nigeria. This study was done against the backdrop that the education sector of Nigeria has failed to produce quality educational outcomes needed for the growth of the nation's economy despite enormous works on the topic by most scholars who failed to account for the combination and extent of the effect of infrastructure, ICT, per capita income, and corruption on education outcome in Nigeria. The study was carried out to investigate the effect of infrastructure, ICT, per capita income, and corruption on educational outcomes in Nigeria using time series data covering a period of 21 years (2000- 2020). The study employed the Autoregressive Distributed lag (ARDL) bounds testing approach to ascertain the relevant relationship while the ECM captured the speed of short-run adjustment to long-run equilibrium. The findings reveal that infrastructure and per capita income have a positive effect on education outcomes (with literacy rate as a proxy) in Nigeria with only infrastructure being statistically significant. The study also found that ICT and corruption negatively and insignificantly affect education outcomes in Nigeria. The study, therefore, recommends that emphasis should be shifted from education for all to learning for all, improvement in infrastructure, and incorporation of ICT in education to aid teaching and learning.

Keywords: Education, socio-economic, education outcome, infrastructure, corruption, ARDL.

JEL Classification: 015,121,128,055.

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1. INTRODUCTION

Education has been recognized globally as a veritable and strategic tool pivotal to the economic transformation of any country. It is a development thrust that is indisputably desirable. It is also viewed as the acquisition of appropriate skills and competencies for the individual to live in and contribute to the development of society. The part education plays in the national development of any nation cannot be undermined. According to Nelson Mandela (1997), education is the most powerful weapon you can use to change the world.

There is compelling evidence that education attainment both in terms of years of schooling and cognitive skills is positively linked to productivity, earnings, and growth. Beyond economic impacts, education also leads to better health, improve resilience to economic shocks, and greater civic participation.

Nigeria got her independence in 1960 and since then its educational sector has always been in a comatose stage despite huge financial resources that have been accrued to her. This downward trend in the quality of education in the country has been attributed to some factors such as low funding, infrastructure, unqualified personnel, and poor educational enrolment in some parts of the country. Hence, the quality and standard of education in Nigeria cannot be compared with what is obtainable in developed and even some developing nations. Nigeria's educational system has been accompanied by structural defects, inefficiency, and ineffectiveness which affect the level and utilization of human capital development in Nigeria. Nigeria's educational system produces graduates with insufficient job skills that the economy needs to remain vibrant. This deficiency has resulted in rising unemployment, decreasing industrial capacity utilization, and social security menaces posed by jobless youths. Insufficient resource input, consequent low output, and over-dependence on government as an

employer of labour are also problems resulting from low literacy levels in Nigeria.

A lot of unsuccessful attempts and efforts have been made by the government and stakeholders in resuscitating and developing the Nigerian educational system. Several policies have been made and different programs have been implemented, but for several reasons, Nigeria's educational system still rates very poorly in most international rankings. In its latest review of Nigeria's educational standing in 2017, UNESCO (2020) has concluded that although progress has been made in Nigeria's education sector with a literacy rate of about 50% which is still below the 80% rate recommended for countries, much more remains to be done, both in quantity and quality. Hence, it remains a fact that the failure of Nigeria's educational system can be attributed to several problems.

First among these problems is the poor quality of our education system and its learning outcomes. The Nigerian educational system requires immediate revalidation and standardization in light of the changing global tides. Several universities in Nigeria are producing graduates that lack the right skills required to perform tasks in needed fields, making it difficult for them to get employed. Academic infrastructures in many of our premier institutions are dilapidated. Nigerian universities are no longer the centres of learning that we once knew them to be, and the country's educational institutions have fallen in the world university rankings. A closer look, for instance at the Times higher education (2021) top 500 universities in the world shows no single university in Nigeria, yet there were schools from South Africa, Egypt and Ghana. This is not good for the giant of Africa. As it stands now, many Nigerian parents are sending their children to other countries to study, spending hundreds of millions of dollars in tuition fees alone at a significant cost. Imagine the impact of investing these funds in our educational institutions.

Second, the academic curriculum in Nigeria's educational institutions is already out-of-date. Many of the curricula were passed down to us by the British colonial masters. Innovation, civilization, and advancement have left it behind. Other governments including some African countries such as South Africa and Rwanda have since moved on to improve their curriculum with the current and practical contents to meet current global challenges. This is not the case in Nigeria, there is over-reliance on paper qualifications rather than skills and what individuals can do. This implies that the knowledge obtained is neither valued in the current dispensation nor able to equip the student for the challenges ahead.

Also important to mention is the problem of corruption and moral decline, which are destroying the integrity and respect of our educational system, and

cheating is at its apex in our education assessment centres. From primary to tertiary institutions, we witness all sorts of examination malpractices, including the leakages of exam papers traceable to the printing press or other person associated with custody of the papers, impersonation, and introduction of textbooks into exam halls. These days, we see some university lectures selling inferior textual materials called "handouts" replacing standard textbooks. On the management side, we see inefficiency in the use of education resources, weak budget management and inadequate accountability which gives room for corruption and mismanagement. World Bank (2017) survey of Nigerian schools found that funds ostensibly disbursed to schools for construction were found to have gone to schools that were not found by the survey team, in some states about 50 per cent of schools that receive this fund have nothing to show for the funds. This is sad and alarming indeed.

Contrary to the popular belief that inadequate funding and inconsistency remain the biggest strong draws back to quality educational outcomes in Nigeria, other factors affect education outcomes which include poor teaching quality, especially in the primary schools, out-of-date curriculum, infrastructure and ethical gaps.

Notwithstanding, researchers from previous studies have excluded the combined effect of infrastructure, information and communication technology, per capita income and corruption on educational outcomes in Nigeria. Therefore, this study will be justified on basis of studying the combined effect of total infrastructure, ICT, per capita income and corruption on education outcomes in Nigeria from the period 2000-2020.

2. LITERATURE REVIEW

Education relates to the process of imparting knowledge, skill, and decision. Education has been defined as a means through which a person obtains the requisite physical and social capacities or competencies needed for the development of society. It is the human resources of any nation, rather than its physical capital and material resources, which ultimately determine the character and pace of economic growth, this assertion is supported by the study of Afolabi and Loto (2009) when they accentuated that a developed economy is delighted of adequate human manpower capable of enhancing the growth of a nation.

Education outcomes simply mean the goals for learning and development upon which higher education programs are based. It is expressed as the adult literacy rate, that is the total number of literate persons in a given age group (15 and above) that can read, write and comprehend, expressed as a percentage of the total population. They are what students should learn, comprehend, and be able to be an educated individual and meet the needs that the future will place on them,

the need of the complex, diverse, and globally interdependent world of the 21st century.

But to yield sustained benefits at the national level, research shows that quality education needs to be more about learning outcomes and skills acquisition than just years of schooling. Hence, regardless of the level of education and academic qualifications obtained by a nation's workforce, if they lack the right techniques and practical skills, they may not contribute significantly to the growth of the economy despite the number of years spent in the classroom.

Underpinning Theory (The Human Capital Theory)

This theory underlines how education improves the productivity and efficiency of workers by enhancing the level of their cognitive abilities. Theodore Schultz, Cary Baker and Jacob Miner (1962) are of the idea that people invest in education to improve their stock of human capital. The concept rests on the belief that formal education is highly instrumental and essential to improving the productive capacity of a population. In short, human capital theorists claim that an educated population is a productive population. The provision of formal education is recognized as an investment in human capital, which supporters of the theory have considered as equally or more advantageous than that of physical capital (Woodhull, 1997).

Human Capital Theory (HCT) believes that investment in human capital will steer to greater economic growth. Historically, economic power was largely dependent on tangible physical assets such as land, plants, and equipment. Labour was an important component, but growth in the value of the business came from investment in capital equipment. New-era economists appear to agree that education and health care are the keys to improving human capital and ultimately increasing the economic outputs of the nation (Becker 1993). The human capital concept emphasizes the importance of education and training as pivotal to participation in the new world economy.

According to Babalola (2003), the reasons behind investment in human capital are founded on three arguments:

1. The new generation must be given the appropriate parts of the knowledge which has already been accumulated by previous generations.
2. The new generation should be taught how existing knowledge should be used to develop new products, introduce new processes and production methods, and social services.
3. People must be encouraged to develop entirely new ideas, products, processes, and methods through creative approaches

Review of Empirical Literature

Gupta, Verhoven, and Tionsan (1999) examined the impact of education and public health care on the educational outcome in developing countries. Ordinary least square techniques applied regression on a cross-section of data from 50 developing and transitional economies. Findings infer that greater government spending on primary and secondary education has a positive effect on widely used measures of education attainment such as gross enrolment in primary and secondary education. Regression values showed that achievements in the education sector are also affected by other factors such as per capita income, urbanization, and adult illiteracy, access to safe sanitation and water, and immunization. This is in line with the findings of Mingat and Tan (1992).

Ojewumi and Oladimeji (2016) assessed the effect of capital and recurrent expenditure on education growth in Nigeria using the OLS approach. The result showed that government expenditure hurt education growth due to the prevalence of corruption in the sector. The study also showed that population growth has a strong positive effect on education.

Obi, Ekesiobi, Dimnwobi, and Mgbemena (2016), in a study on the impact of public spending on education and education outcome, recorded that public spending has a positive effect on education which was measured by primary enrolment rated using the ordinary square method. Included in this study was the effect of per capita income, urbanization, and public spending on health, which had a poor positive relationship with primary enrolment rates.

Fehintola, J. O. (2017) in a study on the evaluation of educational input, process variables and learning outcomes as determinants of quality education in Nigeria, show that curriculum, school-friendly environment, learner support and learners' discipline have a significant effect on education quality in Nigeria.

Adedeji, Joseph and Lateef (2020) carried out a study titled "Is Nigeria experiencing a learning crisis; evidence from curriculum-matched learning assessment?". The study constructed a measure for the quality of education by matching the curriculum with literacy and numeracy assessments based on existing education surveys. Their findings confirm that the Nigerian education system is indeed facing a deep learning crisis.

Uzonwanne, Eze, Nzeribe, Ezenekwe and Ukeje (2020), conducted a study on the assessment of the efficiency of public education expenditures on literacy rate in Nigeria from 1980-2018 using the Autoregressive Distributed Lag (ARDL) bounds testing approach. The result of the study showed a positive but

insignificant relationship between public education expenditure and educational outcomes in Nigeria.

Despite the widespread findings that inadequate funding remains the biggest strong drawn back to the attainment of quality education in Nigeria, other factors affect education outcomes which include poor infrastructure, ICT, per capita income and corruption.

3. METHODOLOGY

This study follows the approach of Dauda (2011) and adopts the general model of Gupta in Verhoeven (1999) & Tiongson (2002). This model shows the relationship between educational outcomes and socio-economic determinants. Educational outcome is specified to depend on infrastructure, ICT, per-capita income, and corruption. The Autoregressive distributed lags (ARDL) co-integration estimation method was chosen for this study. The choice of the ARDL method was because of its flexibility and ability to handle variables with different stationarity levels such as I(0) and I(1) as well as allowing for policy analysis, multiplier analysis, mean and median lag and forecasting. ARDL was used to estimate both the short-run and the long-run parameters.

Specifying the functional form of the model:

$$LTR = F(INF, ICT, PCI, COR) \tag{1}$$

This model is stated mathematically taking the natural logs below:

$$LTR = \alpha INF + \beta ICT + \gamma PCI + \varnothing COR \tag{2}$$

The econometric model is specified below:

$$LTR = \alpha INF + \beta ICT + \gamma PCI + \varnothing COR + \varepsilon \tag{3}$$

Where LTR is Education Outcome (proxied by adult literacy), INFR is Infrastructure as a proxy for

access to electricity, ICT is a measure of internet access, PCI is GDP per capita income, COR is Corruption Index and ε = error term.

Given that we intend to standardize all the variables and interpret the resulting partial slope to be elasticities, the structural form of the equation above is rewritten in log form as follows:

$$LnLTR = \alpha LnINF + \beta LnICT + \gamma LnPCI + \varnothing LnCOR + \varepsilon \tag{4}$$

Based on economic theories, the a priori expectations are specified below:

$$\alpha > 0, \beta < 0, \gamma < 0, \varnothing > 0$$

The ARDL model is of the form:

$$LnTR = \alpha_1 LnINF + \alpha_2 LnINF(-1) + \beta_3 LnICT + \beta_4 LnICT(-1) + \gamma_5 LnPCI + \gamma_6 LnPCI(-1) + \varnothing_7 LnCOR + \varnothing_8 LnCOR(-1) + \varepsilon \tag{5}$$

From the aggregated model above, LnLTR is the explained variable; while the other variables and their lags are the explanatory variables.

4. EMPIRICAL RESULTS AND DISCUSSION OF FINDINGS

The nature of data (time series) used for analysis requires filtering to be far from spurious results and analysis. The reason for this is that regression with non-stationary data can lead to erroneous conclusions (Gujarati, 2013). To perform the stationarity test, the Augmented Dickey-Fuller test by Dickey and Fuller (1979) was employed and the result is summarized in Table 2. Other preliminary tests, descriptive statistics and co-integration tests:

Preliminary Test

Table 1: Summary of descriptive statistics

	LNLTR	LNINFR	LNICT	LNPCI	LNCOR
Mean	3.988059	3.931551	16.41433	7.425487	3.031831
Median	3.933784	3.955082	17.45997	7.614805	3.178054
Maximum	4.251348	4.082411	18.43363	8.038835	3.332205
Minimum	3.913575	3.763987	11.2772	6.342121	2.302585
Std. Dev.	0.093725	0.091842	2.31852	0.529685	0.333311
Skewness	1.455575	-0.32674	-1.03589	-0.93594	-1.20282
Kurtosis	4.181791	1.980114	2.725936	2.539131	3.073744
Jarque-Bera	8.637499	1.283807	3.821433	3.251775	5.0685
Probability	0.013317	0.52629	0.147974	0.196737	0.079321
Sum	83.74924	82.56257	344.701	155.9352	63.66846
Sum Sq. Dev.	0.175686	0.168698	107.2634	5.61133	2.219288
Observation	21	21	21	21	21

Source: Researchers' computation using E-views10

The above table depicts the descriptive analysis of all included variables in the model; the mean value of literacy rate (LNLTR), Infrastructure (LNINFR), ICT (LNICT), Per capita income (LNPCI)

and Corruption (LNCOR) are 3.98, 3.93, 16.41, 7.42, and 3.03 respectively. The standard deviation which reveals the measure of the variability of the variables from their respective long-term mean values annually is

0.093, 0.091, 2.325, 0.529, and 0.333 respectively. Finally, the respective variables show a positive kurtosis with the value of 4.18, 1.98, 2.72, 2.53, and 3.07 respectively.

Unit root test result to determine the stationary of the variables is shown below;

Table 2: Summary of unit Root Test Results

Variables	ADF Statistics	Critical Values	Level %	Order of integration
LnLTR	-6.450495	-3.831511	5	1(1)
LnINF	-5.003620	-3.658446	5	1(0)
LnICT	-5.003620	-3.658446	5	1(0)
LnPCI	-4.554919	-3.759743	5	1(1)
LnCOR	-4.436680	-3.791172	5	1(1)

Source: Researchers' computation using E-views10

From Table 2, the Natural log of literacy rate, per-capita income and corruption were integrated into order one and these variables were significant at 5%. On the other hand, the Natural log of infrastructure and ICT were integrated of order zero; and the results were significant at 5% levels.

Considering the above result, it is very obvious that these variables are inexperienced in disequilibrium in the short run. Here, the only means to ascertain whether or not there is long-run co-integration is the Pesaran, Shin and Smith (2001) approach to co-integration; widely referred to as the "bounds test" or the autoregressive distributed lag (ARDL) model

Table 3: Cointegration Test: ARDL Bound Test Results

F-Bounds Test		Null Hypothesis: No levels of relationship		
Test Statistic	Value	Signif.	I (0)	I(1)
F-statistic	7.841998	10%	3.03	4.06
K	4	5%	3.47	4.57
		2.5%	3.89	5.07
		1%	4.4	5.72

Source: Researchers' computation using Eviews 10.0

From Table 3, both the lower (3.47) and the upper (4.57) are less than the value of the F-statistic (7.84) at a 5% level. This show that the null hypothesis of no long-run relationship is rejected at a 5% significance level, so we conclude that the variables

(INFR, ICT, PCI, COR) under consideration are co-integrated in the long run.

Long Run Coefficient Estimates: Having established the existence of co-integration, the conditional ARDL for long run relationship is presented below

Table 4: Long run Estimates Coefficient using ARDL model, LNLTR as Dependent Variable

Variables	Coefficient	Std. Error	t-statistics	Prob
LnINF	1.759704	0.727257	-2.419646	0.0461
LnICT	-0.047303	0.050840	-0.930431	0.0831
LnPCI	0.085656	0.142937	0.599259	0.5679
LnCOR	-0.086129	0.116702	-0.738021	0.4845

Source: Researchers' computation using E-views10

As expected, the long-run estimates show that infrastructure (INFR) and per capita income (PCI) has a positive influence on educational outcome in Nigeria. This show that a percentage increase in infrastructure and per capita income on average will result in about a 1.78, and 0.08 increase in literacy rate respectively in the long run; on the assumption that other factors are held constant. Information and communication technology has a negative impact on educational outcomes in Nigeria this is because the education sector has not been fully incorporated with the recent development in ICT. However, corruption (COR) has a negative impact on education outcomes; this means that

any percentage decrease in corruption will lead to a 0.08 per cent increase in literacy rate. Consequently, in the long, as represented in the table, only the natural log of infrastructure (LnINFR) proxied by access to the power supply is statistically significant. This is rational given the ugly situation of Nigeria's educational outcomes which have not shown any significant improvement despite various interventions of the government and individuals in the sector over time.

Short-Run Estimate Using the ARDL Approach: The study examined the pressure of the estimated long-

run equilibrium on the short-run dynamics using the error correction model.

Table 5: Short Run ARDL Model

Variables	Coefficient	Std. Error	t-statistics	Prob
C	12.08129	1.608909	7.508997	0.0001
@TREND	0.068488	0.007595	9.017927	0.0000
D(LNINFR)	-0.477594	0.217534	-2.195496	0.0642
D(LNINFR(-1))	0.679462	0.215430	3.153977	0.0161
D(LNICT)	-0.026004	0.065569	-0.396595	0.7035
D(LNICT (-1))	0.330138	0.056841	5.808123	0.0007
D(LNPCI)	0.589960	0.111358	5.297850	0.0011
CointEq(-1)*	-1.147403	0.146174	-7.849567	0.0001
R-Squared	0.901109			
Adjusted R-Squared	0.838179			

Source: Researchers' computation using E-views10

The results of the short-run dynamics associated with ARDL models are reported in the table above. The coefficient of the error term CointEq (-1) shows the speed of adjustment from short run to long run for all the models. The coefficient of the error correction model (-1.1474) is negative and statistically significant at 5% which means that the variables would converge to long-run equilibrium. The test of goodness of fit shows that about 90.1% of variations in the dependent variable are explained by the variations in the independent variables while the rest of the variation is explained by the variables not included in the model. The adjusted R^2 also laid credence to the result of the goodness of fit with 83.8%. From the short-run estimates, although the current level log of both

infrastructure and ICT were negatively insignificant, its one-year lagged values were shown to be significant. Thus a 1% increase in both values (LnINF, LnICT) on average will result in both increases of 68% and 33% in Literacy level (LnTR) in the short run respectively. However, the current level per-capita income (LnPCI) also had a positive relationship with the Literacy rate. Such that, a 1% increase in the natural log of per-capita income on average, ultimately brought about a 59% increase in Literacy level in the short run.

Residual Diagnostic Result: the estimated model is tested for correlation, heteroskedasticity, normality and stability.

Table 6: Residual diagnostic-based test on the component of ARDL models

Test	Statistics	P value
Serial Correlation	1.028469	0.4226
Breusch-Godfrey LM test		
Heterskedasticsticity	1.953797	0.1919
Breusch-Pagan-Godfrey		
Normality	0.714318	0.669661

Source: Researcher's computation using E-views 10

Finally, the model is a reliable one as shown by the joint results of serial correlation, heteroscedasticity, and Normality tests. From the table above, the probability value of both the F-statistic in both serial correlation and heteroscedasticity results were above 0.05 level of significance. Undoubtedly, we accept the null hypothesis (H_0) in both scenarios which states that there's no serial correlation and no heteroscedasticity in the model. More so, the residuals are normally distributed (the probability value of Jaque-Bera statistics of 0.7143 is greater than 5%). Thus, the model is stable and can be used for prediction and forecasting.

5. CONCLUSION AND RECOMMENDATIONS

This study examined the effects of socioeconomic determinants on educational outcomes in Nigeria. Based on the findings of this study, it was

seen that infrastructure proxied by access to electricity and per capita income has a positive effect on educational outcomes in Nigeria. Information and communication technologies (ICT) have a negative and insignificant effect on educational outcomes in Nigeria which means that the education sector has not been fully incorporated with the recent development in ICT, the little introduced to the sector has not been effective and productive as expected. As expected, the study also shows that corruption has a negative effect on education outcomes in Nigeria. This is evidenced by the poor quality of graduates, high rate of cultism, sex for marks and high rate of mismanagement. Several factors such as infrastructure, information and communication technologies (ICT), Per capita income, and corruption were identified as being important in determining education outcomes in Nigeria. Therefore,

policymakers must take note of these recommended policies which will give a good and favourable result.

Based on our findings and conclusions from our study, the following recommendations were made using Nigeria as a case study and they include:

- Emphasis should be shifted from “Education for all” to “learning for all”, the government and stakeholders should not only make education accessible to all, but they should also make policies to improve the quality of education through the provision of basic infrastructure and the needed technology to aid learning.
- We need to educate our population to have the required skills and competencies in the strategic sectors of the economy such as agriculture, mining, manufacturing and other sectors that are important to our economic growth. We need to equip our workers with the technical and vocational skills needed in our country.
- The education curriculum in Nigeria has to go past the stage of basic computer literacy. Initiatives such as information technology for everyone and the one laptop per child project will enrich the quality of teaching and improve the ease of transfer of knowledge to students.
- More importantly, we need a change in our values and morals. the moral decadence in our educational system needs to be stem, we need to teach our wards the difference between right and wrong, and we need to instil in them the will for self-development as the only path to success so that they will not rely on examination malpractice, and for these parents and guardian should play a bigger role.

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