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Public Social Expenditure Mix and Economic Growth in Nigeria

Nwodo, Ozoemena Stanely
Department of Economics, University of Nigeria, Nsukka

Ukaegbu, Chika
Department of Economics, University of Nigeria

Abstract
Armed with the need for optimum balance in Nigerian government expenditures on social sector of the economy and the need to find out economically why the effect of the increasing government expenditures is not reflecting on the economic development of Nigeria in comparison with other economies with even less social spending, this study was carried out to find out the interaction effect of education and health expenditure on economic growth. Secondary data from CBN statistical bulletin and World Bank was used for the estimated using the Autoregressive Distributive Lag model (ARDL) and the study found that though the interaction term is highly significant, it is negative, even, in the midst of positive individual effect of education expenditure and health expenditure on economic growth in Nigeria. This is a wide prove that the current mix of education and health expenditures in Nigeria is harmful to the economy and there is an urgent need to fashion out a better mix if possible. There is also a need for to establish an optimum education and health expenditure mix, since, the current mix has been found to be statistically significant.
Keywords: education expenditure, health expenditure, economic growth, interaction, government expenditure

1. INTRODUCTION

Education and health play a very critical role in the road to economic and social development of any nation. From any angle it is viewed, the education and health sectors are so indispensable in human and economic development as they support the production and motivation of the highly needed trained manpower and also they are the prerequisites for the attainment of a country's economic development. No wonder the Sustainable Development Goals placed human capital development as a priority in achieving the goals.

Education and health are indispensable factors in determining the quality of human capital. No wonder, Hartshorne (1985) and Olayiwola (2007) opined that formal education plays a key commendable role in economic growth. As a result, the human capital with physical infrastructure, are key prerequisite of any development in a country. Human capital is considered an independent input of production that is basic to attaining a high and a sustainable economic growth rates. Therefore, developing nations have tried differently to ensure improvement in their human capital base through public education and health expenditures as well as government spending on other social services.

Most works on this field such as Yesufu (2000), Sakthivel & Inder Sekhar (2007) and Adamu (2003) assume that education and health develop and improve the human capacity and subsequently grow the economy. There is also an empirical evidence of the positive relationship between public social spending and economic growth. However, a good number of developing countries suffer from poor expenditure on education and health care. The majority of public expenditure on human capital development tends to go towards education as if education is the only component of human capital development. (Griffin and McKinley, 1992)

There has been mixed reactions on the relationship between the variables of public social expenditure (education and health) in finance literatures. Few researchers are of the opinion that an optimum interaction of the public social expenditure will ultimately ensure sustainable economic growth in the long-run.

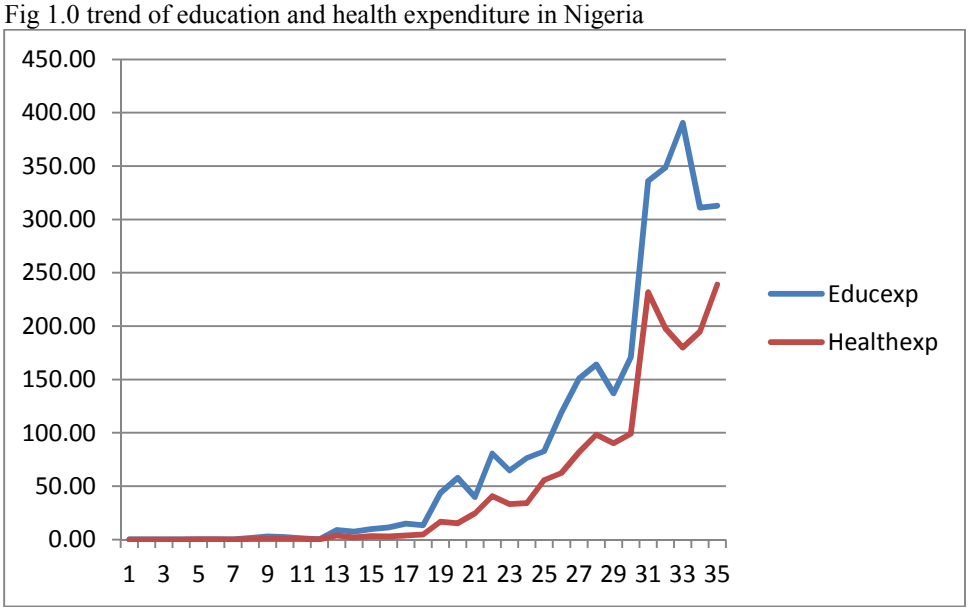
Nigeria, one of the countries of the continent of Africa with a population of over 180 million people has evolved in terms of public social expenditure. There has been slight increase in the public social expenditure over the years as public expenditure on education and health in Nigeria indicated on the table below:

Table 1.0: public expenditure on education and health (in billions)

Year	Educexp	Healthexp	%of healthexp to Educexp
1981	0.17	0.08	47.0
1985	0.26	0.13	50
1990	2.40	0.50	20.8
1995	9.75	3.32	34.1
2000	57.96	15.22	26.3
2005	82.80	55.66	67.2
2010	170.80	99.10	58.0
2015	312.70	238.92	76.4

Source: CBN, 2015

Fig 1.0 trend of education and health expenditure in Nigeria



Source: CBN, 2015

From the table and diagram above, it can be observed that all the human capital development expenditure in Nigeria has been trending upward, as there has been a steady increase in both the health and education expenditures in Nigeria. From the table, education expenditure has increased from 0.17 billion naira in 1981 to 312.70 in 2015 and the health expenditure has equally increased from 0.08 billion in 1981 to 238.9 billion naira in 2015. This is a commendable increase and a show of commitment on the part of subsequent government to boost the human capital of the country. However, despite these huge expenditure on education and health, the Nigeria human development indicators has remained one of the worst in the world as Nigerian is ranked 157 out of 188 countries in 2015.(World Data Atlas). The index has remained 0.50 for over five years now making Nigeria to be better than just about 30 countries in the world in terms of human capital development. Also, despite the increasing spending on education and health, the GDP per-capital of Nigeria of Nigeria has been dwindling over the years as it has remained 2,640.29 USD in 2015 against that of South Africa which is 5,691.69 USD , Seychelles $15,400 and Equatorial Guinea of about $ 10,000 (WDI, 2015). This has raised lots of the question on the reason for the dwindling figures as there has been increment in the social expenditure of the government whose impact it seems is not being felt in the economy.

However, it is important to note that a very striking revelation from the table 1.0 above is the fact that expenditure on education has remained higher than that of health in Nigeria and that the percentage of health expenditure to that of education expenditure has not been stable; it has been fluctuating over time. This calls for a greater concern as it depicts the need for an optimum balance in the education and health expenditure in the country. Therefore, what amount of health expenditure is needed in the system to augment the education expenditure that will boost the economic growth in the country? Does interacting educational expenditure and health expenditure pose any effect on the economy? If at all there is a significant interaction effect of educational expenditure and health expenditure on economic growth in Nigeria, there is also the need for more effort by researchers to find out this optimum balance between education expenditure and health expenditure and how it should be implemented. These are questions this study tends to attempt answers to.

2. LITERATURE REVIEW

2.1 New Growth Theory

The new growth theories also known as the endogenous growth theories are focused on the unrealistic nature of some of the assumptions of neoclassical growth theories and endogenized some parameters that were exogenized by the neoclassical growth theory. However, unlike the neoclassical growth theories that assume that capital accumulation experience diminishing returns, the endogenous growth theories proposed that capital accumulation (physical and human capital) do not experience diminishing returns to scale. Consequently, the growth process in the context of the endogenous growth theory is driven by the accumulation of broad capital together with the production of new knowledge via development and research.

The endogenous growth theories began with the work of Romer (1986) who abandoned the assumption of diminishing returns to capital accumulation of the neoclassical growth model and broadens the concept of capital accumulation to include investment in knowledge as well as physical capital assets. He constructed an alternative model of growth where the long run growth of income per capita depends on investment decisions not

the unexplained technological progress. Again, technological progress is endogenous in the Romer's growth theory in contrast to the traditional neoclassical growth theory where technology is exogenous (Romer, 1990).

Romer assumed that firms operate on a constant return to scale, perfect competition and it matches the assumption of the Solow model; but differs from Solow model by assuming that the economy wide capital stock positively affects output at the industry level which would lead to increasing returns to scale in the aggregate production function and that aggregate output in the Romer's model depends on capital, labour and technology.

The growth of knowledge or technology depends on the growth of capital because capital accumulation enhances technological spillovers that improve the productivity of capital. So any increase in the size of capital stock (K) will improve technology (A) and hence the productivity of all firms. (Romer, 1986)

2.2 Empirical Literature

A good number of works have been done in the area of public expenditure in Nigeria probably due to the critical nature of public expenditure and its effect on the economic growth of Nigeria. Among these works include that of Ayuba (2014) who examined the causal relationship between public social expenditure (education and health) and economic growth in Nigeria for the period 1990 to 2009 by applying the Vector Error Correction (VEC) Model Based Causality. The study found that there is unidirectional causality between health expenditure and economic growth and also bidirectional causality between economic growth and education expenditure. Based on the findings, the study recommends among others that there should be increase in budgetary allocations both for education and health sectors, exploring other sources of financing education in Nigeria such as strengthening the education tax collection mechanisms, accessing donations from international agencies such as the United Nations, The International Monetary Fund.

Also, Obi, Ekesiobi, Dimnwobi and Mgbemena (2016) studied government education spending and education outcome in Nigeria. Applying the Augmented Dickey Fuller (ADF) unit root test and Ordinary Least Square (OLS) technique, the study found that public education spending positively and significantly affect education outcome in Nigeria. Public health expenditure and urban population growth also positively affects education outcome. Based on the findings, the study recommends among other things, that government should spend more on education which needs to be targeted for the desired effects to be realized.

Ojewumi and Oladimeji (2016) studied the effect of government funding on the growth of education in Nigeria. It divided government funding on education into recurrent and capital funding and applied the ordinary least square in checking the link between school enrolment and educational spending and found that impact of both capital and recurrent expenditure on educational growth were negative in Nigeria for the period under study, therefore, the authors recommended that the government should check corruption in the education sector to ensure that funds meant for education especially capital expenditure in the sector are judiciously appropriated.

Eneji, Juliana and Onabe (2013) tried to establish the relationship between healthcare expenditure, the health status and national productivity in Nigeria. The study combined the use of primary data and secondary data in an OLS and descriptive study and found a weak causal relationship between healthcare expenditure and health status in Nigeria. The study therefore recommended among others a universal healthcare coverage a system where everyone can access healthcare.

Ebong, Ogwumike, Udongwo and Ayodele (2016) tried to assess the impact of government capital expenditures on economic growth in Nigeria during using a multiple regression Ordinary least square technique and an error correction mechanism and found that Government capital expenditures had differential effects on economic growth that both on the short run and long impact of educational expenditure on economic are positive and significant. Based on the findings, the authors recommended that there is need to strengthen the quality and sustainability of capital expenditures in Nigeria.

Ogungbenle, Olawumi and Obasuyi (2013) studied relationship among life expectancy, public health spending and economic growth in Nigeria. Applying a VAR model the study found there is no bidirectional causality between life expectancy and public health spending in Nigeria, therefore based on the findings, the authors recommended among others that there is need to place measures that would boost the life expectancy of Nigerians by increasing public health expenditure in Nigeria.

Olulu, Erhieyovwe and Andrew (2014) investigated the empirical relationship between government expenditure and economic growth. Government expenditure was disaggregated unto, total expenditure, public debt expenditure, expenditure on health and government expenditure on Education. The ordinary least square (OLS) was applied and the Augmented Dickey Fuller (ADF) test was used to test the stationarity of the variables. The findings showwed that there is an inverse relationship between government expenditures on health and economic growth and government expenditure on education sector is seen to be insufficient to cater for the expending sector in Nigeria. Based on the findings, the authors recommended that government should spend more on key macro-variables to boost the growth of the economy.

Umorua and Yaqubb (2013) test of the relationship between private and public health expenditures in Nigeria using a GMM approach. They found a complementarity of inputs between public and private health

expenditures in Nigeria that is an indication that government health investment plans crowd in private health investment spending. The authors therefore recommended that appropriate regulatory measures should be implemented by the government to ensure efficiency.

Bashir (2016) tried to assess the impact of government expenditure on social service in Nigeria with emphasis on health sector performance using a secondary data from CBN. The author applied Pearson moment rank correlation and found that government expenditure is negatively and significantly related to infant mortality implying that an increase in government budget to the health sector can cause a decrease in the rate of infant mortality.

Edame and Eturoma (2014) studied the Determinants of public expenditure on Infrastructural facilities in education and economic growth in Nigeria with the use of an ordinary least square technique on secondary data. The results of the analysis showed that public expenditure on education has a significant impact on economic growth.

Odior (2014) examined the likely impact of government expenditure policy on education and poverty reduction in Nigeria the study tried to explore or simulate how government expenditure on education would help to meet the Millennium Development Goals (MDG). Applying a dynamic computable general equilibrium (CGE) model, the result indicates that it will be extremely difficult for Nigeria to achieve the MDG target, in terms of education and poverty reduction by the year 2015, because this policy measure in the analysis was unable to meet this goal. Based on the result, It was recommends that in order to achieve the MDG in both education and poverty reduction poverty, investment in education service should receive the highest priority in the public investment portfolio.

Innocent, Job, Okeke, and Aondo (2017) studied the relationship between human capital development and government expenditure with ARDL model and found that that a long run relationship exists between HDI and GOVEXP, hence, the authors recommended that government spending should largely be focused on human development through specialized high technology-driven schools and efficient and effective health facilities.

Bakare and Sanmi (2011) investigated the relationship between health care expenditures and economic growth in Nigeria with the use of Ordinary least square method and found that a significant and positive relationship between health care expenditures and economic, based on which the authors recommended among others that Nigerian policy makers should pay closer attention to the health sector by increasing its yearly budgetary allocation to the sector.

Finally, based on the empirical review of the related literature above, it can be deduced that though much works have been done in the area of education and health expenditure in Nigeria with virtually all the works arriving at a similar results, none of the works reviewed has delved into finding if there is the possibility of founding an optimal education and health expenditure mix or if the possibility of finding the interaction effect of education and health expenditure on economic growth in Nigeria. This is the thrust of this study; to find out the interaction of effect of education and health expenditures on economic growth in Nigeria applying the ARDL methodology.

3. METHODOLOGY

3.1 Theoretical Framework

The AK model of Rebelo (1991) applied by Nwodo and Asogwa (2017), is applied as the theoretical framework of the study. The model is a new growth model which was propagated to address the weaknesses of the neoclassical growth models. In the model output is a function of capital stock and factor productivity. That is

$Y = AK_t$ - - - - - - - - - - -3.1

Where Y is the aggregate output, A is total factor productivity and K is capital stock. The transformed AK model according to Nwodo and Asogwa (2017) looks as:

$g = A\left(\frac{I}{Y}\right) - \delta = \emptyset s - \delta$ - - - - - - - - -3.2

Here g is the growth rate of output

A is the total factor productivity

δ is the rate of depreciation

$\emptyset$ is the proportion of savings converted to investment and it is the efficiency of financial intermediation

s is the savings rate

I is change in capital.

Opening the economy, we incorporated capital inflow and derived the steady state growth rate as

$g^* = A^*\frac{I^*}{Y} - \delta = A^*\emptyset^*\left(\frac{S+NCF}{Y}\right) - \delta = A^*\emptyset^*(s + ncf)^* - \delta$ - - - - -3.3

Where NCF is net capital flow.

Transforming equation 3.3 to an empirical specification incorporating trade openness and other growth macroeconomic variables into the model to have:

$\Delta Y_t = \alpha_0 + \beta_{1i}\Delta Z_{it} + \beta_{2i}\Delta CF_{it} + \beta_3 \Delta OPEN_t + e_t$ -- - - - -3.4

Where ΔY_t = is the real output growth rate, Z is other growth conditioning variables which include fiscal and monetary policies (where education expenditure and health expenditure falls) which can cover for the total factor productivity (A) in the AK model, CF is capital inflow variables and OPEN is trade openness.

3.2 Model Specification

Based on the above transformation and theoretical backing adopted from Nwodo and Asogwa (2017) we specify the models as follows:

LRGDP=F(PSC, FDI, OPEN, EDUEXP, HEALTHEXP, EDUCEXP*HEALTEXP)- 3.5

Econometrically, 3.5 is transformed to be

$LRGDP = \beta_0 + \beta_1 PSC + \beta_2 LFDI + \beta_3 OPEN + \beta_4 EDUEXP + \beta_5 HEALTHEXP + \beta_6 EDUCEXP * HEALTHEXP + \mu$ - - - - - - - 3.6

Where

LRGDP = log of Real GDP growth (a proxy to economic growth)

PSC = Credit to Private Sector

LFDI = log of foreign direct investment

OPEN= Trade openness.

EDUEXP= Government total Expenditure on Education

HEALTHEXP = Government total expenditure on health

The inclusion of the interaction term is to estimate the influence of health expenditure on the effectiveness of education expenditure. In other words, the interaction effect of education and health expenditures on economic growth in Nigeria.

3.3 The Autoregressive Distributive Lag (ARDL) Model.

ARDL according to Nwodo and Asogwa (2017) is a least squares regression containing lags of the dependent and explanatory variables. It is mainly indicated with the notation ARDL($p, q_1 \ldots, q_k$), where 'p' denotes the number of lags of the dependent variable, q_1 is the number of lags of the first explanatory variable, and q_k is the number of lags of the k-th explanatory variable.

Developed by Pesaran and Pesaran (1997), and used by Nwodo and Asogwa (2017), Owusu (2012), Orji (2014), Saibu (2014) among others, ARDL is employed in this study to measure the interaction effect of education and health expenditures on economic growth in Nigeria. The use of ARDL is basically to address the endogeneity problem in the model, Based on this, the equation 3.6 is estimated as follows

$$\Delta LRGDP_t = \alpha_0 + \sum_{i=1}^{p} \delta_i \, \Delta LRGDP_{t-1} + \sum_{i=1}^{p} \in_F \Delta PSC_{t-k} + \sum_{i=1}^{p} \varphi_m \, \Delta FDI_{t-m} + \sum_{i=1}^{p} \Psi_n \, \Delta OPEN_{t-n} + \sum_{i=1}^{p} \varrho_o \, \Delta EDUEXP_{t-o} + \sum_{i=1}^{p} \vartheta_p \, \Delta HEALTHEXP_{t-P} + \sum_{i=1}^{p} \tau_p \, \Delta EDUEXP_{t-P} * \Delta HEALTHEXP_{t-p} + \lambda_1 LRGDP_{t-1} + \lambda_2 PSC_{t-1} + \lambda_3 FDI_{t-1} + \lambda_4 OPEN_{t-1} + \lambda_5 EDUEXP_{t-1} + \lambda_6 HEALTHEXP_{t-1} + \lambda_7 EDUEXP_{t-1} * HEALTHEXP_{t-1} + \mu_t - -3.7$$

Where α_0 and μ_t represent the drift component and the white noise respectively. The terms with the summation signs in the equation represents the error correction, while their parameter coefficients indicates the short run effects and the lambda (λ) represents the corresponding long run relationship.

4.RESULTS

4.1 Unit root tests and the order of integration

Table 4.1 below shows the summary of the unit root test result for the series. The Philip Peron test was used. The bandwidth for the PP tests were determined using the Bartlett-kernel procedure. The result indicates that all other variables were non-stationary, since their absolute value of Philip Peron test statistic exceeded the critical value only at first difference. Hence, most of the variable became stationary at first difference and this enabled the use of the error correction model in the autoregressive framework. The result also indicated that none of the variables is I(2) which further necessitated the use of ARDL model for the study.

Table 4.1: Summary of Philip Peron Unit root test result of the series

Variables	Test Critical Values (5% Level)	1st Difference Philip Peron test stat	Order of integration
LRGDP	-3.442712	-4.778692	I(1)
EDUCEXP	-3.442712	-5.140110	I(1)
HEALTHEXP	-3.442712	-4.932423	I(1)
PSC	-3.442712	-5.500183	I(1)
LFDI	-3.442712	-7.779786	I(1)
OPEN	-3.442712	-5.500183	I(1)
HEALTHEXP*EDUCEXP	-3.442712	-4.818706	I(1)

The result of the table 4.1 above, proved that none of the variables is I(2) and that the variables are all I(1) which is one of the major conditions to use ARDL estimation technique as those variables that were not stationary were differenced to get rid of the stochastic trend, a phenomenon associated with time series data (Nwodo and Asogwa, 2017)

4.2 ARDL Bound Test

To test if there is a long run relationship among the variables of the study we apply the The Autoregressive Distributed Lag (ARDL) bound testing approach (Pesaran and Shin, 1999) . The critical value of the ARDL Bound testing is based on the selected lag length; for this reason, the optimal lag (p) is determined empirically based on Hannan Quinn Criterion (HQC).

Table 4.2: the ARDL bound test

Test Statistic	Value	K
F-statistic	4.670321	6
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

From the result on table 4.2 above, it can be viewed that the bound test F-statistics of 4.67 is greater than the upper bound critical value 3.61 at 5% level of significance. This indicates that there is a long run relationship among the variables. And this results qualifies us to move on with the estimation of the long run and shot run form of the ARDL model.

4.3 Estimation Results for the model

Table 4.3: **Estimated Long-run Coefficients Based on ARDL (**3, 6, 1, 0, 5, 5, 5**)**

Regressor	Coefficient	Standard Error	t-Statistics	p-Value
Dependent Variable: LRGDP				
LFDI	0.068701	0.008331	8.246505	0.0000
PSC	-0.000010	0.000014	-0.736234	0.4633
OPEN	-0.980382	1.582920	-0.619350	0.5371
EDUCEXP	0.002890	0.001249	2.313124	0.0227
HEALTHEXP	0.009826	0.002097	4.684911	0.0000
HEALTHEXPEDUCEXP	-0.000023	0.000004	-6.377701	0.0000
C	9.665078	0.019349	499.520330	0.0000

Notes: R^2 =0.790779
Adjusted R^2 = 0.727192
S.E of regression = 0.006379
F-statistics = 12.43620
Prob(F-statistics) = 0.0000
Durbin Watson = 2.043362

Based on table 4.3 above, the long-run elasticity on RGDP with respect to FDI in Nigeria is positive as

expected. The long-run impact of education expenditure on LRGDP is positive and indicates that one naira increase in education expenditure increase real gross domestic product by about 0.29 percent, holding all other factors constant. This result is statistically significant. Also, the result indicates a positive long run relationship between RGDP and health expenditure in Nigeria. That is, a naira increase in health expenditure in Nigeria increases REGDP by about 0.98 percent (i.e.0.0098X100) and the result is also significant statistically. Despite the above positive results of both health expenditure and education expenditure on economic growth separately, the interaction of the two variables indicates a negative significant result in the long run. The result shows that interacting health expenditure and education expenditure in Nigeria by one naira, decrease economic growth by 0.002 percent. This striking result indicates that the current mix of education and health expenditure in Nigeria has not been helpful to the economy, no wonder, despite the consistent increment in the expenditures on health and education, Nigeria is still poorly developed.

The findings of the effect of education expenditure and health expenditure on economic growth in Nigeria is in line and in agreement with the findings of Bakare and Sani (2011) and Ebong, Ogwumike and Ayodele (2016) who found a positive impact of the expenditures on economic growth, while, it is contrary to the findings of Bashare (2016) and Olulu, Erviyovwe and Andrew (2014) who found negative impact of the expenditures on economic in Nigeria.

The result of the interaction term seems to be the first of its kind in human development studies in Nigeria and it calls for further studies and questioning on the best expenditure mix for Nigeria. That is, since the interaction term is significant in Nigeria, there is need to find the optimum expenditure mix for Nigeria which will help to guide subsequent governments on expenditure on key areas of the economy.

The coefficient of determination R^2 measures the goodness of fit of the fitted regression line to a set of data. From the model, the R^2 value of 0.790779 shows that about 79 percent of the variations in the dependent variable (REGDP) is explained by variations in the model (Independent variables) this is reasonably okey as it is above 50 percent. Likewise, the F statistics probability of 0.000000 shows that the independent variables are jointly statistically significant and therefore reliable. While the Durbin Watson value of = 2.043362 shows the regression is not spurious.

Table 4.4: Short run Results and Diagnostics Tests

Dependent Variable: LRGDP				
Regressor	Coefficient	Standard Error	t-Statistics	p-Value
D(LRGDP(-1))	0.543170	0.082872	6.554309	0.0000
D(LRGDP(-2))	0.176887	0.077864	2.271753	0.0252
D(LFDI)	0.008273	0.004490	1.842554	0.0683
D(LFDI(-1))	-0.007132	0.006562	-1.086855	0.2797
D(LFDI(-2))	0.002989	0.005251	0.569241	0.5704
D(LFDI(-3))	-0.030063	0.006324	-4.753746	0.0000
D(LFDI(-4))	0.043633	0.008167	5.342635	0.0000
D(LFDI(-5))	-0.016716	0.004828	-3.462564	0.0008
D(PSC)	-0.000010	0.000005	-1.866423	0.0649
D(OPEN)	-0.059522	0.096385	-0.617545	0.5383
D(EDUCEXP)	0.000311	0.000125	2.477116	0.0149
D(EDUCEXP(-1))	-0.000141	0.000207	-0.680156	0.4979
D(EDUCEXP(-2))	-0.000073	0.000205	-0.356535	0.7222
D(EDUCEXP(-3))	0.000291	0.000209	1.393883	0.1664
D(EDUCEXP(-4))	-0.000397	0.000141	-2.809809	0.0059
D(HEALTHEXP)	0.000486	0.000284	1.711650	0.0900
D(HEALTHEXP(-1))	-0.000042	0.000367	-0.114418	0.9091
D(HEALTHEXP(-2))	-0.000023	0.000367	-0.061616	0.9510
D(HEALTHEXP(-3))	0.000759	0.000409	1.858074	0.0660
D(HEALTHEXP(-4))	-0.001036	0.000281	-3.688669	0.0004
D(HEALTHEXPEDUCEXP)	-0.000002	0.000001	-2.929195	0.0042
D(HEALTHEXPEDUCEXP(-1))	0.000000	0.000001	0.457998	0.6479
D(HEALTHEXPEDUCEXP(-2))	0.000000	0.000001	0.332438	0.7402
D(HEALTHEXPEDUCEXP(-3))	-0.000002	0.000001	-1.512809	0.1334
D(HEALTHEXPEDUCEXP(-4))	0.000002	0.000001	3.368700	0.0011
CointEq(-1)	-0.060713	0.013033	-4.658403	0.0000
Diagnostic Tests				

Test	F-statistics	Prob. Value
χ^2 SERIAL	0.097254	0.9074
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.442724	0.9944
χ^2 REMSAY	0.074511	0.7854

Table 4.4 above reports the results of short-run dynamics of education expenditure, health expenditure and real GDP in Nigeria. The negative statistically significant estimate of CointEq(-1) validates the established long run relationship among real GDP, log of foreign direct investment, trade openness, private sector credit, education and health expenditure and the both interaction terms in the model in Nigeria. The results also indicate that the estimate of CointEq(-1) is -0.060713 and is statistically significant at 5 per centlevel. This implies that about 6 percent of the deviations from long run equilibrium are corrected for in the next quarter period.

The diagnostic test on the table also indicates there is no problem of serial correlations, heterscedasticity and mis-specification error.

5.CONCLUSION AND RECOMMENDATION

This study was necessitated by the need for optimum balance in government expenditures on the social sector of the economy and the need to find out economically why the effect of the increasing government expenditures is not reflecting on the economic development of the nation in comparison with other economies that even spend less on social factors. Based on this, the study applied secondary data obtained from the Central Bank of Nigeria statistical Bulletin and World Bank websites ranging from 1981 to 2015 to study the interaction effect of education and health expenditures on economic growth in Nigeria.

Using ARDL, the study found that though the interaction term is highly significant, it is negative, even, in the midst of positive individual effect of education expenditure and health expenditure on economic growth in Nigeria. This is a wide prove that the current mix of education and health expenditures in Nigeria is harmful to the economy and there is an urgent need to fashion out a better mix if possible, there is also a need to establish an optimum education and health expenditures mix, since, the current mix has been found to be statistically significant.

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