FINANCING HUMAN DEVELOPMENT FOR SECTORIAL GROWTH: A TIME SERIES ANALYSIS

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DOI: 10.1515/tjeb-2017-0004

The role which financing human development plays in fostering the sectorial growth of an economy cannot be undermined. It is a key instrument which can be utilized to alleviate poverty, create employment and ensure the sustenance of economic growth and development. Thus financing human development for sectorial growth has taken the center stage of economic growth and development strategies in most countries. In a constructive effort to examine the in-depth relationship between the variables in the Nigerian space, this paper provides evidence on the impact of financing human development and sectorial growth in Nigeria between 1982 and 2016, using the Johansen co-integration techniques to test for co-integration among the variables and the Vector Error Correction Model (VECM) to ascertain the speed of adjustment of the variables to their long run equilibrium position. The analysis shows that a long and short run relationship exists between financing human capital development and sectorial growth during the period reviewed. Therefore, the paper argues that for an active foundation for sustainable sectorial growth and development, financing human capital development across each unit is urgently required through increased budgetary allocation for both health and educational sectors since they are key components of human capital development in a nation.

Keywords: Human capital, Development, Sectorial, Education, Health

JEL Classification: E23, O11, O15

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1. Introduction

The concept of human development emerged in 1990, when the United Nations Development Program (UNDP) launched a report using human development index contrary to the well-known GNP per capita as a measure of well-being. At present, the concept is used to explain the nature of people’s education, sound health and level of gender inequality, as well as poverty growth rate, and water sanitation (which is assumed as an environmental factor affecting the welfare of people in a nation). While the concept of human development has generated different definitions, ranging from the capability to function as a human being to social freedom, there are other dimensions to human development that have been developed to show the need for empowerment of the people. As it were, there are various theoretical arguments that tend to question the accuracy of the Human Development Index (HDI) as a means of measurement, and the extent to which such measurement can be accepted to reflect the level of development of (these) countries.

While the motivation behind this paper is to clarify whether the production and distribution of welfare is embedded in the GNP per capita or can be reflected by the HDI, it also queries the process of widening people’s choice, improving their health, enhancing their knowledge as well as the contribution to sectorial productivity. While we acknowledged the report by United Nations Development Program (1991) that the real objective of development is to increase people’s choice, we equally recognize the UNDP (1992) stance, which also suggested that enlarging people’s choice is paramount to human development. We also acknowledge the UNDP (1993) report which asserted that people’s participation is vital for any meaningful development, but in terms of dimension, it is useful to state categorically that UNDP’s report between 1990 and 2014 have various confusing concept which makes it difficult to justify the appropriate definition of human development.

The United Nations’ Millennium Development Goals (MDGs) declared in September 2000, which was targeted at eradicating extreme poverty, improving health care and commitment to educational growth further exacerbated the confusion around the nature and concept of human development. These goals and commitments were also the centre of attention and the conclusion from the Monterrey Consensus at the United Nations’ financing for development conference held in March 2002. This conference formed the basis for millennium development compact towards the enhancement of the success for the framework. Clearly, the project which has a solid and concrete action plan for the world to eradicate poverty and diseases was further strengthened in September 2015 at the UN world summit in New York with more than 165 heads of states renewing their commitment to

improve and provide quick support for health care and educational financing, among others (UNDP, 2015).

To further enhance more collaboration, the World Trade Organization (WTO) in Peru on January 31st 2006, also showed concern to provide reforms and unlock potential for eliminating poverty and hunger through support for education, and improved health care facilities. Admittedly, the goal has failed to achieve its target, which shows that there are no explicit aid targets within the MDGs themselves. However, the MDGs should not pretend to have succeeded in enhancing the educational and health support that were the bed rock and the road map of its campaign. A cursory look at the MDG growth clearly shows that political confusion and the games of resources exploitation are part of the failure of its objectives.

While the MDG can be considered relatively unsuccessful, a new game changer emerged which was built on poverty related issues. According to the United Nation (2015), the goal is expected to be universal, integrated and transformative among all nations. This paper cares less on the new Sustainable Development Goals (SDGs), which was packaged to cover human development, poverty eradication and freedom. The goal to achieve its 17 objectives by the year 2030, can be regarded as an over ambitious project, which was adopted on the 25th of September 2015, at a United Nations’ summit attended by more than 149 heads of states. Prominent among these objectives are the recognition by United Nations to end poverty, address the problem of education, health, social protection and job opportunities, while tackling climatic change (SDGs, 2015). We equally admitted that there is a prospect of long term growth in their original thinking, which is not reflected in their action plan. More worrisome is the strategic plan to achieve the objectives, since the whole world and not only developing nations are considered in this project.

The confusion in concept of human development also reflected in the submission of most studies in this area. In addressing this fundamental case, Sen (1992), (1997b) and (2002) attempted to re-examine similar concepts of inequality, rationality and freedom. Our survey of existing literature clearly shows that there are gaps that are not identifiable by these prominent studies. For instance, the social choice theory, the educational choice theory and the health concerned theories, as well as the inequality concept theories are very interesting conceptual refinements, but cannot supersede the role of health and education in human development. Human development is aimed at expanding people’s choices through empowerment, quality education, appropriate and accessible health system, coupled with share of equity and sustainability of human freedom.

An international general overview of human development, suggests that the human development reports over the years have shown that there is a widened gap between developed and developing countries in terms of their level of human development. This gap
can be traced to poor financing of the components of human development in developing countries, specifically the health and the educational sector. For instance, in developing countries in general and Nigeria in particular, the human development balance sheet presents a dismal picture in recent times. Evidently, no matter what human development indicator is used, the country is at the bottom of the ladder. On the basis of 1999 data, it ranks in terms of its GNP, 57 while on per capita GNP basis it ranks 187 on the world ranking. On the basis of purchasing power parity (PPP$), it ranks 51 while on per capita PPP$ basis, it ranks 194. Its human development rankings are equally very low. In 2000, the country’s HDI puts it at the 151st position whilst its Gender Development Index (GDI) ranks the country a little better at 124th. Yet this is a country that ranks 6th and 7th as petroleum exporter and petroleum producer respectively, and the 10th most populous country in the world.

As at 2003, the UNDP human development report valued the well-being of the nation as 0.463 on the basis of the HDI measurement. Also, between 2004 and 2007, the average growth rate of the Nigerian HDI was 0.481, indicating that there is a relatively poor level of educational and health financing, as well as the widened gap in income inequality and gender differential (UNDP, 2008). Between 2009 and 2012, Nigeria was ranked 157 amongst the poorest countries in the world, with an average growth rate of HDI performance valued at 0.525, even though the level of the HDI as reported by the UNDP (2012) shows a fair increase in the well-being performance as compared to 2007 report. Recently, the HDI report between 2015 and 2016 clearly indicated that the country is ranked 152 amongst the poorest countries in the world, with the average growth rate of the HDI valued at 0.529 (UNDP, 2016).

Nigeria’s low HDI presents a paradox. While the country is a major oil producer and exporter, it is also one of the least developed countries in the world. It is the only Oil Producing and Exporting Countries’ (OPEC) member that has fared devastatingly poor in this regard. This poor performance, in absolute and relative terms, is a consequence of the pursuit of inappropriate development paradigms, particularly between 1980 and 2016, when the country became a victim of “niggardly investment in education, health, water and infrastructural facilities, lack of political stability, poor economic management, pervasive lack of democracy and pandemic corruption, particularly at the highest levels of government (UNDP, 2016).

Admittedly, Nigeria is classified as poor, because the HDI takes into account three social key indicators, namely, educational attainment, health facilities and GNP. The three components are given equal weights. The HDI permit countries with low GNP per capita but with outstanding performance in education and health services to improve their relative position in international comparisons, and is therefore a more acceptable index of measurement. Against this backdrop, the genuine concern is to determine the extent to which financing human development through investment in education and health can further guarantee long term growth. Particularly, this study also estimates the relationship between financing in
education, health, and sectorial growth in Nigeria. In order to achieve these objectives, this study raised some important questions regarding financing human development for sectorial growth: Does education and health financing matter for sectorial growth? Is there any existing relationship among the components of human development (education, health financing and GNP per capita)? The answers to these questions will not only provide useful insights on the proper understanding of the dynamics of human development financing on sectorial growth, but will also provide working policy options that will enable Nigeria balance her deficits in human development, and properly enhance the various sectorial contributions to economic growth.

The rest of this paper is divided into five sections. Section two provides a summary of the theoretical framework and literature review. This is followed by the analytical framework and methodological approaches articulated in section three. The main results of the study are presented in section four while section five concludes the study with a summary of the main results and policy recommendations.

2. Literature review

At theoretical sphere, many scholars have contributed to the theoretical power of education and health to economic growth. Smith (1776) stated the importance of labour force as an asset to speed up the rate of growth in any economy. He asserted that the population of labour force is not enough to transform or enhance increase in productivity, but investment in skills of labour is crucial to economic transformation. This implies that the first attention of scholars to the importance of labour can be traced to the “wealth of nations”. Since the inception of Smith’s inquiry, other theories have emerged. One of the recent studies can be traced to Solow (1956) who introduced the concept of exogenous growth model. He suggested that an increase in technology will impact on economic growth while investment in labour was ignored. In the endogenous growth model presented by Mankiw, Romer and Weil (1992), there was the argument that there is no reason to believe that investment in physical capital alone can enhance productivity. They suggested that labour should be replaced with human capital, since human capital comprises of all elements that can attest to the well-being of labour (education, health and income growth). From the theoretical position above, it is clear that human capital cannot be neglected in the quest for sectorial growth and industrialization by any nation.

In terms of empirical evidence, several studies have examined the impact of human capital development on economic growth in both developed and developing economies. Some of these studies were country-specific while others are cross countries studies. Results and output from these studies were divergent in nature. While some group of studies documented positive relationship among the variable considered and their choice of environments, others
finds a negative relationship with relatively few studies ending inconclusive. Studies like that of Loening (2002), Qian and Smyth (2005), Amin and Mattoo (2008), Akram and Pada (2009), Dauda (2010), Inuwa (2012), and Khan and Rehman (2012), all support the notion of a documented positive relationship between human capital investment and economic growth. Akram and Pada (2009), the relationship between education and economic performance was examined and their results revealed that there exists a positive relationship between education and economic growth. Inuwa (2012) in his study of the impact of government expenditure on economic growth in Nigeria using Johansen co-integration technique and granger causality test revealed that government expenditure granger causes economic growth.

Loening (2002) in a study of Guatemala investigated the impact of human capital on economic growth through the application of error correlation methodology. He examined two different channels by which human capital is expected to influence growth. The result revealed that a better educated labor force appeared to have positive and significant impact on economic growth via factor accumulation as well as on evaluation of total factor productivity. Dauda (2010) reported a positive relationship between human capital formation and economic growth in Nigeria. This is consistent with celebrated examination of Isola and Alani (2012) who observed that there a positive relationship between component human capital development and economic growth in Nigeria. Similarly, Adelowokan (2012) showed that there was a long run relationship between economic growth and expenditure in education in Nigeria. Osoba and Tella (2017) examines the interactive effect of human capital investment and economic growth in Nigeria and find that increase in human capital will enhance economic growth in Nigeria.

In Pakistan, Khan and Rehman (2012) used analytical techniques, which are OLS and Johansen cointegration to investigate the impact of human capital on economic growth. Their result supports a significant positive association between secondary education and economic growth. Ngustav, Akighir and Lorember (2017) examine the impact of education financing, labour productivity and economic development in Nigeria and recommended that government need to increase budgetary allocation to enhanced inclusive education in Nigeria.

Other studies like that of Shobande, Odeleye and Olunkwa (2014), Ararat (2007), Nurudeen and Usman (2010) documented a negative and non-significant impact of human capital development on economic growth respectively. In Nigeria, Shobande et al (2014) examined the impact of human capital investment on economic development between 1970 and 2011, using the error correction model as the estimation technique to examine the short and long term dynamics among variable considered. Their findings indicated that there was a negative short run relationship between economic development and human capital investment in Nigeria. The results consistent with the earlier study of Ararat (2007), Nurudeen and Usman (2010) and Lawanson (2009) and Mehrara and Musai (2013) studies that supported a

3. Methodology and data

3.1. Theoretical framework

The theoretical foundation of this work is based on the endogenous growth model since it places more strand on the role of human capital development in growth process compared to the Solow growth model that states that there is no positive growth in worker per capital, consumption and real wages. This work draws from the influential contributions of Mankiw Romer and Weil (1992) as well as the celebrated work of Shobande, Odeleye and Olunkwa (2014) that earlier demonstrated and developed a theoretical model explanation for estimating the study in Nigeria. Methodological insights were drawn from the works of Barro (1996), Heshmati (2001), Keller (2006), Huang and Li (2009) among others. There are several reasons for this consideration of MRW hypothesis; since it shows that people invest in human capital just as they invest physical capital. This implies that human capital depreciates at the same rate with physical capital. The model suggested that there is a connection between human capital and growth. However, the study has incorporated two main human capital components (Education and Health) to investigate the link between human capital diversification and long term growth in Nigeria, as used by Keller (2006); Huang and Li (2009); Barro (1996); and Heshmati (2001), among others.

3.2. Methodology

Model Specification

The neoclassical Solow growth model is presented thus:
\[ Y(t) = A(t)K(t)^{1-\beta}L(t)^{\beta} \]  

(1)

Where \( K \) and \( L \) are capital and labour inputs respectively, \( \alpha = 1 - \beta \) and \( \beta \) are their shares of output (\( Y \)) and \( A \) is an index of production efficiency.

This model is further modified to incorporate the role of human capital development by Mankiw, Romer, Weil (1992) in their influential contribution to the theory of economic growth. They presented an extension of the Solow model to incorporate human capital and stress the role of knowledge on economic growth. They made three important contributions by postulating that people invest in human capital just like in physical capital and that human capital is depreciated at the same constant rate with physical capital. This is represented thus:

\[ Y(t) = A(t)K(t)^{1-\beta}H(t)^{\beta} \]  

(2)

Linearized thus as:

\[ \log Y_t = \log A + (1 - \beta)\log K_t + \beta \log H_t \]  

(3)

Where \( Y \) is real GDP and \( K \) is physical capital while \( H \) is human capital, \( \alpha \) and \( \beta \) are parameter coefficients, and \( A \) is efficiency parameter or constant.

The study drew insight from Osoba and Tella (2017) model borrowed from McMahon (1998), which inferred that human capital caused economic growth.

The adapted model is presented below:

\[ \ln Y_t = \alpha_0 + \varphi_1 \ln K_t + \varphi_2 \ln H_t + \varphi_3 \ln EDU_t + \varphi_4 \ln AG_t + \varphi_5 \ln ID_t + \varphi_6 \ln SER_t + \mu_t \]  

(4)

\( \alpha_0 \) is constant; \( \varphi_{1-6} \) are parameter coefficients; \( \mu_t \) is error term and \( t \) is the time period.

Where \( Y \) is real GDP and \( K \) is physical capital while \( H \) is human capital. \( ID \) is industrial output per capita which is a proxy for industrial output, while \( EDU \) (educational financing), \( AG \) (value of agricultural output) and \( SER \) (value of services output) are control variables.
Estimation Techniques

Unit roots Test

The Augmented Dickey Fuller (ADF) unit root test was adopted in this study to test the stationarity of each of the variables. The null hypothesis was that the variable was non-stationary. If the values of the ADF statistic was less than or equal to the critical value, then the null hypothesis was rejected and it can be inferred that the variable was stationary at conventional level. The expression for the unit root is given as follows.

\[ \Delta Y_t = \beta + \rho Y_{t-1} + \sum_{j=1}^{n} b_j \Delta Y_{t-s} + v_t \]  

(5)

It is important to include the lags of the dependent variable in equation 1 to eliminate autocorrelation. The hypothesis for stationarity and non-stationarity are expressed in terms of \( p \). When \( \rho = 0 \), it implies that series is not stationary, hence it has unit root.

Vector Error Correction (VEC) Technique

A Vector Error Correction (VEC) model is a restricted vector auto regression (VAR) that is co-integration restriction built into specification, so that it is designed for use with non-stationary series that are known to be co-integrated. The VEC specification restricts the long-run behavior of the endogenous variables to converge to their co-integrating relationships while allowing a wide range of short-run dynamics. The co-integration term is known as the error (or equilibrium) correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments.

Assuming a two-variable system with one co-integrating equation and no lagged differences terms such as:

\[ y_{1t} = \varphi_1 y_{2t} + \mu_t \]  

(6)

\[ y_{2t} = \varphi_2 y_{1t} + \mu_t \]  

(7)

And the VEC is

\[ \Delta y_{1t} = \gamma_1 (1(1)y_{2t-1} - \varphi_1 y_{1t-1}) + v_{1t} \]  

(8)

\[ \Delta y_{2t} = \gamma_2 (y_{2t-1} - \varphi_1 y_{1t-1}) + v_{2t} \]  

(9)
In Equation 1, the only right-hand side variable is the error correction term. In the long run equilibrium, this term is zero. However, if \( y_1 \) and \( y_2 \) deviated from the long run equilibrium in the last period, the error correction term is nonzero and each variable adjust to partially restore the equilibrium relationship. The coefficients \( y_1 \) and \( y_2 \) measure the speed of adjustment.

The two endogenous variables \( y_1 \), at \( y_2 \), t will be nonzero, but the co-integrating equation will have a zero intercept. Despite the fact that the use of lagged difference is common, we have concluded no lagged difference on the right and side. (Preston, 2000).

If the two endogenous variables \( \Delta y_1 \) and \( \Delta y_2 \) have no trend and the co-integrating equations have an intercept, the VEC has the form:

\[
\Delta y_{1t} = \gamma_1 (y_{2t-1} - \mu - \varphi_1 y_{1t-1}) + v_{1t} \tag{10}
\]

\[
\Delta y_{2t} = \gamma_2 (y_{2t-1} - \mu - \varphi_1 y_{1t-1}) + v_{2t} \tag{11}
\]

Another VEC specification assumes that there are linear trends in the series and a constant in the co-integrating equations, so that it has the form:

\[
\Delta y_{1t} = \delta_1 + \partial_1 (y_{2t-1} - \mu - \varphi_1 y_{1t-1}) + v_{1t} \tag{12}
\]

\[
\Delta y_{2t} = \delta_2 + \partial_2 (y_{2t-1} - \mu - \varphi_1 y_{1t-1}) + v_{2t} \tag{13}
\]

Similarly, there may be a trend in the co-integrating equation, but no separate trends in the two VEC equations. Lastly, if there is a separate linear trend outside the parentheses in each VEC equation, then there is an implicit quadratic trend in the series.

**Data Source, Scope and Measurement**

All the data used are sourced from the Central Bank of Nigeria (CBN) statistical bulletin, volume 26, 2016 World Development Indicator (WDI), 2016. The period of study covers between 1982 and 2016.
4. Econometric Analysis

The method used to confirm the orders of integration are Augmented Dickey Fuller Test (ADF). This is presented below:

Table 1. Pre-test 1: Unit Root Test Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Augmented Dickey Fuller (ADF)</th>
<th>Constant</th>
<th>Constant and Trend</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>∆RGDP</td>
<td>-3.378729**</td>
<td>-3.602994*</td>
<td>I(1)</td>
<td></td>
</tr>
<tr>
<td>∆EDU</td>
<td>-4.728258**</td>
<td>-4.881227**</td>
<td>I(1)</td>
<td></td>
</tr>
<tr>
<td>ΔH</td>
<td>-4.887572**</td>
<td>-4.990137**</td>
<td>I(1)</td>
<td></td>
</tr>
<tr>
<td>ΔID</td>
<td>-5.792260**</td>
<td>-5.939065**</td>
<td>I(1)</td>
<td></td>
</tr>
<tr>
<td>ΔSER</td>
<td>-5.966410**</td>
<td>-6.394977**</td>
<td>I(1)</td>
<td></td>
</tr>
<tr>
<td>ΔAG</td>
<td>-3.122402*</td>
<td>-3.405300*</td>
<td>I(1)</td>
<td></td>
</tr>
<tr>
<td>ΔK</td>
<td>-6.887316**</td>
<td>-6.927804**</td>
<td>I(1)</td>
<td></td>
</tr>
</tbody>
</table>

** and * denotes the rejection of the null hypothesis at 1 % and 5% significance level.

Source: Author’s Computation (2017)

The ADF tests confirm that all the variables are stationary at their first difference. These suggest that all the seven variables are integrated in the same order.

4.1. Co-integration Test

A co-integration test was performed using the Johansen (1988) approach to find out the existence or inexistence of a long-run relationship among the variables employed for this study and the results are presented in Table 2. It was observe that the null hypothesis of no cointegration for \( r = 0 \) was rejected by the trace and maxi-eigen tests because the statistical values were greater than the critical values while the null hypothesis of no cointegration for \( r \leq 1 \) was not rejected by both tests because the statistic values were less than the critical value, suggesting the existence of six cointegration equation. Thus, the trace and maxi-eigen statistical assert the existence of a long run relationship among the variables in equation (4).

Table 2. Pre-test 2: Summary of the Co-Integration Estimate

<table>
<thead>
<tr>
<th>Trace Test K=1</th>
<th>Maximum Eigenvalues Test K=1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equation</td>
<td>H0</td>
</tr>
<tr>
<td>None*</td>
<td>r&lt;0</td>
</tr>
<tr>
<td>At Most 1*</td>
<td>r&lt;0</td>
</tr>
<tr>
<td>At Most 2*</td>
<td>r&lt;0</td>
</tr>
<tr>
<td>At Most 3*</td>
<td>r&lt;0</td>
</tr>
<tr>
<td>At Most 4*</td>
<td>r&lt;0</td>
</tr>
</tbody>
</table>
4.2. Normalized Cointegration Coefficient: Long Run Regression Estimates

Sequel to the existence of cointegration among the variable in equation (1), this study proceeds to estimate the normalized long run regression on the relationship between exchange rate policy and industrial growth in Nigeria. Table 3 shows the outcome of the results.

Table 3. VEC Normalised Long Run Regression Estimate

<table>
<thead>
<tr>
<th>LEDU</th>
<th>LH</th>
<th>LID</th>
<th>LSER</th>
<th>LAG</th>
<th>LK</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.011871</td>
<td>1.849089</td>
<td>-0.005549</td>
<td>0.669559</td>
<td>-0.311095</td>
<td>2.011871</td>
</tr>
<tr>
<td>(0.16675)</td>
<td>(0.14684)</td>
<td>(0.02182)</td>
<td>(0.09174)</td>
<td>(0.00910)</td>
<td>(0.16675)</td>
</tr>
</tbody>
</table>

** and * denotes the rejection of the null hypothesis at 1 %, 5% and 10% significance level.

Source: Author’s Computation

The above system consists of the cointegrating coefficient when RGDP is endogenous. The system identifies six fundamental factors that exact influence on RGDP. From these factors, four follow the economic and statistical a priori. These factors are expenditure on Education and Health, Service and Physical capital. The effects are captured in the statistical results. – 1% permanent increase/decrease in expenditure on Education and Health causes 2.0% and 1.8% increase/decrease in RGDP respectively, 1% permanent increase/decrease in Service activities in the country causes 0.66% increase/decrease in RGDP and 1% permanent increase/decrease in Real Physical capital cause 0.23% decrease/increase in RGDP. However, Industrial output is not significant while Agricultural output does not conform to a priori.

4.3. Vector Error Correction Model

In the test above, co-integrated six sets of equations were justified of time series variables. The focus here is to study the pressure of the estimated long-run equilibrium on the short-run dynamics and the priori is that error-correction co-efficient, which examines the adjustment from shock, are expected to be statistically significant, appropriately signed, and have a sizable range of values which has to be between zero and one. The whole system is presented in the table below.
Table 4. Vector Error Correction Model

<table>
<thead>
<tr>
<th></th>
<th>D(RGDP)</th>
<th>D(EDU)</th>
<th>D(H)</th>
<th>D(ID)</th>
<th>D(SER)</th>
<th>D(AG)</th>
<th>D(K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECM</td>
<td>-0.241833</td>
<td>2.034233</td>
<td>1.828556</td>
<td>-0.220190</td>
<td>-0.764492</td>
<td>0.626663</td>
<td>-0.420226</td>
</tr>
<tr>
<td></td>
<td>(0.12913)</td>
<td>(2.21399)</td>
<td>(2.59251)</td>
<td>(0.02212)</td>
<td>(0.24450)</td>
<td>(0.52341)</td>
<td>(0.13021)</td>
</tr>
<tr>
<td></td>
<td>[-1.87285]</td>
<td>[0.91881]</td>
<td>[0.70532]</td>
<td>[-9.95433]</td>
<td>[-3.12675]</td>
<td>[1.19726]</td>
<td>[-3.22729]</td>
</tr>
<tr>
<td>D(RGDP(-1))</td>
<td>0.483905</td>
<td>0.140554</td>
<td>0.171800</td>
<td>-1.994934</td>
<td>-0.942011</td>
<td>-1.203309</td>
<td>-2.561102</td>
</tr>
<tr>
<td></td>
<td>(0.19414)</td>
<td>(3.32875)</td>
<td>(3.89785)</td>
<td>(3.04027)</td>
<td>(1.87112)</td>
<td>(0.78696)</td>
<td>(1.84963)</td>
</tr>
<tr>
<td></td>
<td>[2.49254]</td>
<td>[0.04222]</td>
<td>[0.04408]</td>
<td>[-0.65617]</td>
<td>[-0.50345]</td>
<td>[-1.52906]</td>
<td>[-1.38465]</td>
</tr>
<tr>
<td>D(RGDP(-2))</td>
<td>0.203567</td>
<td>1.990085</td>
<td>2.828263</td>
<td>0.851305</td>
<td>1.946340</td>
<td>0.412646</td>
<td>0.931309</td>
</tr>
<tr>
<td></td>
<td>(0.21036)</td>
<td>(3.60691)</td>
<td>(4.22357)</td>
<td>(3.29432)</td>
<td>(2.02747)</td>
<td>(0.85272)</td>
<td>(2.00419)</td>
</tr>
<tr>
<td></td>
<td>[0.96769]</td>
<td>[0.55174]</td>
<td>[0.66964]</td>
<td>[0.25842]</td>
<td>[0.95998]</td>
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In the table above, the Vector Error Correction Model system was presented. Using the Information Criterion, lag 2 is chosen in which both endogenous and exogenous variables are lagged till second year to represent the short-run equilibrium/effects on the endogenous variables. The most essential here is to first examine the coefficients of the Error Correction. It was shown that four system equations show conformity to a priori. That is, the RGDP, ID, SERV and K systems show that there are adjustments to equilibrium in the long run from past periods of shocks. The coefficient for the Error Correction of the four systems are 24%, 22%, 76% and 42% indicating the percentage corrected for immediate past periods of shock. Their short-run equilibrium is also presented in the table. The coefficient of determination; R-Square of these significant systems are considerably good to show the level of explanation of variation in the variables, that are endogenous in each system, by the exogenous variables.
Conclusions

We examined the impact of financing human development on sectorial growth in Nigeria between 1982 and 2016, using the Johansen co-integration techniques and Vector Error Correction Model (VECM) to ascertain the speed of adjustment of these variables to their long run equilibrium position. The analysis showed that a long run relationship exists among the variable considered in the model. The error correction mechanism is negative and significant indicating the speed of adjustment of this variable to their equilibrium annually. By implication a short relationship equally exists among the determinants of human capital financing and the consequential sectorial growth. This implies that there is urgent need for government to increase their budgetary allocation on education and health in order to ensure growth of each sector. We therefore suggest that positive action towards financing human capital can further help each sectorial unit contribute effectively to the overall growth of the economy.

References


