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Public Investment in Human Capital and Economic Growth in Nigeria: Analysis on Regime Shifts

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Abstract

This study contributes to existing literature by examining data on Nigeria between 1961 and 2012 to conduct a regime shift analysis of the empirical relationship subsisting between public investment in human capital and economic growth. The study ensured the validity of results by testing for the unit root properties and verifying cointegration among the variables before estimation. These verifications were conducted with the tools of Augmented Dickey Fuller test, Johansen's Cointegration technique and Parsimonious Error Correction procedure. Empirical findings established the fact that federal and states governments' spending on human capital (education and health) impacted positively on economic growth in Nigeria individually and collectively. The study also found evidence for democratic governments at both federal and state levels to engage in active development planning (as in the years 1960-1985 when government actively map out policies, programmes and projects towards achieving economic growth) and also restore the lost glory of agriculture which was displaced by the oil boom of the 1970s.

1. Introduction

The economic prosperity and functioning of a nation depend on its physical and human capital stock. Whereas the former has traditionally been the focus of economic research, factors affecting the enhancement of human skills and talent are increasingly figuring in the research of social and behavioural sciences.

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In general terms, human capital represents the investment people make in themselves that enhance their economic productivity (Olaniyan and Okemakinde, 2008).

The recent rebasing of Nigeria's GDP shoots the figure for the oil dependent economy from N42.3 trillion to N80.3 trillion ($509.9bn), pushing ahead of South Africa as the continent's biggest economy and occupying the 26th position in the world. This rebasing was done to include sectors like telecoms, information technology, music, online sales, airlines and film production (Premium Times, 2014). This is however in contrast with the World Bank listing the country among the top five poorest countries with one of the lowest income per capita and human development index (a composite measure of health and nutrition, education, and living standard) in the world. But if we take the information (the GDP figure) in its face value, the vision 20:2020 of the federal government aimed at making Nigeria one of the 20 biggest economies in the world by the year 2020 may already be in sight. Some analysts have even argued that Nigeria should take its rightful place in the world stage rather than struggling to outdo other African countries given its abundant human and natural resources.

Data from the Central Bank of Nigeria indicate that the federal government's quest for the development of human capital saw it spending 17% of its total expenditure on education and health in the year succeeding independence (1961). Throughout the first civilian regime (1960-1966), the proportion remained double digit. The percentage reduced drastically for most part of the first and second military regimes when the civil war was fought (1966-1973) and it reached as low as 1.63% in 1968. Remarkably, the figure appreciated to 15% in 1974 (could this be attributed to the oil boom?) and maintained that standard until 1985, although a slight disturbance was recorded in 1984 (i.e. 6%). The percentage was single digit from 1986 till the end of the military regime in 1999, however with the exception of 1988 and 1989 that recorded around 14% each. It is important to note that the ratio remained below 19% throughout the review period (1961-2012).

When we analyse federal government expenditure on health and education as a percentage of nominal GDP, we obtain less than 2% from 1961 to 1973; less than 5% for most part of 1974-2012; and in fact it was less than 3% for all the periods in the current democracy (1999-2012). The only exceptions were 1975 and 1980 with 5.09% and 5.49% respectively. Also noteworthy, the federal government has never achieved up to 6% expenditure on human capital as a ratio of gross domestic product.

Since independence, successive governments in Nigeria have made active efforts to achieve growth at some periods while at some other times have only paid lip service. FRN, 1970, 1975; Ayo, 1988; and Bashiru, et al., 2014 showed that: "between 1960 and 1985, the federal government formulated and launched four development plans, which are referred to as the first national development plan (1962-1968), the second (1970-1974), the third (1975-1980) and the fourth (1981-1985). These plans embodied goals and strategies in the form of public investment programmes and policies that focused on accelerating the country's growth and development process within a comprehensive framework. These efforts recorded successful execution of a number of projects, which include the successful construction of many trunk 'A' roads, the Niger Bridge, refineries, the successful take-off of the National Youth Service Corps scheme, and the introduction of federal scholarship scheme. In terms of contribution to the GDP, the second development plan for instance achieved 8.2 percent GDP growth rate, which eclipsed the 6.6 per cent annual growth rate estimated in the plan. The third plan also, with an investment of N43.3 billion gave priority to agriculture, water supply, housing and health sectors and achieved 5 per cent actual growth rate, although falling short of the 9 per cent projection. The reason for the shortfall is however not farfetched as the plan, just like the first, was truncated by military coup d'état. The fourth plan also suffered the same fate." Sadly, this development initiative was discarded in 1986 for ineptitude in the form of SAP, vision 2010, NEEDS, 7-Point Agenda, and Vision 20:2020. These are no serious developmental efforts but merely statements of wishful thinking because they lack clear objectives, measurable targets, articulated programmes and strategies towards implementation, and above all, adequate data for planning. Thus it is clear that government has lost its focus.

While appraising the importance of oil to the Nigerian economy, Akinlo (2012) observed that crude oil production increased from 395.7 million barrels in 1970 to 777.5 million barrels in 2009 and NNPC (2008 & 2012) added that it increased to 852,776,653 barrels in 2012 and accordingly, the industry accounts for as high as 90% of the total government revenue with over 80% of the nation's foreign exchange earnings coming from crude oil sales. Akinlo (2012) noticed that the huge revenues from oil which should provide opportunity for increased expenditure and investment has rather complicated macroeconomic management and also made the economy highly oil dependent.

Distressingly, he noted that in spite of the huge rents from oil, the economy still grapples with high and rising unemployment rate, declining manufacturing production, high and rising level of poverty and poor infrastructural development. And these have adverse implications on economic growth.

Before the discovery of oil, Nigeria's economy survived and flourished on agriculture. Records indisputably show that 72 percent of the total national output of the economy came from agriculture in 1950, as against 1.1% from mining and crude oil. The dominant role of agriculture in the nation's fortune continued in 1960 when it contributed 66% compared with 1.2% from minerals. Also, at independence in 1960 more than 70% of exports came from agriculture while 95% of the nation's food needs were locally produced (Udosen, et al., 2009).

Ogunlowo (2008) observed that the economy recorded tremendous self-sustaining growth and expansion when it relied on agriculture before crude oil became the mainstay. Revenue from agriculture was appropriately used to build landmark social and economic infrastructure, while providing basic services like education, health, water and electricity supply. The then revolutionary free education programme in the western region was funded entirely from cocoa, rubber and palm oil proceeds. In actual fact, many of the great intellectuals the country pride itself today were beneficiaries of that programme. Udosen, et al., (2009) further mentioned that the foremost universities in Nigeria – the then University of Ife (now Obafemi Awolowo University), Ahmadu Bello University, Zaria and University of Nigeria, Nsukka, UNN were not built from foreign grants or loans, but from proceeds from cotton, groundnut, rubber and palm oil. Moreover, the establishment of first generation teaching hospitals and developments of cities like Ibadan, Kano, Kaduna, Enugu, etc; are also attributed to income from agriculture.

From the foregoing, it is necessary to examine the impact of public expenditure on human capital on the Nigeria's economic growth based on the economic and political regime shifts from 1961 to 2012. In particular, we examine the impacts of federal and state governments' expenditures on education and health on real gross domestic product for the period. In addition, we determine whether agriculture (or oil) has impacted more on economic growth; whether or not higher economic growth was accounted for by the years of development plans; and whether military or civilian regimes accounted for higher economic growth.

This study becomes justified as our extensive research of the literature does not reveal any research on Nigeria that conducted such regime analysis of the relationship between public investment in human capital and economic growth and to the best of our knowledge, this is probably the first to extend the time frame to the year of independence given that none of the studies on Nigeria reviewed extended beyond 1970. The study is presented in five sections. Section 1 is the introduction; Section 2 the theoretical framework and empirical evidence; Section 3 the research methodology; Section 4 empirical results and discussion; and Section 5 concluding remarks.

2. Theoretical Framework and Empirical Evidence

The analysis of investments in health and education is unified in the human capital approach. Human capital is the term economists often use for education, health, and other human capacities that can raise productivity when increased (Todaro and Smith, 2009). The shift in the global economy towards more knowledge-based sectors (i.e. ICT, Research and Development, telecommunications, etc) has made skills and human capital development central for policy makers and practitioners engaged in economic development issues both at the national and regional level (Adelakun, 2011).

Human capital is being recognised as an agent of national development in all countries of the world. In the words of Goode (1959), Theodore Schultz (1961), and more recently, Khilji (2005), improving on education and health services to the people is one of the major ways of improving the quality of human resources given that both provide an economy with healthy trained human resources required for economic growth and development. Although there are many ingredients of human capital but education and health are undoubtedly the most important components. Consequently, Olayemi (2012) pointed out that human capital development stands out as a major catalyst to economic growth. Thus, Babatunde and Adefabi (2005) argued that human capital development is triggering economic growth through many factors like enhancing the employment opportunities, improving health facilities, reducing fertility and poverty level, improving technological development and source of political stability. Human capital development increases the number of knowledgeable workers by improving their skills and enabling them to new challenges.

In addition, education enhances their occupational mobility, reduces the level of unemployment in the economy, increases the earning capacity and productivity of the country's work force, improves access to health information which will increase life expectancy and at the same time lower the fertility rate. Workers with greater problem-solving and communications abilities will learn faster and adapt better to changing circumstances. Hence, skilled workers can be expected to be more productive and should be able to operate more sophisticated technologies that place greater demands on their capacities. Therefore, a more educated labour force will also be able to achieve faster productivity growth, both through gradual improvements in existing production processes and through the adoption and development of more advanced technologies, and should be in a better position to respond flexibly to rising worldwide competition (Lawal and Wahab, 2011).

According to Saima, et al. (2012), investment in education and health services are the major factors for human capital development and the subsequent impact on economic growth. This led Fagerlind and Saha (1997), Dauda (2010), and Olayemi (2012) to provide justification for large public expenditure on both health and education social services both in developing and developed nations. Adenuga (2006) applying cointegration analysis and error correction mechanism to data on Nigerian from 1970 to 2003 found that investment in human capital through the provision of infrastructural requirements in the education sector accelerates economic growth.

The importance human capital has been brought out in many studies of economic growth and development. Empirically, Lawal and Wahab (2011), Isola and Alani (2011), Dauda (2010), and Oluwatobi and Ogunrinola (2011) considered the impact of human capital development on economic growth in Nigeria using the augmented Solow growth model and relying on Johansen Cointegration technique and Error Correction Methodology found evidence for positive significant relationship between human capital (education and health) and economic growth in Nigeria.

However, when Oluwatobi and Ogunrinola (2011) divided investment in human capital into capital and recurrent components, they found a positive relationship between government recurrent expenditure on human capital development and the level of real output while capital expenditure on human capital development displayed negative relationship with the level of real output. This submission had been earlier established by Adebiyi (2006) using vector autoregressive (VAR) forecast error variance decomposition.

He found that the impact of real capital educational expenditure on economic growth is consistently negative in Nigeria. Also, Abu and Abdullahi's (2010) disaggregated analysis revealed that government expenditure on education has negative relationship on economic growth.

It therefore becomes necessary, in the face of conflicting results, that a study of this nature be conducted to give a better assessment of the situation by expanding the time frame for the study from independence till date and introducing relevant dummy variables that will assist us to appraise the situation from the standpoint of political economy and at the same time achieve stability of the estimated model.

3. Research Methodology

The Model

The neoclassical exogenous growth model for which the MIT economist, Robert Solow won the Nobel Prize in Economics in 1987 provides a starting point for this study. He employed the well-known Cobb-Douglas production function to establish labour, capital, and technical progress (which is exogenously determined) as important agents of growth while also stressing the importance of savings and capital formation for economic development. Mathematically, the relationship is written with the assumption of constant returns to scale thus:

$$Y = AK\alpha L1\text{-}\alpha \quad (0 < \alpha < 1) \qquad (1)$$

Where Y is given as output (or income), A is the level of technology (and the value is determined outside the model), and K and L are the physical stock of capital and units of labour respectively. When perfect competition hold in addition to the previous assumption, α and $1\text{-}\alpha$ are the parameters each of which measures the responsiveness of output with respect to capital and labour respectively (or put differently, the capital's and labour's share of total income respectively). A (the measure of technical progress) raises output from a given combination of inputs and with the assumption of diminishing returns, increment in income (output) falls with each successive change in variable input.

As elegant as this model though, it is inappropriate for this study due to not explicitly incorporating human capital component. Therefore, according to Oluwatobi and Ogunrinola (2011), a more reliable option is the augmented Solow model. Gregory Mankiw, David Romer and David Weil proposed the augmented Solow model which include human capital as an additional explanatory variable to physical capital and labour (Nafziger, 2006). The justification for the inclusion of human capital is also found in the works of the 1979 Nobel Prize co-winner, Theodore Schultz (1961) when he argues that a society should invest in its citizens through expenditures on education, training, research and health that enhance their productive capacity. The model is therefore specified thus:

$$Y = AK^{\alpha}(HL)^{1-\alpha} \quad (2)$$

$$\text{When } \beta = 1-\alpha;\ (2) \text{ becomes } Y = AK^{\alpha}(HL)^{\beta} \quad (3)$$

The variables Y, A, and K are as defined above and HL is the level of Human Capital.

If we take the Log of both LHS and RHS of (3), we have a deterministic log-linear model:

$$LogY = LogA + LogK^{\alpha} + Log(HL)^{\beta}$$
$$LogY = LogA + \alpha LogK + \beta LogHL \quad (4)$$

The impact of K measured by gross capital formation has been well reported in various studies, and drawing from Adenuga (2006), in Nigeria, too much attention has been given to accumulation of physical capital for growth and development without adequate attention to the important role played by human capital in the development process. Therefore, the focus of this study necessitates specifying a model of human capital conducted with a touch of regime shift analysis. Thus, since A is exogenously determined, Y is measured by real GDP and HL, a composite of human capital measured by public expenditure on education and health; we specify a multiple log-linear econometric model to suit the Nigerian context:

$$Log(RGDP) = \beta_0 + \beta_1 Log(FGCH) + \beta_2 Log(FGRH) + \beta_3 Log(SGEH) + \beta_4 DECO + \beta_5 DGOV + \beta_6 DDEV + U \quad (5)$$

Where: RGDP = Real Gross Domestic Product
FGCH = Federal Government Capital Expenditure on Human Capital
FGRH = Federal Government Recurrent Expenditure on Human Capital
SGEH = 36 State Governments' (including FCT's) Expenditure on Human Capital
FGEH = FGCH+FGRH – Federal Government Expenditure on Human Capital
DECO = Dummy variable taking a value of 1 for periods when agriculture dominated the economy and a value of 0 for oil.
DGOV = Dummy variable taking a value of 1 for civilian regime and a value of 0 for military regime
DDEV = Dummy variable taking a value of 1 for periods of active development planning and 0 otherwise.

The reference category for the dummies is designated as 'military regime when oil dominated the economy without active government planning effort.' Damodar and Porter (2009) explained that the coefficients of the dummy variables are to be interpreted as differential values from the reference category. After estimation, we take the anti-log of the estimated dummy coefficient, subtract 1 from it and multiply the result by hundred to find out the percentage change in real GDP for the category taking the value of 1 in relation to the category taking the value of 0. A-priori, we expect all the coefficients to be positive ($\beta 1 - \beta 6 > 0$).

Data Requirements and Sources

The study made use of time series data on real gross domestic product and the federal and 36 states (including the FCT) governments' expenditures on components of human capital (education and health) in Nigeria from 1961 to 2012. As much as we would have loved to incorporate the third tier of the federal system, data on local government finances were not reported until 1993. Also, data were not reported for 1960 and those of 2013 are yet to be available. The time series (nominal GDP, FGCH, FGRH, FGEH and SGEH) were generated from various issues of Central Bank of Nigeria Statistical Bulletin while the year 2000 price index for the computation of real GDP was obtained online from IMF International Financial Statistics. The time frame considered for this study shows that civilian regimes held sway between 1961-1966, 1980-1983, and 1999-2012 while military regimes operated between 1966-1979 and 1984-1998. The year 1966 is treated as military. The years of government's active development planning efforts were 1961-1985.

As suggested by the descriptive analysis conducted in the first section of this study and following Jimoh (2006), oil displaced agriculture as the mainstay of the economy from 1974. The reader may consult the appendix to this paper for the data.

Methods of Data Analysis and Estimation

The Augmented Dickey-Fuller (ADF) test examines the unit root properties of the time series and determines the order of integration of each of the variables. Granger (1986) noted that a test for Cointegration is conducted as a pre test to avoid 'spurious regression' situations. Therefore, the widely used Johansen Cointegration technique was applied to determine if the variables are cointegrated i.e. if there is evidence for long run relationship among the variables. Further, Engle and Granger (1987) demonstrated that that any set of Cointegrated time series has an error correction representation, therefore, an Error Correction Model was formulated to show the speed at which the dependent variable adjusts to changes in the explanatory variables in an effort to achieve long run static equilibrium. Thereafter, the long run static regression analysis was estimated for (5). In all, E-views statistical package was extensively used to conduct the analyses.

4. Empirical Results and Discussion

The study relied on the Augmented Dickey Fuller procedure contained in table 4.1 to test for the unit root properties of the time series and the order of cointegration; the Johansen Cointegration method in table 4.2 to determine the existence of long run relationship (cointegration) among the variables; and the Error Correction Mechanism shown in the appendix to measure the speed at which the dependent variable adjusts to changes in the exogenous variables in order to achieve long run equilibrium. The results of the model involving interaction dummies are presented in tables 4.3a and 4.3b.

Table 4.1: Result of Unit Root Test using Augmented Dickey Fuller

Variable	ADF Statistics	Probability	Order of Integration
RGDP	7.7804	0.0000	I(0)
FGCH	-3.7507	0.0005	I(1)
FGRH	4.8002	0.0000	I(0)
FGEH	4.2310	0.0001	I(0)
SGEH	2.5613	0.0137	I(0)
DGOV	-2.1487	0.0368	I(0)
DDEV	-4.9497	0.0000	I(1)
DECO	-1.7962	0.0789	I(0)

The results of the unit root tests indicate that all the variables except FGCH and DDEV are stationary at level. FGCH and DDEV become stationary after first difference. All the variables achieved their levels of stationarity at 5% significance level except for DECO that is stationary at level at 10% significance level. This result reduces our apprehension for a likely 'spurious regression.'

Table 4.2: Result of Johansen Cointegration Test

Series: RGDP FGCH FGRH SGEH

Eigenvalue	Likelihood Ratio	5% critical value	1% critical value	Hypothesized No. of CE(s)
0.9506	237.27	47.21	54.46	None**
0.7269	86.66	29.68	35.65	At most 1**
0.3296	21.98	15.41	20.04	At most 2**
0.0389	1.98	3.76	6.65	At most 3

*(**) denotes rejection of the hypothesis at 5% (1%) significance level
L.R. test indicates 3 Cointegrating equation(s) at 5% significance level

The test statistics strongly rejects the null hypothesis of no cointegration among the 4 variables and provides us with evidence in favour of 3 Cointegrating vectors at 1 per cent significance level.

Therefore, the results show that the quantitative variables are cointegrated and have the tendency to establish long run equilibrium relationship. The dummies have been purposely left from this analysis because they are nominal variables.

Having confirmed the cointegration for long run relationship of the variables, we estimate the error correction associated with the model presented in table 4.3a. The parsimonious error correction model is contained in the appendix to this paper. The coefficient of the ECM is correctly signed and statistically significant. The value shows that the speed of adjustment of short run disequilibrium is approximately 61%. Put differently, 61% of disequilibrium in the estimated model would be corrected in a period.

Table 4.3(a) Long Run Regression Results

Dependent Variable: LOG(RGDP)
Method: Least Squares
Date: 04/13/14 Time: 10:33
Sample: 1961 2012
Included observations: 52

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(FGEH)	0.285751	0.083909	3.405479	0.0014
LOG(SGEH)	0.832126	0.084987	9.791160	0.0000
DGOV	-0.585747	0.109811	-5.334135	0.0000
DECO*DDEV	0.729111	0.169391	4.304297	0.0001
DGOV*DDEV*DECO	0.515908	0.190944	2.701882	0.0096
C	2.184683	0.218475	9.999705	0.0000
R-squared	0.994335	Mean dependent var		12.14691
Adjusted R-squared	0.993719	S.D. dependent var		3.233786
S.E. of regression	0.256278	Akaike info criterion		0.223059
Sum squared resid	3.021206	Schwarz criterion		0.448202
Log likelihood	0.200473	F-statistic		1614.853
Durbin-Watson stat	1.296114	Prob(F-statistic)		0.000000

Table 4.3 (b) Long Run Regression Results

Dependent Variable: LOG(RGDP)
Method: Least Squares
Date: 04/13/14 Time: 10:53
Sample: 1961 2012
Included observations: 52

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(FGEH)	0.332745	0.085284	3.901600	0.0003
LOG(SGEH)	0.820346	0.088635	9.255351	0.0000
DGOV	-0.729446	0.187720	-3.885808	0.0003
DGOV*DDEV	0.441002	0.224210	1.966908	0.0552
DDEV*DECO	1.026201	0.193291	5.309101	0.0000
C	1.877271	0.342510	5.480918	0.0000
R-squared	0.993945	Mean dependent var		12.14691
Adjusted R-squared	0.993287	S.D. dependent var		3.233786
S.E. of regression	0.264948	Akaike info criterion		0.289604
Sum squared resid	3.229094	Schwarz criterion		0.514748
Log likelihood	-1.529706	F-statistic		1510.297
Durbin-Watson stat	1.475039	Prob(F-statistic)		0.000000

The above model was estimated when it was observed that FGCH did not behave well thereby adding FGCH and FGRH to form FGEH. It was also observed that the log functional performed better than all other forms experimented. Note that two regressions were conducted to take care of interaction of dummies. Tables 4.3a and 4.3b present the results of the OLS regression analyses. In the event of different estimates, table 4.3a takes precedence. The tables display the coefficient of the estimated parameters, estimated standard errors of the coefficients, individual and joint significant test statistics (t and F), coefficient of determination, and other statistics.

The results indicate positive and significant relationship between logarithm of RGDP and that of FGEH and SGEH. Also, the logarithm of RGDP is positively related with the interaction dummies of DDEV-DECO, DDEV-DGOV and DDEV-DGOV-DECO. The coefficients of these interactions are individually significant. Interestingly, the coefficient of DGOV is negative and highly significant as shown by its associated p-value (exact probability of obtaining the test statistic).

The magnitudes of the coefficients suggest that 100% increase in federal government expenditure on human capital (comprising education and health) increases real gross domestic product by approximately 30%. Further, 100 per cent point increase in human capital expenditure by the 36 states and the federal capital territory (FCT) raises RGDP by about 80%. Surprisingly, the percentage change in real GDP is higher for military regimes compared with civilian regimes by about 79%. However, the interaction of the dummy variables show that period when the economy relied on agriculture and the government was actively engaged in development planning contributed 107% to real growth than otherwise. Also, democratic (civilian) regimes when government actively planned the economy recorded higher contribution of 55% to real GDP than military regimes when there was no active development planning. Findings further reveal that civilian regimes when agriculture dominated the economy with active government planning efforts contributed 68% to the Nigeria's real gross domestic product in excess of the reference category.

The adjusted R2, which is a measure of goodness of fit, indicates that the model is of good fit having explained 99 per cent of variation in the dependent variable. This fact is further corroborated by the test for the overall significance of the regression model. The exact probability of obtaining the F statistic is practically zero. With these evidences, we may conclude that the regressors exert significant influence on the dependent variable.

5. Concluding Remarks

This research examines the Nigerian data from 1961 to 2012 to provide empirical content to the relationship between public expenditure on human capital and economic growth while also addressing some pertinent political economic issues. Using the procedures of Johansen Cointegration and Error Correction Mechanism, the estimated regression model found that public expenditure of federal and states governments on human capital exhibits positive long run relationship with economic growth in Nigeria. Our findings on the interaction of government regime, development efforts and mainstay of the economy, lead us to hold the view that agriculture should be emphasised in contrast to the current reliance on oil and that the years of active development planning should be brought back into our current democracy.

The resuscitation of agriculture is not only important because of its ability to boost our economy, but because it could generate foreign exchange, build foreign reserves, achieve food security, create jobs (and reduce unemployment), develop the manufacturing sector (through it linkage effects) and that it proceeds could well be invested in education and health, and research & development. In so doing, we would be exploiting our natural resources to develop our human resources for further economic growth.

Appendix

Parsimonious Error Correction Model
Dependent Variable: LOG(RGDP)
Method: Least Squares
Date: 04/14/14 Time: 12:40
Sample(adjusted): 1964 2012
Included observations: 49 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(RGDP(-1))	1.630492	0.271459	6.006396	0.0000
LOG(RGDP(-2))	-0.166357	0.234476	-0.709485	0.4824
LOG(RGDP(-3))	0.083543	0.159289	0.524472	0.6030
LOG(FGEH(-1))	-0.189788	0.077487	-2.449294	0.0190
LOG(FGEH(-2))	-0.053197	0.061212	-0.869069	0.3903
LOG(SGEH(-1))	-0.347881	0.214190	-1.624169	0.1126
ECM(-1)	-0.610338	0.233317	-2.615919	0.0127
DGOV(-1)	0.162305	0.131636	1.232981	0.2252
DDEV*DECO	-0.537609	0.178233	-3.016318	0.0045
DDEV*DECO*DGOV	-0.122986	0.177021	-0.694756	0.4914
C	-1.239548	0.539621	-2.297073	0.0272

R-squared	0.997617	Mean dependent var	12.41409
Adjusted R-squared	0.996990	S.D. dependent var	3.138092
S.E. of regression	0.172165	Akaike info criterion	-0.485979
Sum squared resid	1.126353	Schwarz criterion	-0.061284
Log likelihood	22.90648	F-statistic	1590.910
Durbin-Watson stat	1.965128	Prob(F-statistic)	0.000000

Research Data*

Year	Real GDP**	FGEH** *	SGEH	DECO	DGOV	DDEV
1961	2,207.72	27.91	112.50	1	1	1
1962	2,428.76	26.32	125.90	1	1	1
1963	2,576.67	23.66	135.10	1	1	1
1964	2,706.26	28.76	126.20	1	1	1
1965	2,907.85	27.93	164.20	1	1	1
1966	3,155.44	32.23	185.50	1	0	1
1967	2,573.68	11.89	125.00	1	0	1
1968	2,483.55	5.70	123.50	1	0	1
1969	3,318.60	28.39	158.50	1	0	1
1970	4,937.83	44.95	193.90	1	0	1
1971	6,218.59	31.49	339.90	1	0	1
1972	6,720.31	63.07	405.30	1	0	1
1973	8,069.52	65.34	488.00	1	0	1
1974	17,599.60	411.22	621.10	0	0	1
1975	20,079.35	1,093.60	1,402.50	0	0	1
1976	24,923.15	1,301.38	2,711.60	0	0	1
1977	29,471.52	1,082.58	2,349.50	0	0	1
1978	32,294.99	1,090.46	2,012.70	0	0	1
1979	39,246.34	827.73	2,583.90	0	0	1
1980	46,406.22	2,727.15	2,917.80	0	1	1
1981	44,524.38	1,593.75	4,611.00	0	1	1
1982	45,879.78	1,303.14	4,733.90	0	1	1
1983	49,655.40	1,315.41	5,262.10	0	1	1
1984	55,747.07	591.99	4,590.60	0	0	1
1985	63,494.49	1,614.75	4,823.10	0	0	1
1986	64,652.44	1,123.48	4,601.00	0	0	0
1987	98,383.36	916.63	5,721.20	0	0	0
1988	130,044.76	3,840.20	7,193.40	0	0	0
1989	202,705.70	6,074.90	8,140.60	0	0	0
1990	250,159.24	5,492.00	13,381.50	0	0	0
1991	291,850.66	4,168.60	15,872.30	0	0	0
1992	497,993.93	3,468.75	20,780.30	0	0	0
1993	639,418.25	18,235.12	29,799.00	0	0	0
1994	841,372.11	15,079.82	37,772.00	0	0	0
1995	1,807,552.80	23,036.40	53,152.00	0	0	0
1996	2,527,042.39	24,645.38	54,825.00	0	0	0
1997	2,619,844.36	28,962.13	58,956.20	0	0	0
1998	2,532,382.85	44,807.03	75,124.70	0	0	0

1999	2,986,404.00	88,624.70	102,690.10	0	1	0
2000	4,284,289.02	112,750.25	196,784.10	0	1	0
2001	4,417,955.41	132,966.41	294,709.50	0	1	0
2002	6,463,076.47	184,652.68	424,195.40	0	1	0
2003	7,935,374.52	158,343.58	545,308.70	0	1	0
2004	10,669,347.56	164,423.18	556,812.30	0	1	0
2005	13,625,043.58	223,007.73	789,127.40	0	1	0
2006	17,357,896.07	272,851.00	894,323.90	0	1	0
2007	19,314,598.88	407,568.96	1,217,432.90	0	1	0
2008	22,717,067.89	485,100.62	1,505,629.95	0	1	0
2009	23,182,613.15	474,929.97	1,426,055.60	0	1	0
2010	31,775,745.11	698,339.84	1,648,400.00	0	1	0
2011	35,103,317.14	712,681.71	2,055,755.88	0	1	0
2012	37,908,733.44	737,500.00	1,664,273.97	0	1	0

*All the quantitative data are in N' million **Computed for year 2000 constant prices ***FGREH+FGCEH

References

Abu, N. & Abdullahi, U. (2010), "Government Expenditure and Economic Growth in Nigeria, 1970-2008: A Disaggregated Analysis", Business and Economics Journal, 2010 (4): 1-11.

Adawo, M.A. (2011), "Has Education (Human Capital) Contributed to the Economic Growth of Nigeria?" Journal of Economics and International Finance Research and Evaluation, 3(1): 46-58.

Adebiyi, M.A. (2006), "Education-Economic Growth Paradox in Nigeria: An Autoregressive Model", Working papers series retrieved from www.papers.ssrn.com

Adelakun, O.J. (2011), "Human Capital Development and Economic Growth in Nigeria", European Journal of Business and Management, 3(9): 29-39.

Adenuga, A.O. (2002), "Educational Expenditure and Performance in Nigeria (1970-2000)", NES Proceedings, Nigeria

Akinlo, A.E. (2012), "How Important is Oil in Nigeria's Economic Growth?" Journal of Sustainable Development, 5(4): 165-179.

Ayo, E. (1988), Development Planning in Nigeria, University Press Plc, Ibadan.

Babatunde, M. & Adefabi, R. (2005), "Long run Relationship between Education and Economic Growth in Nigeria: Evidence from the Johansen's Cointegration Approach", Regional Conference on Education in West Africa, Ministry of Education, Dakar, Senegal

Barro, R. (1991), "Economic Growth in a Cross Section of Countries", Quarterly Journal of Economics, 106(2): 407-443.

Bashiru, et al. (2014), "Neglecting Development Plans and its Implications for Democracy", accessed at www.unilorin.edu.ng/publications on 20th April, 2014

CBN, Statistical Bulletin (Various Issues), Central Bank of Nigeria, Nigeria

Damodar, G.N. & Porter, D.C. (2009), Basic Econometrics (Fifth Edition), McGraw Hill Intl Edition, New York.

Dauda, R.O. (2010), "Investment in Education and Economic Growth in Nigeria: An Empirical Evidence", International Research Journal of Finance and Economics, 2010 (55): 158-169.

Engle, R. & Granger, C. (1987), "Cointegration and Error Correction: Representation, Estimation and Testing" Econometrica, 55: 251-276.

Fagerlind, A. & Saha, L. (1997), Education and National Developments, Reed Educational and Professional Publishing Ltd, New Delhi

Federal Republic of Nigeria (1970), Second National Development Plan 1970-1974, Federal Government Press, Lagos, Nigeria

Federal Republic of Nigeria (1975), Third National Development Plan 1975-1980, Federal Government Press, Lagos, Nigeria

Goode, R. B. (1959), "Adding to the Stock of Physical and Human Capital" American Economic Review, 49(2), 147-155.

Granger, C.W. (1986), "Developments in the Study of Cointegrated Economic Variables", Oxford Bulletin of Economics and Statistics, 48(3): 213-228.

Ishola, W.A. & Alani, R.A. (2011), "Human Capital Development and Economic Growth: Empirical Evidence from Nigeria", Asian Economic and Financial Review, 2(7): 813-827.

Jimoh, A. (2006), "The Effects of Trade Liberalization on Real Exchange Rate: Evidence from Nigeria", Journal of Economic Cooperation, 27(4):45-62

Johansen, S. (1988), "Statistical Analysis for Cointegration Vectors", Journal of Economic Dynamics and Control, 12(2-3): 231-254.

Khilji, B.A. (2005), "Education as a Factor of Human Capital Formation in Pakistan (1951-1998): Review", Journal of Agriculture and Social Sciences, 1(2): 180-186.

Lawal, N.A. & Wahab, T.I. (2011), "Education and Economic Growth: The Nigerian experience", Journal of Emerging Trends in Economics and management Sciences, 2 (3): 225-231.

Muhammad, et al., (2011), "Relationship among Education, Poverty and Economic Growth in Pakistan: An Econometric Analysis", Journal of Elementary Education, 22(1): 23-45.

Nafziger, W. (2006), Economic Development (Fourth Edition), Cambridge University Press, Cambridge, UK.

NNPC (2008, 2012), Annual Statistical Bulletin, Nigerian National Petroleum Corporation, Nigeria.

Ogunlowo, A. (2008), "Nigeria before Oil" Newswatch Magazine, 18 February, 2008.

Olaniyan, D.A. & Okemakinde, T. (2008), "Human Capital Theory: Implications for Educational Development", European Journal of Scientific Research, 24(2): 157-162

Olayemi, S.O. (2012), "Human Capital Investment and Industrial Productivity in Nigeria", International Journal of Humanities and Social Science, 2(16): 298-307.

Oluwatobi, S.O. & Ogunrinola, I.O. (2011), "Government Expenditure on Human Capital Development: Implications for Economic Growth in Nigeria", Journal of Sustainable Development, 4(3): 72-80.

Premium Times, (2014), www.premiumtimesng.com, accessed on 6th April, 2014.

Romer, P. (1986), "Increasing Returns and Long run Growth", Journal of Political Economy, 91(5): 723-746.

Saima, et al., (2012), "An Empirical Analysis of Higher Education and Economic Growth in West Virginia", Paper presented at Agricultural & Applied Economics annual meeting August 12-14, Seattle, WA.

Schultz, T.W. (1961), "Investment in Human Capital" American Economic Review, 51(1): 1-17.

Sikiru, J.B. (2011), "Long-run Relationship between Education and Economic Growth: Evidence from Nigeria", International Journal of Humanities and Social Science, 1(14): 123-128.

Solow, R. M. (1956), "A Contribution to the Theory of Economic Growth" Quarterly Journal of Economics, 70: 65-94

Solow, R. M. (1957), "Technical Change and the Aggregate Production Function", Review of Economics and Statistics, 39: 312-320.

Todaro, M.P. & Smith, S.C. (2009), Economic Development, Prentice Hall.

Udosen, et al., (2009), "Fifty Years of Oil Exploration in Nigeria: The Paradox of Plenty", Global Journal of Social Sciences, 8 (2): 37-47