

## The Nexus Between Human Capital Investment and Economic Growth in Nigeria

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**Abstract:** This study examines the nexus between human capital investment and economic growth in Nigeria. Specifically the study investigated the causality between human capital investment and economic growth during the period 1975-2005 using cointegrated and Error Correction Mechanism (ECM) technique. The findings of the study revealed that there existed a directional causality between Human Capital Investment and Economic Growth in Nigeria. It is therefore recommended that government should increase its budgetary allocation to the education and health sectors coupled with concerted efforts of all the stakeholders: government at levels, non governmental organization and the organized private sector in improving educational and health facilities for sustainable economic growth.

**Key words:** Human capital, investment, economic growth, health sector, education, Nigeria

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### INTRODUCTION

One of the challenges facing the global and national communities is to achieve sustainable development. Sustainable development has three pillars-economic development, social development and environmental protection (IMF, 2002). It entails balancing the economic, social and environmental objectives of society, integrating them, wherever possible through mutual supportive policies and practices and making trade off where such integration is not possible.

Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This automatically subsumes some notion of fairness of access to basic resource needs for all population both in the present and in the future. Economists have been at pains to make sense of the elusive condition for sustainability. However, various interpretations of the definition of sustainability have consequently emerged. While the debate still lingers on how to develop appropriate indicators for measuring the concept. There is a consensus that sustainability is the capacity for continuance into the future (Pearce, 1997). The sustainability concept recognized that life is a complex bundle of values, objectives and activities with ethical, environmental, economic and social dimensions (Ekong, 1995).

Viewed from economist's perspectives, the three pillars of sustainable development can be said to constitute the capital assets available for societal development. In this sense, the capital available for

sustainable development can be said to be the natural, man made, social and human capital stocks (Backer, 1990). The condition for sustainable development therefore amounts to each generation leaving the next generation a stock of productive capacity in the form of capital assets and technology that is capable of sustaining utility or well being per capita than that enjoyed by the current generation. Becker (1990) put it in another way that sustainable development requires that the stock of natural, man made, social and capital stocks should not decline or depreciate below the present level.

**Human capital and economic growth:** Economic growth is essential for sustainable development. There is a strong link between economic growth and improvement in living standard. Economic growth can support environmental sustainability by increasing the resources available for environmental improvement.

Economic growth is a quantitative sustained increase in the countries per capita output or income accompanied by expansion in consumption, capital and volume of trade (Jhingan, 2001). Among the notable macroeconomic objectives, economic growth has been one of the most important for a long time in Nigeria. Growth is an important objective of economic policy particularly in Nigeria because it is the key to high standards of living, it brings increasing revenue which means more and better schools, hospitals and other social services. Economic growth makes it easier politically to carry out policies of income distribution. Durable growth requires sustainable policies-ones that do not give rise to accelerating inflation for its attainment. There can be no

significant economic growth in any country without adequate human and natural resources. In essence, human capital formation is fundamental to nations economic progress. Ojo (1996), explained that improved human beings will not complain about their education, health, food, housing and security among other things, therefore the improved human beings are better producers who contribute positively to economic growth and its sustainability.

The concept of human capital refers to the abilities and skill of human resources of a country (Adamu, 2000), while human capital formation refers to the process of acquiring and increasing the number of persons who have the skills, education and experience that are crucial for the economic growth and political development of a country (Okojie, 1995). Human capital formation Okojie (1995), concludes is thus associated with investing in man and his development as a creative and productive process.

Effective investment in human capital is a key component of long term economic growth and increased productivity. A well educated population is an objective in itself as well as the conduct to accelerate social and economic development. According to African Development Bank Report (1998), human capital development is an essential means of sustained economic growth and poverty reduction and also as an end in itself. World Bank (1995) assessment of 192 countries indicated that human capital on the average, accounts for 64% of the total wealth, while physical and natural capital accounts for 16 and 29%, respectively.

Of all the contributory factors to economic development, human resources stand out as the major factor that determines the manner in which all other factors should be combined and spur the development process. UNDP (1997) arguing that development should focus on human development that should be seen in the light of how economic growth is managed and distributed for the benefit of the people.

Economist often used the term human capital to mean education, health and other human capacities that can raise productivity, when increased (Todaro, 1990). Recognition of the importance of the capital stock is critical both for sustainability and globalization. As rightly noted by Aniya (1991), with the on set of post industrial society, growth and development processes have gone from the resource exploitative model to the knowledge based technology driven.

Some economists assumed that there can be no depreciation on human capital since knowledge and skills are increasing, rather than declining and can always be passed on to future generation. But depreciation on human capital does occur and this is expressed in the loss

of indigenous skill and knowledge through displacement of tribes, loss of ancient crafts, culture, language, etc. as is going on all over Africa at the moment.

Babalola explained that the contribution of education to economic growth is presumed on its ability to increase the productivity of an existing labour force. According to him education contributes to economic growth in the following ways:

First, education inculcates skills such as engineering, medicines, law, accounting, computer science and teaching, which are useful in the production process. Secondly, education imparts knowledge of economics political science arts, geography, philosophy, history, mathematics and logical reasoning which can contribute to the most important aspects of economic growth such as innovation, adaptation and entrepreneurship. Thirdly, education provides job ethics and attitudes conducive to production of goods and services. Finally, education serves as screening device for selecting or identifying talents in the most efficient manner. Therefore, education is capable of enhancing the efficient production of goods and services by ensuring through screening that the best people are made available for the world of research.

UNR (1996) expressed that education is fundamental to enhancing the quality of life and ensuring social and economic progress. Education plays a key role in the ability of a developing country to absorb modern technology and to develop the capacity for self-sustaining growth and development. Lee (1989) emphasized that the main problem associated with the belief that education is good for economic growth is linked with how to maintain an equilibrium position. That is, where there will be no incidence of either shortage or supply of educated people. A shortage of educated people might limit growth while excess supply of it might create unemployment and thus limiting economic growth.

Health comes next to education in the development of human resources. There is symbiotic nexus between health and education. Educational facilitates general enlightenment in the population as well as acquisition of the varied and much needed skills for the transformation of the society, have the tendency to foster a change in the attitudes and habits which may be conducive to the attainment of high health status particularly amongst people in developing countries where the major causes of deaths are largely preventable. So also, for the manpower resource of a nation to be utilized to harness the other resources of the nation, the population must be healthy. Without good health, productivity is low and to ensure adequate productivity, the majority of the population needs to be protected from illness. A strong and healthy

labour force is an essential factor in development. It signifies not only absence of disease but also a high life expectancy and absence of disability and discomfort.

According to Yesufu (2000), a good health policy is a means by which government can at once, ensure that manpower is generated in the right mixes, distributed in accordance with national priorities and ensure the highest level of labour productivity. Health improvement influences morbidity and labour force productivity thereby enchainning the process and speed of economic development. Most development countries have given serious attention to the provision of public health, education and social welfare services. This is because, they believe that such measures could improve the quality of life of their people and their efficiency as productive agents thereby accelerating the general socio economic development of their nations.

The world is talking about globalization, international property rights and information technology and these are only achieved through sound education and good health care of the citizens. Since health and educational status affects the individual participation in economic activities and consequently the level of the labour force in an economy, a re-examination of the level of investment in human capital and sustainable growth is imperative, hence, this re-examination is the principal focus of this study.

## **MATERIALS AND METHODS**

In recent years, significant empirical research has been conducted to test a number of the prediction of both the neo-classical and endogenous models of growth. Tests of the neo-classical growth model have focused on the conditional convergence thesis and the results have generally been mixed. The convergence thesis implies finding out the time that take an economy to eliminate some percentage of gap between the initial and long run level of per capita income.

Most other tests of modern growth theory take the form of regression analysis using either time series or cross section, data. In these studies, variations in the growth rates of per capita GDP of either broad sample of countries or time series data of a country are analyzed for statistically significant association with the number of variables including the level per capita income, the initial quantity of human capital approximated by the average years of schooling, the ratio of government consumption expenditure to total output, measures of political stability, measures of market distortions by governments, measures of openness to international trade and the ratio of gross investment to output. Across many studies, it has been

found that growth seems to be positively related to human capital attainment, the investment to output ratio, measures of openness to international trade, political stability, measures of economic freedom and negatively related consumption, measures of market distortions etc.

Empirical evidence on the government expenditure and investment growth relationship is diverse mostly based on cross section studies that often include a sample of both advanced and developing countries. The conclusion in most of these countries is that government consumption expenditure has a negative impact on growth (Baro, 1990; Easterly and Rebezco, 1993; Tennien, 1969). Studies using a sample of only advanced (Mostly OECD) Countries obtain similar results. For instance Hanison and Hendickson found that government consumption expenditure is growth retarding but spending on education impacts positively on growth. Ram (1986) using a sample of 115 countries, found government expenditure to have significant positive externality effects on growth particularly in the developing countries sampled but total government expenditure had a negative effect on growth.

Other studies have investigated the impact of functional categories of public expenditure for example, Devaragam *et al.* (1996), using a sample of 14 OECD countries found that spending on health, transport and communication have positive impact. In majority of the studies, total government spending appears to have a negative effect on growth (Roman, 1990; Alexander, 1996; Folster and Lai, 1999). The study by Korveka and Morrissey found that government consumption expenditure is growth promoting.

There is a general tendency for government consumption to be negatively associated with growth performance, although the evidence for these is weaker in studies of developing countries. This could be due to the diversity of samples in the various studies and problem regarding the quality of the data used. Some misspecification problems may arise due to omitted variables (Osmond, 1990; Lin, 1994; Folster and Lai, 1999). Studies for LDCs provide mixed evidence. There is evidence that unlike in the case of developed countries, consumption expenditure may be growth enhancing and investment spending growth, retarding (Devaragam *et al.*, 1996). However, Landan using data on 27 LDCs found that consumption expenditure has a negative effect on growth

Evidence based on time series analysis is rare and mainly addresses causality between government and growth. Hsieh and Lai used data on 97 countries and found no evidence of causality, but government expenditure has a marginal effect on growth. On the other

hand Ghah using data for OECD countries found evidence that government size (measured as consumption spending) Granger-causes growth in most countries.

Kweka and Morrissey revealed that most of the empirical studies are cross-sectional and specific country studies are rare. Time series analysis for specific countries can avoid some of the econometric and sampling problems. Specifically cross-section analysis assumes that co-efficient are the same for all countries in the sample. Econometric technique exist to address this problem but they are imperfect, where as a time series analysis can address country specific feature. A time series country study is potentially more informative, although the findings cannot be generalized to other countries.

The primary focus for developing nations should be on endogenous development, specially one based on human capital. The focus on endogenous development through human capital is nothing new and dates back to Schultz generalized capital theory in 1961 and his collaboration with Becker in the 1960s Schultz felt that like other capital, human capital could be increased through investment in and commitment to human factor such as education, training and health care. This theory led to increased investment in human capital and resulted in the emergence of research and development policy, computer based technology industries and entrepreneurship (Mehmet, 1999).

Investment in human capital such as education matures when those receiving the education have spent sufficient time in the system to become member of the labour force. When one incorporates the time and the investment of government and other institutions, the opportunity costs swells (Placahand, 2000). Since theories of development focused on the acceleration of the stages of economic growth, human capital was considered too long term. In developing countries, there is limited access to such investment. Only the very privileged received education, training and healthcare and if there were investment in human capital, it emanated from colonial models and did not address the needs of the nations.

However, endogenous investments in human capital were done by some Asian nations in spite of the prevalent mindset. These nations harmonized education with the labour market with a strong emphasis on skills needed by the state in all sectors and encouragement of entrepreneurship in all enterprises. There were expansions of vocational and industrial education. These nations eventually had success.

According to MacArthur Foundation Report, investment in education increases labour productivity. Thus it may be possible to sustain economic growth with

little or no increase in the flow of services from natural and manufactured capital by producing a more educated work force. The report further stressed that to assess this potential, growth models must represent the costs of increasing the level of education.

The African Development Bank Report (1998) revealed that the improvements in economic growth will only be sustainable if there are among other factors, competent people with knowledge and skills to capitalize on new employment opportunities. In this contest, human capital development is seen both as essential means for sustained economic growth and poverty reduction and as important end in its self. The report further explained that education which equips people with literacy and numeric skills has high rate of private and social returns, particularly in the case of primary education.

Education has a wide range of indirect benefits which instigate powerful changes in people attitude to work and society. It makes it easier for people to learn new skill throughout there lives and hence facilitate their pacifications in modern economies and societies.

Education also affects the health and life expectancy of individuals, empowering them with the knowledge and the means to prevent control and detect diseases. Health and nutrition improve people's standard of living by reducing sickness and child mortality. Education and better health also interact positively to reduce fertility and population growth.

**Model specification:** The objective is to examine the nature of the nexus between Human Capital Investment and economic growth in Nigeria by considering the relationship between the two variables. To this end we adopted Cointegration Granger Causality Test. The test examined whether past change in one variable X helped to examined the current changes in another variable Y over and above the explanation provided by past changes in Y. If otherwise, then one concluded that X does Granger cause Y. To determine whether causality runs in the other direction form Y to X we repeat the experiment but with Y interchanged (Olomola *et al.*, 2003). This may be given in a Granger Causality sense.

Where X and Y stand for the variable under consideration that is Human Capital Investment (HCI) and output respectively and K is appropriate lag length to be determined by Ataike (1969)'s Final Prediction Error (FPE) Criterion.

The objective of this study is to empirically validate or otherwise the theoretical argument that HCI promotes economic growth. This pre-supposes that a positive and significant relationship exists between HCI and economic

growth. Hence the sign of human capital investment be positive and significant ( $\beta_{11}>0$ ) so also if growth promotes Human capital investment ( $\beta_{21}>0$ ). If neither Human capital investment nor economic growth promotes the other then  $B11 = B21 = 0$ .

**Analytical technique:** The technique of cointegration and Error Correction Model (ECM) is employed for this study having been found to be very adequate for handling economic data especially in Less Developing Countries (LDCs). The first step is to test for the stationarity of the variable in the model so as to ascertain the order of integration of the variables and the number of time the variables have to be differenced to arrive at stationarity. This enables us to avoid the problems of spurious and inconsistent regression that are associated with non-stationary time series models.

We therefore performed a unit root test on each variable in our model using the Dickey Fuller (DF) and Augmented Dickey-Fuller tests specified as:

$$\Delta y_t = a\beta Y_{t-1} + E_t \quad (1)$$

Here, Y represents the vector of variables considered in this study namely logarithm of GDP (LQ), logarithm of HCI (LHCI),  $\beta$  is negative and significantly different from zero. Then the series is  $1(0)$  that is stationary. In most cases stationary series have a finite variable and a tendency for the series to return to its mean value.

However, the error term  $E_t$  should be white noise. This problem is over come by adding lag values of  $Y_t$  that is:

$$\Delta y_t = a\beta Y_t + \Sigma \Delta \beta Y_{t-1} + E_t \quad (2)$$

This is the equation for the Augmented Dickey-Fuller (ADF) test with  $n$  sufficiently large enough to obtain autocorrelated residuals. The  $t$  statistics for the coefficient  $\beta$  is the (ADF) test and it has critical values as that of Eq. 2. The subsequent step is to test for cointegration using Engle and Granger (1987). Two critical steps are in valued.

First the long-run relationship is estimated in levels by the Ordinary Least-Square (OLS) estimators:

$$LQ_t = a_1 + a_2 HCL + e_t \quad (3)$$

Applying the DF and ADF tests to the residuals from the estimation of Eq. 5 regression tests the hypothesis of cointegration.

If it is found to be significant, than the second step is followed whereby the residual from the static regression is used as an error correction term in the dynamic first difference regression estimation. Following Engle and Granger (1987) the residuals:

$$E_t = LQ - (a_1 + a_2 HCL) \quad (4)$$

Equation 4 is examined by using the DF and ADF discussed earlier. If the calculated values  $E_t$  is  $1(0)$  and Q and HCI are considered cointegrated. The next step is to switch to short run model with the application of error correction dynamic specification of the form:

$$\Delta LQ = a_0 + AZ - a_2 ECM_{t-1} + E_t \quad (5)$$

Where:

L = General lag operator

Z = Vector of independent variable (HCI)

ECM = The time series of residuals from cointegration vector

However, the cointegration says nothing about the direction of the causal relationship between two variables, but if two variables are cointegrated, there will be granger causality in at least one direction. In this study, Granger causality was employed to examine the relationship between HCI and economic growth. The model Granger proposed is of the form:

$$Y_t = a_1 Y_{t-1} + \beta_j X_{t-1} \quad (6)$$

To prevent spuriousness when a variable cannot be identified as  $1(0)$  or  $1(1)$  Eq. 6 can be expressed as follows:

$$\Delta Y_t = \text{Cons tan } t + j \Delta Y_{t-1} - \sum \beta_j \Delta X_{t-j} + E_t \quad (7)$$

$$\Delta X_t = \text{Constant} + \sum_{i=1}^j j \Delta Y_{t-i} + \sum_{i=1}^j \alpha Y_{t-i} + \Sigma_t \quad (8)$$

But when the two variables are both co integrated, the joint process as indicated by Engle and Granger (1987) takes the error connection mechanism form expressed below:

$$\Delta_t Y_t = b_1 ECM_{t-1} + \sum_{i=1} b_2 \Delta Y_{t-i} + \sum_{i=1} b_2 \Delta X_{t-i} + E_{t-1} \quad (9)$$

$$\Delta_t Y_t = d_1 ECM_{t-1} + \sum_{i=1} d_2 \Delta Y_{t-i} + \sum_{i=1} d_2 \Delta X_{t-i} + E_{t-1} \quad (10)$$

**Data:** The data used for this study was obtained from secondary sources. Empirical investigation was carried out on the basis of sample covering the period 1985-2005 for the two variables considered. Economic growth (Q) and Human Capital Investment (HCI). Economic growth was provide by Gross Domestic product at current prices. The human capital investment was measured by the total government expenditure on Educations and Health in

Nigeria. Data for the two variables were sourced from various issues of CBN publication namely: statistical bulletin, economic and financial review and annual reports.

**RESULTS AND DISCUSSION**

Before model estimation, the time series property of the data on the variables was investigated by carrying out a unit root test on each variable thereby establishing the cointegration of the variable included in the model. Thus was followed by the estimation and analysis of error correlation model.

The result of the unit root test on the variables (ADF) as specified in Eq. 1 and 2 are reported in Table 1.

The parameter estimates from the DF and ADF tests in Table 1 showed that the null by hypothesis is rejected implying that these variables were non-stationary and therefore needs first differencing to attain stationarity the non stationarity of the variables, the order of integration needs to be established to achieve this.

We differenced the dependent variable twice and then regressed on the first differenced lagged level of the variables. The result obtained is shown in Table 2. From Table 2, it was observed that the variables were 1(1) series indicating that stationarity was induced after differencing.

Next, we tested for co integration. Engle and Granger (1987) as expressed in Eq. 4 and 5, we obtained the results of the cointegration estimations as presented in Table 3, while the result of the DF and ADF tests on the residuals are presented in Table 4.

As shown in Table 3 and 4, the null hypothesis that there is a random walk was rejected at 10% level of significance indicating that Gross Domestic Product (a proxy for economic growth) and human capital investment were cointegrated.

**Human capital investment and economic growth:** The relationship between human capital investment and economic growth variation was examined using Eq. 6 and 7. The Ataike (1969) minimum Final Medication Error (FPE) criterions was used to determine the right lag length for the two variables, the results are given in Table 5.

The F statistic indicated the significance of the coefficient of the cotemporaneous and four lags of Human Capital investment in explaining economic growth.

When Gross Domestic Product (GDP) was regressed on its four lag values of Human Capital Investment (FPI) the F statistics 4.068 was significant at 5% level. This was buttressed by the value of R<sup>2</sup>, which indicated the explanatory power of the models. More than 60% of the variation in economic growth is explained by past values

**Table 1: Unit root test**

Variables	DF	ADF
LGDP	0.532070	0.438484
LHCI	-3.38072	-2.752770

**Table 2: Co integration result**

Variables	DF	ADF
ΔGDP	-3.338072	-2.911400
ΔHCI	-6.281656	-4.0681

**Table 3: Result for static long run modeling LGDP on HCI by OLS**

Variables	Coefficient	SE	t-value
Constant	-0.320	0.298	1.073
LHCI	0.146	0.119	1.224

R<sup>2</sup> = 0.81; F = 327; DW = 1.41

**Table 4: Residual stationary test**

Variables	DF	ADF	Order of integration	Level of significance
ECM	-1.22348	-29114	1(0)	10%
10%	-4.0681	C-2.7042		

**Table 5: Result of causality test from HCI-GDP**

Variables	Coefficient	SE	HCSE	t-value
<b>ΔLGDP</b>				
1	1.3133	0.3176	1.7279	0.2982
2	-0.2336	0.1286	0.4462	0.4813
3	0.6623	0.1346	0.1675	0.6439
4	0.1630	0.2018	0.2351	2.3758
Constant	0.037	0.0843	0.1271	0.5276
<b>ΔLHCI</b>				
0	0.7763	0.1257	0.1281	0.6552
1	0.1501	0.0933	0.1877	1.2301
2	0.1813	0.3880	0.1808	0.7005
3	0.0945	0.2980	0.3203	-0.1394
4	0.2072	0.1193	0.4010	0.1066
<b>ECM<sub>3</sub></b>				
1	-0.5392	1.2527	1.8945	0.2072

R<sup>2</sup> = 0.6125 S.E = (0.1321) F = (4.064); DW = 1.377 Information Criteria: SC = -0.5417; HQ = -0.2729 FPE 0.9193

of human capital investment. The conclusion from these findings is that there is a directional causality between HCI and GDP. The main findings of the study were that:

- All the variables were co-integrated and stationary after difference
- There was a directional causality between human capital investment and economic growth
- The results suggest that human capital investment could contribute immensely to economic growth of the Nigeria given that there are an increase its budgetary allocations to the education and health sector

For any sustainable growth to occur in the country government should increase its budgetary allocations in human capital development and ensure proper implementation, monitoring and evaluations of expenditure disbursed in both health and education sectors, government should also maintain a steady increase in the yearly budgetary allocations that will develop the human resources. There is also the need for government to rehabilitate health and educational

facilities and provide adequate funds for research and publication and building of functional health facilities. For educational financing to contribute to sustainable economic growth, there is the need for collaborative effort among all stakeholders including the government, non-government organizations and the private sector in human capital investment.

### CONCLUSION

The study examines the relationship between 1985 and 2005 in exploring the causality between human capital and economic growth, we employed error correction and cointegration econometric (ECM) technique. Secondary data on Federal Government Expenditure on education and health were sourced from the Central Bank of Nigeria Statistical Bulletin as proxy for human capital investment.

### REFERENCES

- Adamu S.O., 2000. Nation Accounting in a Developing Country: The Case of Nigeria. SAAC Publications, Ibadan, Nigeria, pp: 108-109.
- African Development Bank Report, 1998. Human Capital Development. Blackwell Publishing, Oxford, pp: 98-113.
- Alexander, S., 1996. Public spending on health transport and communication. *J. Polit. Econ.*, 18: 131-149.
- Aniya, O.A., 1991. Preparing Nigeria for Competition in the 21st Century. 2nd Edn., Nigerian Academy of Science, Nigeria, ISBN: 1-58906-020-2.
- Ataïke, S., 1969. Statistical predictor identification. *Ann. Inst. Stat. Math.*, 21: 213-217.
- Backer, G.S., 1990. Human capital formation and economic growth. *J. Polit. Econ.*, 98: 64-89.
- Baro, R., 1990. Economic growth in a cross section of countries. *Q. J. Econ.*, 106: 407-443.
- Devaragam, S., V. Swaroop and H. Zou, 1996. The composition of public expenditure and economic growth. *J. Monetary Econ.*, 37: 142-168.
- Easterly, P. and S. Rabezco, 1993. Government expenditure and investment. *J. Monetary Econ.*, 10: 139-139.
- Ekong, S., 1995. Economic Dislocation and Recovery in Lebanon. International Monetary Fund, Washington, DC., ISBN-13: 978-1557754592, pp: 64.
- Engle, R.F. and C.W.J. Granger, 1987. Co-integration and error correction: Representation, estimation and testing. *Econometrica*, 55: 251-276.
- Folster, H. and K. Lai, 1999. Government spending and economic growth: The G7. *Applied Economic*, pp: 532-42.
- IMF, 2002. Development Social Development and Environmental Protection. IMF, Washington, DC., USA.
- Jhingan, M.L., 2001. Economics of Development and Planning. 4th Edn., Delhi Vrinda Publications Ltd., New Delhi, ISBN: 0-8213-1336-3.
- Lee, S., 1989. Education Manpower and Economic Growth. McGraw-Hill Book Co., New York, ISBN: 0-19-520590, pp: 71-94.
- Lin, T., 1994. Government expenditure and growth nexus. *Econometrics*, 55: 251-276.
- Mehmet, O., 1999. Westernizing the Third World: The Euro Centricity of Economic Development. 2nd Edn., Routledge, London.
- Okojie, C.C.E., 1995. Human capital formation for productivity in Nigeria. *Nig. Econ. Financ. Rev.*, 1: 61-82.
- Ojo, M.O., 1996. The role of human capital formations and the public and private schools in revitalizing the Nigerian economy. Proceedings of the Seminars of Nigeria Economic Society (SNES), Spectrum Books Ltd., Ibadan, Nigeria, pp: 142-168.
- Olomola, P.A., N.A. Keke and M.O. Saibu, 2003. Foreign direct investment and economic growth in Nigeria: A causality test. *J. Econ. Soc. Stud.*, 3: 92-106.
- Osmond, J.L., 1990. The Correlation between public expenditure on health and schooling and economic growth. *World Stat. Q.*, 43: 127-138.
- Pearce, D., 1997. Corporate Behaviour and Sustained Development. In: Business Environment, Bansal, P. and E. Howard (Eds.). Butterworth-Harriman, Oxford, UK., pp: 163-71.
- Placahand, R., 2000. Investment in human capital and educational maturity. *J. Polit. Econ.*, 6: 251-272.
- Ram, J.A., 1986. Economic growth in a cross-section of countries. *Q. J. Econ.*, 106: 407-444.
- Roman, D., 1990. Advanced Macro Economics. 3rd Edn., McGraw-Hill Book Co. Inc., New York, ISBN: 0-07-287730-8, pp: 251-273.
- Tennien, L., 1969. Government consumption expenditure and economic growth. *Am. Econ. Rev.*, 82: 942-963.
- Todaro, M., 1990. Economics of Developing World. 2nd Edn., Vikas Publishers, New York, ISBN: 0-332-66711-6, pp: 171-194.
- UNDP, 1997. Economic Growth Human Capital and Population Growth in Sub-Saharan. Oxford University Press, Oxford, ISBN: 0-8213-1336-3, pp: 69-82.
- UNR. (United Nations Report), 1996. Education and Investment in Human Capital. Oxford University Press, New York, pp: 121-36.
- World Bank, 1995. Investing in Health. Oxford University Press, Oxford, pp: 5-31.
- Yesufu, T.M., 2000. The Human Factor in National Development in Nigeria. Spectrum Books Ltd., Ibadan.