

*Full Length Research Paper*

# Has education (human capital) contributed to the economic growth of Nigeria?

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**Education, generally believed, contributes to the growth of an economy through acquisition of training and skills. For over 160 years, Nigeria had embarked on implementation of education policies affecting primary school, secondary school and tertiary institutions. This study used an econometric model to examine the contributions of primary education, secondary education and tertiary education to economic growth of Nigeria. These variables were proxied by school enrolments at various levels. Other variables included physical capital formation, health measured through total expenditure on health. In all primary school input, physical capital formation and health were found to contribute to growth. Secondary school input and tertiary institutions were found to dampen growth. Among others, this paper recommends that there should be adjustment in admission process in favour of core science and technical oriented course. The paper also recommends that schools should be adequately funded.**

**Key words:** Education, econometric model, economic growth, Nigeria.

## INTRODUCTION

Before the recent past, accumulation of physical capital was considered near-singular factor of economic growth. Improvement in technology that accounts for increase in output and services was considered as an exogenous variable (Solow, 1956). It is important to recall that the human capital revolution, which gained reasonable attention, started with the seminal papers of economic scholars in the 50s and 60s (Blaug, 1976). In the past two decades of the last century, it had been refined to highlight its endogenous contribution to the growth process (Romer, 1986, 1990; Lucas, 1988; Umo, 2007).

Therefore all developing countries were advised to invest in human capital formation of which Nigeria also participated. Nigerian government did not only start training people in schools, but formulated education policies in relation to primary, secondary and tertiary institutions toward making education workable in Nigeria.

Nigeria had the fastest growing educational industry in the African continent (Umo, 2007: 7). For instance, in 1960, Nigeria had two Universities (Universities of Ibadan and Nigeria, Nsukka) with student enrolment of about 1400. Forty four years after, Nigeria had 77 universities, an increase of 75 universities and percentage increase of 3750. Today, the number of universities in Nigeria is 93. Primary schools as at 1960 were 15703 and increased to 50741 in 2004, an increase of 35038 or percentage increase of 233. The number of secondary schools was

833 in 1960 and increased to 10913 in 2004, an increase of 10030 or percentage increase of 1136. In terms of student intake, the two universities in 1960 had an intake of about 1400 but by 2004 total intake in all the 77 universities close in to about 1.6 million students, an increase of 1598600 or 11419% increase. Primary school intake in 1960 was about 2912618 and rose to 20037450 in 2004, an increase of 17124862 or 558% increase. For secondary schools, the intake in 1960 was 135364 and rose to 5388734 in 2004, an increase of 5253370 or percentage increase of 3881. But these expansions are observed with some statistical inferences on how effective the education commodity had been delivered.

Table 1 shows that pupil/teacher ratio is low in Nigeria and with negative growth indices of -0.35 for the period 1980-1985 and also with lowest contribution of education to economic growth.

HDR (2001) notes "the quality and orientation of education at each level, and the link with the demand for skill, are critical for growth". However, opinions converge that education requires adequate funding for improved quality. This results from appropriately equipping the schools, hiring quality teachers and commensurately remunerating them. In 1990, Ghana's expenditure on education was 4% of her GDP and 24% of her budget and in Malaysia 5% of her GDP and 20% of her budget. Nigeria's expenditure on education was 4.2% of her GDP

**Table 1.** Pupil/teacher ratio and growth indices (1980-85).

| Pupil/teacher ratio      |         |           | Growth indices (%) |                    | Education contribution (%) |                            |
|--------------------------|---------|-----------|--------------------|--------------------|----------------------------|----------------------------|
| Country                  | Primary | Secondary | Country            | Growth indices (%) | Country                    | Education contribution (%) |
| Industrialized countries | 18      | 14        | Nigeria            | -0.35              | Nigeria                    | 16.0                       |
| SSA                      | 26      | 26        | Ghana              | 1.4                | Ghana                      | 23.2                       |
| Ghana                    | 29      | 18        | Coted'Vore         | 1.5                | Canada                     | 25.0                       |
| Nigeria                  | 39      | 27        | Kenya              | 3.5                |                            |                            |
|                          |         |           | Senegal            | 3.2                |                            |                            |
|                          |         |           | SSA                | 2.1                |                            |                            |

Sources: Adam (2003: 303) and Adedeji and Bamidele (2003: 515).

(at 1984 factor cost) and 6.3% of her budget. Despite these efforts Nigeria had made toward building of human capital through education, it is not exactly clear to what extent human capital has impacted on the economic growth or progress of Nigeria. It is against this background that this study is set up.

## BRIEF THEORETICAL DISCUSSION

In Nigeria, primary schools prepare candidates for secondary education and while secondary schools prepare candidates for higher education at least for those candidates who have the academic capability and the required resource to further their education. A known examination that prepares candidates for higher education in Nigeria is the West African Examination Council (WAEC).

In the year 2000, 725,575 candidates sat for WAEC and those that passed at the qualifying level that can earn their admission to higher institutions were 58,864; for 2001, the number that sat for the examination was 1,099,296 and those that qualified for admission to higher institutions were 178,054; for 2002, the number that took the examination was 1,224,381 and those that qualified were 188,494. In 2005, those that sat for WAEC were 1,742,663 and 203,991 qualified for admissions into higher institutions. What is meant here by qualification at this level to higher institutions are candidates that pass at credit level in 5 subjects including Mathematics and English.

For graduate output in 2001, 47,791 were produced, 2002, 58305, and in 2005, 26042. Graduate output here refers to those who obtained their first degrees from various universities.

The concept of human capital formation refers to a conscious and continuous process of acquiring and increasing the number of people with requisite knowledge, education, skill and experience that are crucial for the economic and political development of a country (Oduola, 1998: 529). Burneth et al. (1995) say that investing in education raises per capita GNP, reduces poverty and supports the expansion of

knowledge. Education, it is argued, reduces inequality. Fishlow (1995), Persson and Tabellini (1994) and Alesina and Rodrik (1994) agree that inequality is negatively related to growth. Stiglitz (1998:11) states, "successful development entails not only closing the gap in physical or even human capital, but also closing the gap in knowledge."

Uwatt (2002) empirically examined the impact of human capital on economic growth, using five variants of the original Solow Model linking physical capital, labour and human capital proxied by total enrolment in educational system to real Gross Domestic Product. The result showed that physical capital exerted a positive and very statistical impact on economic growth. Its coefficient was statistically different from zero at 5% significant level. Labour force that entered all the models in log form had also positive but statistically insignificant effect on economic growth.

On human capital variable, it was human capital from primary school education that was statistically very significant on the growth of the Nigerian economy. In the case of tertiary education, the result failed to tally with a priori expectations. One of the reasons advanced by the author (Uwatt) was that Nigerian tertiary institutions produce more graduates in humanities than in Mathematics and Sciences.

Ndiyo (2002) on the "Paradox of education and Economic Growth in Nigeria" modeled for contribution of education growth. He considered real growth of the gross product (RGDP) as respondent variable and gross fixed capital formation (GFCT), aggregate labour force (LAF) and real budget allocation to education (REDUB) as explanatory variables. He estimated the models in both level form and in logarithmic form respectively. From the two sources, it was observed that the growth of real gross domestic product (RGDP) is positively affected by the amount of physical capital and labour inputs in all the specifications but in most cases they have insignificant effects.

He observed that contrary to a priori expectations, the estimate for the impact of growth in educational capital on the growth of real Gross Domestic Product was consistently negative. That growth in educational capital

crowds out growth of GDP was a puzzle. However, Ndiyo is not alone in this position. Kyriakon (1980), Lan et al. (1991) and Dasgupta and Weale (1992), seem to agree to this argument. In essence, the contribution of education to economic growth certainly depends on the quality of education.

### **Abridged education policies in Nigeria**

Nigeria is of the opinion that education can help its growth and it evolved some educational philosophy in that direction. The five main national objectives of education as stated in the second National Development Plan, and endorsed as the necessary foundation for national policy on education (NPE Revised, 1998), are the building of:

1. A free and democratic society;
2. A just and egalitarian society;
3. A united, strong and self-reliant nation;
4. A great and dynamic economy;
5. A land of bright and full opportunities for all citizens.

Nigeria's philosophy of education is therefore based on the integration of the individual into a sound and effective citizen and equal educational opportunities for all citizens of the nation at the primary, secondary and tertiary levels both inside and outside the formal school system (NPE p. 4).

The quality of instruction at all levels had to be oriented towards inculcating the following values:

1. Respect for the worth and dignity of the individuals
2. Faith in man's ability to make national decisions
3. Moral and spiritual values in inter-personal and human relations
4. Shared responsibility for the common good of society
5. Respect for the dignity of labour, and
6. Promotion of the emotional, physical and psychological health of all children.

One of the national educational aims and objectives to which the philosophy is linked is: The acquisition of appropriate skills, abilities and competences both mental and physical as equipment for the individual to live in and contribute to the development of the society.

Governments were to take various measures to implement the policy as education was considered a highly rated investment in the national development plans as any fundamental change in the intellectual and social outlook of any society has to be preceded by an educational revolution. Government therefore set out step-by-step plans to implement primary education, secondary education, higher education including professional education, technical education, adult and non-formal education. Above all, university education was

to be pursued with emphasis on research to expand knowledge horizon that lead to improved technology.

### **The problem of the study**

Nigeria had invested in formal education for a period not less than 167 years (1842 to 2009). The number of primary schools had grown to above 50,000, 8275 post primary institutions and over 77 universities. Nigeria's higher institutions have been turning out not less than 120,000 graduates yearly. The Federal Government and some corporate bodies via Educational Trust Fund (ETF) had been funding education. Comparing education funding of some countries in the Sub-African region, it is observed that Nigeria had never in any year met the minimum standard prescribed by the UNESCO, which is 26% of total expenditure or annual budget of an economy.

Education expansion in Nigeria does not seem to equally match with expansion in economic growth. For instance, between 1970 and 1980, growth in primary school was 141%. For the post primary institutions, the percentage increase between 1970 and 1980 was 133 and 157% between 1980 and 2000. Tertiary institutions percentage increase between 1970 and 1980 is 160%, and between 1980 and 2000, 101%. Even more astronomical is the student intake at various levels of school. For primary schools, between 1970 and 1980 is 247% and between 1980 and 2000, was 104%. In terms of post primary institutions, the growth rate of intake between 1970 and 1980 is 426% and between 1980 and 2000 is 239%.

For tertiary institutions, the intake growth rate between 1970 and 1980 is 299%, between 1980 and 2000, 1689%. Equally, the growth rate of GDP (at 1984 factor cost) between 1970 and 1980 is 77.6% and 1980 and 2000, 25%. The growth in GDP is a distant comparison with the growth in the schools intake. Unfortunately, observing the growth of GDP per capita was -15.0, -7.7, -5.1 and -4.4 measured in percentage point for the years 1981, 1984, 1990 and 1999 respectively (Ayayi, 2002). There is also a question; To what extent had education in Nigeria contributed to knowledge economy, the current vogue in world economy? For knowledge economy index (KEI), Umo (2006:5) states the following; South Africa 5.08, Mauritius 4.32, Egypt 3.77 and Nigeria 1.55. The simple observation here is that Nigeria stands at the bottom of knowledge economy. Education is generally considered to be an instrument of poverty reduction, but Nigeria's case appears to be different. There is high level of poverty prevalent in Nigeria. For the population living below \$1 a day in SSA for the period 1970 to 2001, Nigeria had the highest percentage of 70.2, closely followed by Zambia 63.7% while the least is South Africa 1.3%. Also there is high level of unemployment. Generally, Ndiyo (2003: 372) is of the opinion that

education in Nigeria has contributed very little to social capital.

**Objective(s) of the work**

In broad terms, the work intends to investigate the place of education (human capital formation and accumulation) to the process of economic growth in Nigeria. More specifically, the research seeks to:

1. Examine the extent government had implemented the relevant policies to achieve the set objectives in formulation of the policies;
2. Investigate the output of the school system with regard to the skills the products have acquired from education which is a necessary variable for national growth;
3. Examine ways of improving the contributions of education toward economic growth in Nigeria.

**METHODOLOGY OF THE WORK**

Here, the study intends to build up, step by step, the framework of analysis leading to examining the relevance of human capital formation in economic growth in Nigeria.

At the take-off point, we consider labour and capital the only inputs in production function, and capital is constrained in the short run. Symbolically, this is stated as:

$$Q = f(N, \bar{K}) \dots \dots (1)$$

Where, Q is aggregate output; N represents number of man hours or labour, and  $\bar{K}$  is the constrained capital.

It is known that work is irksome (Henderson and Quandt, 1980) and involves fatigue, boredom and loss of leisure and the oppressiveness of these become more vitiating the longer the hours worked. Therefore, prompting a worker to put in more hours must result from a position where offered marginal benefit must be more than marginal disutility of work.

Considering school and experience, the standard analytical approach to human capital stems from the work of Mincer (1974) which analyses human capital through two inputs, education and experience.

After a period of time, the worker stops accumulating experience and the decline in his stock of accumulated experience reduces his earnings. In its simplest form, the functional equation, written as log quadratic functional expression:

$$\log H_{it} = a + bYS_{it} + cEXP_{it} - dEXP^2_{it} + E_{it} \dots \dots (2)$$

where  $\log H_{it}$  =log of human capital of the worker i at a given time t;  $YS_{it}$  = the number of years of schooling, and  $EXP_{it}$  = the experience the worker has accumulated since starting work, usually proxied by the age of the worker, minus years of schooling.

Considering social returns to human capital, the theoretical bench mark starts with a simple neoclassical production function following the approach of Mankiw et al. (1992). Production function can be expressed as:

$$Q_t = A_t^{1-\alpha} K_t^\alpha H_t^{1-\alpha} \dots \dots (3)$$

where  $Q_t$  = output at time t;  $K_t$  = aggregate physical capital;  $H_t$  = aggregate human capital, and  $A_t$  = specialization and experience.

Physical capital is accumulated according to the usual law of motion:

$$\dot{K}_t = -dK_t + sQ_t \dots \dots (4)$$

where the dot is the time derivative, and d = the depreciation rate of capital; s = the savings rate.

Assuming that  $\mu$  is the rate of growth of specialization and experience and progress and n is the rate of growth of aggregate human capital. In the steady state of the revised Solow model, one can write:

$$(d + n + \mu)K_t = sQ_t \dots \dots (5)$$

The conventional growth model postulated by Solow (1957) views economic growth as a result of the accumulation of physical capital and an expansion of the labour factor along with an “exogenous” factor technological progress that makes physical capital and labour more productive. The exogeneity factor which increases productivity had been questioned by Lucas (1988), Romer (1987), Azariadis and Drazen (1990), Mankiw et al. (1992) and UNDP (1996). To these people, what increases productivity is not necessarily an exogenous factor but an “endogenous” one which is assumed to be related to the knowledge, skill and behaviour of the people responsible for the physical capital.

Following this argument, Equation (5), combined with (3) above, could further be expressed as:

$$\log Q_t = (1-\alpha)\log A_t + \alpha \log \frac{s}{d+n+\mu} Q_t + (1-\alpha)\log H_t \dots (6)$$

or equally

$$\log Q_t = \log \frac{A_t + \alpha}{1-\alpha} (\log s - \log(d+n+\mu) \log H_t \dots (7)$$

The critical question is how one should proxy human capital. Mankiw et al. (1992) has addressed law of motion of human capital; under such, human capital is accumulated in a manner that is collinear to the accumulation of physical capital. Specifically, they write

$$H_t = -dH_t + sH_t \dots \dots (8)$$

In this model, there is a problem of approximating human capital, even though suggestion has been made by Mankiw et al. (1992). Accepting school enrolment suffers the problem of ignoring drop out rate. But it is necessary to consider human capital formation at primary, secondary and tertiary levels. Therefore Equation (8) could be modified as:

$$H_t = -dH_t + PH_t + SH_t + TH_t \dots \dots (9)$$

where PH is human capital formation at primary level; SH is human capital formation at secondary level, and TH is human capital formation at tertiary level.

Equation (9) could be stated as:

$$-dH_t + (PH_t + SH_t + TH_t)$$

or

$$-dH_t + (PH + SH + TH)Q_t \quad \dots \quad \dots \quad \dots \quad (10)$$

In the work of Daniel (2002), he adopts the Mincerian approach to human capital, which shows that a log-linear model be favoured in case where agents optimally lose the number of years of study (an investment that pays constant return over the life time). The Mincerian approach had gained prominence being adopted by Bills and Klenow (2002), Heckman and Klenow (1997), Hall and Jones (1990), Krueger and Lindahl (2000) and Bloom and Canning (2000), the approach is stated thus:

$$\log H_t = a + bY_{st} + E_t \quad \dots \quad \dots \quad \dots \quad (11)$$

where  $\log H_t$  is the log of the human capital of a country at a given time  $t$ , and  $Y_{st}$  is the number of years of study.

But the model ignores the role of experience. Louis and Adeoye (2002) in measuring human capital and economic growth in Nigeria draw from the works of Lucas (1988), Gemmill (1996) and Ncube (1999). In general, the following formulation was employed:

$$\ln \text{RGDPGR}_t = \alpha_0 + \alpha_1 \ln I + \alpha_2 \ln \text{EMP} + \alpha_3 H_t + U_t \quad \dots \quad (12)$$

where  $\text{RGDPGR}_t$  is growth rate of real gross domestic product, and  $\text{EMP}$  is employment rate, and  $H_t$  is human capital proxied by total capital expenditure in education and health.

Some constraints in the model are: (1) Employment statistics which is patchy, fragmented and unreliable in Nigeria; (2) Human capital is proxied by total capital expenditures on education and health whereas there has been contentions that even recurrent expenditure on education and also health exert more positive influence on human capital formation than capital expenditure. Adamu (2002) examines the impact of human capital on economic development and after consulting previous studies such as Odusola (1998), Gammy and Assane (1996) specified the following model:

$$\text{RGDP} = f(\text{CEDU}, \text{REDU}, \text{PCAP}, \text{LAB}, \text{GRAD}) \quad \dots \quad (13)$$

RGDP is real gross domestic product as proxied for economic development; CEDU is capital expenditure on education; REDU is recurrent expenditure on education; PCAP is physical capital formation proxied by gross capital formation; LAB is labour force, and GRAD is high-level manpower proxied by graduates of tertiary institutions.

Conventionally human capital formation is proxied either by expenditure on education or schools enrolment. The problem with the education expenditure is that only the budgeted figures are relied on since actual expenditures are not available. Again, the budgeted figure includes all agencies that are associated with educational institution. Example for tertiary institution in Nigeria, there are not less than 14 agencies, so when budgets are made, no one knows how much goes to the agencies and how much goes to education proper. Also, the problem with school enrolment is, knowing the attrition rate.

In estimating the contributions of human capital to economic growth, this study excludes expenditures on education from the model, though we have taken a cursory look into it. This work adopts Adamu model with some modifications. As stated earlier, labour from primary and secondary schools were included. Indeed, this will serve as a test-run analysis on contributions from primary and secondary schools output to growth from the fact that World Bank solicits for government's financing of primary schools while university financing could be left to private hand – a "market-oriented" financed higher institution. Moreso, we include total expenditure on health, the relevance of which is the relationship between good health and productivity.

Equation (13) is re-stated thus:

$$\text{RGDP} = f(\text{PCAP}, \text{LAB}, \text{PRI}, \text{SEC}, \text{GRAD}, \text{HEA}) \quad \dots \quad (14)$$

where PRI is labour from primary school proxied by enrolment, and SEC is labour from secondary school also proxied by secondary school enrolment.

For all enrolments, we provide 10% attrition rate. Re-stating Equation (14) in estimatable form gives:

$$\ln \text{RGDP} = a_0 + a_1 \ln \text{PCAP} + a_2 \ln \text{LAB} + a_3 \ln \text{PRI} + a_4 \ln \text{SEC} + a_5 \ln \text{GRAD} + a_6 \ln \text{HEA} + E_i \quad \dots \quad (15)$$

$E_i$  is the error term. The inclusion of LAB in the model does not necessarily represent repetition but labour participants include those informally trained and may not have attended any form of formal education. A priori,  $a_0, a_1, a_2, a_3, a_4, a_5, a_6 > 0$ .

### Sources of data

Annual time series data covering 1970 to 2006 are required or needed to estimate the models. The fundamental data for the work are real GDP, physical capital formation, general labour, primary school enrolment, and secondary school enrolment, graduates labour and total expenditure on health. This information were collected mainly from secondary sources: Central Bank of Nigeria (CBN) publications, Statistical Bulletins, CBN Annual Reports (various issues), International Financial Year Book, a publication of the International Monetary Fund, National Bureau of Statistics – Annual Abstract of Statistics, the Nigerian Economic Society Annual Proceedings and other issues of similar nature.

### Choice of method of analysis

The work utilizes differencing procedure to reduce the problem of spurious estimates (Holden and Thompson, 1990), Balke, 1991), and Granger and Newbold (1974). This work verifies the statistical properties for the data collected by applying the stationarity/unit root test.

The work examines the characteristics of the time series data using Dickey-Fuller (DF), Augmented Dickey-Fuller (ADF), testing for stationarity,  $t$  statistic does not provide dependable guide, rather the conventionally computed  $t$  statistic known as  $T$  ( $\tau$ ) statistic which critical values have been tabulated by Dickey and Fuller (DF) test. The test is basically a null hypothesis test. Moreso, if co-integration is found to exist among the variables, error correction model is used as it offers short run dynamic behaviour between regressand and regressors. Of course, co-integration variable presupposes that a linear combination of the data set is stationary, even though the individual sets are not. In other words, the variables move on the same wavelength (Gujarati, 1995).

Also, we use descriptive statistics to assess the contributions of education towards reduction of poverty and unemployment.

Tables 2 and 3 shows educational development in Nigeria (1970 to 2006) and capital and recurrent expenditure on education.

### Limitation of the study

This work is limited to 2006 because of dearth of published data to date.

### ANALYSIS OF THE DATA AND INTERPRETATION OF THE RESULT

Here, we present the econometric result in table form

Table 2. Educational development in Nigeria (1970-2006).

| Year | No. of educational institutions |                |                       | Enrolment |              |          | Percentage change           |                              |                          |                               |                                     |                                    |
|------|---------------------------------|----------------|-----------------------|-----------|--------------|----------|-----------------------------|------------------------------|--------------------------|-------------------------------|-------------------------------------|------------------------------------|
|      | Primary                         | Post – primary | Tertiary <sup>2</sup> | Primary   | Post primary | Tertiary | Percentage Δ of pri. school | Percentage Δ of post-primary | Percentage Δ of tertiary | Percentage Δ in Pri.enrolment | Percentage Δ in post pri. enrolment | Percentage Δ In tertiary enrolment |
| 1970 | 14902                           | 1379           | 5                     | 3515827   | 357027       | 14468    | -                           | -                            | -                        | -                             | -                                   | -                                  |
| 1971 | 15324                           | 1469           | 6                     | 3894539   | 395635       | 17092    | 2.8                         | 6.1                          | 16.7                     | 9.7                           | 9.6                                 | 15.4                               |
| 1972 | 14538                           | 1421           | 6                     | 4391197   | 454787       | 20889    | - 5.4                       | - 3.4                        | 0.0                      | 11.3                          | 13.0                                | 18.2                               |
| 1973 | 13300                           | 1702           | 6                     | 4746808   | 505295       | 23228    | - 9.3                       | 16.5                         | 0.0                      | 7.5                           | 10.0                                | 10.1                               |
| 1974 | 14525                           | 1835           | 6                     | 4867058   | 764491       | 32061    | 8.4                         | 7.2                          | 0.0                      | 2.5                           | 34.0                                | 28.0                               |
| 1975 | 21223                           | 2011           | 13                    | 4970488   | 843419       | 32286    | 31.6                        | 8.8                          | 54.0                     | 2.1                           | 9.3                                 | 0.7                                |
| 1976 | 29853                           | 2019           | 13                    | 8386400   | 986439       | 39902    | 29.0                        | 0.4                          | 0.0                      | 40.7                          | 14.5                                | 19.1                               |
| 1977 | 34310                           | 2042           | 13                    | 10105000  | 1208619      | 49298    | 13.0                        | 1.1                          | 0.0                      | 17.0                          | 18.4                                | 19.1                               |
| 1978 | 34575                           | 2296           | 13                    | 11521500  | 1555180      | 53000    | 0.8                         | 11.0                         | 0.0                      | 12.3                          | 22.3                                | 7.0                                |
| 1979 | 37469                           | 2627           | 13                    | 11457772  | 1471331      | 48698    | 8.0                         | 12.6                         | 0.0                      | - 0.6                         | - 5.7                               | - 9.0                              |
| 1980 | 35875                           | 3218           | 13                    | 12206291  | 1877057      | 57742    | - 4.4                       | 18.4                         | 0.0                      | 6.1                           | 2.2                                 | 16.0                               |
| 1981 | 36683                           | 4969           | 16                    | 14026819  | 2473673      | 74607    | 2.2                         | 35.2                         | 23.0                     | 13.0                          | 24.1                                | 23.0                               |
| 1982 | 37611                           | 5603           | 19                    | 14964143  | 2880280      | 87066    | 2.5                         | 11.3                         | 16.0                     | 6.3                           | 14.1                                | 14.3                               |
| 1983 | 37888                           | 5894           | 24                    | 15308384  | 3334644      | 104683   | 0.7                         | 5.0                          | 21.0                     | 2.2                           | 13.6                                | 17.0                               |
| 1984 | 38211                           | 6190           | 27                    | 14383487  | 3402665      | 116822   | 0.8                         | 5.0                          | 12.5                     | - 6.4                         | 2.0                                 | 10.4                               |
| 1985 | 35281                           | 5876           | 24                    | 13025287  | 2995578      | 126285   | - 8.3                       | - 5.3                        | - 12.5                   | - 10.2                        | - 13.6                              | 7.5                                |
| 1986 | 35433                           | 5730           | 24                    | 12914870  | 3094349      | 135783   | 0.4                         | - 2.5                        | 0.0                      | - 0.9                         | 3.2                                 | 7.0                                |
| 1987 | 34266                           | 6092           | 28                    | 11540178  | 2934349      | 150613   | - 3.4                       | 6.0                          | 14.3                     | 75.0                          | - 5.5                               | 10.0                               |
| 1988 | 33796                           | 6044           | 104                   | 12690798  | 2997464      | 219119   | - 1.4                       | - 0.8                        | 73.0                     | 9.1                           | 2.1                                 | 31.3                               |
| 1989 | 34904                           | 5868           | 118                   | 12721087  | 2723791      | 307702   | 3.2                         | - 3.0                        | 12.0                     | 0.2                           | - 10.0                              | 29.0                               |
| 1990 | 35433                           | 6001           | 122                   | 13607249  | 2901993      | 326557   | 1.5                         | 2.2                          | 3.3                      | 6.5                           | 6.1                                 | 5.8                                |
| 1991 | 35446                           | 5860           | 124                   | 13776854  | 3123277      | 368897   | 0.0                         | - 2.4                        | 1.6                      | 1.2                           | 7.1                                 | 11.5                               |
| 1992 | 36610                           | 6009           | 130                   | 14805937  | 3600620      | 376122   | 3.2                         | 2.5                          | 4.6                      | 7.0                           | 13.3                                | 2.0                                |
| 1993 | 37812                           | 6162           | 133                   | 15911888  | 4150917      | 383488   | 3.2                         | 2.5                          | 2.3                      | 7.0                           | 13.3                                | 2.0                                |
| 1994 | 38000                           | 6300           | 133                   | 16190947  | 4500000      | NA       | 0.5                         | 2.2                          | 0.0                      | 1.7                           | 7.8                                 | -                                  |
| 1995 | 39677                           | 6452           | 138                   | 17994620  | 5084546      | 391035   | 4.2                         | 2.4                          | 3.6                      | 10.0                          | 11.5                                | -                                  |
| 1996 | 41660                           | 6646           | 138                   | 19794082  | 5389619      | 689619   | 5.0                         | 3.0                          | 0.0                      | 9.0                           | 5.7                                 | 43.3                               |
| 1997 | 43951                           | 7311           | 138                   | 21161852  | 5578255      | 862023   | 5.2                         | 9.0                          | 0.0                      | 6.3                           | 3.4                                 | 20.0                               |
| 1998 | 45621                           | 7801           | 138                   | 22473886  | 5795807      | 941329   | 3.7                         | 6.3                          | 0.0                      | 5.8                           | 3.8                                 | 8.4                                |
| 1999 | 47902                           | 8113           | 144                   | 23709949  | 6056618      | 983689   | 5.0                         | 3.8                          | 4.2                      | 5.2                           | 4.3                                 | 4.3                                |
| 2000 | 48860                           | 8275           | 144                   | 24895446  | 6359449      | 1032873  | 2.0                         | 2.0                          | 0.0                      | 5.0                           | 4.8                                 | 4.8                                |
| 2001 | 49306                           | 6319           | 173                   | 19263534  | 5528384      | 1258758  | 1.0                         | - 31.0                       | 16.8                     | - 29.2                        | - 15.0                              | 18.0                               |
| 2002 | 51870                           | 6305           | 177                   | 24861632  | 6292164      | 1444949  | 5.0                         | - 0.2                        | 2.3                      | 22.5                          | 12.1                                | 13.0                               |

Table 2. Continued

|      |       |       |     |          |         |         |        |      |     |        |        |      |
|------|-------|-------|-----|----------|---------|---------|--------|------|-----|--------|--------|------|
| 2003 | 59174 | 9226  | 179 | 25768046 | 7171304 | 1606104 | 12.3   | 32.0 | 1.1 | 3.5    | 12.3   | 10.0 |
| 2004 | 50741 | 10913 | 183 | 20037480 | 5388734 | 1727408 | - 16.6 | 15.5 | 2.2 | - 28.6 | - 33.0 | 7.0  |
| 2005 | 60188 | 10913 | 199 | 22115432 | 6398343 | 3229399 | 18.6   | 0    | 8.7 | 10.4   | 18.7   | 86.9 |
| 2006 | 54434 | 18338 | 199 | 24422918 | 6536038 | 3128928 | -9.6   | 68.0 | 0   | 10.4   | 2.2    | -3.1 |

Source: Uwatt (2002: 132 and 133). CBN Nigeria's Principal Economic and Financial indicators 1970 to 1990. CBN Annual Report and Statement of Accounts 1990 to 2000. Universal Basic Education (UBE) (2006). Annual Abstract of Statistics, National Bureau of Statistics (2008).

Table 3. Capital and recurrent expenditure on education (₦million),

| Year | Capital expenditure | Recurrent expenditure | Total expends on education | Total govt. expenditure | GDP at 1984 factor GDP | Expend. as ratio of GDP (%) | Expend. on edu. as a ratio of total expenditure | % tage + change on cap. exp. | % tage + change on re. exp. | % tage + change on total exp. edu | % tage + change on govt. expenditure |
|------|---------------------|-----------------------|----------------------------|-------------------------|------------------------|-----------------------------|---|------------------------------|-----------------------------|-----------------------------------|--------------------------------------|
| 1970 | 3.0                 | 3.2                   | 6.2                        | 1130.1                  | 54148.9                | 0.0                         | 0.5   | -                            | -                           | -                                 | -                                    |
| 1971 | 4.2                 | 4.4                   | 8.6                        | 1092.4                  | 65707.0                | 0.0                         | 0.8   | 40                           | 37.5                        | 38.7                              | - 3.3                                |
| 1972 | 21.3                | 7.3                   | 28.6                       | 1863.7                  | 69310.6                | 0.0                         | 1.5   | 407.1                        | 65.9                        | 232.6                             | 70.6                                 |
| 1973 | 16.3                | 10.4                  | 26.7                       | 1778.8                  | 73763.1                | 0.0                         | 1.5   | - 23.5                       | 42.5                        | - 6.6                             | - 4.6                                |
| 1974 | 134.4               | 62.5                  | 196.9                      | 4260.3                  | 82424.8                | 0.2                         | 4.6   | -102.5                       | 501.0                       | 637.5                             | 139.5                                |
| 1975 | 631.1               | 218.9                 | 850.0                      | 8258.3                  | 79988.5                | 1.1                         | 10.3  | 396.6                        | 250.2                       | 332.0                             | 93.8                                 |
| 1976 | 529.2               | 522.0                 | 1051.2                     | 9701.5                  | 88854.3                | 1.2                         | 10.8  | - 16.1                       | 138.5                       | 24.0                              | 17.5                                 |
| 1977 | 255.8               | 248.3                 | 504.1                      | 11695.3                 | 96098.5                | 0.5                         | 4.3   | - 57.1                       | - 52.4                      | - 52.0                            | 20.5                                 |
| 1978 | 431.9               | 394.7                 | 826.6                      | 12337.1                 | 89020.9                | 0.9                         | 6.7   | 68.8                         | 59.0                        | 64.0                              | 5.5                                  |
| 1979 | 306.7               | 360.4                 | 667.1                      | 13191.4                 | 91190.7                | 0.7                         | 5.1   | - 29.0                       | 8.7                         | - 19.3                            | 6.9                                  |
| 1980 | 729.4               | 509.1                 | 1238.5                     | 23695.7                 | 96186.6                | 1.3                         | 5.2   | 137.8                        | 41.3                        | 85.7                              | 79.6                                 |
| 1981 | 217.2               | 712.8                 | 930.0                      | 21238.8                 | 70395.9                | 1.3                         | 4.4   | - 70.2                       | 40.1                        | - 25.0                            | - 10.4                               |
| 1982 | 412.4               | 511.8                 | 924.2                      | 15368.2                 | 70157.0                | 1.3                         | 6.0   | 89.9                         | - 28.2                      | - 0.6                             | - 27.6                               |
| 1983 | 367.2               | 588.8                 | 956.0                      | 11525.0                 | 66389.5                | 1.4                         | 8.3   | - 74.8                       | 15.0                        | 3.4                               | - 25.0                               |
| 1984 | 87.6                | 657.9                 | 745.5                      | 11686.4                 | 63006.4                | 1.2                         | 6.4   | - 76.1                       | 11.7                        | - 22.0                            | 1.4                                  |
| 1985 | 126.2               | 697.2                 | 823.4                      | 7215.3                  | 68916.3                | 1.2                         | 11.4  | 44.1                         | 6.0                         | 10.4                              | - 38.3                               |
| 1986 | 391.4               | 483.8                 | 875.2                      | 16773.7                 | 71075.9                | 1.2                         | 5.2   | 210.1                        | - 30.6                      | 6.3                               | 132.5                                |
| 1987 | 94.6                | 354.1                 | 448.7                      | 22018.7                 | 70741.4                | 0.6                         | 2.0   | - 75.8                       | - 26.8                      | - 48.7                            | 31.3                                 |
| 1988 | 327.9               | 1458.8                | 1786.7                     | 27749.5                 | 77752.5                | 2.3                         | 6.4   | 246.6                        | 312.0                       | 298.2                             | 26.0                                 |
| 1989 | 387.5               | 3011.8                | 3399.3                     | 41028.3                 | 83495.2                | 4.1                         | 8.3   | 18.2                         | 106.5                       | 90.3                              | 47.9                                 |
| 1990 | 416.3               | 3402.8                | 3819.1                     | 60268.2                 | 90342.1                | 4.2                         | 6.3   | 7.4                          | 13.0                        | 12.3                              | 46.9                                 |
| 1991 | 297.0               | 1256.3                | 1553.3                     | 66584.4                 | 94614.1                | 1.6                         | 2.3   | - 28.7                       | 63.0                        | - 59.3                            | 10.5                                 |
| 1992 | 507.2               | 1907.0                | 2414.2                     | 39763.3                 | 97431.1                | 2.5                         | 6.1   | 70.8                         | 52.0                        | 55.4                              | - 40.3                               |

Table 3. Continued

|      |         |          |          |           |           |      |      |        |        |        |        |
|------|---------|----------|----------|-----------|-----------|------|------|--------|--------|--------|--------|
| 1993 | 995.1   | 6034.6   | 7029.7   | 97079.4   | 100,015.2 | 7.0  | 7.2  | 96.2   | 216.4  | 191.2  | 144.1  |
| 1994 | 2051.9  | 3602.4   | 5654.3   | 120462.9  | 101330.0  | 5.6  | 4.7  | 106.2  | - 40.3 | - 19.6 | 24.1   |
| 1995 | 2426.4  | 9746.4   | 12172.8  | 121138.3  | 103510.0  | 11.8 | 10.0 | 18.3   | 170.6  | 115.3  | 0.01   |
| 1996 | 3215.7  | 11667.0  | 14882.7  | 337217.6  | 107020.0  | 13.9 | 4.4  | 32.5   | 19.7   | 22.3   | 178.4  |
| 1997 | 3808.2  | 12983.1  | 16791.3  | 428215.2  | 110400.0  | 15.2 | 3.9  | 18.4   | 11.3   | 12.8   | 27.0   |
| 1998 | 10579.3 | 14034.8  | 24614.1  | 487113.4  | 113000.0  | 21.8 | 5.1  | 177.8  | 8.1    | 46.6   | 13.8   |
| 1999 | 8516.6  | 23047.2  | 31563.8  | 947690.0  | 116100.0  | 27.2 | 3.3  | - 0.2  | 64.2   | 28.2   | 94.5   |
| 2000 | 10529.2 | 39034.0  | 49563.2  | 701059.4  | 120600.0  | 41.1 | 7.1  | 23.6   | 69.4   | 57.0   | - 26.0 |
| 2001 | 19860.0 | 39884.6  | 59744.6  | 1018025.6 | 125720.0  | 47.5 | 5.7  | 88.6   | 2.2    | 20.5   | 45.2   |
| 2002 | 9215.0  | 100240.2 | 109455.2 | 696777.8  | 129820.0  | 84.3 | 15.7 | - 53.6 | 151.3  | 83.2   | - 31.6 |
| 2003 | 14680.2 | 64755.9  | 79436.1  | 1266000.0 | 136460.0  | 58.2 | 6.3  | 59.3   | - 35.4 | - 27.4 | 81.7   |
| 2004 | 90531.1 | 76527.7  | 85580.8  | 1377000.0 | 145,380.0 | 58.9 | 6.2  | - 38.3 | 18.2   | 7.7    | 0.1    |
| 2005 | 31000.9 | 50000.9  | 82000.8  | 1321000.3 | 172901.6  | 47.4 | 6.2  | -65.7  | 7.2    | -4.2   | -4.1   |
| 2006 | 32000.7 | 86000.3  | 119000.0 | 1390000.2 | 183328.6  | 64.9 | 8.5  | 3.2    | 72.0   | 45.1   | 5.2    |

Source: Adenuga (2002: 218 – 219). CBN Statistical Bulletin vol. 13, Dec. 2002. CBN Statistical Bulletin vol. 15 2004. Annual Abstract of Statistics 2008. \* Computed by the author.

(Table 4) with main aim of examining the contribution of each of the level of education to growth estimated at level. The estimation is based on Equation 15.

The result in Table 4 is meant to establish whether the explanatory variables are stationary at level. If not, stationarity test will be carried out in order to avoid spurious result. Table 4 is also the long-run result. It should be noted that Tables 4 and 6 do not present alternative analysis to the study but rather provide a vehicle towards arriving at “dependable” result that links the short-run expectations to the long-run. From the results so far, it is observed that GDP will assume a value of 11.8 when all the relevant explanatory variables in the model assume zero value. Physical capital had positive coefficient of 0.08 and is significant at 1 and 5% levels of significance respectively. Labour supports GDP growth though with positive coefficient but statistically insignificant at both levels. The same condition prevails for primary

school labour while secondary school labour crowds out GDP growth but statistically significant at both levels. High level manpower though non-negative yet contributes virtually little or nothing to the growth of GDP with coefficient of 0.008 and is statistically insignificant at both levels. Expenditure on health crowds in GDP and is significant at both levels. Both the  $R^2$  and adjusted  $R^2$  are robust, explaining the fact that variations in the GDP are caused by the regressors up to 90% and the F-statistic is highly significant.

To confirm long-run relationships, the regression result of Table 4 was subjected to unit root test based on both Adjusted Dickey-Fuller (ADF) and Philip-Perron (PP) cointegration tests. The results of both tests accept the null hypothesis position. The ADF and PP unit root test is presented in Table 5. Co-integration analysis provides potential information about the long-run equilibrium relationship in a model (Ogujiuba et al., 2004: 77). It is now widely noticed, following Granger and

Newbold (1974), that most economic time series exhibit a non-stationary (unit root) pattern in the levels, that is, their means and variances are time dependent and such variables are said to be  $I(1)$  (Holden and Perman, 1994). The implication is that such variables fail to converge to their true values as the sample size increases. If after differencing, the variables become stationary, then they are referred to as being  $I(0)$ . According to Maddala and Kim (2003), if a linear combination of  $I(1)$  variables is stationary or  $I(0)$ , the variables are said to be co-integrating. Appropriate tests for this have been developed by Fuller (1976), Dickey and Fuller (1981), Phillips and Perron (1988) and Johansen (1995). The Phillips-Perron is to add a correction factor to the DF statistic (Kerry, 2000:264-5). From Table 5, it is observed that all the variables in the model exhibit unit root presence. This is so because both coefficients of ADF test statistic and that of the PP test statistic are smaller than the critical values at

**Table 4.** Regression result (with assumption of stationarity).

| Variable                | Coefficient | Std. error | t-statistic | Prob   |
|-------------------------|-------------|------------|-------------|--------|
| C                       | 11.76204    | 0.821716   | 14.31400    | 0.0000 |
| LNPCAP                  | 0.081911    | 0.013023   | 6.28990     | 0.0000 |
| LNLAB                   | 0.740567    | 0.479678   | 1.54388     | 0.1338 |
| LNPRI                   | 0.030801    | 0.026050   | 1.182351    | 0.2470 |
| LNSEC                   | -0.294525   | 0.042677   | -6.901216   | 0.0000 |
| LNGRAD                  | 0.008815    | 0.090151   | 0.097783    | 0.9228 |
| LNHEA                   | 0.031018    | 0.012377   | 2.50991     | 0.0183 |
| R-squared               | 0.929712    |            |             |        |
| Adjusted R <sup>2</sup> | 0.9146550   |            |             |        |
| S.E. of regression      | 0.071785    |            |             |        |
| DW                      | 1.596652    |            |             |        |
| F-statistic             | 61.72662    |            |             |        |
| Prob (F-statistic)      | 0.00000     |            |             |        |

**Table 5.** ADF and PP unit root test.

| Variables | ADF test statistic | PP Test | Critical value 1% | Critical value 5% | Remarks |
|-----------|--------------------|---------|-------------------|-------------------|---------|
| LnGDP     | -1.0462            | -1.2660 | -3.642            | -2.952            |         |
| LnGRAD    | -1.0306            | -1.0673 | -3.642            | -2.952            |         |
| LnHEA     | -1.76022           | -1.4732 | -3.642            | -2.952            |         |
| LnPCAP    | -2.1705            | -2.1920 | -3.642            | -2.952            |         |
| LnPRI     | -2.1810            | -3.0681 | -3.642            | -2.952            |         |
| LnSEC     | -2.1989            | -1.5345 | -3.642            | -2.952            |         |
| LnLAB     | -2.0059            | -1.4518 | -3.642            | -2.952            |         |

Source: Computed by the author.

**Table 6.** The “Parsimonious” model.

| Variable           | Coefficient | t-statistic | Probability |
|--------------------|-------------|-------------|-------------|
| C                  | 7.9507      | 6.5687      | 0.0000      |
| LNPCAP             | 0.0340      | 3.0449      | 0.0057      |
| LNPCAP(-2)         | 0.0258      | 2.4624      | 0.0217      |
| LNLAB              | 11.5303     | 3.6037      | 0.0015      |
| LNLAB(-2)          | -25.0327    | -3.9919     | 0.0006      |
| LNLAB(-3)          | 14.4338     | 3.0968      | 0.0051      |
| LNSEC              | -0.3190     | -6.6260     | 0.0000      |
| LNGDP(-1)          | 0.3769      | 3.7792      | 0.0010      |
| ECM(-1)            | -0.0697     | -0.5080     | 0.6162      |
| R <sup>2</sup>     | 0.9774      |             |             |
| Ř <sup>2</sup>     | 0.9695      |             |             |
| S.E. of regression | 0.0397      |             |             |
| DW                 | 2.1495      |             |             |
| F-statistic        | 124.4802    |             |             |

both 1 and 5% levels, respectively. However, all the variables become stationary after first differencing. Table

6 shows the “Parsimonious” Result after the explanatory variables have been adjudged stationary with first

differencing.

## DISCUSSION OF THE SHORT-RUN RESULT

The short-run model shows variables that are significant in the model. The model informs that at zero value of other explanatory variables, the GDP will grow at 8%. The physical capital contributes to growth, showing that when one unit of capital is increased, GDP increases at 0.03 rate and is significant at both 1 and 5% levels, respectively. Even when physical capital is lagged to second period, it still contributes to economic growth at a level of 0.02 and the t-statistic is equally significant at 1 and 5% levels of significance.

Labour contributes very highly to the growth, showing that a unit increase in labour propels growth 11.5 times and is equally significant at both 1 and 5% levels. Unfortunately when labour is lagged a second period, it heavily crowds out growth but when lagged a third period, it crowds in growth and are significant at both levels. Secondary school labour dampens growth at a rate of 0.32%, when one unit of such labour is increased. Its t-test statistic is equally highly significant at both 1 and 5% levels.

Both  $R^2$  and adjusted  $R^2$  are high explaining that about 97% of variations in the GDP is attributed to variations in the explanatory variables in the model. The DW statistic does not suggest autocorrelation and the F-statistic is quite robust. But one worry about the short-run model is that the rate of adjustment is low and the probability is quite high, about 62%.

## IMPLICATIONS OF THE RESULT

The economic implications of this result are that human capital formation at both secondary and tertiary school levels hardly meaningfully contribute to growth, at the long-run. Labour from the secondary school persistently dampens growth and the reason for this is not far fetched. This is as a result of poor quality of secondary education prevalent in the society. In majority of our secondary schools, there are inadequate learning facilities such as classrooms, well-equipped libraries, good laboratories, and teachers are not well paid to encourage them keep the job full-time in practice. This shows that there have been some lapses in government's implementation of educational policies which had not encouraged contributions from the secondary school sector to the growth of GDP.

Most disturbing is learning the fact that graduate education "antagonises" economic growth. This finding confirms the effect of poorly funded universities that is prevalent in Nigeria leading to poorly equipped universities. Our graduates are not properly groomed to face the brave new world challenges of scientific

advancement, communicate effectively in English and imbibe analytical acumen expected of a graduate. Of course, it is also clear that major part of the university poor quality outturn fundamentally hangs on poor quality entrants of functional "illiterate" secondary school products. Certainly (in conformity with the World Bank's position) labour from primary school has consistently encouraged growth which implies that there is compelling need to improve primary education both in quantity and quality.

## ASSESSING SOME ECONOMIC INDICATORS OF GROWTH IN NIGERIA

Education is generally believed to be an instrument of poverty reduction. After turning out thousands of school leavers, let us look at poverty level in Nigeria and see the extent education is able to reduce poverty. Table 7 shows aggregate poor in Nigeria.

From the measurement of aggregate poor in Nigeria, we observe that the least magnitude was that of 1980 (27%), poverty stagnated between 1985 and 1991 and showed steady increase between 1993 and 2002.

What should be noted is that when these percentages are translated to absolute population figures, the numbers may be frightening. Again there is no evidence here that increased output from educational institutions had played a meaningful role in poverty reduction.

Table 8 presents rate of unemployment in Nigeria between 1990 and 2000.

The unemployment rate measured by the CBN does not carry red alert as far as unemployment is concerned. When tempted to accept six percentage rate of unemployment as natural rate of unemployment, then Nigeria is at the verge of full employment. Take, for instance, the unemployment rate of 1.8 which implies that 98.2% of the labour force was employed. But observation points to the fact that the labour market in Nigeria is almost completely saturated. However, unemployment measure by the CBN is not comprehensive. The literature emphasizes the registered unemployed. In other words, those unemployed who have not presented themselves for registration are neither registered nor enumerated.

The unemployed registration documented by NISER presents closeness to real situation on the ground. Example in 1990, while CBN recorded 6.8 rate of the unemployed, NISER recorded 73.3%. Again in 1995, CBN measurement says 0.8 million Nigerians were unemployed, while NISER says 31.2 million. On the average, for a period marginally longer than a decade (1990 to 2000), the average unemployed rate was 3.7% by CBN measurement while that of NISER was 72.1%. These rates translate to 1.6 million and 31.7 million unemployed Nigerians, respectively. The CBN is closer to government than NISER. Such figures posted by CBN portray success activities including education in relation

**Table 7.** Nigeria aggregate poor in percentage.

| <b>Year</b> | <b>Aggregate poor (%)</b> |
|-------------|---------------------------|
| 1980        | 27.0                      |
| 1981        | 30.0                      |
| 1982        | 34.0                      |
| 1983        | 37.0                      |
| 1984        | 41.0                      |
| 1985        | 44.2                      |
| 1986        | 44.0                      |
| 1987        | 44.0                      |
| 1988        | 44.0                      |
| 1989        | 43.9                      |
| 1990        | 43.8                      |
| 1991        | 43.0                      |
| 1992        | 42.5                      |
| 1993        | 48.0                      |
| 1994        | 53.9                      |
| 1995        | 59.0                      |
| 1996        | 61.0                      |
| 1997        | 66.0                      |
| 1998        | 68.0                      |
| 1999        | 69.0                      |
| 2000        | 70.0                      |
| 2001        | 71.0                      |
| 2002        | 72.0                      |
| 2003        | -                         |
| 2004        | 78.3                      |
| 2005        | 80.2                      |
| 2006        | -                         |

Source: Ndebbio, 2006: 69.

to a ray of employment policies and programmes put forward by various governments. Presenting accurate figures to government can send correct signal (to government) that most of the programmes have not achieved the objectives they were meant.

Today's world economies are ruled by knowledge economy, a kind of economy that offers more promise than the black gold economy. The knowledge economy is perpetuated by sound and qualitative education. Here, we present a table (Table 9) which shows global ranking of selected countries on KAM (Knowledge Assessment Methodology) indices (2003 to 2004).

There is no doubt that Nigeria trails the rear (Table 9) in terms of knowledge economy index (KEI) even when relating to other African countries. Example, South Africa (5.01), Mauritius (4.32), Tunisia (4.11), Nigeria (1.55) while Sierra Leone is the least (0.47).

The fundamental question is: Why is Nigeria at the bottom of the knowledge pyramid? Umo (2006: 8) offers an answer:

"Given the overwhelming scientific evidence that modern

progressive economies are driven by knowledge, we can assert that our development regress is fundamentally caused by the collapse in our educational system and by implication the weakness and sometimes collapse in development institutions, innovation capability, and ICT infrastructure. The apparent decline in knowledge culture had permeated the entire society and weakened its very foundations in the knowledge age. And in futuristic terms, it seems safe to predict that not much is going to change in the economy and indeed things may get worse if there is no sustained fundamental redirection in arresting the weaking of the four pillars of the knowledge economy in terms of both quantum and quality."

According to the World Bank (2005) as quoted by Umo (2006), the modern knowledge economy is propelled by four pillars. These are the economic incentive and institutional regime, an educated and skilled labour force, an effective innovation system and a modern information and communication technology (ICT).

## RECOMMENDATIONS

On the basis of dismal performance of education in Nigeria's economy, we make the following recommendations:

1. Government should re-structure the curricula of higher education, making it more practical oriented. More importantly in technical and engineering courses, adequate practicals that could solve day-to-day problems should be emphasized. Due emphasis should be placed on on-the-job training.
2. Government should partner with the private sector to promote investment in the economy. It is an expanding economy that promotes employment. A trained labour that is unemployed cannot contribute meaningfully to economic growth. Improvement in employment also encourages physical capital formation.
3. School intake especially into the university system should be of quality type. This will ensure quality graduates that are employable. Also, there is need to improve the funding of school system in Nigeria from Primary School to University.

## SUMMARY AND CONCLUSION

The result of this study showed that human capital of primary school form contributes to growth while in most cases secondary school form and that of tertiary institutions dampen growth. Above all, it was noticed that in the short-run, physical capital plays a very important role in encouraging growth.

The implications of these are that primary school products, even while at schools contribute to helping their parents mostly in agriculture given our traditional method

**Table 8.** Rate of unemployment (%).

| Year | Unemployment (1) | Unemployment (2) | No. of Unemployed (1) ('m) <sup>+</sup> | No. of Unemployed (2) ('m) <sup>+</sup> |
|------|------------------|------------------|---|---|
| 1990 | 6.8              | 73.3             | 2.6                                     | 28.0                                    |
| 1991 | 4.1              | 76.2             | 1.6                                     | 30.0                                    |
| 1992 | 3.2              | 75.4             | 1.3                                     | 30.3                                    |
| 1993 | 5.4              | 75.7             | 2.2                                     | 31.2                                    |
| 1994 | 2.2              | 72.8             | 0.9                                     | 31.0                                    |
| 1995 | 1.8              | 71.0             | 0.8                                     | 31.2                                    |
| 1996 | 3.8              | 71.0             | 1.7                                     | 32.0                                    |
| 1997 | 3.6              | 72.8             | 1.7                                     | 33.8                                    |
| 1998 | 3.2              | 68.9             | 1.5                                     | 33.0                                    |
| 1999 | 3.0              | 72.8             | 1.5                                     | 36.0                                    |
| 2000 | 3.6              | 63.5             | 1.8                                     | 32.0                                    |
| Ave. | 3.7              | 72.1             | 1.6                                     | 31.7                                    |

Source: 1. Ndebbio 2006:26. The author explains that data are from various Central Bank of Nigeria (CBN) Annual Report and Statement of Accounts. 2. National Institute of Social and Economic Research (NISER) 2002:29. <sup>+</sup> Computed by the author.

**Table 9.** Global ranking of selected countries on KAM (2003-2004).

| Rank | Country      | KEI  | Econ. incentive | Innovation | Education | ICT  |
|------|--------------|------|-----------------|------------|-----------|------|
| 1    | Sweden       | 9.25 | 8.39            | 9.68       | 9.19      | 9.76 |
| 2    | Finland      | 9.11 | 8.78            | 9.73       | 9.21      | 8.71 |
| 3    | Denmark      | 9.08 | 8.65            | 9.36       | 8.87      | 9.46 |
| 4    | Switzerland  | 8.84 | 8.54            | 9.42       | 7.73      | 9.66 |
| 5    | UK           | 8.80 | 8.34            | 8.60       | 9.00      | 9.28 |
| 10   | USA          | 8.58 | 7.95            | 9.43       | 8.22      | 8.74 |
| 11   | Canada       | 8.58 | 8.31            | 9.01       | 8.39      | 8.61 |
| 13   | Germany      | 8.41 | 8.10            | 8.76       | 7.94      | 8.83 |
| 20   | Taiwan       | 8.10 | 7.63            | 8.97       | 6.94      | 8.85 |
| 26   | Hong Kong    | 7.68 | 9.40            | 9.49       | 4.82      | 9.01 |
| 28   | Korea        | 7.48 | 5.38            | 8.18       | 7.62      | 8.75 |
| 41   | Russia       | 5.97 | 2.68            | 7.47       | 7.85      | 5.88 |
| 44   | Malaysia     | 5.57 | 5.95            | 5.13       | 4.27      | 6.94 |
| 55   | South Africa | 5.08 | 5.82            | 5.34       | 4.17      | 5.00 |
| 68   | Mauritius    | 4.32 | 4.77            | 2.21       | 3.86      | 6.43 |
| 73   | Tunisia      | 4.11 | 3.33            | 4.72       | 3.77      | 4.61 |
| 77   | Egypt        | 3.77 | 2.87            | 4.36       | 4.51      | 3.35 |
| 82   | Namibia      | 3.56 | 5.80            | 1.73       | 2.89      | 3.81 |
| 86   | Morocco      | 3.21 | 3.02            | 3.96       | 1.87      | 3.99 |
| 93   | Kenya        | 2.76 | 2.12            | 4.66       | 2.00      | 2.28 |
| 98   | India        | 2.58 | 2.47            | 3.72       | 2.16      | 1.96 |
| 110  | Nigeria      | 1.55 | 0.23            | 2.74       | 1.79      | 1.43 |
| 113  | Benin        | 1.42 | 2.56            | 1.26       | 0.84      | 1.00 |
| 117  | Sudan        | 1.24 | 0.59            | 0.59       | 1.69      | 2.11 |
| 123  | Burkina Faso | 1.08 | 2.93            | 0.81       | 0.16      | 0.42 |
| 128  | Sierra Leone | 0.47 | 1.00            | 0.28       | 0.34      | 0.27 |

Source: Umo (2006:5). Normalized score varies from 0 to 10. 10 is for top performer, 0 the worst. World Bank surveyed 128 countries.

of farming in the rural set-up. Also, paid employments are not readily available for products of both secondary

schools and those of tertiary institutions. This reduces their contributions to economic growth. Moreover, in the

admission process to higher institutions, most students prefer to seek admissions into Arts and Social Sciences compared to core sciences, engineering and technical courses. In the face of saturated labour market in Nigeria, most graduates therefore find it difficult to be self-employed. In terms of knowledge economy index (KEI), Nigeria trails the rear of 1.55 on a scale of 10 and 1.43 on ICT. Indeed, in Nigeria, there is much schooling with little learning. It is on the basis of these findings that above recommendations are made with the hope that they (recommendations) when implemented can cause positive change.

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