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Aims and Scope

The Economic and Financial Review is published four times a year in March, June, September and December by the Research and Statistics Department of the Central Bank of Nigeria. The Review contains articles on research undertaken at the Bank, in particular, and Nigeria, in general, mainly on policy issues both at the macroeconomic and sectoral levels in the hope that the research would improve and enhance policy choices. Its main thrust is to promote studies and disseminate research findings, which could facilitate achievement of these objectives. Comments on or objective critiques of published articles are also featured in the review. *The views and interpretation contained in the articles published in the Review are those of the authors and do not necessarily represent the views and policies of the Central Bank of Nigeria.*

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Economic Growth and Human Capital Development: The Case of Nigeria

*Moses F. Otu and Ade O. Adenuga**

There can be no significant economic growth in any country without adequate human capital development. In the past decades, much of the planning in Nigeria was centered on the accumulation of physical capital for rapid growth and development, without due attention recognition of the important role played by human capital in the development process. The paper examines empirically the relationship between economic growth and human capital development using Nigerian data. The basic macroeconomic variables of concern derived from the literature review are: Growth rate of real gross domestic product (RGDPG), capital expenditure (CE) on education, recurrent expenditure (RE) on education, real gross capital formation (RGCF) was used to proxy physical capital formation, enrolments into primary (PRYE), post-primary (PPE) and tertiary (TERE) educational institutions were used to proxy human capital development. With the aid of Econometric Views (E-Views, version 3.1), the model was estimated using annual data from 1970-2003. The application of the cointegration theory incorporating the error correction mechanism was explored.

It is found that investment in human capital, through the availability of infrastructural requirements in the education sector accelerates economic growth. The physical capital formation proxied by real gross capital formation is correctly signed and statistically significant at 1 per cent level of significance. It indicates that it has a significant impact on Nigeria's economic growth. The paper recommends among others, that the Government should continue to encourage primary and post-primary enrolments as this would add up to improve the low adult literacy level which remains at 57.0 per cent. Also, teachers' salaries and improved working conditions in educational institutions should be accorded high priority by the Government. Finally, the efforts of Government in increasing primary school enrolment through the free compulsory Universal Basic Education should be sustained and made free up to the end of the junior secondary school.

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I. Introduction

No country has achieved sustained economic development without substantial investment in human capital. Several studies have evolved to analyze the channels through which human capital can affect growth (surveys include Barro and Salai-i-Martin, 1995; and Temple, 1999). Many of the literature emphasized the complementary relationship between human and physical capital, noting how imbalances in these two stocks, as well as human capital externalities, can affect economic growth. The highly educated, such as scientists and technicians, appear to have a comparative advantage in understanding and adapting new or existing ideas into production processes.

Human capital development has been described as an end or objective of development. It is a way to fulfill the potentials of people by enlarging their capabilities, and this necessarily implies empowerment of people, enabling them to participate actively in their own development. Human capital development enhances the skills, knowledge, productivity, creativity and inventiveness of people. Thus, human capital development is people and not goods or production-centred strategy of development. Essentially, it is the empowerment of people to identify their own priorities and implement programmes and projects of direct benefit to them. This in turn implies the active participation of people in the development process and the consequent need to evolve institutions that permit and indeed encourage that participation.

We hypothesize in this paper that there can be no significant economic growth in any country without adequate human capital development. In the past, much of the planning in Nigeria was centered on the accumulation of physical capital for rapid growth and development, without due attention to the important role played by human capital in the development process. This hypothesis shall be confirmed through empirical investigation, adopting the technique of cointegration on identified macroeconomic variables from the literature.

People are assets - in fact a country's most valuable assets. It is essential for human development that these assets be deployed sensibly. A defective

incentive system can result in a waste of human resources and often, too, in a higher incidence of poverty and greater inequality in the distribution of income. It is not enough to use existing resources wisely, we must also add to the existing resources through human capital formation.

The Federal Government reform agenda, which is anchored on the National Economic Empowerment and Development Strategy (NEEDS) document, indicated that adult literacy rate of at least 65.0 per cent could be attained by 2007. The NEEDS recognizes the centrality of human capital development in achieving economic growth. It was described as a vital transformational tool. Therefore, the strategy aims at empowering the citizenry to acquire skills and knowledge that would prepare them for the world of work.

In order to justify further the critical importance given to the development of human capital in Nigeria, the objective of this paper is to examine empirically the relationship between economic growth and human capital development using Nigerian data. This will be undertaken with a view to proffering some policy recommendations for the Government in order to improve the human capital development situation in Nigeria and achieve ultimately higher economic growth.

Following the introduction, the paper is divided into four parts. Part 2 covers the theoretical discussions and literature review, while Part 3 highlights some stylized facts about the current situation. Part 4 empirically investigates the impact of human capital development on economic growth, and highlights the findings. Part 5 ends with recommendations and conclusion.

II Theoretical Discussions and Literature Review

Theoretical Discussions

The neoclassical theory of growth developed by Solow (1956) focused macroeconomists' attention throughout the 1960's and 1970's on tangible (physical) capital formation as the driver of economic growth. However, the theory showed that, because of decreasing marginal returns in substituting

physical capital for labour, the accumulation of capital would not indefinitely support a steady rate of growth in labour productivity. The recent literature on "endogenous economic growth" emerged primarily as an attempt to encompass the sources of technological progress and, hence, of sustained productivity growth within the general equilibrium framework of neoclassical growth theory. This literature has evolved to provide several distinct explanations of the process of economic growth, each of which carried particular empirical and policy implications:

- Romer's so-called "AK model" generates sustained growth by assuming that technological change is the unintended result of specializing firms' investments. The creation of capacity to produce more and more specialized intermediate products is assumed to work like Adam Smith's division of labour principle, but at the aggregate level.

- The resulting externalities yield increasing returns to cumulative investment and, thus, the production of goods can avoid the decreasing returns to rising capital-intensity that the neoclassical model posited.

- These externalities imply that the competitive equilibrium growth path does not coincide with that which could be achieved in an optimally planned economy.

The latter conclusion was reached by virtually all the theoretical analysis based upon successive formulations that belong to the family of "endogenous growth models". It carries the implication that growth performance might be improved by public policy action.

Subsequent endogenous growth models have flushed out the process of technological change through the explicit introduction of human capital and/or knowledge:

- Lucas (1988) considers human capital to be another input in the production function, not fundamentally different from physical capital,

but only formed by workers through certain activities (principally education or on-the-job training). By assuming constant returns to human capital formation - on the argument that workers' knowledge "spills over" - the model can achieve a positive steady-state of growth rate in labour productivity.

- A second line of analysis shifts attention away from treating human capital as a direct input to the production of goods; instead, it focuses upon modeling other important activities pursued by skilled labour, especially innovation. Technological change resulting from Research and Development (R&D) investment that creates a greater variety of goods, or improves the quality of existing goods and services is the main form of innovation recognized by the endogenous growth literature following Romer (1986, 1990).

This latter line of analysis brought out the significant point that when human capital is modeled as a factor affecting innovation, the long-run rate of productivity growth is positively affected by the human capital stock's level; whereas, in the Lucas (1988) model, the rate at which human capital is accumulated, relative to the existing stock, was seen as the critical determinant of productivity growth. The early growth models (Harrod, 1939), (Domar, 1946) and (Solow, 1956) explained the long-run growth path of advanced capitalist economies in terms of accumulation of capital and technological progress. The sole concern was the growth in income. From a developing country perspective, the relevance of the model is limited to the extent that increased accumulation of capital is a basic condition for the growth of economies.

The early development theories accepted the importance of structural transformation in the process of economic development, (Lewis 1956, Fei and Ranis 1956). These models through stylized facts of development also explained the importance of attaining structural transformation in the developing economies. The development economics received an added thrust with the publication of Sen (1973, 1984, 1985). Sen divided the whole concept of development in terms of commodities and capabilities. He emphasized the

importance of capabilities over commodity approach. He admits that GNP is a measure of the amount of the means of well being that people have, but it does not tell us what people involved are doing to succeed in getting out of their means, to their ends. From the writings of Sen, one can really make the case that development achievement can not be a matter only of quantification of the income alone, but has to incorporate the actual achievement themselves.

The past developments in the growth theory (Romer, 1986) try to incorporate some of the development variables like human capital, into the growth framework. Thus, the growth theorists' started acknowledging the importance of human capital as an important macroeconomic variable in the growth equation. Recent empirical cross country study (Young, 1994) also acknowledge the importance of increased labour force participation, improvement in education and inter-sector transfer of labour from agriculture, which were earlier part of the development thinking. Thus, there has been an increased tendency of convergence between growth economics and development economics.

There have also been attempts to empirically relate these two concepts of economic growth and human capital development (Ranis and Stewart, 2001). This study focuses on the two-way relationship between economic growth (EG) and human capital development (HCD). The study views HCD as the central objective of human activity and EG as potentially very important instrument for advancing it. At the same time, achievements in HCD themselves can make a critical contribution to EG. There are, thus, two distinct causal chains examined. One runs from EG to HCD, as the resources from national income are allocated to activities contributing to HCD. The other runs from HCD to EG indicating how, in addition to being an end in itself, human capital development helps increase national income. This framework will act as an analytical base for this paper. However, this paper will be examining only one chain, which run from HCD to EG. The investigation will focus on whether HCD via increased public expenditure on social sector activities, gross capital formation and enrolments into primary, post-primary and tertiary institutions leads to higher EG.

Literature Review

The literature of endogenous growth theory has stimulated economists' interest in the empirical evidence available from cross-country comparisons, bearing on the main-level relationships between human capital formation and the growth rate of real output. The growth models view human capital as an input to the production function and predict that growth rate is positively related to the stock of education. Early studies of the effects of human capital on growth, such as Mankiw, Romer, and Weil (1992) and Barro (1991), were based on data sets pertaining to a very diverse array of (more than 100) countries during the post-1960 era. They used narrow flow measures of human capital such as the school enrolment rates at the primary and secondary levels, which were found to be positively associated with output growth rates. Barro reported that the process of catching up was firmly linked to human capital formation: only those poor countries with high levels of human capital formation relative to their GDP tended to catch up with the richer countries. Barro and Sala-i-Martin (1995), among many others, have also included life expectancy and infant mortality in the growth regressions as a proxy for tangible human capital, complementing the intangible human capital measures derived from school inputs or cognitive tests considered; their finding is that life expectancy has a strong, positive relation with growth.

A recent survey by Krueger and Lindahl (1998) from the econometric studies of cross-country growth equations shows more robust results. This contrasts with the evidence from the micro literature of education on income. When allowances are made for measurement errors, the change in stock measures of education is positively correlated with economic growth. Secondly, the evidence with respect to the positive effect of the level of human capital stock on growth rates is much stronger, but the size of this effect varies across countries. Two other well-established results that emerged from the cross-country studies examined by Krueger and Lindahl are: (a) the greater effect of secondary and higher education on growth, compared with primary education, and (b) the seemingly insignificant, or even negative, effect of female education on the growth of output. With respect to the latter, they corroborated Barro (1991) findings in suggesting that the insignificant effect of female

education may be a result of gender discrimination in some countries' labour markets. The argument is that females receive education in these countries but are discouraged from participating in the labour market and, thus, cannot contribute directly to the growth of output.

While there is persuasive evidence about the positive relation between initial human capital levels and output growth and (weaker) empirical support for the relation between changes in human capital and growth, it is not at all clear that this implies a causal relationship running from human capital to growth. Motivated by the fact that schooling has increased dramatically in the last 30 years at the same time that the "productivity slowdown" became manifest in many of the higher income economies, Bils and Klenow (2000) suggest that the causal direction may run from growth to schooling. That relationship would be predicted by a Mincerian model in which high anticipated growth leads to lower discount rates in the population, and so to higher demands for schooling. Of course, both variables might be driven by other factors. From the results of different empirical tests, Bils and Klenow conclude that the channel from schooling to growth is too weak to explain the strong positive association found by Barro (1991), and Barro and Lee (1993), as described above. But, they argue, the "growth to schooling" connection is capable of generating a coefficient of the magnitude reported by Barro. Lucas (1988) includes human capital as an additional input in the production of goods, while retaining the other features of the neoclassical growth model. In the model, the labour force can accumulate human capital, which is then used together with physical capital to generate the output of the economy. In one version of the model, human capital is acquired through time spent in an (non-productive) educational process, introducing a trade-off for workers between employing time to produce output and using it to gain further human capital that will increase their marginal productivity when working in subsequent periods. In another version of the model, human capital is gained by the workers through on-the-job training, and so the time employed working increases their productivity later on. The accumulation of human capital involves a sacrifice of current utility in the form of less current consumption in the case of education, or a less desirable mix of current consumption goods when on-the-job training is considered.

In the Ramsey (1997) models, the equation describing physical capital accumulation is sufficient to determine the dynamic evolution of output. To specify the growth path when human capital is included, it is necessary to consider an additional sector where the growth of human capital takes place. Given that physical capital still has diminishing returns, the required assumption for the model to exhibit a positive growth rate of output per worker in the steady state is that the "technology" for generating human capital has constant returns. This means that the growth of human capital is assumed to be the same for a given level of effort whatever the level of human capital attained. With this assumption, the rate of output growth (per worker) is positive and increasing in the productivity of education or on-the-job training in the creation of human capital.

Azariadis and Drazen (1990) model the mechanism of human capital transmission across generations in the more plausible framework of an overlapping generation model (Lucas followed Ramsey in the simplifying assumption that households, as well as firms, live infinitely). In these models agents inherit the human capital accumulated by the previous generation; they then decide how much time to devote to training a young graduate in acquiring further skill in technology that increases labour quality, thereby, affecting their marginal productivity when older. Since a given generation deciding its own human capital investment does not take into account the inter-temporal spill-over effect upon the human capital endowment of future generations, there is a technological externality that can result in constant or increasing returns to human capital at the social level. This state of affairs could be ascribed to the impossibility of contracting with the future generations, and sometimes is described as allocation inefficiency due to "incompleteness of markets". The source of this problem affecting human capital investment is, therefore, rather different from the set of conditions previously seen to impair the allocative efficiency of markets that do exist.

Acemoglu (1998) has offered a formal demonstration of how positive spill-over effects (pecuniary externalities) created by workers' educational and training investment decisions can give rise to macro-level increasing returns in human capital. His model supposes that workers and firms make their

investments in human and physical capital, respectively, before being randomly matched with one another. The direct consequence of random matching is that the expected rate of return on human capital is increasing in the expected amount of (complementary) physical capital with which a worker will be provided. Similarly, the return on physical capital is increasing in the average human capital that the firms expect the workers to bring to the job. Hence, an increase in education for a group of workers induces the firms to invest more in tangible assets, thereby increasing the return to all workers in the economy. Through a similar argument, the model is seen also to imply that there are "social increasing returns" in physical capital.

In the early 1990s pioneering econometric studies (based on international panel data for a widely diverse array of countries during the post-1960 era) provided empirical support for the conclusion that human capital formation was among the factors that significantly affected the aggregate level of economic growth.

- They found that success in the process of catching up internationally in terms of GDP growth was positively related to the overall social rate of human capital formation.

- Furthermore, the poor countries that were tending to catch up with the higher income economies were restricted to those that were maintaining levels of investment in formal education which were high in relation to their respective GDP levels.

More recent econometric studies have yielded three robust empirical findings:

- There is only weak empirical support for the hypothesis that changes in the human capital stock affect growth rates.

- There is strong statistical support for the hypothesis that the relative level of the stock of human capital (in relation to the labour force or aggregate output) has a positive effect on growth rates.

- The magnitude of the "level effect" of the human capital stock is itself far from uniform across the distribution of economies; the impact on growth rates does not vary linearly with the relative size of the stock but, instead, becomes proportionately smaller among the economies where the average educational attainment is already high.

The broad interpretation of these findings in the context of recent growth models is that raising the general level of educational attainment interacts positively with other forces - among them the accumulation of complementary physical capital and the application of new technologies. Higher human capital intensity thus permits countries to accelerate their productivity growth rate and narrow the relative size of the per capita real income gaps separating them from the leading economies.

Maintaining a high average level of educational attainments, and correspondingly high rates of investment in other forms of human capital (e.g. health, internal spatial and occupational mobility), would appear to serve as a *stabilizing* force - although not a guarantee - against continuing secular decline in a country's relative per capita income position. Most of the theoretical literature on economic growth focuses on the role that investment in formal education plays in modern economies.

III. An Overview of Human Capital Development in Nigeria*

Education affects every individual of a country. The general consensus has been that there is a high positive relationship between a rise in educational expansion and economic development. The old 6-5-2-3 inherited from the colonial masters was replaced with the 6-3-3-4 education system in 1977. This means that pupils will spend six years to get primary education, six years in secondary school (three years of junior secondary and three years of senior secondary education) and four years of higher education.

In Nigeria, the Federal government is principally responsible for the tertiary

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* *This section benefits from Central Bank of Nigeria (2002).*

institutions. However, several State governments also fund this level of education. Indeed, with the approval of the eight new universities, the number of the nation's private universities has risen to 23, funded by private individuals. Secondary education is mainly a State government responsibility though there are some federal secondary schools. Primary education is a local government responsibility, but there exist also a National Primary Education Commission (NPEC) that draws up the curricula for the schools in this category. There has also been collaboration by corporate bodies, individuals, religious organizations, international agencies, non-governmental organizations (NGOs) and community-based organizations (CBOs) with the three tiers of government. The level of expansion in the educational system from 1980 to 2003 is as indicated in Table 2.

The enrolment in primary school was 12.2 million in 1980, declining thereafter to 11.5 million in 1987. Since 1988, both enrolment and number of primary schools have increased progressively to 26.3 million and 52,815, respectively, in 2003. The student-teacher ratio in primary school which stood at 35 in 1980 rose to 44 in 1986, declining thereafter to 36 in 1990. From there it rose to 60 in 1995 declining afterwards to 53 in 2003 (Central Bank of Nigeria, 2004). When compared to the United Nations stipulated minimum of 25, it is seen that Nigeria has not performed well.

Post-primary enrolment was 1.9 million in 1980; it rose to 3.4 million in 1984. By 1989, enrolment had declined to 2.7 million, rising afterwards to 2.9 million in 1990. From 1990, post-primary enrolment had risen steadily, reaching 7.1 million in 2003. In the same manner, the number of schools rose from 6,001 in 1990 to 11,918 in 2003. The student-teacher ratio increased from 28 in 1980 to 38 in 1984. It rose to 40 in 1995, declined to 37 in 1996. In 2003, the ratio fell to 38 compared to 40 recommended by the National Policy on Education (Central Bank of Nigeria, 2004). This is a noticeable improvement, which should be sustained. The number of universities was 13 in 1980; it rose to 16 in 1981 and 28 in 1987. In all, the number of tertiary institutions increased from 104 in 1988 to 202 in 2003. Similarly, total enrolment rose from 219,119 in 1988 to 1.3 million in 2003.
According to Central Bank of Nigeria [2004:165], enrolments into primary

schools throughout the country are as follows: 24,895,446 in 2000; 27,384,991 in 2001; 29,575,790 in 2002; 26,292,370 in 2003 and 28,144,967 in 2004. The percentage enrolments into the three levels of education (primary, secondary and tertiary) relative to the country's population indicate that for primary, it increased from 21.6 per cent in 2000 through 2001 to 24.2 per cent in 2002. However, it declined to 20.8 per cent in 2003 and, thereafter, rose to 21.7 per cent in 2004 (Table 1).

Table 1: Comparing the School Enrolment Levels with Nigeria Population (Per cent)

	2000	2001	2002	2003	2004
Primary	21.6	23.1	24.2	20.8	21.7
Secondary	5.5	5.9	6.1	5.6	5.2
Tertiary	0.9	1.0	1.0	1.0	0.3

Source: Central Bank of Nigeria Annual Report and Statement of Accounts, 2004, P.165.

Table 2
Educational Development In Nigeria (1980-2000)

Year	Number of Educational Institutions			Enrolment		
	Primary	Post-Primary[1]	Tertiary[2]	Primary	Post-Primary	Tertiary
1980	35,875.0	3,218.0	13.0	12,206,291.0	1,877,057.0	57,742.0
1981	36,683.0	4,969.0	16.0	14,026,819.0	2,473,673.0	74,607.0
1982	37,611.0	5,603.0	19.0	14,964,143.0	2,880,280.0	87,066.0
1983	37,888.0	5,894.0	24.0	15,308,384.0	3,334,644.0	104,683.0
1984	38,211.0	6,190.0	27.0	14,383,487.0	3,402,665.0	116,822.0
1985	35,281.0	5,876.0	24.0	13,025,287.0	2,995,578.0	126,285.0
1986	35,433.0	5,730.0	24.0	12,914,870.0	3,094,349.0	135,783.0
1987	34,266.0	6,092.0	28.0	11,540,178.0	2,934,349.0	150,613.0
1988	33,796.0	6,044.0	104.0	12,690,798.0	2,997,464.0	219,119.0
1989	34,904.0	5,868.0	118.0	12,721,087.0	2,723,791.0	307,702.0
1990	35,433.0	6,001.0	122.0	13,607,249.0	2,901,993.0	326,557.0
1991	35,446.0	5,860.0	124.0	13,776,854.0	3,123,277.0	368,897.0
1992	36,610.0	6,009.0	130.0	14,805,937.0	3,600,620.0	376,122.0
1993	37,812.0	6,162.0	133.0	15,911,888.0	4,150,917.0	383,488.0
1994	38,000.0	6,300.0	133.0	16,683,560.0	4,500,000.0	202,534.7
1995	39,677.0	6,452.0	138.0	17,994,620.0	5,084,546.0	391,035.0
1996	41,660.0	6,646.0	138.0	19,794,082.0	5,389,619.0	689,619.0
1997	43,951.0	7,311.0	138.0	21,161,852.0	5,578,255.0	862,023.0
1998	45,621.0	7,801.0	138.0	22,473,886.0	5,795,807.0	941,329.0
1999	47,902.0	8,113.0	144.0	23,709,949.0	6,056,618.0	983,689.0
2000	48,860.0	8,275.0	144.0	24,895,446.0	6,359,449.0	1,032,873.0
2001	49,343.0	8,275.0	142.0	27,384,991.0	6,995,394.0	1,136,160.0
2002	47,694.0	8,351.0	178.0	29,575,790.0	7,485,072.0	1,249,776.0
2003	52,815.0	11,918.0	202.0	26,292,370.0	7,091,376.0	1,274,772.0
2004	65,627.0	13,333.0	215.0	28,144,967.0	7,091,376.0	6,745,186.0

[1] This includes secondary, technical/vocational schools and teacher training colleges.
[2] This includes polytechnics/colleges of technology, colleges of education and universities. However, data from 1980-1987 are for universities alone

Sources: 1. CBN, Nigeria's Principal Economic and Financial Indicators 1970-1990.
2. CBN Annual Report and Statement of Accounts (various issues).

The data in Table 1 above shows that the proportion of primary school enrolments to the country's population remains abysmally low. Inadequate funding of education generally may not be the only problem. There is the cultural dynamics to it. What do you do with a parent (probably a petty trader, a

farmer, an artisan, etc.), who believes that it is better for the ward to assist him/her in his/her professional line, rather than going to school that is largely under-funded and unaffordable? In addition, the observed wide disparity between the number of primary, post-primary school enrolment and the tertiary education enrolment is attributable to high drop-out rate that cuts across the three levels of education (CBN 2002: 100-101). Other likely factors are economic, demographic, socio-cultural and religion.

The expansion in the educational system was accompanied by structural defects, inefficiency and ineffectiveness, which affect Nigeria's level of human capital development and utilization. There is also the problem of inadequate funding and poor infrastructure and facilities for learning. Nigeria's educational system tends to produce more graduates who lack the technical skills for employment than those the economy requires to remain vibrant. The core development related disciplines such as agriculture, engineering, and information and communication technology (ICT) do not attract many students, as most students go for arts and business-oriented courses. This inadequacy and lopsided educational system resulted in decreasing technical skills and threats of social insecurity by jobless youths. Other problems include inadequate resource input and consequent low output and overdependence on government as an employer of labour. Available data show that adult literacy, which was 50.1 per cent in 1989, rose to 55 per cent in 1993 and 1994. It remained at 57 per cent from 1995 to 2003. This data indicate that about 43 per cent of Nigerians are illiterate, compared to 40 per cent in China, 33 per cent in Zimbabwe, 23 per cent in Indonesia and less than 20 per cent in Brazil and Mexico (Adenuga, 2002).

IV. Empirical Investigation of the Impact of Human Capital on Economic Growth

Methodology and Data Source

Following the review of other empirical works, the basic macroeconomic variables of interest derived from the earlier review are: real gross domestic product (RGDPG), capital expenditure on education (CE), recurrent

expenditure on education (RE), real gross capital formation (RGCF) to proxy physical capital formation, enrolments into primary (PRYE), post-primary (PPE) and tertiary (TERE) educational institutions to proxy human capital development. The coverage for each of the variable spanned 1970 to 2003. This is to ensure enough data points for the econometric analysis. We would have introduced labour force; however, data on this variable were not available in sufficient manner for estimation.

With the aid of Econometric Views (E-Views, version 3.1), the model is estimated using annual data from 1970-2003. The statistics were compiled from various issues of the Central Bank of Nigeria (CBN) Annual Report, CBN Statistical Bulletin, December 2003, CBN-Nigeria: Major Economic, Financial and Banking Indicators, September 2004, Federal Office of Statistics (now National Bureau of Statistics (NBS)) Economic and Statistics Review (various issues).

Estimation procedure follows the two steps procedure of Engle and Granger (1987), Granger (1986) and Hendry (1986). The ordinary least squares method (OLS) was adopted as the estimation technique.

The application of the cointegration theory incorporating the error correction mechanism was explored. The process examined the time series characteristics of the selected variables, to overcome the problems of spurious correlation often associated with non-stationary time series and generate long-run equilibrium relationships concurrently. The variables were examined in logarithmic forms to help in achieving linearity. The data series were tested for stationarity using the Augmented Dickey Fuller (ADF) test as the starting point to assess the order of integration.

Model Specification

Given the foregoing discussion, the following model is specified in order to determine the impact of human capital formation on economic growth in Nigeria. The functional form is:

RGDPG = f (CE, RE, RGCF, PRYE, PPE, TERE)---------- (1)

Where:
RGDPG = Growth rate of real gross domestic product
CE = capital expenditure on education
RE = recurrent expenditure on education
RGCF = real gross capital formation
PRYE = primary education enrolment
PPE = post-primary education enrolment
TERE = tertiary education enrolment

The turn-out from the discussed institutions would have been preferred as a proxy for human capital development, but for inadequacy of data. Thus, it is proxied by the three components of enrolments in educational institutions. The inclusion of these three variables separately affords the opportunity to examine their individual impact on the economic growth process.

Taking the natural logarithmic of both sides of equation (1) gives:

$$LRGDPG = a_0 + a_1 LCE + a_2 LRE + a_3 LRGCF + a_4 PRYE + a_5 LPPE + a_6 LTERE + U \text{ ----------} (2)$$

The a's are the coefficients to be estimated and their *a-priori* expected signs are that all the coefficients are positively related to RGDPG, while U is the random error.

Table 3: Results of Unit Root Tests

Variable	ADF-Test Statistics with Constant	Critical Value at 1%	Order of Integration
ΔLRGDP	-4.0734	-3.6576	I(0)
ΔLCE	-4.2434	-3.6576	I(0)
ΔLRE	-4.7868	-3.6576	I(0)
ΔLRGCF	-4.3291	-3.6576	I(0)
ΔLPRYE	-4.8507	-3.6576	I(0)
ΔLPPE	-4.5418	-3.6576	I(0)
ΔLTERE	-5.9268	-3.6661	I(1)

From the static regression of the model using the explanatory variables at their levels, the residuals were generated and the linear combination of the variables was confirmed to be I(0) implying that these variables are cointegrated.

Table 4: Result of the Unit Root Test for the Residual

Variable	ADF-Test Statistics with Constant	Critical Value at 5%	Order of Integration
ECM	-3.1909	-2.9558	I(0)

With these results, we proceed to specify the short run dynamic equation. The short-run dynamics is specified as an error correction model (ECM) incorporating the one period lagged residual from the static regression. The autoregressive distributed lag technique was used with a maximum lag of 2 to obtain an over-parameterized equation. Finally, through sequential reduction, a parsimonious result was obtained, (Table 5).

Table 5: Parsimonious Regression Result

Dependent Variable: DLRGDP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.153700	0.087218	1.762255	0.0903
DLCE	0.557602	0.097002	5.748363	0.0000
DLRGCF	0.676772	0.262005	2.583056	0.0160
DLPRYE(-1)	-2.166887	1.275068	-1.699428	0.1017
DDLTERE(-1)	-0.768280	0.334231	-2.298648	0.0302
ECM(-1)	-0.436383	0.118371	-3.686567	0.0011
R-squared	0.675661	Mean dependent var		0.239217
Adjusted R-squared	0.610793	S.D. dependent var		0.678279
S.E. of regression	0.423155	Akaike info criterion		1.289827
Sum squared resid	4.476496	Schwarz criterion		1.567373
Log likelihood	-13.99232	F-statistic		10.41595
Durbin-Watson stat	2.321825	Prob(F-statistic)		0.000017

Analysis of Findings

The above result indicates an R^2 of 0.68, which shows that the model explains about 68 per cent of the variations in RGDPG. It is found that the parameter estimates for human capital development lagged one year (proxied by PRYE and TERE) are negatively signed and the t-statistic are statistically significant at about 10 and 5 per cent levels, respectively. It indicates that the variables have significant negative impact on Nigeria's economic growth. The capital expenditure on education (CE) is correctly signed and statistically significant at 1 per cent. This empirically shows that investment in human capital, through the provision of infrastructural facilities in the education sector

accelerates economic growth. The physical capital formation proxied by real gross capital formation is correctly signed and statistically significant at 1 per cent level of significance.

Considering primary education enrolment (PRYE), the result is against the expected positive relationship between this variable and RGDPG, though its coefficient is statistically different from zero at about 10 per cent. For tertiary education enrolment (TERE), the coefficient of its one year lag is negatively related to economic growth, but the t-statistic is statistically significant at 5 per cent. The ECM is negative as expected, and significant at 1 per cent level of significance. Therefore, the model is able to correct any deviations from the long-run equilibrium relationship between RGDPG and the explanatory variables. At 2.32, the Durbin Watson statistics does not suggest any evidence of autocorrelation.

The other diagnostic results are as presented below:

Summary of Diagnostic Tests for the Model

Test	F-Statistic	Probability
Jarque-Bera Normality	0.9325	0.6274
Breusch-Godfrey (B-G)	1.0241	0.3749
White Heteroskedasticity	0.4549	0.8997
Ramsey Reset	1.5857	0.2264

The outcome of the diagnostic tests as shown above is satisfactory. The Jarque-Bera test for residual normality assumptions is not violated, therefore the inference is valid. The result showed that the error process could be described as normal. The B-G is found to have stronger statistical power. The B-G test result indicated the absence of serial correlation. Also, the absence of white heteroskedasticity and specification error was validated. The results of the test suggest that the model is well specified and robust for policy analysis.

Further tests were done to examine the model for stability by examining the *recursive residuals* of the estimate. Figure 1 shows that in 1993 the recursive

residual went beyond the ± 2 s. e. bounds. The 1998 figure was also close to the bounds. However, in general the residuals were within the bounds. The *cusum of squares* tests gives a better result as the values were within the 5 per cent bound (Figure 2). The tests thus far support the view that the model is relatively stable as shown below:

Figure 1: Recursive Residuals

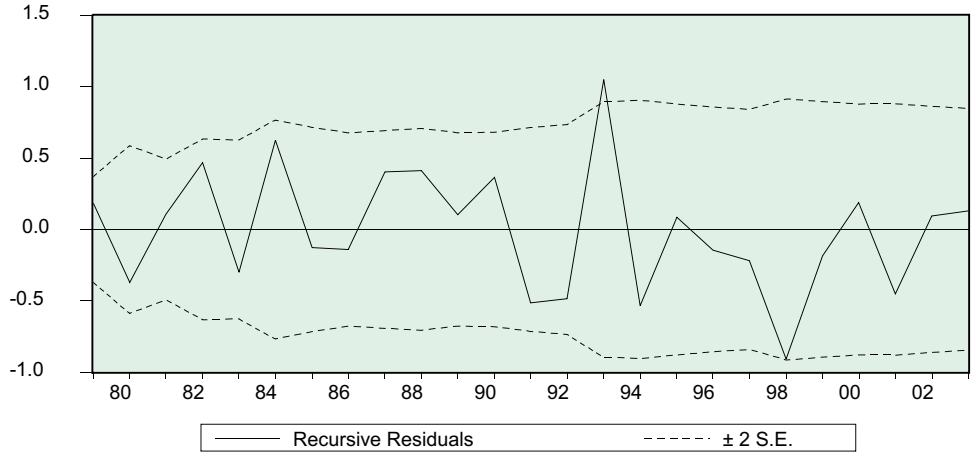
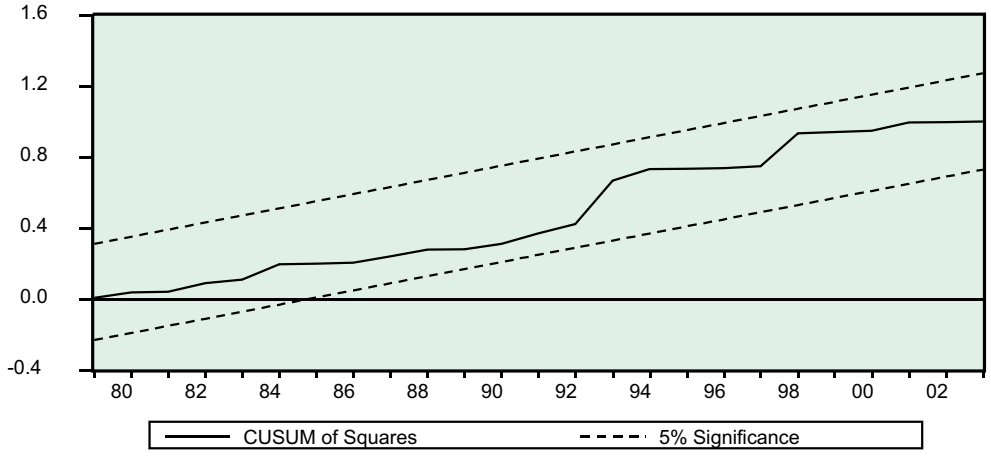


Figure 2: Cusum of Squares Test Result for Stability



Economic Implications and Policy Relevance

The empirical findings have shown that there is a long-run relationship between economic growth and human capital development, at least in the Nigerian context. This indicates that investment in human capital accelerates economic growth due to its positive impact on labour productivity.

The R^2 of 0.68 from the parsimonious model in Table 5 indicate that about 68 per cent of the systematic variation in RGDPG is explained by the four variables taken together. The implication is that Government should consider investment spending in the education sector as critical to enhancing the efficiency of labour, increasing productivity and the quality of education, and by implication, economic growth. A one per cent change in RGCF would increase the RGDPG by about 0.68 per cent. While a one per cent increase in CE will culminate into 0.56 per cent increase in RGDPG. This finding indicates the need for continuous improvement in infrastructure in the educational institutions in the country in order to enhance the effectiveness and efficiency in the sector. In a similar vein, a one per cent rise in PRYE lagged one year and TERE lagged one year will decrease RGDPG by 2.17 per cent and 0.77 per cent, respectively. For tertiary education enrolment lagged one year, the result shows that the parameter estimate is not correctly signed although statistically significant. This is not surprising due to a longer period that is required for the impact of graduates to be felt on economic growth in terms of their contribution to national productivity. Other problem remains the poor manpower-mix of the tertiary graduate turnout, which most times do not reflect the true manpower needs of the country. This has led to the perpetuation of skill gaps among most graduates from the tertiary institutions compared to the general needs of the economic sectors.

V. Recommendations and Conclusion

Recommendations

- The government should continue to encourage primary and post-primary enrolments as this effort would add up to improve the low adult literacy level which remains at 57.0 per cent.

- Government should continue to provide the enabling environment by ensuring macroeconomic stability that will encourage increased investment in human capital by the private sector.

- Incessant closure of tertiary institutions due to strikes, cult activities, and excesses of student unions, etc. should be addressed by the relevant authorities.

- Teachers'/lecturers' salaries and improved working conditions in educational institutions should be accorded high priority by the Government.

- To increase physical capital formation in the education sector, Government should increase spending on social and economic infrastructure in order to enhance the efficiency of the labour force and enhance productivity, and by implication, economic growth.

- The efforts of Government in increasing primary school enrolment through the free compulsory Universal Basic Education should be sustained and made free up to the end of the junior secondary school.

Conclusion

The paper has explored empirically the relationship between economic growth and human capital development in Nigeria, using cointegration and error correction techniques. It reveals that investment in human capital, in the form of education and capacity building through training, impacts positively on economic growth.

In conclusion, Nigeria can only reposition herself as a potent force through the quality of the products from the primary, secondary and tertiary school systems, and by making her manpower relevant in the highly competitive and globalized economy through a structured, well-funded and strategic planning of her educational institutions.

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Cost of Funds Determination by Banks in Nigeria

*Peter Izundu Nwaoba**

This paper articulated the issues involved in the determination of cost of funds by banks in Nigeria. Cost of funds is a major factor in the pricing of loanable funds and exerts much influence on the day-to-day decision of banks on extension of credit either in the inter-bank market or to their customers. The study illustrated how the cost of funds is computed by banks, especially from the 1990s when the interest rate was deregulated. The normal framework for the computation of cost of funds by banks in Nigeria includes interest expense as a percentage of average volume of funds per annum, deposit insurance premium as a percentage of average volume of funds per annum and adjustment for cash reserve deposits, while some banks include overhead costs. Some of the variables considered in the determination of cost of funds included liquidity ratio, money supply and its growth rate, credit risk of borrowers, growth of bank credit, cash reserve requirements, loans-to-deposit ratio, prime lending rate, and real GDP growth rate. Estimation results showed that the significant predictor variables included cash reserve ratio, prime lending rate, real GDP growth rate, growth of bank credit, growth of money supply and liquidity ratio. The paper revealed that high cost of funds is driven by scarcity of loanable funds in the banking system.

Keywords: loanable funds, credit risk, loan - deposit ratio, liquidity ratio
JEL Classification: G2, G21, E4
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I. Introduction

Cost of funds is a critical economic variable in the loanable funds market as it plays a vital role in the mobilization and efficient allocation of financial resources in an economy. Harvey (2003:50) defines cost of funds as simply the interest rate associated with borrowing money. It is the interest cost that a financial institution must bear for the use of money. There is a line of distinction between cost of funds and interest rate. According to Philbeam (1998:46), interest rate is defined as the yearly price charged by a lender to a borrower in order for the borrower to obtain a loan, usually expressed as a percentage of the total amount loaned. It is the price a borrower has to pay to enjoy the use of cash which he does not own, and the return a lender enjoys for deferring his consumption or parting with liquidity. Both cost of funds and interest rate relate to lending and borrowing, and affect the amount of consumption, saving and investment in an economy.

Cost of funds is dependent upon such factors as time value of money, the credit risk of the borrowing bank and inflation rate, among others. Banks generally take risks when they lend to their customers, including other banks, but risk taking differs across banks as some engage in more risks than their capital could bear while others are more prudent. The banks that extend riskier loans assume higher credit risk and may easily be distressed with little mismanagement. In the process of buying and selling money by banks, the price is primarily determined by the cost of funds. The monetary policy of the Central Bank of Nigeria (CBN) influences the availability and cost of money in the economy. The Bank uses its monetary policy instruments to influence the movement of reserves of the banks, which affect the banks in their credit operations and in turn influence the cost and availability of loanable funds.

Public opinion in the past has attributed the slow growth of the industrial and manufacturing sectors to the lending processes of banks in Nigeria, as a result of their high lending rate (usury). The banks have, however, argued that high interest rate is fueled by the rise in the cost of funds at their disposal. They always justify their high lending rates by pointing to the cost of mobilizing funds which they claim to be too high. For instance, before consolidation, more

than 70.0 per cent of the banks' deposits came from the public sector of the economy, necessitating the scramble by banks for government funds, notwithstanding the high deposit rates of 20.0 to 25.0 per cent allegedly demanded by government ministries and agencies that placed such funds.

Furthermore, the banks blamed the upward trend in cost of funds on the failure of the government to honour its obligations under the tripartite agreement on interest rate moderation with the Central Bank of Nigeria and the banks, a situation that allegedly dislocated the envisaged gains from the agreement. This tripartite agreement reached on October 22, 2002 contained a decision to lower interest rates to the point where lending rates should not exceed four per cent above the Minimum Rediscount Rate (MRR), now replaced with the Monetary Policy Rate (MPR) in December 2006. The quantity, quality, cost and availability of loanable funds have continued to constrain the expansion of businesses in Nigeria, reflecting the small size and weak capital base of most of the banks as well as high cost of funds for extension of credit. For example, most of the banks that were supposed to drive financial intermediation in Nigeria were rated marginal and weak, resulting in less financial deepening in the financial sector and necessitating the banking sector reforms which commenced on July 6, 2004. Giving the background to the banking sector reforms in Nigeria, Soludo (2004:5) highlighted poor credit policies and administration, high incidence of delinquent loans and ethical standards as well as undercapitalization/insolvency and illiquidity as some of the major problems within the banking industry, with obvious implications on the state of banking sector soundness. These factors were driving the cost of funds at the inter-bank lending market before the commencement of the banking sector consolidation. Efforts by the Central Bank at ensuring safe and sound banking practices that would safeguard depositors' funds, therefore, made it very imperative to beef up standard capital adequacy requirements for the banks to encourage them to maintain a certain level of net worth by shoring up their shareholders' fund to a minimum of ₦25.0 billion with effect from January 1, 2006. The current high interest rate regime in the economy remains a source of concern both to policy makers, the regulators, the banks and to the ultimate fund users in the economy as it runs counter to the objectives of banking sector consolidation.

Outside the framework set by the Central Bank of Nigeria on what constitutes the cost of funds in its monetary policy guidelines, borrowers always complain that most banks are not transparent in their computation of cost of funds, hence the high interest rates charged to customers. According to the borrowers, the customer is always accosted with high lending rate which the banks attributed to high cost of funds, while the methodology used to arrive at the cost of funds remained a mystery and exploitative to the borrowers. The argument of excessive hedging by the banks becomes very overwhelming. It is, therefore, imperative that an understanding of the critical factors that drive these costs and their transmission dynamics be understood as a first step to reducing high interest rates.

This paper articulates the issues involved in the determination of cost of funds by banks in Nigeria, highlights the items considered by banks and the processes involved in the calculations, and analyses the data in order to ascertain the critical factors that affect cost of funds in the Nigerian banking system. It also assesses the level of compliance with the relevant policy on interest rate and by extension cost of funds, and makes recommendations for policy options that would influence the reduction of interest rate within the economy. The paper uses both descriptive and empirical analysis which covers the deregulation period, especially from the 1990s when the interest rate was fully deregulated up to 2005.

For analytical purposes, the rest of the paper is structured into four parts. Part II looks at the theoretical issues and reviews the literature on cost of funds. Part III illustrates the approaches for the computation of cost of funds by banks. Part IV presents some analysis and the summary of findings, while Part V proffers some recommendations for policy options and concludes the paper.

II. Theoretical Issues and Review of Literature

The loanable funds theory of the rate of interest developed by Knut Wicksell, a Swedish Economist, in 1898 has been central to the theory of cost of funds and interest rates. According to Philbeam (1998:57), the loanable funds approach views the interest rate as being determined by the supply and demand for

loanable funds in the capital markets. The theory posits that investments and savings determine the long-term level of interest rates, whereas short-term rates are determined by financial and monetary conditions in the economy. It revealed that the intersection of the supply and demand for loanable funds determines the interest rate, and by extension cost of funds, while the equilibrium interest rate is such that it clears both the money market and the loanable funds market. The increase in the supply of loanable funds necessitates downward trend in cost of funds and interest rate, all other things being equal. On the other hand, the increase in the demand for loanable funds exerts pressure on the available loanable funds resulting in a rise in cost of funds and interest rate.

Fisher (1930:16/17) stressed that at the economy level, the rise in the income level increases the level of savings, which in turn increases the quantum of loanable funds. However, economic agents could take more debts because of increase in expected future income. Also, an increase in the proportion of savings held in the form of interest earning assets compared to non-interest earning assets, resulting from better financial intermediation, could lead to an increase in the supply of loanable funds. Stiglitz (2001:4) noted that capital adequacy standards may induce the banks to engage in riskier behaviour as they seek returns to offset their higher costs. He argued that the level of capital adequacy that is high enough to ensure that banks will not engage in gambling behavior entails a cost; and because capital is expensive, banks are only able to pay depositors relatively low interest rates, which he equated to lowering their marginal return to deposits. The banks' risky behavior seems to be higher during economic deregulation and liberalization when economic activities are very high and dynamic, and bank capital is found to be inadequate. Stiglitz further noted that the published capital-to-asset ratios of banks are, therefore, frequently overstated by officials of banks that are anxious to conceal bad loans.

Comparatively, Angbazo and Saunders (1997) found that the cost of funds to large banks increased after Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991 was implemented in the United States, suggesting that bank creditors believed that the Act reduced the likelihood of a

large bank benefiting from the "too-big-to-fail" policy which was perceived from the congressional testimony of the Comptroller of the Currency in September 1984. Its counterpart in the country, the Nigeria Deposit Insurance Corporation (NDIC) Act was promulgated under the laws of the Federation of Nigeria 1990 for the purpose of insuring deposit liabilities of licensed banks and some other financial institutions in Nigeria. The NDIC premium, which is about 0.94% (15/16 of 1%) of total deposits of a bank, forms part of the computable items used to arrive at the total cost of funds of banks in Nigeria.

Keynes (1936) identified two sets of services performed by the modern banker, namely, supplying a substitute for state money by acting as a clearing house and transferring current payments backwards and forwards between different customers by means of book entries on the credit and debit sides. The banker also acts as a middleman in a particular type of lending, receiving deposits from the public which he employs in purchasing securities, or making loans to individuals, industry and trade, mainly to meet the demand for working capital. Following from the view of Keynes and under the inter-bank lending arrangement, the banks borrow funds, usually on short-term basis, from among themselves and also from the central bank depending on the ruling cost of funds. The borrowers of the funds from the banks in turn pay liquidity premium to the banks to induce them to lend long, and the size of the liquidity premium increases with the time to maturity of the loan.

In line with the arguments of Drury (2000: 456) and Mouck (1997:3), banks lend to customers who invest the money in projects that yield return in excess of the opportunity cost of the investment; where opportunity cost of the investment is also known as either the minimum required rate of return, cost of capital, discount rate or interest rate. Drury had argued that a firm should operate at a point where marginal cost is equal to marginal revenue, and marginal cost is represented by the marginal cost of capital normally used to finance projects. The study by Mouck, on the other hand, highlighted the fact that firms produce goods and services at the lowest possible cost while maximizing profits.

However, Brock (2000:74-75) observed that banks find it difficult to monitor

their borrowers, while deficient internal controls on both initial and on-going loan evaluations lure banks to lend even in circumstances in which repayment seems unlikely. Brock further observed that bank managers sometimes resort to accounting gimmicks such as double-gearing, whereby a bank lends money to a firm within its group so that the firm can buy an equivalent amount of the bank's stocks. The bank's reported capital rises by that amount, but the group's capital remains the same, with consequences for financial sector soundness and stability. Proposals have also been made to incorporate exchange rate movements in measures of the cost of capital. Oxelheim (1985:210) noted that the weighted average cost of capital includes the cost of borrowing from overseas and has its net cost adjusted for anticipated exchange rate movements. This approach acknowledges that borrowing in a foreign currency may produce a gain as the cost of funds declines with depreciation of that foreign currency.

Monetary policy is one of the two principal means (the other being fiscal policy) by which governments in a market economy regularly influence the direction of overall economic activity. It is a central bank's mandate to influence the availability and cost of money and credit in an economy. Apart from the open market operations in the money market by the CBN, occasioned by the need to achieve a desired level of money supply in the economy and also raise money for development purposes (as mostly experienced in the less developed countries), the CBN lends to the banks that wish to borrow money from it at its lending rate (the MRR), now replaced with the Monetary Policy Rate (MPR). The banks, on their part, are expected by the Banks and Other Financial Institutions Act 1991 (as prescribed in section 13) to maintain minimum cash reserves ratio against unexpected withdrawals (BOFIA, 1991:5). The banks of course resort to borrowing from the Central Bank when they run below such stipulated ratio. They raise their own cost of funds and interest rates in line with the Central Bank lending rate, and also hold more cash reserves when CBN rate increases.

Reserve requirements that emanate from central bank's change of policy affect monetary and financial conditions. A reduction in the reserve requirement increases the quantum of cash held by the banks and, therefore, makes more

funds available for extension of credit to investors. In the traditional Keynesian view, a fall in money supply will result to a rise in interest rates and high cost of capital leading to a decline in investment spending. Ajayi (2001:8) stressed that a change in policy leads to a change in money supply; and for a given money demand, this leads to changes in market interest rates and in bank loan rates for borrowers which may affect investment decisions, and changes in deposit rates which may affect the choice between present and future consumption. He stated that changes in interest rate affect not only the cost of credit but also the cash flows of debtors and creditors, as well as alter the marginal cost of borrowing leading to changes in investment and saving and, thus, aggregate demand.

Interest rates were fully deregulated in Nigeria in 1990 and banks thereafter, set their costs of credit and costs of funds according to market forces. Ndekwu (1993:48) revealed that the three arguments put up to justify this favourable behaviour towards market forces include that of the real rate of interest (nominal rate must sufficiently adjust for the rate of inflation), that of tight monetary policy (growth of credit and money supply is restricted) and the money market behavior (pressure on inter-bank funds in the market pushes up interest rates). In his keynote address at the Tenth Annual Conference of the Institute of Bankers of Nigeria in 2004, Olusegun Obasanjo urged the banks to bring down their rates and costs and be specific in their charges rather than hedging with "administrative, ledger, legal and book-keeping charges that are annoying, inhuman, criminal, anti-growth and anti-development". He noted that banks put up all sorts of arguments and provide several technical rationalizations and justifications for high double-digit interest rate, which stifles creativity, discourages investments (especially the development of small and medium scale enterprises), suffocates businesses and intimidates the ordinary person in a developing nation like Nigeria (Obasanjo, 2004).

Obasanjo's view was at the heels of the persistent complaints of the Manufacturers Association of Nigeria (MAN) about very high interest rates charged by the banks and the maturity pattern of the loan facility extended to their members, where they are expected to repay the loans within 90 days as if they are traders. MAN had argued that the conversion cycle of raw materials to

money is within seven months range which does not give any comfort for a 90-day loan facility. As expected, the banks argued that the prevailing high interest rates were the direct effects of the rising cost of funds in the financial market as well as inflation rate.

The expected rate of inflation also plays a crucial role in the determination of cost of funds and interest rate, especially the real interest rate represented by the Fisher equation: $r = i + pe$. Harvey (1986:1) pointed out that this development is due to the fact that lenders of funds require positive real expected returns (not just expected returns) from lending their funds while borrowers pay positive real cost for access to loanable funds**.** Investors, therefore, find it uneconomical to lend money at less than the expected rate of inflation since changes in expectations about inflation have a significant influence on the rate of interest.

The ability to pay the agreed interest rate is usually one of the conditions of inter-bank lending. This is because a banker borrows money with an obligation to repay on demand or after an agreed period; and he lends funds (extends credit) with an obligation on the part of the borrower to repay under stipulated terms and conditions which include the maturity period. The banker, therefore, borrows money and lends money or extends credit if and when these terms and conditions are mutually acceptable and fulfilled. The cost of funds to a borrowing bank, therefore, depends on such terms as the duration of the loan (maturity period), risk assessment of the borrower and the expected rate of return from yields on treasury bills or bonds.

Cost of funds is, therefore, affected by the expected level of default risk, that is, the risk that the borrower or an issuer of debt securities will default on all or part of the commitments in the loan contract. Agene (1995:47) stated that the cost of obtaining liquidity is a function of market conditions and the degree of risk, (both interest rate and credit risks), which are reflected in the balance sheet of the banks. A bank can still be over-exposed in terms of risk arising from excessive lending of funds or booking of credit, notwithstanding the level of its capital base. The distress phenomenon experienced by banks in the first half of the 1990s was largely due to this factor. A larger percentage of Nigerian

borrowers, including banks, are prone to loan default while the sanction for such act is not stiff enough to deter them. Linked to credit risk is the degree of liquidity and duration of the loan. These factors also determine the rate to be charged by investors of funds because the less liquid the security or collateral, the higher the charge to the borrowing agency, while a longer duration implies higher risk that also attracts higher charges. On the other hand, higher credit rating of an economic agent gives it an advantage to borrow funds at a relatively lower charge.

For a bank, cost of regulation consists of opportunity and operating costs that arise from the activities or changes in activities that are required by regulation (Ellienhausen, 1998:2). Opportunity costs could occur for a bank when a regulation prevents it from engaging in profitable activity. Another opportunity cost is the interest forgone as a result of the prohibition on investing reserves in interest-bearing assets. As cited by Ellienhausen and using a similar cost accounting methodology to estimate the operating costs at banks in the US, Darnell (1980), Mckinsey & company (1992) and Grant (1992b) studied the regulatory costs of banks in three categories namely direct labour cost, other direct cost and overhead expenses.

Darnell estimated that a bank's operating costs in 1979 represented 13.7 percent of its total non-interest expenses, of which its cost of complying with consumer regulations alone was 5.9 percent of non-interest expense. Mckinsey & company in 1991 studied incremental ongoing regulatory costs at four large commercial banks covered by deposit insurance and estimated that the average cost of complying with all sixty regulations was 6.1 percent of non-interest expenses, of which the most costly was deposit insurance estimated at 4.1 percent of non-interest expenses. The average cost of complying with consumer regulations was 0.8 percent of non-interest expense. Grant Thornton, studying nine banks in 1991 estimated that regulation costs averaged 14.2 percent of non-interest expenses, of which consumer regulation cost was 8.6 percent of non-interest expenses. The three studies revealed that consumer regulations are especially costly for all banks.

In all cases, therefore, the various factors determining the cost of funds would

include the demand and supply of loanable funds; inflation rate; inflation expectations; inter-bank funds rate; risk perceptions; the creditworthiness of the borrower; savings rate; the prevailing lending rate; maturity period; cash reserve requirements for banks; liquidity ratio; minimum rediscount rate (monetary policy rate); growth of bank credit to the economy; growth of money supply; the credibility of the government's macroeconomic policy; the capital base of the financial intermediaries; the interaction between fiscal and monetary policies; the rate of economic growth; political factors; economic agents' perception about future and overheads, as well as international factors like the interest rates in the rest of the world and the exchange rate regime adopted by the country concerned.

III. Approaches for Computing Cost of Funds

Cost of funds computation includes the interest expense divided by the volume of the interest bearing liabilities, while the cost of new debt capital is simply the after tax interest cost of raising new debt. Oyedotun (2002:4) stressed that the marginal cost of debt is a measure of the borrowing cost paid to acquire one additional unit of investible funds. The marginal cost of equity capital, on the other hand, is a measure of the minimum acceptable rate of return required by the shareholders. Therefore, the marginal cost of debt and equity constitute the marginal cost of funds either as an independent source of funds or a pool of funds. The higher the interest rate, the higher the bank's cost of funds, hence the positive correlation between interest rate and a bank's cost of funds. Companies, including banks, are often financed by a combination of debt and equity capital, and they always aim to maintain target proportions of these debt and equity. The overall cost of capital for the company is, therefore, calculated as:

(Proportion of debt capital x cost of debt capital) + (proportion of equity capital x cost of equity capital)

The overall cost of capital is also called the weighted average cost of capital (Drury, 2000:509). According to the Central Bank of Nigeria, the banks are expected to employ this weighted average cost of funds computation

framework for determining their cost of funds beginning from 2002 in line with international banking practice. Thus, the former simple average method of computing cost of funds was discontinued. Ordinarily for the banks, the ratio of the naira amount paid as interest in a particular month to the average naira amount of the funds for that month constitutes the weighted average cost of funds ratio for that month.

The cost items in the CBN framework include banks' interest cost on the different types of deposit liabilities, borrowings from the inter-bank funds market, payments in respect of deposit insurance premium and cost due to reserve requirement; while overhead costs are excluded in the framework (CBN, 2004:17). Therefore, the CBN computation of the banks' effective average cost of funds focuses on interest expense as percentage of average volume of funds per annum; deposit insurance premium as percentage of average volume of funds per annum; and adjustments for cash reserve deposits (Table 1). Overhead costs were excluded from the CBN framework because banks are known to have other non-interest income sources that, in most cases, account for substantial part of the total income which should be used to take care of other operating or non-interest expenses. However, the banks endeavoured to apply the CBN framework but not without some elements of hedging, which brings so many factors into consideration in the calculation of their cost of funds. The issue of hedging and the continued inclusion of overhead costs by some banks, which was excluded by the Central Bank, still constitute a problem in the computation of cost of funds by Nigerian banks (Table 1).

The cost item in the framework of a typical bank in Nigeria, therefore, includes the following: current liabilities such as commercial paper rediscounted, bankers' acceptances rediscounted and treasury bills rediscounted, inter-bank takings, as well as current and savings accounts deposits, fixed deposits and bank certificates in the form of unique products of the bank that customers invest in. Other considerations include cost of energy generation, currency movement, currency sorting, public relations and stationeries. Also, expenses incurred on payment of salaries and general maintenance of the banks' fixed assets which form the bulk of the overhead costs that the CBN directed should

be excluded from the computation of a bank's cost of funds. These are incurred as operating expenses, which are eventually added to the following to arrive at the total cost of funds:

(i) NDIC premium: (15/16 of 1% of total deposits of the bank, i.e. 0.94%),

(ii) some percentage of cash reserve, and

(iii) some percentage of other liquid assets

It is expected that pre and post-merger costs as well as consolidation and post-consolidation costs will now form part of the framework for the calculation of cost of funds by banks in Nigeria. As stated in Table 1, the computation of cost of funds of banks in Nigeria, at any given moment, would involve the aggregate volume of all its deposits and other funds, interest expense, deposit insurance premium, and adjustment for cash reserve deposits. However, the aggregate cost of funds of banks could vary due to concentration of deposits in different products within banks. Ratnayake (2004:4) observed that some banks have the ability to canvass low cost funds more easily than others due to certain advantages they have in providing solutions for customer needs. Any advantage gained by a bank in low cost funds, therefore, contributes to its profit either directly or by leveraging through other business deals.

Deposit Insurance Premium

Deposit insurance protects the payment system from disruption. It is an anchor for public confidence in the banking system. That is, because a portion of deposits are guaranteed, depositors need not rush to the bank to withdraw funds if the bank's capacity to cover them becomes questionable. It is intended to prevent the financial instability associated with runs on banks that can bring down even sound institutions. Under deposit insurance, banks issue a class of liabilities for which most balances, especially for the small depositors, are fully insured by the Nigeria Deposit Insurance Corporation (NDIC) up to the sum of ₦50,000.00. The deposit insurance separates the depositor from the credit risks of the bank which are assumed by the NDIC. In essence, when a

bank issues a deposit, it engages in two transactions: it issues a risk-free (government insured) liability to a depositor and it purchases an insurance contract from the deposit insurance corporation to cover the credit risks associated with the priority position of the deposit claim (Hutchison, 2005:3).

The costs of deposit insurance are paid from insurance premiums, which are passed on to the banking system and the banks in turn include them in their computation of cost of funds. The premium for the purchase of insurance contract from the NDIC is currently 15/16 of 1% of total deposits of a bank. The four representative banks posted deposit insurance premium of 0.5%, 0.9%, 0.9% and 0.7%, respectively.

Table 1: Framework for Computation of Cost of Funds by Banks in Nigeria

S/N	Details	Bank A	(%)	Bank B	(%)	Bank C	%	Bank D	%
1.	Volume of deposits and other funds i.e. average of opening and closing balances (₦'Million)	80,041.7		79,948.5		139,623.0		51,241.3	
2.	Interest expense for the month (₦' Million)	171.3		639.5		881.4		68.6	
3.	Deposit Insurance premium payable during the month ((₦'Million)	34.4		61.6		109.1		29.7	
4.	Overhead cost of funds in the month (₦' Million)	354.0		856.8		-		142.5	
5.	Interest expense (2) as a percentage of average volume of funds per annum		2.6		9.6		7.6		1.6
6.	Deposit insurance premium (3) as percentage of average volume of funds per annum		0.5		0.9		0.9		0.7
7.	Overhead cost (4) as percentage of average volume of funds in the months per annum		5.3		12.9		-		3.3
8.	Average cost of funds in percentage per annum (5+6+7)		8.4		23.4		8.5		5.6
9.	Adjustment for cash reserve deposits		1.0		0.9		3.1		0.1
10.	Effective average cost of funds (8+9)		9.4		24.3		11.6		5.7

Source: Banking Analysis System (Monthly Returns by Banks)

Overhead Costs

High cost of funds and overhead costs make pricing by banks costly. Banks endeavour to recover their annual overhead expenditure from business every year since they are of recurrent nature. Banks can achieve cuts in overhead by aggressively targeting "other non-interest expense". This category includes a host of costs such as advertising costs, data processing services, software development costs, certain legal fees, branch networking, information technology and auditing. A bank with small capital and small branch network will present a higher cost of funds since it has to attract high end deposits due to lack of a large branch network with low overheads. Thus, there will be a trade-off between high cost deposits and low overheads. Overhead costs for banks A, B and D in the representative table amounted to ₦354.0 million, ₦856.0 million and ₦142.0 million, respectively, while bank C did not include it in accordance with the Central Bank's directives. The high overhead cost posted by bank B with volume of deposits and other funds of ₦79,948.5 million shows that the bank is either rendering spurious returns to the Central Bank or there is an element of mismanagement.

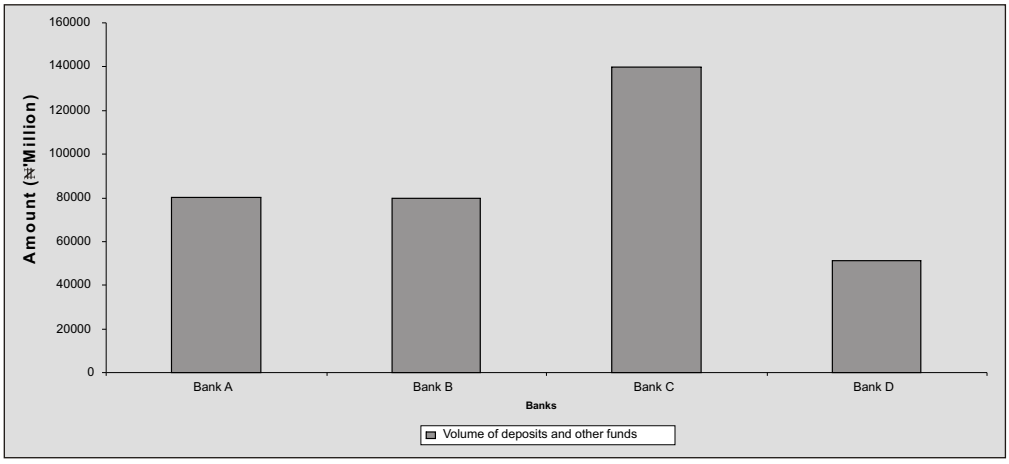
Cash Reserve Requirements and Adjustments

Reserve requirements are one of the three main tools of monetary policy set by the Central Bank and used in influencing how much money banks can lend, thus setting the pace at which the nation's money supply and economy can grow. The other two tools are open market operations (OMO) and discount rate. They provide one of the monetary adjustment tools the Central Bank employs to regulate the supply of credit in the banking system. Cash reserve requirements relate to the amount of funds that banks must hold in reserves against deposits made by their customers. These are computed as percentage of deposits that banks must hold as vault cash or deposit at the Central Bank. Cash reserve requirements represent a cost to the banking system because they represent a portion of deposits that banks may not lend. They impose a cost on the banks equal to the forgone interest on the amount by which required reserves exceed the reserves that banks would voluntarily hold in order to conduct their business. As at December 2005, cash reserve requirement (CRR) for banks in Nigeria was 10%.

Reserve adjustments allow for the effects of changes in reserve requirements on a bank's deposits and for changes in the proportion of deposits subject to different reserve requirements. The Central Bank can stimulate or tighten available bank credit and the ability of banks to lend by raising or lowering the amount of required reserves. Thus, the inclusion of adjustment for cash reserve deposits in the framework for the computation of cost of funds.

Further analysis of the representative table derived from the returns of four deposit money banks (Table 1) showed that bank C complied with the Central Bank's directive of excluding overheads from the computation of cost of funds. It reported the highest deposit liabilities that may be more realistic (Figure 1). This may reflect the credibility of the Management of the bank. The bank reported interest expenses as a percentage of average volume of funds per annum of 7.6%.

Figure 1: Monthly Volume of Deposits and other Funds (₦'Million)



Banks A, B and D that included overheads in violation of the Central Bank's directive, reported interest expenses as a percentage of average volume of funds per annum of 2.6, 9.6 and 1.6%, respectively, while their overheads as a percentage of average volume of funds in the months per annum were 5.3, 12.9 and 3.3%, respectively. Analysis also indicated that bank B posted the highest overheads as a percentage of average volume of funds in the months per annum of 12.9% and the highest effective average cost of funds of 24.3% during the

review month. This development was a direct result of very high overhead cost of funds when compared with banks A and C. Bank B's overhead costs, therefore, accounted for more than half of its average cost of funds and effective average cost of funds (Figures 2 and 3).

Figure 2: Monthly Cost of Funds by Banks in Nigeria (₦'Million)

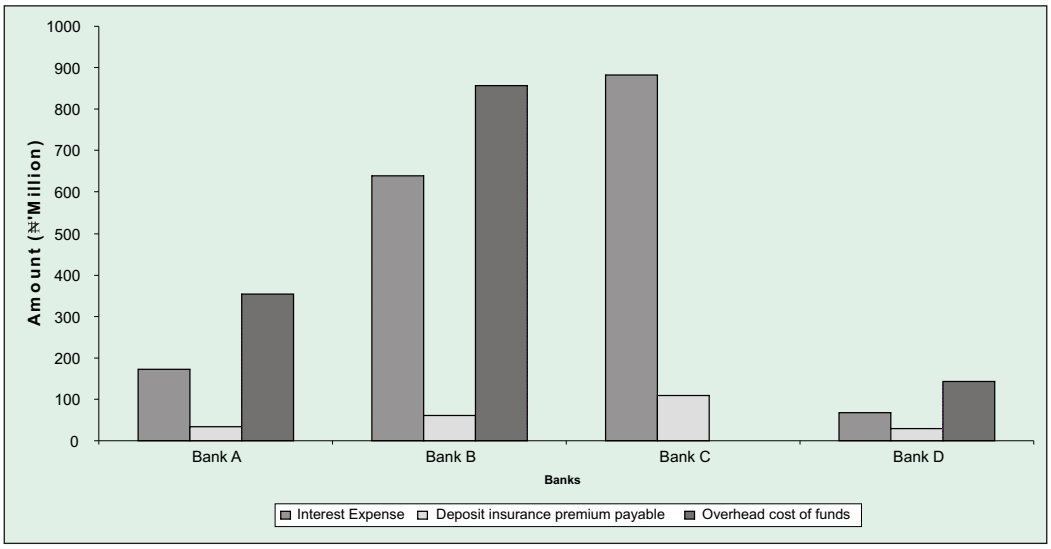
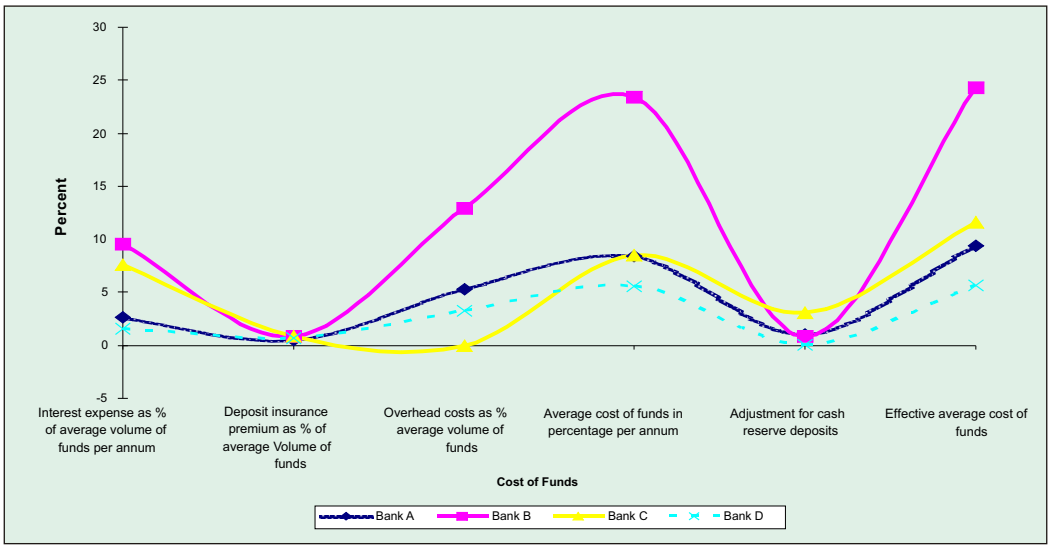


Figure 3: Cost of Funds of Selected Banks in Nigeria (%)



The effective cost of funds for the four banks averaged 12.8% while it averaged 8.9% for the three banks (A, C & D) with moderate overhead costs. This illustration revealed that cost of operations has a significance influence in the computation of lending interest rates by banks in Nigeria[3]. The banks' argument have, however, been strong that the high interest rate they charge (ranging between 17.5-26.4%) is a function of high cost of funds and general business environment in Nigeria. They further argued that facilitating single digit, production-friendly lending rates, would obviously imply addressing effectively issues relating to infrastructural deficiencies, with their direct impact on cost of fuel and energy, and by extension general price increases in the economy.

IV. Empirical Analysis of Determinants of Cost of Funds

In order to ascertain the impact of factors that determine the cost of funds of banks in Nigeria, a regression model was developed and estimated. Information was obtained on the relevant economic indicators for the period 1986 to 2005 (Tables 2 and 3). From the literature, cost of funds determination is influenced by such factors as inflation rate; inter-bank funds rate; creditworthiness or risk of the borrower; savings rate; maturity period; cash reserve requirements for banks; liquidity ratio; minimum rediscount rate; growth of bank credit to the economy; growth of money supply; the rate of economic growth; loan-deposit ratio of banks; prime lending rate; treasury bills rate; and overheads. It is globally acknowledged that funding gap has been a major impediment to investment and general economic growth in developing economies. Also, in most cases, where funds exist, it is always at very high and unattractive interest rates. Therefore, it is imperative to understand the determinants of cost of funds in the Nigerian banking system.

IV.1 Major Findings

The following variables found to be consistent with the assumptions of the

[3] *The banks have not been named in order to maintain confidentially and anonymity as well as to prevent any unintended imputations into their operations.*

error term were modeled. There are no identifiable proxies for credit worthiness or risk of borrower and overheads. Thus,

Cof = f(Crr, Plr Rggr, Ldr, Gbcr, Gms, Lr)……………………..……….(4.1)
Where,
Cof = Cost of funds
Crr = Cash reserve ratio
Plr = Prime lending rate
Rggr = Real GDP growth rate
Ldr = Loans/deposit ratio
Gbcr = Growth of bank credit
Lr = Liquidity ratio
Gms = Growth of money supply

$$Cof = \alpha_0 + \alpha_1 Crr + \alpha_2 Plr + \alpha_3 Rggr + \alpha_4 Ldr + \alpha_5 Gbcr + \alpha_6 GMS + a_7 Lr + \mu_t \quad (4.2)$$

$$\alpha_1, \alpha_2, \alpha_3, \alpha_7 > 0; \qquad \alpha_4, \alpha_5, \alpha_6 < 0$$

μ_t is assumed to have zero mean and constant variance.

Using the ordinary least square (OLS) technique, estimates of the parameters in equation (4.2) were obtained. All the tests were carried out at the 5 and 10 per cent levels of significance. Forty-eight (48) high frequency monthly data from the Central Bank of Nigeria were used for this analysis (Table 2). The results are as shown and interpreted below.

IV.2 Interpretation of Regression Results and Summary of Findings

Dependent Variable	Independent Variables								Statistic				
	C	CRR	PLR	RGGR	LDR	GBCR	GMS	LR	R^2	$\bar{R}^2$	F	Pr (F)	DW
COF	74.4	13.7	-9.5	-6.4	-0.6	0.7	-0.9	2.1	61	55	9.0	0.00	2.1
	(1.2)	(3.8)	(-6.0)	(-5.9)	(-1.3)	(4.1)	(-3.3)	(3.8)					

Values in parenthesis represent the t-values.

The explanatory variables specified in the model accounted for 55% of the observed variability in the cost of funds by banks in Nigeria. The Durbin Watson statistics for the model of 2.1 suggested the absence of serial correlation in the disturbances. The cash reserve ratio (CRR) was significant and with the right sign. This revealed that the more banks' funds that are kept with CBN to meet cash reserve requirement, the higher the average cost of fund. This is responsible for the continuous downward adjustment in cash reserve ratio as this will reduce lending rate for the investing public, promote lending to the real sector and reduce cost of funds. Similarly, the growth of bank credit was also significant and complied with the economic a priori expectations. The variable came out with positive sign and was also significant at 5 %. The implication of this is that banks should ensure efficient use of resources both material and human in the expansion of service delivery.

Upward trend in the growth of money supply rightly revealed that such variation will impact negatively on the average cost of funds, because interest rate which is a large component of cost of funds would likely decline. In this context, the growth of money supply came out significant and also with the right sign. In order to meet the liquidity ratio when liquidity shortage exists, the average cost of funds will increase. Also, since liquidity ratio is an implicit tax, it has the tendency of raising the cost of funds. During the period of distress borrowings, banks mobilize cash by offering excessively high interest rates which accentuate the problem of capital erosion. In addition, they were able to achieve the required minimum liquidity ratio by offering unrealistic deposit rates. The prime lending rate was significant and had a negative sign, indicating that increases in prime lending rate will reduce the average cost of funds. Similarly, real GDP growth rate was significant and had a negative sign which shows that as real GDP growth increases, the average cost of funds in Nigeria reduces.

IV.3 Policy Implications

Average cost of funds which, according to deposit money banks, comprise both interest rate expenses and administrative expenses, is a major indicator of efficient performance of the banking sector. When the average cost of funds is

on the high side, it adversely affects bank charges and efficient allocation of resources in the economy. It is for this reason that the Central Bank of Nigeria, through its monetary policy circular, directed that the deposit money banks should not include overhead costs as part of their costs of funds.

Using the arithmetic or weighted average method for computing cost of funds provided a range of 8.9% - 12.8%. Empirical analysis of the cost of funds showed that the major factors in the weighted average approach - CRR, PLR and LR - were statistically significant using a time series model. The empirical evidence shows that there is need for the CBN to constantly adjust the CRR downwards in order to reduce the cost of funds and enable banks to charge lower lending rates for the investing public.

Growth in money supply reduces average cost of funds. This, notwithstanding, the CBN should continue to pursue its restrictive monetary policy stance to fend off inflation arising from excessive growth in money supply. When the economy becomes stable, cost of funds also becomes predictable and reasonable. The positive sign of the liquidity ratio reveals that the higher the liquidity ratio, the higher the average cost of funds. Banks should be encouraged to strike a balance between profitability and liquidity. The desire to achieve this requires the CBN to fast-track its campaign and measures to improve the payments system and use of non-cash instruments.

V. Recommendations, Summary and Conclusion

V.1 Recommendations

Cost of funds is dependent upon the credit risk of the borrower among other factors. Credit risk is a major consideration in extending loans to investors, but sanctions for loan defaults are weak. The legal clause for loan default which gives undue advantage to defaulting borrowers should be reviewed for possible strengthening. Such laws should state a time frame for the disposal of related cases because prolonged litigations, at the instance of borrowers, usually stall the process of take-over and consequent auctioning of borrowers' collaterals by banks in the banks' effort to recover their money. The failed bank law should be strengthened and enforced so that borrowers are immediately

brought to book and lenders do not suffer unduly in the hands of loan defaulting borrowers. The CBN should work in conjunction with the National Assembly to enact a law that will aim at the dual objectives of making it difficult for beneficiaries of credit to default and easy for the lenders to recover bad loans. The present effort at strengthening and invoking the law on dud cheques is also a welcome development. A strong legal framework on loan default should follow as it would have the positive effect of reducing credit risk and thereby reducing cost of funds and in fact interest rates.

Generally, lack of adequate infrastructure makes the general business environment in Nigeria very un-conducive. The weak energy sector is a problem for banks and other businesses that depend on electricity to operate their numerous information technology (IT) systems. It also encourages high tariff regime in the telecommunication sector which the banks need for effective and efficient undertaking and confirmation of transactions. This deficiency necessitates the use of alternative energy sources with high cost of fuel, which reflects in their cost of funds and interest rate charges. Government should double its efforts in addressing the problem of infrastructure deficiencies which banks try to solve by themselves. Essentially, Government should, effectively provide constant energy supply that would reduce the cost of doing business in Nigeria, and by implication reduce average cost of funds charged by the deposit money banks.

The CBN should continue to influence the movement of interest rates within the economy. The directive by the Banker's Committee in December 2006 that banks should clearly spell out upfront, the rates a prospective credit customer would be expected to pay, was very timely. The banks were also expected to make open all other sundry charges, which should not be more than 2% per annum in addition to the actual interest rate before drawdown. These transparent initiatives, according to the Committee, would ensure that a customer is not in doubt of whatever charges to be paid before concluding whether to take a loan or not. The downward adjustment of key ratios like the liquidity and cash reserve ratios will have salutary effect on the cost of funds of banks in the country. Continuous initiation of policies that will reduce credit failures in the economy and rigorous pursuit of deflationary policy stance by

the CBN will continue to encourage reduction in banks' cost of funds.

V.2 Summary and Conclusion

The paper articulated the issues involved in the determination of cost of funds by banks in Nigeria and illustrated how cost of funds is computed. The normal framework for the computation of cost of funds by banks in Nigeria includes interest expense as a percentage of average volume of funds per annum, deposit insurance premium as a percentage of average volume of funds per annum and adjustment for cash reserve deposits, while some banks include overhead costs which were excluded by the Central Bank. Some of the variables considered in the determination of cost of funds included liquidity ratio, money supply and its growth rate, credit risk of borrowers, growth of bank credit, cash reserve requirements, loans-to-deposit ratio, prime lending rate, and real GDP growth rate. The strong effects of these factors were confirmed using econometric analysis. Estimation results showed that the significant predictor variables included cash reserve ratio, prime lending rate, real GDP growth rate, growth of bank credit, growth of money supply and liquidity ratio, making them issues of policy relevance. The paper revealed that high cost of funds is driven by increase in the demand for credit in the banking system. The mix of government's fiscal policy regime and monetary policy measures influences cost of funds and interest rates.

The margin of four percent allowed between minimum rediscount rate and lending rates by the interest rate policy of 1990 and the tripartite agreement of 2002 was exceeded by the banks for most periods, implying lack of compliance. In order to address this issue, the Bankers' Committee directed banks to spell out their lending rates clearly and make open all charges. It is expected that the higher deposit base for banks, resulting from bank consolidation, will encourage a decline in the banks' effective average cost of funds. In addition, cost of funds will decline if credit risk is reduced by discouraging loan default by borrowers through stringent laws; adequate infrastructure, especially in the area of energy supply, is provided by government to reduce cost of doing business in Nigeria; and stability in the national polity is guaranteed to minimize uncertainties. Finally, the continuous

initiation of policies that will reduce credit failures and rigorous pursuit of deflationary policy stance by the Central Bank of Nigeria will continue to encourage reduction in the cost of funds of banks in Nigeria.

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Appendix

Table 2: Selected Economic Indicators, Monthly

Year	Minimum Rediscount Rate (%)	Treasury Bills Rate (%)	Inflation Rate (%)	Inter-bank Funds Rates (%)	Savings Rate (%)	Prime Lending Rate (%)	Cash Reserve Ratio (%)
2002							
Jan	20.5	20.9	18.9	21.3	4.0	25.8	10.6
Feb	20.5	21.9	18.9	19.1	4.5	25.2	10.6
Mar	20.5	22.3	18.8	22.6	8.5	24.5	10.6
Apr	20.5	22.2	17.9	23.0	4.1	25.4	10.6
May	20.5	21.6	16.8	21.8	3.2	25.3	10.6
Jun	20.5	20.5	16.4	22.5	3.7	25.3	10.6
Jul	18.5	19.6	16.2	21.6	3.6	26.4	10.6
Aug	18.5	16.8	15.6	19.4	4.1	26.2	10.6
Sept	18.5	16.2	14.8	17.4	4.4	26.2	10.6
Oct	18.5	16.1	13.6	14.5	4.0	25.1	10.6
Nov	18.5	14.6	13.2	16.3	3.8	22.1	10.6
Dec	16.5	13.0	12.9	12.1	3.7	20.6	10.6
2003							
Jan	16.5	14.2	12.3	14.1	3.6	21.9	10.6
Feb	16.5	14.3	11.4	14.4	4.3	21.6	10.6
Mar	16.5	14.8	10.5	14.8	5.3	21.2	10.6
Apr	16.5	14.1	10.1	14.1	5.3	21.1	10.6
May	16.5	15.3	10.0	15.1	4.6	21.1	10.6
Jun	16.5	15.6	10.1	15.5	3.6	21.1	10.6
Jul	15.0	15.8	10.0	15.7	3.6	20.9	9.8
Aug	15.0	9.9	10.0	14.9	4.1	20.3	9.8
Sept	15.0	13.1	10.7	12.9	4.8	20.0	9.8
Oct	15.0	13.5	12.3	13.5	3.6	20.0	10.5
Nov	15.0	14.2	13.0	14.3	3.4	19.6	10.5
Dec	15.0	14.3	14.0	14.2	3.2	19.6	10.5

Table 2 Cont'd: Selected Economic Indicators, Monthly

Year	Minimum Rediscount Rate (%)	Treasury Bills Rate (%)	Inflation Rate (%)	Inter-bank Funds Rates (%)	Savings Rate (%)	Prime Lending Rate (%)	Cash Reserve Ratio (%)
2004							
Jan	15.0	14.5	15.0	12.1	3.5	19.5	7.8
Feb	15.0	13.3	16.5	13.8	4.2	19.6	7.8
Mar	15.0	14.1	17.8	14.6	5.7	19.5	7.8
Apr	15.0	14.5	18.5	15.9	3.1	19.5	8.6
May	15.0	13.7	19.4	15.5	3.5	19.4	8.6
Jun	15.0	13.5	19.4	15.0	3.3	19.2	8.6
Jul	15.0	14.4	19.1	15.2	4.7	19.0	8.8
Aug	15.0	14.5	19.1	12.9	4.6	18.8	8.8
Sept	15.0	13.9	18.2	11.9	4.4	19.0	8.8
Oct	15.0	10.6	17.1	10.3	4.4	18.9	9.1
Nov	15.0	12.6	16.1	12.7	4.4	18.9	9.1
Dec	15.0	12.6	15.0	12.1	4.4	18.9	9.1
2005							
Jan	15.0	12.9	14.0	10.6	4.4	18.9	9.5
Feb	13.0	11.5	12.9	9.6	4.4	18.4	9.5
Mar	13.0	10.8	12.5	10.7	4.2	18.2	9.5
Apr	13.0	10.1	12.6	8.0	4.0	18.2	9.5
May	13.0	6.3	12.5	5.3	4.1	18.1	9.5
Jun	13.0	4.6	12.9	5.5	4.0	17.8	10.0
Jul	13.0	3.3	14.2	4.7	3.8	17.8	10.0
Aug	13.0	2.8	15.5	3.9	3.6	17.5	10.0
Sept	13.0	5.5	16.8	5.5	3.4	17.6	10.0
Oct	13.0	2.4	17.4	8.2	3.3	17.5	10.0
Nov	13.0	2.4	17.8	16.4	3.4	17.6	10.0
Dec	13.0	11.5	17.9	7.0	3.3	17.8	10.0

Table 2 Contd: Selected Economic Indicators, Monthly

Year	Real GDP (%)	Money Supply (%)	Loans to Deposit Ratio (%)	Liquidity Ratio	Growth of Bank Credit (%)	Banks' Effective Average Cost of Funds (%)
2002						
Jan	3.5	2.4	62.8	52.5	3.3	30.1
Feb	3.5	7.6	62.8	52.5	2.5	27.5
Mar	3.5	8.1	62.8	52.5	18.4	29.6
Apr	3.5	9.1	62.8	52.5	20.0	34.0
May	3.5	9.6	62.8	52.5	23.4	33.3
Jun	3.5	14.1	62.8	52.5	25.6	28.8
Jul	3.5	14.2	62.8	52.5	32.1	28.0
Aug	3.5	16.1	62.8	52.5	33.2	28.6
Sept	3.5	22.0	62.8	52.5	39.0	29.5
Oct	3.5	28.6	62.8	52.5	37.0	27.6
Nov	3.5	22.4	62.8	52.5	24.4	27.6
Dec	3.5	21.6	62.8	52.5	56.6	124.0
2003						
Jan	10.2	9.2	62.8	52.5	16.6	25.8
Feb	10.2	11.2	62.8	52.5	23.8	23.3
Mar	10.2	20.0	56.3	52.4	16.8	23.9
Apr	10.2	22.9	56.3	52.4	12.4	22.2
May	10.2	16.2	56.3	52.4	17.0	23.3
Jun	10.2	32.8	57.5	50.7	30.5	22.8
Jul	10.2	22.1	57.5	50.7	40.9	24.8
Aug	10.2	23.3	57.5	50.7	41.4	24.1
Sept	10.2	23.9	63.6	50.8	32.3	25.6
Oct	10.2	29.5	63.6	50.8	46.8	25.7
Nov	10.2	33.3	63.6	50.8	43.0	23.5
Dec	10.2	24.1	70.0	49.7	29.1	26.3

Table 2 Contd: Selected Economic Indicators, Monthly

Year	Real GDP (%)	Money Supply (%)	Loans to Deposit Ratio (%)	Liquidity Ratio	Growth of Bank Credit (%)	Banks' Effective Average Cost of Funds (%)
2004						
Jan	6.5	-3.4	70.0	49.7	6.9	24.4
Feb	6.5	3.9	70.0	49.7	5.6	21.7
Mar	6.5	6.1	63.7	48.3	1.0	23.2
Apr	6.5	5.3	63.7	48.3	9.0	21.0
May	6.5	6.1	63.7	48.3	11.1	23.4
Jun	6.5	6.5	63.6	50.5	-0.1	22.0
Jul	6.5	6.9	63.6	50.5	-2.7	21.2
Aug	6.5	7.9	63.6	50.5	-1.1	60.2
Sept	6.5	8.6	74.4	51.1	4.8	43.3
Oct	6.5	12.4	74.4	51.1	-2.4	44.6
Nov	6.5	14.3	74.4	51.1	0.0	21.2
Dec	6.5	14.0	72.8	52.0	12.0	22.9
2005						
Jan	6.2	4.7	76.7	38.7	5.9	21.1
Feb	6.2	12.5	76.7	38.7	6.5	19.7
Mar	6.2	17.8	76.7	38.7	11.9	21.3
Apr	6.2	17.8	76.7	38.7	14.0	22.0
May	6.2	20.4	76.7	38.7	17.9	20.3
Jun	6.2	32.6	76.7	38.7	8.0	18.8
Jul	6.2	38.1	76.7	38.7	19.3	18.8
Aug	6.2	33.0	76.7	38.7	24.6	19.9
Sept	6.2	30.3	76.7	38.7	28.2	19.4
Oct	6.2	27.1	76.7	38.7	21.3	20.5
Nov	6.2	26.9	76.7	38.7	17.3	33.1
Dec	6.2	16.0	76.7	38.7	14.5	24.1

Source: (i) Central Bank of Nigeria Annual Report and Statement of Accounts, 2004
(ii) Central Bank of Nigeria Statistical Bulletin, 1996 and 2003 Editions
(iii) Central Bank of Nigeria: Major Economic, Financial and Banking Indicators, Sept. 2004
(iv) Central Bank of Nigeria: Bank Analysis System (BAS)

Table 3: Some Economic Indicators, Annual

Year	Minimum Rediscount Rate (%)	Treasury Bills Rate (%)	Inflation Rate (%)	Inter-bank Funds Rates (%)	Savings Rate (%)	Prime Lending Rate (%)	Maximum Lending Rate (%)	Manuf. Capacity Utilisation
1986	10.0	8.5	5.4	0.0	9.5	10.5	12.0	38.8
1987	12.8	11.8	10.2	0.0	14.0	17.5	19.2	40.4
1988	12.8	11.8	38.3	0.0	14.5	16.5	17.6	42.4
1989	18.5	17.5	40.9	0.0	16.4	26.8	28.6	43.8
1990	18.5	17.5	7.5	15.5	18.8	25.5	27.7	40.3
1991	14.5	15.0	13.0	19.5	14.2	20.1	20.8	42.0
1992	17.5	21.0	44.5	43.9	16.1	29.8	31.2	38.1
1993	26.0	26.9	57.2	57.5	16.7	36.1	40.0	37.2
1994	13.5	12.5	57.0	21.0	13.5	21.0	21.0	30.4
1995	13.5	12.5	72.8	21.0	12.6	20.2	20.8	29.3
1996	13.5	12.3	29.3	14.0	11.7	19.7	20.9	32.3
1997	13.5	12.0	8.5	17.3	4.8	13.5	23.3	30.4
1998	14.3	13.0	10.0	17.3	5.5	18.3	21.3	32.4
1999	18.0	17.0	6.6	23.4	5.3	21.3	27.2	34.6
2000	14.0	13.0	6.9	13.5	4.9	21.3	26.4	36.1
2001	20.5	20.5	16.5	24.6	5.0	23.7	23.9	39.6
2002	16.5	13.8	12.2	14.1	5.0	24.2	29.7	44.3
2003	15.0	14.5	23.8	25.8	4.2	20.5	22.4	45.6
2004	15.0	14.4	10.0	13.5	4.4	19.2	20.6	45.0
2005	13.0	7.0	11.6	7.9	3.8	17.9	19.5	45.9

Table 3 Cont'd: Some Economic Indicators, Annual

Year	Real GDP (%)	Money Supply (=N='M)	Loans to Deposit Ratio	Liquidity Ratio	Banking Sector credit (Private) '(=N='M)	Banking Sector Credit (Economy) '(=N='M)	Growth of Bank Credit	Banks' Capital Adequacy Ratio	Banks'Effective Average Cost of Funds
1986	2.5	24,592.7	83.2	36.4	17,365.0	36,820.3	12.7	-	-
1987	-0.6	29,994.6	72.9	46.5	25,476.1	46,926.4	27.4	-	-
1988	7.4	42,780.3	66.9	45.0	29,773.6	57,326.3	22.2	-	-
1989	7.7	46,222.9	80.4	40.3	30,942.8	49,259.1	-14.2	-	-
1990	13.0	64,902.7	66.5	44.3	36,631.0	57,674.9	17.1	-	-
1991	-0.8	86,152.5	59.8	38.6	45,325.2	83,823.7	45.3	-	-
1992	2.3	129,085.5	55.2	29.1	56,814.7	151,787.0	81.1	-	-
1993	1.3	198,479.2	42.9	42.2	68,082.8	257,541.0	69.7	-	-
1994	0.2	266,944.9	60.9	48.5	117,669.2	411,679.1	59.8	-	-
1995	2.2	318,763.5	73.3	33.1	175,787.6	445,203.9	8.1	-	-
1996	4.4	370,333.5	72.9	43.1	216,780.9	332,301.2	-25.4	-	-
1997	2.8	429,731.3	76.6	40.2	272,483.5	321,776.8	-3.2	-	-
1998	2.9	525,637.8	74.4	46.8	336,885.8	485,689.7	50.9	-	-
1999	0.4	699,733.7	54.6	61.0	452,411.1	632,010.1	30.1	19.7	38.3
2000	5.4	1,036,079.5	51.0	64.1	587,486.2	485,798.7	-23.1	16.6	28.1
2001	4.6	1,315,869.2	65.6	52.9	827,122.9	829,790.9	79.9	16.2	31.4
2002	3.5	1,599,494.6	66.5	58.2	938,271.2	1,268,270.3	64.6	18.1	124.0
2003	10.2	1,985,191.8	70.0	49.7	1,191,546.5	2,143,056.6	29.1	17.8	26.3
2004	6.5	2,263,587.9	72.8	52.0	1,507,885.2	1,784,177.2	12.0	14.8	22.9
2005	6.2	2,626,455.1	76.7	38.7	22,060,679.0	28,066,122.0	14.5	10.0	21.6

Source: (i) Central Bank of Nigeria Annual Report and Statement of Accounts, 2004
(ii) Central Bank of Nigeria Statistical Bulletin, 1996 and 2003 Editions
(iii) Central Bank of Nigeria: Major Economic, Financial and Banking Indicators, September 2004
(iv) Central Bank of Nigeria: Bank Analysis System (BAS)