Private returns to higher education in Nigeria

By

O.B. Okuwa
Development Policy Centre, Nigeria

! " # $$ %
& '

(')
! " #**#% *
& '

+,!& --##%- %..%$

Contents

List of tables

List of figures

Acknowledgements

Abstract

3 (3 F 3 G
0 (3 / 3 1 3
3 / 0 3 (/
(1 A (1 A
"3 (3 (3 1 3
(0 / (1 (1
1
1 3 0 (
(8 9 & (
(" 3 ((3 1
(((
" (
3 1 ? 8),9 1
(0 / 0 (
3 1 0 ((+ (
3 ((1 (D
(0 (/ "3
(1 (1
3 1 ? 1 1
((3 1 1 1 3 (

1.   Introduction

A major controversy among analysts and policy makers concerns the objectives of educational development. Some have suggested that education should be provided for its own sake, as a means of enriching individuals' knowledge and developing their full personality. This concept of education has continually influenced policies in some advanced countries of the world. Others hold that education should seek to prepare people to perform functions that are essential for the transformation of their environment. The two points of view can be considered in terms of regarding education as a consumer good or as a capital good. Nigeria should, in its present stage of development, regard education as both (Second National Development Plan, Federal Government of Nigeria, 1970–1974).

The notion of education as a capital good is rooted in the concept of "human capital", which attaches a high premium to human skills as a factor of production in the development process. A corollary of this is that human skill or productivity is just as important an input in the process of development as finance, natural wealth and physical plant. Because education plays a most important role in the creation and improvement of human capital, its relevance and importance to economic growth and development are now very well recognized in development planning. Experiences of developing countries during the past decades have indicated that shortage of talents and skills needed for development can decisively retard economic progress (World Bank, 1995).

Therefore, a country like Nigeria cannot afford to leave education to the whims and caprices of individual choice. Since available resources for development are highly limited, public policies in the field of education must take full account of the needs of the country in terms of the development of manpower and skills.

2.   Background of the study

In Nigeria, the decline in the quality of education at all levels has become a fact of national life. Indeed, the most significant event in the sector in the recent past has been the continuing crisis that besets the educational system. This crisis is rooted in the deteriorating conditions within the citadels of learning, in respect of teaching facilities and other infrastructural facilities, the welfare of those engaged in the teaching profession and the ever increasing cost of education. This has culminated in student strikes and industrial actions by teachers at all levels of the educational system. As observed in the Third National Development Plan, at the primary level the shared responsibility of states and local governments in managing the schools leaves neither of the tiers of government responsible for the upkeep of the system. The result is that infrastructural facilities are not maintained and teachers' salaries are not paid for months. The same is applicable at the secondary level even though state governments have the sole responsibility for that tier of the educational system. At the tertiary level, the facilities are also rapidly deteriorating.

Several attempts have been made by government to reverse the deteriorating trend in the educational system. For example, in November 1990, the federal government constituted the Longe Commission on the Review of Higher Education in Nigeria with a view to redressing the situation. The recommendations of the Commission were largely left unimplemented by 1993, which gave rise to an industrial action declared by the Academic Staff Union of Universities (ASUU) that lasted for over five months. Since then, industrial actions by ASUU and Nigerian Union of Teachers have become a yearly event. This has disrupted the academic programme at virtually all levels.

Statement of the problem

Given the rising cost of education, government took steps to improve the availability of resources to prosecute its education programme by enacting Education Tax Decree 7 of 1993. The decree provided for 2% of the accessible profit of a company registered in Nigeria to be collected by the Federal Board of Inland Revenue and paid into a fund known as the Education Fund. The fund, which was to be managed by the Education Tax Board of Trustees, was to be disbursed to federal, state and local government education institutions, principally for work centres, staff development, conference attendance, library systems at different levels of education, research equipment procurement, maintenance and purchase of higher education books.

Owing to the failure of the state and local governments to fund primary education appropriately, the federal government moved to take over the affairs of that tier of the system. Another major development in funding education in recent years was the establishment of the Education Bank. The bank is to take over the responsibilities of the defunct Student Loans Board in assisting Nigerians who might have limited access to education.

Despite these efforts by the governments, the crisis in the Nigerian educational system, particularly the tertiary level – universities, polytechnics and colleges of education – and their fundamental causes, that is, the gross under funding of the institutions, poor conditions of service of the academic staff among other issues, has continued unabated. It is clear that tremendous resources, both human and material, are required to redress the situation. Considering the enormous cost of running education in this country, it is generally advocated among policy makers that education funding should be the joint responsibility of the government, the private sector and the beneficiaries. The argument that beneficiaries of education, especially higher education, be made to pay at least a portion of the cost of educating themselves is anchored in the principle of moderate privatization or partial cost recovery or some kind of selective pricing. According to Jimenez and Tan (1991), this policy recommendation centres on the belief that returns (private) to individuals of education increase the higher the level of educational attainment (Psacharopolous, 1994).

There is an enormous literature devoted to estimating rates of return to schooling and on-the-job training, but there are few empirical studies from sub-Saharan Africa, and none from Nigeria, so far as the author is aware. This study helps to fill this vacuum by using data generated from a recent labour market survey by National Manpower Board in collaboration with the National Population Commission in 1995.

Objectives of the study

The study is basically designed to evaluate the nature of returns to higher education in Nigeria with a view to accounting for the variation in the rate of returns to different levels of education. Specifically, the study has the following objectives:
- Determine the relationship between years of schooling and earnings (rate of return).
- Assess the effect of the amount of time in the labour force (experience) on earnings.
- Highlight and calculate the private rates of return to graduates of higher educational institutions according to sectors of the economy and sexes.
- Offer policy recommendations that will help to enhance the development of education in Nigeria.

Research questions and hypothesis

In an attempt to achieve the stated objectives, the study addresses four basic questions:

- Do more years of schooling increase the earnings of an individual?

- Do the individual's sex and the sector of work affect earnings?
- What impact does work experience have on an individual's earning?
- What policies emanating from the findings can help improve the development of education in Nigeria?

Our hypotheses are:
- That there is a positive relationship between the wages of an individual, the years of schooling and the individual's working experience.
- That earnings vary across sectors and between sexes in Nigeria.
- That as bad as the education system is at present, it can be improved substantially over a relatively short time if the enabling policies are put in place.

Justification for the study

Despite the importance of and need for education, many low-income countries (African) still give it less attention and lack appropriate policies to promote educational expansion. Policies are often adopted without due consideration for the particular nature of the developing countries. And because of the declining economic output in the African continent, coupled with economic and political instability, most educational institutions have been subjected to serious under-funding. In view of the prevalent situation, from which Nigeria is not excluded, there is an urgent need for well articulated and well informed policies to be put in place to address the problems of educational underdevelopment. It is in this direction that this study is conceived and carried out.

Profile of higher education in Nigeria

Formal education in Nigeria started as a private sector affair and extended to the works of the missionaries in the colonial era. The government took interest in education quite early and in 1872 the Lagos administration gave a grant to the missionary societies to provide education in the colony of Lagos.

Higher education has been a fast growing segment of the Nigerian educational system during the last decade. Its development dates back to the decision reached at the Asquith and Elliot Commission of 1943. The development of higher education is correlated with economic development, however. The term "higher education" encompasses various forms of educational institutions beyond the secondary school level. These include the conventional universities, which offer courses in both the sciences and humanities, and special universities for sciences, agriculture or engineering. It also includes polytechnics, which provide advanced vocational training, professional schools such as management or public administration schools, and the colleges of education, which train professional teachers.

There has been a rapid expansion in post secondary education facilities in the country over the 37 years since independence. The number of universities has risen from 1 to 37,

of which 21 are controlled by the federal government while 9 are state owned.Out of the 21 federal universities, 5 are universities of technology and 2 are universities of agriculture.

As at the 1989/90 academic session, student enrolments in the universities stood at 172,911; by 1994/95 this had increased to 261,780, compared with 3,800 in the 1962/63 session. Similar expansion has taken place in the polytechnics and colleges of education.

The number of polytechnics grew from 3 to 36 between 1960 and 1995, while colleges of education, which started as Federal Advanced Teachers Colleges, grew from 30 to 61 within the 15-year period from 1980 to 1995.

Student enrolment in the polytechnics stood at 75,468 at the 1989/90 academic session and increased to 140,953 by the 1994/95 academic session. For the same periods, 1989/90 and 1994/95, the enrolments in colleges of education were 72,525 and 108,373, respectively. Table 1 shows the distribution of student enrolments by type of educational institution.

Ten years after independence, the universities turned out a total of 2,623 graduates, a figure that rose to 38,367 in the 1988/90 academic session. It increased further to 48,219 by the end of the 1994/95 academic session. The expansion in graduate turnout in the polytechnics was not as rapid as that of universities; by the end of the 1989/90 academic session it was 28,656, which increased to 43,965 by the end of the 1994/95 academic session. Table 2 shows the distribution of graduate turnout and number of schools by type of educational institution. Universities take the lead followed by polytechnics and colleges of education.

The desire of people to obtain a degree from any of these three types of higher institutions could be social, economic or political. The earnings of individuals (or private returns) that accrue to education are part of the reasons for attaining this higher level of education. The extent or degree of association between returns and educational attainment will become apparent later in this paper.

The data for this study are drawn from a Nigerian labour market survey by the National Manpower Board in collaboration with the National Population Commission in October 1995, which represents the most recent and comprehensive data on labour market characteristics. The survey covered only Lagos state, but included a randomly selected 302 of the 12,145 enumeration areas (EAs) in the state. The EAs were produced from the 1991 National Population Census and included 24,737 households. The sample yielded 3,187 households and 14,192 respondents.

Though the coverage is relatively small, it represents the best that could be obtained at present. Respondents from all sectors of the economy – public and private, manufacturing and non manufacturing are represented. The survey yielded information on earnings, age, sex, marital status, highest educational qualifications, specialized education, employment experiences and other personal characteristics. Given the focus of this study (analysing private returns to higher education in Nigeria), only relevant data were extracted from the data set.

As a first step, we provide the characteristics of respondents that have all the required information in Table 3. Of the 2,053 employed respondents, 1,078 respondents were graduates of higher institutions, while 975 respondents were graduates of lower levels of education. The set of the sample that graduated from higher education institutions yielded a sex ratio of 368 males to 171 females as shown in Table 3a.

Table 1: Distribution of student enrolment and number of schools by type of educational institutions and academic year 1983/84 – 1994/95

Year/ Institution	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
University												
No. schools	24	24	28	28	30	30	32	32	34	35	37	37
Enrolment	108,753	123,743	133,626	148,720	158,757	164,004	172,911	195,759	222,974	233,7467	246,265	261,780
Polytechnic												
No. schools	27	27	27	27	28	28	28	31	32	34	36	36
Enrolment	61,200	62,787	64,933	65,905	68,675	72,134	75,468	106,926	111,806	121,527	131,978	140,953
College of Education												
No. schools	41	42	42	44	48	50	51	54	61	61	61	61
Enrolment	51,020	57,443	57,481	64,818	41,890	67,757	72,525	85,574	92,393	97,836	103,706	108,373

Source: National Productivity Centre Publication, 1994.

Table 2: Distribution of graduate turn-out and number of schools by type of educational institution and academic year (1983/84 – 1994/95)

Year/ Institution	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
Universities												
No. schools	24	24	28	28	30	30	32	32	34	35	37	37
Turnout	25,822	27,500	30,489	31,864	37,286	38,367	40,094	41,497	42,908	44,624	46,454	48,219
Polytechnics												
No. schools	27	27	27	27	28	28	28	31	32	34	36	36
Turnout	11,868	20,946	25,959	22,426	25,578	27,450	28,656	31,321	34,284	37,418	40,989	43,905
Colleges of education												
No. schools	41	42	42	44	48	50	51	54	61	61	61	61
Turnout	13,432	16,432	18,255	19,049	19,803	20,374	21,095	21,757	22,440	23,114	23,870	25,684

Source: National Productivity Centre Publication, 1994.

Males accounted for 68.3% and females 31.7% of the total sampled population. The educational qualifications of the sampled population were of the order of 20.3%, 28.5% and 51.2% for colleges of education, polytechnics and university education. The majority of the graduates were employed in the public sector (44.5%), followed by the private sector (31.1%), while the self-employed were fewest at 24.4% of the sampled population.

At the lower educational level, the sample yielded a sex ratio of 67.3 male to 32.7 female. A majority of the lower education graduates are employed in the private sector (57.3%), while the public and self-employed sectors recorded 42.7% and 18.5%, respectively.

Table 3: Characteristics of employed graduates of education institutions

a) Graduates of higher education institutions

Variable	Means	Proportions (%)	Standard deviation
Age (years)	-	37.8	9.46
Earnings (₦)	-	6982.7 ($87.3)	950.67
Work experience	-	17.32	9.46
Male	68.3	-	-
Female	31.7	-	-
Public	44.5	-	-
Private	31.1	-	-
Self-employed	24.4	-	-
NCE	20.3	-	-
Polytechnic	28.5	-	-
University	51.2	-	-
No. respondents	1078	-	-

Note: $1 = ₦80

Source: Computed by author, based on the Nigerian Labour Market Survey by National Manpower Board in 1995.

b) Graduates of lower education

Variable	Means	Proportions (%)	Standard deviation
Age (years)	-	34/26	10.17
Earnings (₦)	-	3017.21 ($38.1)	4565.85
Work experience	-	24.47	10.73
Male	67.3	-	-
Female	32.7	-	-
Public	42.7	-	-
Private	18.5	-	-
Self-employed	23.6	-	-
Primary	76.4	-	-
Secondary		-	-
No. Respondents	975	-	-

Note: $1 = ₦80

Source: Computed by author, based on the Nigerian Labour Market Survey by National Manpower Board in 1995.

Information on means and standard deviations of age, work experience and earnings of the sampled population are also provided. Experience was approximated by age minus years of education and sex, which is the standard procedure for this type of analysis where precise data are not available (Cohen and House, 1994). The proportions of work experience in the sample are 17.32 and 24.47, respectively, while the mean ages are 37.8 and 34.26 for higher and lower education. On the other hand, the mean monthly earnings amounted to ₦6,982.82 and ₦3,017.21.

However, the earnings cannot be assumed to be the same among educational and experience groups, among the sectors, whether public or private, or industrial sectors, agriculture, mining, manufacturing and so on. Similarly, as often argued in the literature, differences in earnings between the sexes are expected. These arguments will be pursued in a subsequent section. Particular attention is focused on the contributions of differences in schooling as well as workers' experience to earning differentials.

3.   Literature review

The importance of education for economic growth and development and its expected returns to individuals, as well as the society at large, has attracted great interest in literature in both developed and developing countries. The growth in both theoretical and empirical literature on education in the last two decades is not unconnected with the increasing importance being attached to education in the process of economic development. At the risk of being all embracing, attention is focused on literature on returns to educational investment. In particular, the concern is with the methodological issues surrounding the estimation of rates of return and the empirical pattern of rate of return estimates.

Methodological issues

To begin with, the rate of return to educational investment can be private or social. Todaro (1982) defines private rate of return as the gains that accrue to a single individual from attaining a particular level of education, whereas social returns refer to the gains or benefits that accrue or are available to the society as a whole. According to Psacharopolous (1994), private rates of return are used to explain people's behaviour in seeking different educational levels and types, and as distributive measures of the use of public resources. Social rates of return can be used to set priorities for future educational investments. But how can these be estimated?

Three distinct approaches can be distinguished in the literature for providing estimates of the profitability of investment in education. These three approaches in order of increasing complexity are:
1. The average earnings by educational level;
2. The "earning functions" method, which has two variants (Psacharopolous 1994); and
3. The "full" or "elaborate" method (Grindling et al., 1995).

We briefly highlight these approaches in turn. For a fuller discussion of the different rate of return estimation methods, see Psacharopolous and Ng (1994). Suffice to say that the method adopted by various authors is often dictated by the nature of the available data.

The first and simplest estimates of the returns to education use descriptive statistics through the calculation of percentage differences in mean wages between each education

group (like primary graduates versus secondary graduates). This approach provides a first approximation to the rate of return to education at different levels (Grindling, Get al., 1995). However, the argument that some of the differences in average wages between education levels could be due to differences between the workers at each educational level in other respects – determining characteristics like experience, age and the like – calls for other approaches. The second approach attempts to address this problem by estimating an earnings equation with a variety of controls for other earnings determining characteristics as well as dummy variables for each educational level.

The "basic" earnings functions method is due to Mincer (1974) and involves the fittings of a semi-log ordinary least squares (OLS) regression using the natural logarithm of earnings as the dependent variable, and years of labour market experience and its square as independent variables. In this semi-log earnings functions specification, the coefficient on years of schooling can be interpreted as the average private rate of return to one additional year of education, regardless of the educational level to which this year of schooling refers (Psacharopolous, 1994; Grindling et al., 1995; Cohen and House, 1994; Psacharopolous and Ng, 1994).

Another variant of the earnings function involves regressing the dependent variable (wage rate) on education and experience again, but this time the education is broken down into a set of dummy variables representing different educational levels. In this version, the coefficients on the variables for education are often interpreted as returns to the level of education (Cohen and House, 1994). As noted by Chiswick (1997), while this may sometimes seem to be a correct interpretation, in principle and in many circumstances it is not. Hence some authors move a step further in order to obtain the estimated rate of return to an additional year of schooling by dividing the difference between the coefficients of adjacent groups by their differences in years of schooling (see Cohen and House, 1994; Psacharopolous and Ng, 1994).

The elaborate or full method follows from the exact algebraic definition of the rate of return. The method amounts to working with detailed age–earnings profiles by level of education and finding the discount rate that equates a stream of education benefits to a stream of education costs at a given point in time (Psacharopolous, 1994). Though this method is regarded as the most appropriate (among those listed above), because of its enormous data requirements, researchers have resorted to less data-demanding methods. Indeed, authors have found it increasingly convenient to estimate the returns to education on the basis of the Mincerian earnings functions method. In theory, and as many empirical studies have shown, the earnings functions and the elaborate methods should give very similar results (see Psacharopolous, 1994, for the results of studies using these two approaches).

Some recent empirical studies on returns to education have added another dimension to the methodological approaches discussed so far – the problem of sample selectivity. The possibility of sample selection bias arises whenever one examines a subsample, and the unobservable factors determining inclusion in the subsample are correlated, with the unobservables influencing the variable of primary interest (Vella, 1997).

In the literature, several remedies exist. The first solution to this problem was suggested by Heckman (1979), who proposed a maximum likelihood assumption regarding $Œ_i u_i$).

Other approaches that have found more frequent application in the literature are the two-step estimators. These can be categorized into three groups. The first fully exploits the parametric assumptions in at least one stage of estimation. The second is semi-parametric in that it relaxes the distributional assumptions, and the third focuses on conditional expectations and bounds. It is not our intention here to provide a detailed review of these methods, as these have been thoroughly done in other studies (Vella, 1997).

Considerable attention has been given to testing and correcting for selectivity bias problems in rates of return to education studies in the world using these approaches. They have found little application in African studies, however. The dearth of data required for implementing these models has continued to be a major constraint. For example, as a starting point in testing and controlling for selectivity bias, one needs to estimate a labour force participation equation that is a function of own and household characteristics, parental characteristics, human capital variables, ethnicity, and a variable for place of birth (Krishnan, 1994). Own and household characteristics include age, marital status, the number of very young (below five years of age) or old (above 65 years of age) dependents, total family size, whether head of the household, whether migrated recently, and ethnicity. In most African countries (Nigeria inclusive) where labour market data are still at the primitive stage, most such data requirements remain a luxury.

Empirical Issues

It is perhaps convenient to commence discussion with the work of Psacharopolous (1994), which provides a comprehensive review of recent literature on returns to education investment. Several dimensions of returns to education were highlighted. The review covered 20 studies that used the full method and the Mincerian rate of return for 78 and 62 countries, respectively. Central to most of the studies was the investigation of the issue of the indisputable and universal positive correlation between education and earnings. However, the interpretation is varied and often conflicting. The major findings of Psacharopolous (1994) are summarized below.

First, he observed that among the three main levels of education, primary education continues to exhibit the highest social profitability in all world regions. Furthermore, private returns are considerably higher than social returns, a situation he attributed to the public subsidization of education. Second, he observed a declining pattern of the returns to education over time, where all social returns declined between two and eight percentage points on average in a 15-year period. However, he noted that the returns to higher education increased by about two percentage points during this period.

When gender consideration was examined, his finding confirms that overall the returns to female education are higher than those for males, although individual levels of education show a more mixed pattern. Even when estimates were adjusted for selectivity bias, that is, by taking into account the prior decision of a woman on whether to participate in the labour force (Heckman, 1979), the rate of return estimate for females remained virtually unaffected, and the returns experienced by females, whether corrected or not, exceeded those for males by more than one percentage point. Moreover, the review shows a large

variation between the returns to higher education faculties, the lowest social returns being for physics, sciences and agronomy, and the highest private returns for engineering, law and economics. Similarly, the sector of employment accounted for some differences in returns, with returns in the private/competitive sector of the economy higher than those in the public/non-competitive sector. Likewise, he observed that the returns in the self-employment sector of the economy are somehow lower than in dependent employment.

A major fact emerging from the findings of Psacharopolous (1994) is that variation in earnings or returns to education is a function of many factors and not only the years of schooling. Among the variables that have been included in the debate are experience (age minus years of formal education minus six), quality of education and socio-economic background. A brief review of the evidence on these variables should at least serve as a caveat in the interpretation of the coefficient of years of schooling.

On the interactions among education, earnings and ability, Chou and Lavin (1987) introduced progressive matrixes as proxies for genetic ability in an agricultural production function in Thailand and found that the effect of education on farm productivity (earning) is upheld. Psacharopolous and Veloz (1992), in a study in Colombia, introduced reasoning ability (measured by means of matrixes) and the coefficient of years of schooling was reduced from 10.5 to 9.4%. Moreover, Glewwe (1991), using the matrixes variable in an

lower education levels (for example, junior high school). This is quite in contrast to the results observed in Psacharopolous (1994). Similarly, unlike most other studies of changing returns to education over time in developing countries (see Schultz, 1963) and Psacharopolous' (1994) review, they found that private returns are higher for men than women at all educational levels.

The study by Hossain (1976) deserves some attention at this juncture. Using the elaborate and earnings function methodologies, the study estimated both social and private rates of return to three levels of education in China. Using data from a 1993 labour survey by the Ministry of labour, the study obtained high returns (private and social) to each level of education in 1993. The social rates of return were highest for primary education at 14.4%, followed by 12.9% for secondary education and 11.3% for higher education. While the private rates of return were also highest for primary education (18.0%), this was followed by higher education and secondary, respectively. This pattern of rate of return (private and social) was attributed partly to higher government subsidy in terms of increased operating budget and teachers salaries.

The study by Cohen and House (1994) examined the relevance of the human capital approach to explaining the variance in workers' productivity and earnings in the labour market of urban Khartoum. The findings of the study tend to lend credence to the controversy in the literature on returns to different levels of education. One of their principal findings is that returns to primary education are lower than the average for other developing countries, while returns to college education are higher. The results oppose the popular view observed by Psacharopolous (1994).

The World Bank (1995) study on Vietnam education financing provides support for the thesis that primary education generates greater returns than secondary and tertiary education. In an attempt to reach a fairly robust conclusion, several different methods were used to assess the benefits of education and training relative to the costs of investing in these programmes. The general picture, drawing on different methods and the most recent information available, is that rates of return to education and training in Vietnam are low by international standards. For example, the rate of return is only about 3% higher for some levels of education and for some categories of workers, but lower for others. The results suggest that in Vietnam in the early 1990s most education and training investments were marginal investments. Primary education satisfied the 10% rate of return test, given the assumptions of just one year's forgone earnings, but secondary and tertiary education did not, although the private rate of return was higher for tertiary than for secondary. The findings also reveal that the rate of return was higher for investments made in girls' schooling than for boys, and higher for the education of those individuals who ended up working in the public sector, provided that their education did not stop after primary school.

In the case of Nigeria, studies are very scarce on returns to education investment. In what could perhaps be regarded as the pioneer study in this area, Psacharopolous (1985) used data obtained from a 1966 survey to estimate both social and private returns for primary, secondary and higher education using the full method. Basically the study obtains higher rates of returns (private and social) to each level of education for 1966, with the private returns higher than the social returns. The social rate of return was highest for

primary education (23.0%) followed by higher education (17.5%) and secondary education (12.8%). On the other hand, the private rate of return was highest for higher education (34.0%), followed by primary education and secondary education with returns of 30.0% and 14.0%, respectively. The high level of private returns to higher education in Nigeria as found in the study is quite in contrast to the popular view noted in Psacharopolous (1994).

Three main conclusions are discernible from this review. First, the patterns of returns to education at different levels remain inconclusive. Second, it appears from all the studies that higher or tertiary education is assumed to be synonymous with university education. The implicit assumption is that returns are equal for all higher education. In Nigeria, as in many other countries, higher education comprises colleges of education, polytechnics and universities, all with different types of training and degrees/certificates awarded. It may be unrealistic to assume that returns are equal across these classes of higher education. Third, the results obtained are not significantly sensitive to the methods used for estimating the returns, whether Mincerian earning functions or full methods.

4. The model

Two distinct analytical methodologies are used in this study:descriptive statistics and the modified Mincerian earnings function. Descriptive statistics are provided to highlight the earnings of graduates of educational institutions according to sectors of the economy and sexes. Simple averages, standard deviations, and percentage differences in mean wages between each education group, sex and sectors, among others, are calculated. As a first approximation, the descriptive statistics give us insight into the relationship between years of schooling and earnings and the effect of labour experience on earnings.

Analytical framework

In order to increase our understanding of the relationship between schooling and earnings, we specified and estimated a modified Mincerian earnings function by regressing the natural logarithm of the monthly wage rate (L_ny),on education and experience, with the education broken into a set of dummy variables representing different educational levels. The model is specified thus:

$$L_ny = \propto_o + \propto_3 CoE + \propto_4 Pol + \propto_3 Uni + \propto_6 Ex + \propto_7 Ex^2 + E \qquad (1)$$

where:
L_ny	=	the natural logarithm of the monthly wage rate
CoE	=	dummy for college of education graduate
Pol	=	dummy for polytechnic graduate
Uni	=	dummy for university graduate
Ex	=	labour market experience
Ex^2	=	square of labour market experience
E	=	stochastic error terms
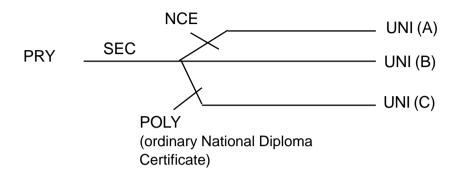
Two fundamental assumptions are made to facilitate our analysis about the process of higher education levels. In the first instance, we assume that there is a sequence of higher educational levels. Three possible channels are considered, as illustrated in Figure 1.

Figure 1: Possible channels to higher education
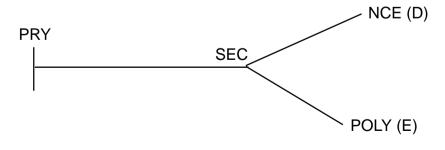
PRY = primary   SEC = secondary   UNI = university
POLY = polytechnic   NCE = national colleges of education

    The first channel (A) assumes that a graduate went through NCE and then to the university. The other two channels are the more common ones. This assumption is predicated on experience from labour markets and the years of schooling involved in each of the higher education levels, which place a higher value on university, polytechnics and NCE, in that order.

    Second, and as an alternative, we assume that other higher levels of education – Nigerian colleges of education and the polytechnics – are alternative routes after secondary school education. Figure 2 illustrates.

Figure 2: Alternative routes to higher education

PRY = primary   SEC = secondary   POLY = polytechnic
NCE = national colleges of education

With the first assumption, we are able to analyse the returns to an additional year of schooling among the higher education levels. The second proposition enables us to examine the returns to higher education in relation to lower educational level, and then compares the returns of the three types of higher education.

Out of these five possible channels of educational attainment, the most prevalent route is B, i.e., PRY > SEC > UNI. This is so because this route takes a shorter time to achieve an educational goal and costs less than any of the other routes.

Channel B is followed by channels E, D and A. Most students who finish secondary school education and enter a polytechnic (for Ordinary National Diploma) or college of education do not stop at these levels. They further their education by seeking admission into the university for a higher degree. The prevalence of route B, followed by E, D and A, is supported by the number of students enrolled in these higher institutions (Table 1).

Following these assumptions therefore, Equation 1 was re-specified as follows:

$$\ln Y = \propto_o + \propto_1 \text{Pry} + \propto_2 \text{Sec} + \propto_3 \text{CoE} + \propto_4 \text{Poly} + \propto_5 \text{Uni} + \propto_6 \text{Ex} + \propto_7 \text{Ex}^2 + E \qquad (2)$$

$\ln Y$ = CoE, Poly, Uni, Ex and Ex^2 are as defined above.
Pry dummy – for primary education graduate
Sec dummy – for secondary education graduate
E – the stochastic error terms

Note that the influence of schooling is modelled here as separable from the influence of experience; μ_o represents the entry-level wage to a new labour market entrance with a lower education (compared with the one in the model) or no schooling, μ_1, μ_2, μ_3, μ_4 and μ_5 are the coefficients of the dummies for primary, secondary, college of education, polytechnic and university, respectively, which capture the marginal wage effects and are used to compute the return to their level of education. While μ_6 and μ_7 are intended to capture returns to on-the-job training (experience), which is assumed to be non-linear because of diminishing marginal returns to increased on-the-job training and rising marginal cost of further training over time. It is expected that:

$$\alpha_7 < 0$$

The estimated rate of return to an additional year of schooling is obtained by dividing the difference between the coefficients of adjacent groups by their differences in years of schooling. To arrive at these rates of returns, we concentrate on Equation 2, thus:

$$R_{sec} = \frac{\alpha_2 - \alpha_1}{S_{sec} - S_{pry}} \qquad (3)$$

$$R_{coe} = \frac{\alpha_3 - \alpha_2}{S_{coe} - S_{sec}} \tag{4}$$

$$R_{poly} = \frac{\alpha_4 - \alpha_2}{S_{pol} - S_{sec}} \tag{5}$$

$$R_{Uni} = \frac{\alpha_5 - \alpha_2}{S_{uni} - S_{sec}} \tag{6}$$

where:
S = number of years of schooling of the subscribed educational level.

A brief comment on this approach is necessary here. The model described above has its root in the work of Mincer (1974), and it has become the dominant procedure in estimating private rates of return to education. The use of the dummy variable method rather than the years of schooling squared method adds a great deal of sensitivity to the result of private rates of return. This approach has generated much debate in the literature.

However, many of the issues can be traced back to the validity of an initial set of simplifying assumptions that were introduced to level mathematical tractability to the problem. These issues include the following:
- There is no control in the model for the quality of schooling.
- All results refer only to wage employees.
- The effects of schooling and experience should not be regarded as weakly separable.
- The market should not be assumed to be in long-run equilibrium.
- There are no corrections for unobserved ability bias that is correlated with school attainment.
- The amount of schooling may be measured with errors.
- There are no controls for background variables such as parental education (Cohen and House, 1994).

As is often the case in the social sciences, the theoretical debate is advanced to a point where the requirements for adequately testing such models are considerable and far exceed the available data. This is certainly true in Nigeria and elsewhere in sub-Saharan Africa where many micro-level data on employment and earnings are rare. Given the preliminary nature of this analysis and the limited scope of available data, it was decided initially to retreat from the intractable problem of attempting to control for unobserved ability and some other issues generally raised in the debates and to follow a well-established empirical literature by estimating Equation 2 using ordinary least squares (OLS) and then use the results to compute the rate of return using equations 3 to 6. The model was estimated for all workers, men only, women only, private sector only and public sector only to facilitate sex and sectoral analysis.

5.   Empirical analysis

The analysis begins with the results of the descriptive statistics, focusing on earnings differentials among graduates of the various higher institutions. It moves on to look at private rates of return and sectoral differences

Empirical results

Table 4 presents the average monthly earnings at each education level for 1995. Using Table 4, we calculate the earnings differentials between each education level as a

The argument that the sector in which a worker is employed affects earnings was confirmed from the results in Table 4. A closer look at the table indicates that on the average, apart from NCE, the graduates employed in the private sector earned more than their counterparts in the public sector, with the difference more pronounced for university graduates (37.0%). The NCE graduates employed in the public sector earned slightly (4.2%) more than their counterparts in the private sector. Noticeable too is that earnings differentials associated with schooling were moderate for all three levels of education for public workers, while they widened for private sector workers (Table 5 and Figure 1).

Presented in Table 6 are the mean earnings by experience groups, and by sex and sector. This enables us to assess the relationship between labour market experience and earnings. A major revelation emerging from a careful consideration of the results in the table is that mean earnings grow with increased years of labour market experience. This finding holds for all categories of workers, whether male, female, public or private sector worker, or self-employed. However, assuming that returns to labour market experience represent returns to on-the-job training, it cannot be readily confirmed from the results that the hypothesis of a diminishing marginal returns to increased on-the-job training is valid.

Table 6: Means earnings by experience group, sex and by sector

Variable	Education level (%)				
	<5	5–9	10–14	15–24	25 >
Overall	4345.93 (-)*	4710.99 (8.4%)	5614.52 (19.2%)	6475.11 (15.3%)	10,540.64 (62.8%)
Male	4605.25 (-)	4908.67 (6.6%)	5594.68 (14.0%)	7278.14 (30.1%)	11,120.11 (52.8%)
Female	4000.17 (-)	4419.07 (10.5%)	5657.08 (28.0%)	5077.49 (-10.2%)	7,904.61 (55.7%)
Public	3462.326 (-)	4053.55 (17.1%)	4310.75 (6.3%)	4760.29 (10.4%)	6,893.58 (44.8%)
Private	499.36 (-)	5007.97 (0.23%)	6574.04 (31.3%)	7262.24 (10.5%)	9,825.54 (35.3%)
Self-employed	6083.33 (-)	5319.81 (-12.6%)	-	9259.78 (74.1%)	15,986.72 (72.6%)

Note: The values in parentheses are the difference between the average earnings of a worker with a higher level of years of experience and the average earnings of a worker with a lower level of years of experience, as a percentage of the average earnings of the less experienced worker.

Results of earnings equations

Table 7 presents the coefficients of the education dummies and experience variables for all workers from the earnings equations estimated with ordinary least square (OLS). All coefficients take the expected signs, except for the coefficients of experience and experience squares in some cases that are not significant; the model for all workers explains about 33% of the variations in log earnings. The coefficients on the education dummies range between 140% and 2.8% (i.e., without the coefficient of constant of Exp^2). Table 7 also shows that the coefficient on the education dummy grew with higher level of education for all samples. This agrees with the findings of Cohen and House (1994) for Khartoum.

Table 7: Private rate of returns to schooling (all workers)

	Coefficient on education dummies		
	All sample (No. 2053)	Male (No. 1392)	Female (No. 661)
Sec.	0.408 (0.053)	0.361 (0.06)	0.54 (0.97)
NCE	0.79 (0.0069)	0.588 (0.09)	0.929 (0.11)
Poly	0.942 (0.066)	0.922 (0.08)	0.929 (0.11)
Uni	1.4097 (0.056)	1.341 (0.067)	1.57 (0.16)
Exp.	0.408 (0.005)	0.035 (0.006)	0.028 (0.011)
Exp^2	-0.0003 (0.0001)	-0.0004 (0.0001)	-0.0002 (0.0002)
Constant	6.83 (0.078)	6.9325 (0.100)	6.68 (0.133)
Adj. R^2	0.33	0.31	0.32
F. Stat	165.96	107.18	52.16

Values in parentheses represent the standard deviations of coefficients.

Source: Derived from the estimated regression equation.

A closer examination of the results reveals some differences between men and women, and between public and private sectors. This is shown in tables 8 and 9. In general, it can be observed that the coefficients, on average, are slightly higher for women than for men in both sectors; similarly, the private sector recorded higher coefficients than the public sector.

The explanatory power of the regression equation (Adj. R^2) stood at 38% and 27% for private and public sectors, respectively, on the average. The coefficient on the education dummy variables for the public sector ranges between 12% and 34%. The model performed better using the statistical test of standard deviation, R^2 and F statistics.

Estimates of rates of return accruing to private investment in education in Nigeria derived from the semi-log earnings functions regression estimates are presented in Table

10. On average, across all levels and types of schooling (lower and higher) and for both male and female, schooling yielded about 11% return on the earnings forgone by the household.

Table 8: Coefficient on education dummies (public sector workers)

	Coefficient on education dummies		
	All sample (No. 896)	Male (No. 579)	Female (No. 317)
Sec.	0.366 (0.081)	0.338 (0.095)	0.533 (0.171)
NCE	0.493 (0.096)	0.509 (0.129)	0.648 (0.180)
Poly	0.777 (0.001)	0.700 (0.122)	1.034 (0.196)
Uni	1.119 (0.887)	1.108 (0.101)	1,219 (0.180)
Exp.	0.016 (0.008)	0.020 (0.009)	0.005 (0.013)
Exp^2	-0.0001 (0.0002)	-0.0002 (0.00002)	-0.0001 (0.0003)
Constant	6.7825 (0.2003)	7.102 (0.162)	7.100 (0.1712)
Adj. R^2	0.27	0.2	0.29
F. Stat	52.3	34.2	17.4

Values in parentheses represent the standard deviations of coefficients.
Source: Derived from the estimated regression equation.

Table 9: Coefficient on education dummies (private sector workers)

	Coefficient on education dummies		
	All sample (No. 894)	Male (No. 623)	Female (No. 271)
Sec	0.403 (0.638)	0.358 (0.077)	0.45 (0.114)
NCE	0.660 (0.119)	0.457 (0.16)	0.962 (0.182)
Poly	1.134 (0.087)	0.956 (0.103)	1.48 (0.163)
Uni	1.4097 (0.07)	1.38 (0.081)	1.69 (0.148)
Exp	1.509 (0.005)	0.043 (0.009)	0.064 (0.017)
Exp^2	0.0006 (0.00018)	-0.0051 (0.0002)	-0.001 (0.0004)
Constant	6.653 (0.195)	6.85 (0.13)	6.36 (0.188)
Adj. R^2	0.37	0.35	0.42
F. stat	92.14	55.60	39.45

Values in parentheses represent the standard deviations of coefficients.
Source: Derived from the estimated regression equation.

The private rate of return as shown in Table 10 increases as the level of education increases except for polytechnic graduates, who recorded a 10.7 rate of return, a fall of 2% from 12.7% for NCE graduates. The lower rate of return for the polytechnic graduates may result because the observation collected for poly does not specify whether some graduates have the Ordinary National Diploma or the Higher National Diploma Certificate. To illustrate, the rates of return for all samples stood at 12.7% for college of education graduates, 10.7% for polytechnic graduates and 16.3% for university graduates.

Table 10: Private rate of return to an additional year of education (%)

Education level	Total sample	Male	Female	Public	Private
Sec	1.6	-0.5	3.5	1.01	1.4
NCE	12.7	7.6	12.96	4.2	8.5
Poly	10.7	11.22	8	8.2	14.6
Uni	16.7	16.3	10.7	12.6	16.8

Source: Computed from tables 7, 8 and 9 using the rate of return specified in the model and based on the assumption that the years of schooling for primary, secondary, NCE, polytechnic and university are, respectively, 6, 12, 15, 17 and 18 years.

In general, the rate of return was quite high for graduates of polytechnics and higher still for university graduates. This pattern is clearly visible for all the categories of samples – whether public sector, private sector or all samples. The gender differences in the rate of return are also quite evident. Rates of return are higher for male graduates than for their female counterparts except for National Certificate of Education graduates, where females recorded a higher rate of return of about 13%. This is contrary to the findings of Psacharopolous (1994).

Another interesting revelation of this result is that the university and polytechnic as alternative routes after secondary education appear more profitable than colleges of education for males. The low (7.6%) rate of return to college of education after secondary education for males is a clear indication that college of education is not a profitable venture for them. A possible explanation for this pattern of results is that graduates of colleges of education are generally employed as teachers in either public or private schools, and from experience, teachers are poorly paid in Nigeria. Even years of experience do not significantly enhance earnings in the teaching profession, whereas their secondary school graduate counterparts often find themselves working in other sectors with higher earnings. The reverse is the case for females. As evident in the results, the returns to female NCE graduates in comparison with their secondary school counterparts is significantly high. Thus, college of education as an alternative after secondary school is a very profitable venture for females as are university and polytechnic education.

With regard to sectoral difference, Table 10 tends to support the findings of Psacharopolous (1994) that the returns in the private/competitive sector of the economy are higher than those of the public/non-competitive sector. As shown in the table, private

sector workers in all education categories earn higher returns than their public sector counterparts. This finding supports the use of labour market earnings as a proxy for productivity in estimating the returns to education.

The argument that earnings are enhanced by the workers' years of experience was pursued by including a measure of labour market experience, which is often used to trace the productivity enhancing effect of on-the-job training over the life-cycle. It also serves as a proxy for seniority, which may in itself lead to higher earnings, but is not necessarily a guarantee of higher productivity (Cohen and House, 1994). The results in Table 7 show a relatively low coefficient of about 40% for all samples, and the relative contribution of the experience variables became clearer when they were dropped from the model. This specification reduces the overall explanatory power of the regression equation (adjusted – R^2) to about 29% from its 31% with Œ and $Œ^2$ for model 2. Thus, the variation in experience among workers contributes fairly significantly to the inequality in earnings.

6.   Summary

The study was designed to evaluate the nature of returns to higher education in Nigeria with a view to accounting for the variations in the rates of return to different levels of education. This was accomplished through the use of descriptive statistics and estimation of the earning functions.

Summary of major findings

The summary of results obtained is thus provided:

- Mean monthly earnings of workers increase with more years of schooling. This was true for all categories of workers, whether male, female, public or private workers.
- The coefficients on the dummy variables grow with higher level of education, irrespective of the categories – male, female or all sample.
- The coefficients on average are higher for women than for men. However, the actual rate of returns computed on the basis of the estimated coefficients were higher for male graduates than for their female counterparts in most higher education levels except for polytechnic graduates.
- The private rates of return were low for graduates of colleges of education and very much higher for university graduates than for polytechnic graduates.
- On average, across all levels and types of higher education, schooling yielded about 11% return on the earnings forgone by the household. Thus higher education can be regarded as a fairly good private investment.
- The return to lower education (primary and secondary) was found to be positively significant.
- Lastly, the results show the means of earnings increasing with higher years of labour market experience.

Policy derivatives and conclusion

The significant contribution of education to economic growth and development puts increased pressure to expand and improve education in most developing countries. However, most developing countries are faced with the twin problems of economic recession, with dwindling resources for financing education, and poor education development, with deteriorating facilities and infrastructure. Thus, an urgent need has

arisen for a reappraisal of both the cost patterns and the financing of education.

Experience has shown that in most developing countries like Nigeria, governments invest heavily in higher education, thereby shouldering an enormous burden. Therefore, a major question that faces policy makers in developing countries is, Which distribution of resources and opportunities for schooling would allow education to have the maximum impact on development and would best complement investment in physical capital and infrastructure? Obviously, there are no simple answers. Only the most careful scrutiny of costs in relation to what is achieved will ensure that developing countries get the best value from scarce resources. In addition to seeking ways to reduce the costs of education, many countries are attempting to shift more of the costs from public to private sources. It is in this regard that the findings of this study will be relevant.

This study has found unequivocally that the higher the level of education, the higher the rate of return to individuals. This makes higher education a worthwhile investment for individuals. Thus, more attention should be given to the various methods of cost recovery, including the use of fees for tuition or for meals and accommodation as already being practised in some institutions in Nigeria, student loans in place of scholarships or grants, and contributions from employers to help finance vocational education and training. These changes will not by themselves solve the financial constraints limiting educational investment, but they may help governments finance expansion or improvements that at present cannot be supported because of competing claims on public funds.

It should be borne in mind that such shifts from public to private finance may be highly resisted on the grounds of equity. Intuitively, this opposition may not be justified and some empirical analysis of the equity implications of alternative investment policies would be necessary. However, it is logical to reason that fees for tuition or for food and accommodation, contrary to traditional beliefs, may actually improve the equity of educational finance if the public funds saved by this means are then used to increase selective subsidies for the poor or to increase the provision of education or the quality of schooling for disadvantaged groups. Likewise, the introduction of student loans in many developing countries could also have a positive distributional impact, since at present the high-income students are the ones most likely to benefit from education subsidies. The introduction of student loans could therefore make public funds available for greater expansion of primary education, which may well achieve both equity and efficiency objectives.

In the sectoral analysis, the magnitude of rates of return in the private sector reveals that this sector is more competitive and attractive because of the salary package and remuneration offered, which will in turn increase the productivity and efficiency of the sector.

Governments can improve public sector earnings through increase in salary and attractive remuneration, which will induce workers in this sector to concentrate and be productive. In Nigeria, for example, most government workers (civil servants) engage in personal trading and business in order to supplement their earnings, which divides their interest and lowers their productivity. Also, the government should encourage more private investors in the economy by providing an enabling environment and good policies for

investment. This will reduce unemployment and encourage investment in education since graduates will be assured of ready employment.

Finally, the university, which attracts the highest magnitude of returns, should be properly funded and well equipped with modern technology, especially the laboratory, library, information system and infrastructure. The private individuals who receive higher earnings as graduates of these institutions should be able to pay at least some part of this investment.

References

hou E.C. and L.J. Lau. 1978 "Farmer ability and aarm Productivity: A study of farm households in the Chinagmai Valley, Thailand, 1972–1992". World Bank Discussion Papers, No. 62, Washington, D. C.

Cohen, B. and W. J. House. 1994. "Education, experience and earnings in the labour market of a developing economy: The case of urban Khartoum". World Development, 22(10): 1549–65.

Chiswick B. R. 1997. "Interpreting the coefficient of schooling in the human capital earnings function". World Bank Policy Research Working Paper,

Federal Government of Nigeria (FGN). Various years. National Development Plans 1, 2, 3 and 4. Federal Ministry of Economic Development, 1970–1990.

Glewwe, P.1991. "Schooling, skills and the returns to government investment in education". Working Paper No. 76 LSMS, Washington, D.C.

Grindling, T. H., M. Goldfarb and C. Chang. 1995 "Changing returns to education in Taiwan: 1978–91". World Development, 23(2): 343–56.

Heckman, J.1979. "Sample selection bias as a specification error". Econometrica, 47(1): 153–61.

Hossain, S.I. 1976. "Making education in China equitable and efficient". World Bank Policy Research Working Paper, No. 1814.

Jimenez, E. and J.P. Tan. 1991. "Decentralised and private education. The case of Pakistan" Comparative Education 23(2): 173–90.

Krishnan P. 1994. "Family background education and employment in urban Ethiopia" Centre for the Study of African Economies Working Paper Series WPS1 94.8. Oxford, England.

Mincer, J. 1974. New York:: Columbia University Press for National Bureau for Economic Research.

Neuman, S and Ziderman. A. 1991. Vocational schooling, occupational matching and labour market earnings in Isreal. Journal of Human Resources, 25(2).

Psacharopolous, G. 1985. ! " # . A World Bank Report Series No. 210: 370. IPSA.

Psacharopolous, G. and E.Velez. 1992. $ " % & % ' ( ) . A World Bank Publication.

29

Psacharopolous, G. 1994. "Returns to investment in education: A global update". World Development, 22(9): 132–44.

Psacharopolous, G. and Ng Ying Chu. 1994. "Earnings and education in Latin America: Assessing priorities for schooling investment". World Bank Policy Research Paper, December.

Schultz, T.W. 1963. *   " +   . New York: Columbia University Press.

Todaro, M.P. 1982   " , &   "   *   -   New York: Longman Publishers.

Vella, F. 1997. Estimating Models with sample selection bias: A survey#. vol.33(1).

World Bank. 1995. +   " $ World Bank Country Study. Washington, D.C.

Other recent publications in the AERC Research Papers Series:

* . & " + % * / 0 1 2 by Michael O.A. Ndanshau, Research Paper 50.

3 4 " $ 5 % 6 7 & , by Kouassy Oussou and Bohoun Bouabre, Research Paper 51.

& $ +) " & , by Eugene Kouassi, Research Paper 52.

" $ 8 * $ $ $ 5 , by Allechi M'Bet and Niamkey A. Madeleine, Research Paper 53.

5 % " " , by Asmerom Kidane, Research Paper 54.

* $ 9 (5) $ & , by P. Kassey Garba, Research Paper 55.

9) / , " " , & " * 9 (, by Fidelis O. Ogwumike and Davidson A. Omole, Research Paper 56.

5 % 9 * : " 5 , by Mike Kwanashie, Abdul-Ganiyu Garba and Isaac Ajilima, Research Paper 57.

5 , % " ; % " & < = — >? by Njuguna S. Ndung'u, Research Paper 58.

5 % * ! by Barbara Mbire, Research Paper 59.

* 5 " 9 (, by Ino L. Inanga and Chidozie Emenuga, Research Paper 60.

$ " 5 " * / , by Timothy S. Nyoni, Research Paper 61.

5) * , - * / & @ by Nehemiah Osoro, Research Paper 62.

: " 5 "" & " & % , by Nasredin A. Hag Elamin and Elsheikh M. El Mak, Research Paper 63.

1 % *) ' 9 ") 5* A B9 * " , by Flora Mndeme Musonda, Research Paper 64.

$ B 9 % % * / , by A.A.L. Kilindo, Research Paper 65.

C ' $,) * ! , by Barbara Mbire, Research Paper 66.

5 & % * % " = D = , by Ademola Ariyo, Research Paper 67.

5 , & % ' 1 1* 9 (, by A. Osuntogun, C.C. Edordu and B.O. Oramah, Research Paper 68.

" ' $ 5 9 (& % % * , by Melvin Ayogu, Research Paper 69.

. , . " , by Festus O. Egwaikhide, Research Paper 70.

. (5 " & % * , "% , by O.O. Sobodu and P.O. Akiode, Research Paper 71.

$ " 4) / * ; % by R.W. Ngugi and J.W. Kabubo, Research Paper 72.

4 C & " $ B , by Akpan H. Ekpo and John E.U. Ndebbio, Research Paper 73.

* " & 5 & % C , by Newman Kwadwo Kusi, Research Paper 74.

$ 9 % . * / 7 . * 5) , by H.P.B. Moshi, Research Paper 75.

% $, & " " 9 (* C (9 (, by Kofi A. Osei, Research Paper 76.

C 9 % * " , & " , by Cletus K. Dordunoo and Alex Donkor, Research Paper 77.

* "% : " 5 , by Mike Kwanashie, Isaac Ajilima and Abdul-Ganiyu Garba, Research Paper 78.