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An Analysis of Federal Government Expenditure in the Education Sector of Nigeria: Implications for National Development

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ABSTRACT Government expenditure on education in Nigeria is categorized under the social and community services sector. The importance of education in national development cannot be overemphasized hence its cardinal position in various objectives of most developing countries. In Nigeria over the years, elements of uncertainty have beclouded this sector both in nominal and in real terms. Incessant strikes, closure of schools and other vices account for poor quality teaching and quality of products. The objective of this study is to examine the profile of educational expenditure in Nigeria (1977 – 1998). An education expenditure model was constructed and tested using the ordinary least squares (OLS) technique. The estimates, though not overwhelmingly robust, it was discovered that federal government revenue is the singular significant determinant of educational expenditure model. It is the recommendation of this paper that other sources of financing education should be encouraged.

INTRODUCTION

An inquiry into the fiscal operations and developments of Nigeria revealed that federal government expenditure on education is categorized under the social and community services sector. The implication is that education is an impure public good (Orubu, 1989).

The importance of education is reminiscent in its role as a means of understanding, controlling, altering and redesigning of human environment (CBN, 2000). Education also improves health, productivity and access to paid employment (Anyanwu et al., 1999). Education has a link with economic development. As once remaked by Ola (1998: 14) "If you see any economy that is not doing well, find out what is spent on education". Psacharopoulos (1973), Combs (1985) and Aboribo (1999) have all revealed that increase in national income and per-capita income is a function of education and that differences among nations can better be explained by differences in the endowments of human, rather than physical capital. This underscores the reason why the 'Asian Tigers' in the past three decades allocated between 25-35% of their annual budgets to their education sector (Aboribo, 1999: 61).

In most developing countries, improving the widening access to education especially basic education is a cardinal objective of their governments. Education is seen as a right and responsibility to be guaranteed to all generations (Anyanwu et al., 1999), however, in Nigeria, elements of uncertainty have beclouded the sector in nominal and real terms. As noted by the Office of the Honourable Minister, Economic Matters (FRN, 2000: 52) schools at all levels lacked teachers and basic infrastructure. The schools suffer from over-crowding, poor sanitation, poor management, and poor intra-sectoral allocation. Other features are abandoned capital projects, inadequate funding, poor conditions of service etc. These most time led to closure of schools and strikes. The attendant and composite effects are poor quality of teaching and poor quality of products.

The objective of this study is to examine the profile of educational expenditure in Nigeria for the period 1974 – 1998. The study will specify and estimate a federal government education expenditure function. In the light of this, suggestions would be drawn and advanced.

The rest of the paper is organized into five sections. First, education policy in Nigeria is discussed within the framework of the analysis. Next, the profile of Nigeria's federal government expenditure on education is outlined. Specifications of model and statistical estimates are presented in the fourth section. Finally, section five concludes the paper.

SIGNIFICANCE OF EDUCATION AND EDUCATION POLICY IN NIGERIA

Significance of Education

The significance of education in nation

building cannot be overemphasized since its economic contribution benefits both the individual directly and the society indirectly (Enueme, 1999).

A common structural pattern has been given on the basis of monumental definitions of education (*a la* Fafunwa, 1974; Farrant, 1985; Igwebuike and Ekwejunior-Etchie, 1993; O' Connell, 1994; and Anyanwu et al., 1999). The denomination is improving the individual to be useful and desirable in his society.

In explaining some significant roles of education in nation building, Enueme (1999) opined that formal education position farmers in developing countries to appreciate and accept boosters of agricultural production through mechanized farming, use of fertilizers, crop rotation etc rather than belief in the gods of harvest. According to her, education also attracts direct financial returns in form of earning differentials among graduates relatively to others with lesser educational qualifications. This is mostly found in the organized private and public institutions.

Education also contributes immensely to technological development both in terms of acquisition, adaptation, capital widening and deepening. An educated man is more efficient with a high degree of productive capacity and minimal waste.

The significance of education can also be perceived in the socio-political stability of a nation. The attendant effect of this is overall economic growth and development. As noted by Galbrouth (1964) "No improvement is possible with unimproved people".

Education Policy in Nigeria

Education in Nigeria is more of a public enterprise that has witnessed government complete and dynamic intervention and active participation (FRN, 1981). It is the view of the formulated education policy in Nigeria to use education as a vehicle in achieving national development. Education being an instrument of change, in Nigeria education policy has been a product of evolution through series of historical developments.

The National Policy on Education in Nigeria was launched in 1977. The orientation of the policy is geared towards self-realization, individual and national efficiency, national unity etc. aimed at achieving social, cultural, economic, political, scientific and technological development. In 1985, the objectives of the policy were broadened to include free primary education among others. As noted by Anyanwu et al. (1999), this policy has been reviewed from time to time.

Succinctly put, the structural pattern of schooling under the current policy is organized into a 6-3-3-4 system. The system consists of six years of primary education, three years of junior secondary school, three years of senior secondary school, and four years of tertiary education (Anyanwu et al., 1999: 300).

Since the inception of the Obasanjor led administration in 1999, a Universal Basic Education Scheme was launched in 1999. The specific targets of the scheme are, total eradication of illiteracy by the year 2010 and increase in adult literacy rate from 57% to 70% by 2003 (FRN, 2000: 53).

PROFILE OF FEDERAL GOVERNMENT EXPENDITURE ON EDUCATION IN NIGERIA

Data on federal government expenditure on education in Nigeria is not mute for the period 1977 – 1998. The table below presents the normal and real total expenditures of the federal government and their respective percentage growth. Specifically, the federal government spent a total of N 8823.9 million in 1977. By 1980, total educational expenditure increased to N 14, 968.5 million, declining to N 11,923.2 million and N 9,927.6 million in 1982 and 1984 respectively. An appreciable growth of 35 percent was recorded in 1986 at N 22,018.7 relatively to the 24.4 percent in 1986. By 1993, an unprecedented 106.07 percent growth accounting for N 191.228.9 million was observed. However, the year 1994 saw nominal growth of the federal government expenditure falling to N 160,893.2 or a negative 15.86 percent. The period 1996 – 1998 show no appreciable growth rate.

One other observation that can be made regarding the data analysis is that total expenditure on education in Nigeria does not reflect changes in real terms. Relatively to nominal expenditure during the period under review (1977 – 1998), real percentage growth (1985 = 100) lagged behind their nominal counterparts. For example, in 1977 total nominal expenditure on education in 1977 was N 8,823.5 million. This rose to N 443,563.3 million in 1998. However, if changes in the general price level are taken into account, this amount reduces to a mere N 140.85 million. Of the twenty

Table 1: Growth of Nominal and Real Federal Government Education Expenditure (1977 – 1998)

Year	Nominal Total Expenditure		Real Total Expenditure		% Nominal Growth of Current Expenditure	% Real Growth Capital Expenditure	% Nominal Recurrent Expenditure	% Real Recurrent Expenditure
	Total Expenditure	Growth %	Total Expenditure	Growth %				
1977	8823.8	12.31	298.1	-2.87	23.84	7.1	0.1	-13.43
1978	8000.8	-9.32	231.91	-22.21	3.9	-10.85	-26.69	-37.1
1979	7406.7	-7.43	192.38	-17.04	-18.86	-27.29	13.83	2.06
1980	14968.5	102.09	353.87	83.94	140.87	119.23	50.77	37.22
1981	11413.7	-23.75	222.92	-37	-35.39	-46.62	0.86	-16.7
1982	11923.2	4.46	216.36	-2.93	-2.28	-9.2	13.6	5.56
1983	9636.5	-19.18	141.92	34.42	-23.87	-38.22	-13.72	-29.98
1984	9927.7	3.02	104.72	-26.21	-16.08	-39.89	22.66	-12.14
1985	13041.1	31.36	130.41	-24.53	33.28	26.35	30.01	23.25
1986	16223.7	24.4	153.93	18.03	56.03	48.04	1.59	-3.61
1987	22,018.70	35.72	189.65	23.21	-25.27	-32.15	103.28	84.55
1988	27.750	26.03	153.14	-19.25	30.88	-16.14	24.05	-20.52
1989	41,028.30	47.85	150.45	-1.76	80.26	19.78	33.93	-11.01
1990	60,268.20	46.89	205.55	36.62	59.96	48.78	39.34	29.6
1991	66584.4	10.48	201.22	-2.11	17.85	4.42	5.59	-6.44
1992	92797.4	39.37	193.97	-3.6	40.3	-2.95	38.68	-4.08
1993	191228.9	106.07	254.33	31.11	37.07	-12.79	157.81	64.03
1994	160893.2	-15.86	136.27	-46.42	30.12	-17.14	-34.19	-58.09
1995	248768.1	54.62	121.86	-10.57	70.81	-1.21	41.85	-17.96
1996	288094.6	15.81	109.21	-10.39	30.99	1.36	1.4	-21.53
1997	356262.3	23.66	124.43	13.94	32.24	21.85	13.14	4.24
1998	443,563.30	24.51	140.85	13.2	12.98	2.72	41.02	28.21
Average	1977 – 1985 = 10.40		1977 – 1985 = -3.8					
	1986 – 1998 = 33.81		1986 – 1998 = 3.23					

a. *Source:* Raw data obtained from Central Bank of Nigeria, Statistical and Annual Report and Statement of Accounts. (various issues).

b. The Real values are obtained by deflating the nominal value by the composite Consumer Price index (1985=100)

– two years of our analysis (1977 – 1998), Fifteen years indicated negative growth rates of 68.2 percent in terms of real values.

Another observation that can also be made regarding Table 1, is the pattern of unsystematic growth. The average growth rates over the periods 1977 – 1985 (Pre – SAP) and 1986 – 1998 (SAP and POST – SAP) indicate that nominal growth has been more substantial. Nominal expenditure growth Pre – SAP was 10.40 percent while it increased to 33.81 percent during SAP and POST – SAP era. In real terms, real expenditure growth rates was - 3.80 percent while it managed to record 3.23 percent growth during the SAP and Post – SAP period. What we can learn from this is that the rate of inflationary increase in Nigeria hampers education and development of human capital growth; a characteristic of poor and under-developed country.

We shall however extend our analysis to enable us determine the possible causes of these negative real growth. This is thus the basis for the next section of the study – model specification and analysis.

MODEL SPECIFICATION AND EMPIRICAL RESULTS

Data Collection and Method of Study

The study utilizes time – series data (1977 – 1998). The data were obtained from various issues of the Central Bank of Nigeria (Statistical Bulletin; and Annual Report and Statement of Accounts).

The ordinary least squares (OLS) technique is employed in estimating the specified equations. A statistical software package – STATISTIX Ver. IV was used in the analysis. A 'Best Subset Selection' procedure was also carried out to complement OLSQ regression results.

Specification of the Model

Series of studies have been carried out in analyzing federal government expenditure on education in Nigeria. As noted in Orubu (1989) examples are Phillips (1971), Enweze (1973), Omoruyi (1979) and Ubogu (1981)[2]. See also Imobighe and Orubu (1999).

The work by Orubu (1989) though an improvement over the previous mentioned studies[3], this study improves on Orubu's (1989) model. This work introduced a new variable (degree of openness)[4] in the building of the model. It also dropped the index for expected rate of inflation to avoid spurious correlation since all variables in the model are measured in real terms. Moreover, the responsibility index proxy measured by the ratio of number of students to total population in the work of Orubu (1989) was replaced by a dummy variable to reflect the type of government (military or civilian regimes) during the period under review.

The models are expressed in real terms as follows:

NTE = f (NTR, DPN, RSP, V)
+ + ± + 4.1

NCE = f (NTR, DPN, RSP, V)
+ + ± + 4.2

NRE = f (NTR, DPN, RSP, V)
+ + ± 4.3

Where,
NTE = total real federal educational expenditure
NCE = real federal capital education expenditure
NTR = total real federal revenue
DPN = degree of openness
RSP = responsibility index
V = vector of other variables.

Equations 4.1, 4.2 and 4.3 can be linearised as follows:

$NTE = a_0 + a_1NTR + a2DPN + a_3RSP + U_1$ 4.4

$NCE = b_0 + b_1NTR + b_2DPN + b_3RSP + U_2$ 4.5

$NRE = j_0 + j_1NTR + j_2 DPN + j_3RSP + U_3$ 4.6

The U's are the random error term with the usual properties of zero mean and non-serial correlation. Equation 4.4, 4.5 and 4.6 are the equations to be estimated using the OLS technique.

Analysis of Result

The results of the estimated equations are shown below:

Equation 4.4

NTE =
110.862 + 0.55721 NTR – 134.383DPN – 33.2752 RSP
(2.55) (3.67) (-0.83) (-1.34)
R^2=0.52 R^{-2}=0.44 F=6.45 DW=1.7828

Equation 4.5

NCE =
65.5361 + 0.27957NTR – 15.1858DPN – 46.1216RSP
(1.89) (2.31) (-0.12) (-2.32)
R^2=0.45 R^{-2}=0.36 F=4.96 D.W.=1.5100

Equation 4.6

NRE =
45.3258 + 0.27764NTR – 119.207DPN + 12.8457RSP
(1.77) (3.11) (-1.25) (0.88)
R^2=0.35 R^{-2}=0.24 F=3.23 D.W.=1.9650

Figures in parentheses are the t-ratios.

In equation 4.4, total federal revenue is correctly signed as expected and statistically significant at 5 percent level. On the average, it means that an increase federal revenue to the turn of 100% is accompanied by 56% increase in total educational expenditure. The openness variable is negatively signed indicating no demonstration of effect of international exposure to increase in education expenditure. The variable is also not significant statistically. The responsibility index is also not statistically significant indicating that type of government (military or civilian) is not a crucial factor influencing total expenditure in education in Nigeria. Moreover, the statistical insignificance is also a reflection of poor interest by various government over the years towards poor resource allocation to the education sector. The model has a global fit of 52%.

In equation 4.5 and 4.6, the total revenue coefficients are statistically significant at 5 percent level and rightly signed. However, they are relatively small averaging 28 percent increase contribution to capital and recurrent education expenditure given a 100 percent increase in total revenue. The openness variable in both the capital and recurrent expenditure models are wrongly signed and significant. However, one striking observation of the estimates is the statistical significance of responsibility variable (though negatively signed) in equation 4.5. This may imply how various government interest and zeal in capital expenditure projects assumed to be completed but abandon. The goodness of fit as measured by R^2 in both equations is not satisfactory.

The summary result of the best subset regression model have the first columns P indicate the number of estimated parameters. The second columns represent the value of Mallow's CP statistic. "Good" models have values of CP very close to P or less than P (Orubu, 1999: 50). The best models in our estimates are either the ones with only NTR (A) as independent variable or the full models (reflected in the last row of every table). This further confirms the regression estimates given the role total revenue plays in expenditure on education.

SUMMARY AND CONCLUDING REMARKS

This paper aimed at analyzing the federal government expenditure on the education sector. A profile of expenditure in this sector is relatively low and poor in real terms. This is further

confirmed by the regression analyses. Although increase in government revenue seem to have positive effect in the funding of this sector, it is recommended that since Nigeria is highly a mono-product economy, efforts must be geared up to sustain and enrich other sources of financing the sector like the Education Tax Fund, while policies aimed at diversifying and broadening the Nigerian economy rekindled. It is further recommended that tertiary educational institutions look in-ward by investing in both the services and manufacturing sectors. This will also afford both staff and students the required practical experience needed in the world of works.

NOTES

1. Fafunwa, A. B.(1974) for a comprehensive discussion of history of education in Nigeria
2. Analyses of these studies are found in Orubu (1989).
3. Other mentioned studies used nominal variables while Orubu (1989) used real variables as an alternative approach. This work however introduced some entirely new variables.
4. The degree of openness is measured as the ratio of imports to gross domestic product. This is because the more open an economy is, the more it will be expected that the federal government will spend resources on education.

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APPENDIX

STATISTIX 4.0
Best Subset Regression Models For NTE
Unforced Independent Variables: (A) NTR (B) RSP (C) OPN
3 "BEST" Models From Each Subset Size Listed.

P	*Cp*	*Adjusted R square*	*R square*	*Resid SS*	*Model variables*
1	17.3	0.0000	0.0000	83676.5	Intercept Only
2	2.9	0.4126	0.4405	46813.2	A
2	17.5	0.0003	0.0479	79665.5	B
2	18.8	-0.0371	0.0122	82652.2	C
3	2.7	0.4462	0.4989	41928.0	A B
3	3.8	0.4145	0.4702	44329.2	A C
3	18.7	-0.0284	0.0696	77855.8	B C
4	4.0	0.4370	0.5174	40383.0	A B C

Best Subset Regression Models For NCE
Unforced Independent Variables: (A) NTR (B) RSP (C) OPN
3 "BEST" Models From Each Subset Size Listed.

P	*Cp*	*Adjusted R square*	*R square*	*Resid SS*	*Model variables*
1	11.2	0.0000	0.0000	46952.3	Intercept Only
2	4.4	0.2815	0.2815	33733.2	A
2	9.2	0.0835	0.1272	40981.7	B
2	12.6	-0.0303	0.0188	46070.8	C
3	2.0	0.3612	0.4220	27136.8	A B
3	6.2	0.2138	0.2887	33396.8	A C
3	10.0	0.0777	0.1655	39181.9	B C
4	4.0	0.3265	0.4227	27104.8	A B C

Best Subset Regression Models: (A) NRT (B) RSP (C) OPN
3 "BEST" Models From Each Subset Size Listed.

P	*Cp*	*Adjusted R square*	*R square*	*Resid SS*	*Model variables*
1	7.1	0.0000	0.0000	21484.2	Intercept Only
2	1.6	0.2400	0.2761	15551.4	A
2	8.8	-0.0405	0.0090	21290.0	B
2	9.1	-0.0497	0.0002	21478.9	C
3	2.3	0.2510	0.3223	14559.1	A C
3	3.4	0.2065	0.2821	15423.2	A B
3	10.8	-0.0953	0.0090	21290.0	B C
4	4.0	0.2242	0.3350	14286.8	A B C