EXPENDITURE PATTERN IN NIGERIAN UNIVERSITIES: MOVING RESOURCES FROM ADMINISTRATION TO RESEARCH AND PUBLIC SERVICE

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The expenditure pattern in Nigerian universities is expected to be influenced by the National Universities Commission (N.U.C.) through its costing and staffing parameters. In 1977, the NUC developed a series of such parameters to be used in the annual process of budget allocation to particular universities. These parameters, which are constantly reviewed, included the proportions of total recurrent budget for direct teaching, teaching supports, research, public service, library, staff development and general academic which are generally referred to as academic function. Moreover, the parameters included the percentage of budget of student services, general administration, retirement benefits and other non-academic expenditures.

Nevertheless, as rightly observed by the World Bank (1988:6): *Although allocations are made to (Nigerian) universities on the basis of... norms, the funds are provided as block grant, with virtually no control over how they are used.*

Consequently:

Only 34% of expenditure go to direct teaching while total academic costs, including libraries and research units, claim only 49%. Over half of total expenditures are devoted to administrative support in various forums. The comparable figure for British universities is under 39%... IDA (1990:6)

The consequential effects of the inefficient university funds allocation have become a source of concern to researchers in higher education. The IDA (1990) for instance, said that the structure of unit costs in Nigerian universities demonstrates why "there is widespread evidence of under-funding of many academic activities and inputs". According to the World Bank (1988), only the NUC parameter universally exceeded by Nigerian universities is that for senior administrative staff.

Recent findings (Babalola et. al., 1996) have also confirmed a significant over-spending on general administration at the expense of research and public service in Nigerian universities. On the average, general administrative expenditure which ought to be 5.6% of the total money, attracted as high as 15.04% and 10.66% in 1991/92 and 1992/93 respectively. Whereas, 2.56% and 2.15% of the recurrent expenditures were spent on research in 1991/92 and 1992/93 against the recommended 8%. Similarly, public service shared 2.01% in 1991/92 and; 1.78% in 1992/93 against the recommended 3%.

Based on the above background, this paper discussed some measures considered useful for moving resources from the over-emphasized items of expenditure to research and public services, which are two main functions of a university.

Methodology

Nigerian government seems to have reached her fiscal ceilings in respect of sustained support for university education. It becomes necessary therefore, to make more efficient use of the available resources to revitalize the pedagogical situations. It is against this background that this paper attempts to provide proposals for Nigerian universities to restructure their spending pattern. To this end, this study focuses on historical analysis of university costs.

Nigeria has both state and federal universities. This study is limited to 10 out of the 21 federally funded universities as at 1993. The study adopts a cross-university design to collect 1991 /91 actual data on recurrent expenditures and other available information from files and documents of the sampled universities stratified according to age and geographical location.

Eight variables have been identified as contributing to the variation in the spending behaviour of Nigerian universities, namely; enrolment size (ES), student/teacher ratio (STR), junior/senior staff ratio (JSSR), non-academic/academic staff ratio (NAASR), goods cost per student (GCPS), spending deviation (SD), grant-effectiveness ratio (GER) and weighted curriculum type (CTW),

The ordinary least squares (OLS) in the context of multiple regression have been adopted as the estimation procedure. The resulting the null hypothesis that each partial regression parameter is zero at 10%, 5% and 1% levels of statistical significance when $N = 10$. The adjusted coefficients of determination show that each of the ARSHC, APSC and AASC equations is quite a good fit. Moreover, most of the partial parameters have small values of standard errors.

Results and Discussions

The results are presented under the following sub-titles to reflect the specific research questions.

Unit cost analysis

Nigeria spent N5903.50 or US\$671.62 on each university student in 1991/92 when the exchange rate was US\$1 to N8.79. Contrary to expectation, the recurrent expenditure on a university student in Nigeria which has been judged to be "very low compared to those of universities in developed countries" (IDA 1990), has remained almost the same between 1985 (US\$600) and 1991 (US\$672), in spite of the high inflation rates within this period.

Table 1 is on the recurrent expenditure per student by discipline and university in Nigeria. Unit cost varied by university with N3332 or US\$379 per student in Jos while Akure was the most costly university with N8351 or US\$950 per student.

As far as relative expensiveness of university disciplines is concerned, four main groups of disciplines can be identified (Table 1). Those with low recurrent cost per student included courses in Administration, Arts, Education, Law, Pharmacy, Sciences and Social Science. For these disciplines, the unit cost ranged from N1230 or US\$140 to N3180 or US\$362.

Agriculture and Environmental Science were average-cost disciplines with unit cost ranging between N3181 or US\$362 and N3934 or US\$448. Medicine with unit cost ranging from N3935 or US\$448 to N11468 or US\$1305 can be considered as a moderately high-cost discipline. Of course, the most expensive discipline was Veterinary Medicine with cost ranging from N12033 to US\$3369 to N14984 or US\$1705.

From the above discussion, it may not be desirable to reduce the expenditure per student in Nigeria universities. However, there is need to carry out some structural adjustments in the spending pattern of Nigerian universities. This is to correct the seemingly long-established tilt towards administration at the expense of teaching, research and public service which are paradoxically the main purposes of a university. To this end, the following regression results can be considered as funds reallocation measures (Table 2).

Increasing the enrolment in some courses

Table 2 reveals that the higher the enrolment in Nigerian universities, the lower the administrative cost per student but the higher the amounts per student that will be available for research and public service.

Table 3 shows that universities in Nigeria operate below the optimum sizes in most disciplines (optimum sizes have been estimated graphically by plotting both the Marginal Costs (MC) and the Average Total Costs (ATC) by university. The intersections of the two curves indicate the minimum points of the ATC and hence, the optimum sizes).

The finding supports the earlier ones by the World Bank (1988). However, there is need for caution, since the optimum sizes, as calculated either by the World Bank (1988) or in this study, ignore the nationally recommended student/teacher ratios for various disciplines. The issue of expanding enrolment at the face of the overcrowding of student hostel facilities, science laboratories, engineering workshops, and libraries that many campuses have to cope with apart from shortage of academic staff in science disciplines must first be tackled.

As a solution, the World Bank (1988; suggested that a three-semester system could be introduced, with each student attending only two semesters. According to them, teachers accruing more than an agreed number of student contact hours per year may have to be paid some overtime to teach the third semester. According to the World Bank (1988), this spreading out of student enrolments throughout the year would enable "savings in non-teaching staff". The savings can then be ploughed into research and public service.

Reducing the number of senior staff where there is excess

Table 2 reveals that the more the junior/senior staff ration, the less the administrative expenditure per student but the higher the research and public service expenditures per student. To achieve this, two main methods can be used. First, more junior staff can be employed. Two, the number of senior staff can be reduced. The second option seems to be attractive to the World Bank. It should however, be noted that junior and senior staff is not substitutable. Both are needed but in the right ratio.

According to the World Bank (1988), the only NUC parameter universally exceeded by Nigerian universities is that for senior administrative staff. Moreover, priority often seems to be given to the rehabilitation or construction of administrative buildings and when budgets are cut the share of administrative expenditures tends to rise. Based on these, the Bank suggested a complete freeze on the recruitment of both senior and junior administrative staff.

Furthermore, a planned phase of senior staff in Nigeria is one of the conditions for receiving the international Development Association (IDA) loan. According to the IDA (1990), to meet the first tranche criteria, a university in Nigeria will have selected and named half of the excess non-academic staff to be removed, for the second tranche, dismissed all excess non-academic staff, and for the third tranche removed from the payroll, half excess academic staff. Savings from this retrenchment and freeze has been calculated by the World Bank to be N26 million per annum. This saving can be used to finance research and public service.

Nevertheless, experience shows that the senior administrative staff is composed of various types of workers including typists and drivers. There is need to attempt a reclassification of this category of staff before any reasonable retrenchment can be embarked upon. The criterion for classifying a staff as senior, should be revisited and probably be reviewed.

Increasing the number of academic staff where necessary

Table 2 predicts that a reduction in non-academic staff ratio will lead to increases in research and public service costs per student, but to a corresponding

reduction in the unit administrative cast. This can be achieved by either retrenching non-academic staff (junior and senior) or increasing the number of academic staff.

There is no doubt that university teachers in Nigeria are currently over utilised following the exodus, outside the country, of many academic staff in search of greener pasture. If the number of students to be taught by a teacher is decreased, as suggested in this paper, then there will be more time for research and public service. Moreover, the NUC appropriations on research and public service will increase relative to the size of academic staff.

Changing economic rates of utilities like electricity

Table 2 reveals that the less the recurrent expenditure per student devoted to goods and services, the more the average research and public service costs but the less the administrative cost per student. Since administrative expenditure is made up of goods and services, plant and ground, student services and general administrative expenditure, any attempt to reduce the amount expended on goods and services will go a long way to reduce administrative cost.

There is need to look very closely at ways by which universities can reduce expenses on the so-called free services on campuses. These expenses are associated with electricity, water, telephone, and waste disposals. The situation where a university spends about 25 percent of its quarterly subvention on paying electricity bill is questionable. This 25 percent does not include the cost of electricity generated locally through generating plants where there is power failure. It is doubtful if residents on campuses are charged the economic rates of utilities supplied to them. In fact, tenants (including those in rented shops) are not likely to be paying the commensurate rates of the utilities used. Students, staff and other tenants on campuses are therefore, heavily subsidized.

Universities should therefore, recover some costs from tenants and residents by charging them for utilities (water, electricity, telephone) as well as refuse disposals. The recovered costs should be used to supplement expenditures on research and public service. Nevertheless, the low wage level of university teachers may create an initial bottleneck.

Reducing the number of universities offering human and veterinary medicine

Table 2 shows that the lower the weighted cost of the curriculum operated in a university, the less the average administrative support cost but the higher the average costs of research and public service. This finding supports earlier ones that it is cheaper to run classroom-based than laboratory-based courses (Kumar 1981 and Akangbou 1986).

While this paper does not recommend that universities should de-emphasise heavy-cost courses (Medical Science and Veterinary Medicine), it may be necessary to operate these heavy-cost courses in fewer universities than hitherto. In fact, the World Bank (1988) reveals that almost all Nigerian universities offer courses in medicine... and enrolments... at the newer universities are well below an economically effective level. Table 3 further reinforces this by revealing that, apart from Calabar and Ibadan, Medical Science was sub-optimally operated in all sampled universities in 1991/92. In fact, none of the universities in sample operated Veterinary Medicine at optimal level. The total veterinary medicine enrolment ranged from 145 in Maiduguri through 449 in Ibadan to 454 in Zaria in 1991/92 session.

Thus, to reduce the administrative cost of these heavy-cost courses and therefore, enjoy the advantages of economies of scale, Nigeria should, without sentiment, reduce the number of universities operating these two disciplines to about four - two in the North and two in the* South. However, efforts must be made to avoid diseconomies of scale as enrolments beyond the optimum sizes by disciplines might shoot up the cost per student or lead to a poorer quality of university education.

Reducing the spending deviation from ceilings

Table 2, lastly, shows that by reducing the spending deviation, the unit administrative cost will be reduced and those of research and public service will be increased. As rightly suggested by the World Bank (1988) as well as the IDS (1990), the NUC should enforce its costing parameters to the detail to ensure compliance and hence reduce adverse deviation in spending to the Bearable minimum. By so doing, money will be moved from administrative supports to research and public service hitherto neglected. The next section deals with the relevance and limitation of this paper.

Relevance and Limitations

Practitioners within Nigerian universities and the NUC will find this paper useful as a guide during the preparation of recurrent estimates, and if need be, as an information document in the process of making decisions on expenditure control and cost reduction, recovery and reallocation. This paper will particularly be found useful while proposing a reduction in the administrative costs of a Nigerian University in particular, and as lessons for all African universities in general.

Nevertheless, practitioners should carefully study each of the suggested measures to ensure that it applies to the situation at hand before any attempt to implement it. This is because the measures, as suggested, were drawn mainly from the 1991/1992 expenditure data often sampled universities in Nigeria. To come

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Table 1: Recurrent expenditure by discipline and university in Nigeria 1991-92

	EXP	AVERAGE VARIABLE COST (AVC) BY DISCIPLINE (NAIRA)											AVERAGE JOINT COSTS (AJC)						
	AD M	AGRI C	ART S	EDU C	ENG N	ENV I	LA W	ME D	PHA R	SCI	SOCI	VET	AL L DIS C	TS	RS H	PS	OA	AS	OD T
AKURE	-	2609 8778	-	-	1479 7649	5085 1125 5	-	-	-	211 0 827 9	-	-	218 1 835 1	26 3	51	54	795	500 4	2
BENIN	-	1605 5207	1850 5452	670 4272	2087 5689	-	112 3 472 5	2193 5795	2588 6190	142 2 502 4	938 4540	-	140 7 500 9	42	25	36	867	263 2	0
CALABAR	-	1394 4711	2325 6313	785 4773	-	-	805 479 5	3536 7524	-	173 3 572 1	1889 5877	-	185 2 584 1	-	403	37 3	509	267 8	46
IBADAN	-	-	2301 3643	1461 2803	3016 4358	-	198 1 332 3	5731 7073	-	243 2 377 4	1615 2957	7497 8839	297 5 641 1	10 7	286	14 8	224	262 5	46
JOS	-	-	1012 3261	634 2879	-	1295 5909	671 292 0	4262 6511	2859 5108	221 4 446 3	411 2660	-	108 3 333 2	41	28	--	237	194 3	
LAGOS	139 2 600 6	-	3803 8417	1743 6357	3367 7981	2845 7459	261 5 722 9	8360 1297 4	-	278 4 739 8	1729 6343	-	289 5 751 0	75	219	14 6	589	346 2	123
MAIDUGU RI	-	5167 9163	2776 6772	1442 5438	7894 1189 0	-	311 0 710 6	2176 7 2576 3	-	327 0 726 6	1206 5202	2777 2 3176 8	349 0 748 6	19 3	299	18 6	136 3	191 7	38
PHARCOU RT	569 367 6	-	1310 4117	1868 4975	1592 4699	-	-	4747 7854	-	234 4 545 1	1227 4334	-	158 0 468 7	59	123	11 8	533	228	46
UYO	131 5 502 7	6502 10214	3495 7287	1472 5184	-	-	257 5 628 7	-	-	169 3 532 6	2002 5714	-	192 1 563 3	43 9	66	77	391	262 6	113
ZARIA	907 509 2	3672 7857	2437 6622	906 5091	4147 8332	4385 8570	823 501 7	4259 8444	2000 6185	517 2 935 7	-	9027 1739 7	109 0 527 5	10 8	133	11	376	336 0	197
MEAN	104 6	3474	2368	1220	3369	3403	171 4	6857	2482	251 7	1377	1476 5	318 1	-	-	-	-	-	-

NOTES (1) DT = Direct Teaching ATC = Average Total Cost, TS = Teaching Support,
RSH = Research PS Public Services OA= Other Academic,
AS = Administrative Support plus retirement benefits

(2) Benin and Ibadan were operating Collegiate System Hence AVC includes College expenditure per student
(3) Standard Deviation of DT = 3934 (6n)

SOURCE: (1) Expenditure figures from individual University Data Sheet and Estimates of Recurrent Operating Expenses 1994 95

(2) Enrolment Figures from National University Commission Statistical Digest on Nigerian Universities 1988-1992 pp 46-47

Table 2 Explaining variation expenditure per student using regression coefficients B (EX⁴XY)

Y8(AODT)	Y1(ATC)	Y2(ADTC)	Y3(ATSC)	Y4(ARSHC)	Y5(APSC)	Y6(AOAC)	Y7(AASC)	Y8(AODT)	X5(ASS)
CONSTANT	-1898.317	2951.513	-1343.883	4044.6***	4471.6***	2563.487	-14450.7***	-198.922	532959.348
(ES)X1	-0.282	-0.145	-0.082	0.157***	0.179***	0.156	-0.569**	0.022	23.709
(JSSR)X2	-3034.169	-818.811	-349.979	436.7***	615.65***	1553.1**	-1345.9***	-135.675	210343.3
(NAASR)X3	2082.542	311.300	166.779	-263.3***	-366.2***	-653.278	2735.59***	164.313	-166464.4
(STR)X4	114.450	6.055	61.098	-122.3***	-136.7***	-137.541	447.791***	-3138	-17685.446
(GCPS)X6	0.967	-0.364	0.086	-0.29***	-0.282***	0.134	1.703***	-0.013	18.426
(CTW)X7	260.197	174.899	60.860	-104.2***	-126.7***	-24.681	299.956*	-19.846	-5254.500
(GER)X8	-703.764	-584.220	-34.303	-671.8***	-668.8***	-178.776	1605.181**	-174.212	23470.597
(SD)X9	125.975	-61.799	70.115	-144.3***	-167.2***	-273.98*	693.93***	11.277	33094.127
R	0.911	0.847	0.913	0.997	0.995	0.987	0.997	0.967	0.976
R ²	0.830	0.717	0.833	0.994	0.989	0.975	0.993	0.934	0.953
Adjusted R ²	0.000	0.000	0.000	0.946	0.905	0.772	0.938	0.409	0.576

NOTES: Significant at 10% Significant at 5% Significant at 1%

1. Dependent Variables are average total (ATC) average direct teaching cost (ADTC), Average teaching support cost (ATSC), average research cost (ARSHC), average public service cost (APSC) average other academic cost (AOAC) average administrative support (AASC) average other teaching cost (AODT) and average staff salary (AAS)
2. Independent Variables are enrolment size (ES), Junior senior staff ratio (JSSR), Non-academic academic staff ratio (NAASR), Student teacher ratio (STR), Good cost per student (ACPS), cost (CTW) Grant effectiveness ratio (GER) and spending deviation (SD)

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TABLE 3. TOTAL STUDENT ENROLMENT AND OPTIMUM SIZE BY UNIVERSITY AND DISCIPLINE
NIGERIA 1991-92

DISCIPLINE	AKURE	BENIN	CALAB.AR	IB.AD.AN	JOS	LAGOS	MAIDUGURJ	P HARCOURT	tYO	Z.ARI A
.ADMIN	-					1830		1479	1141	2947
.AGRJC	418	598	837	1744	-		607		360	864
.ARTS		1333	1094	1714	2104	1081	1358	1907	1047	2101
EtX'C		2898	1294	2087	2357	1912	1640	1084	2869	26»
ENGINE	612	1351	•	941	-	1600	321	1511		1424
ENVIR	121	-	-		1137	900				974
LAW	-	649	556	192	809	740	609		325	1400
MED	-	1826	1228	2253	771	1225	352	669	.	1205
PRARM		592			412	-	-	-		1103
SCIENCE	945	2987	2368	2584	1311	2463	801	2026	2398	1374
SOC.SC		3201	1257	1860	4487	2171	2567	1149	1249	
VET				449			145			454
OTHERS				28	1173		800	.	.	4452
Opumum Size	560	3000	1150	2000	1800	2120	1500	1920	1200	2100
TOT.AL	2.096	15.435	8.634	13.858	14.561	14.068	9.200	10.825	9.954	20.954

NOTE: Any discipline with enrolment lower than its optimum size is considered to be operating below an economically effective level

SOURCE NUC Statistical Digest on Nigerian Universities 1988 -1992 pp 4

out with more practical solution strategies, there will be need to study the expenditure pattern by university and over a long period of time.

Moreover, owing to the sensitive nature of some of the suggested measures, there is need to phase out the implementation such that there will be enough time to prepare the ground. Measures aimed at adjusting established pattern are usually resisted. Practitioners should therefore, do enough homework before announcing any of the measures suggested in this paper.

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