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**Cost Effective Measures to Reduce Operational Costs of
Secondary Education**

By

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Cost effective measures to reduce operational costs of secondary education:

A Case Study of Nyando District in Kenya

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Abstract

Through the cost sharing strategy, fees paid by parents are used to finance the day-to-day operations of secondary schools in Kenya while the government uses over eighty per cent of its recurrent expenditure on teachers' salaries alone. However, there is a serious shortage of physical facilities that are essential for increased access and quality of secondary education. In addition, there is a high dropout rate, low enrolment ratio and general low performance in secondary schools. A high fee charged by the schools is the major reason for these problems. This study was, therefore, interested in examining the cost effective measures necessary to reduce operational costs of secondary education.

Unit expenditure on supplementary services had the lowest correlation coefficient of 0.410 with KCSE mean score at 0.05 significance level in a two-tailed test and a positive coefficient of 0.00013 in the regression equation. Given that the effect of unit expenditure on supplementary services on quality is not much as shown by the district's continued low KCSE mean score, it may be necessary to reduce this cost to improve access. The main focus here is to improve access if the quality remains static. This could be done by examining the impact of auditing on cost reduction, government subsidy of tuition on access to secondary education and the effect of reducing charges on supplementary services on performance at the secondary school level.

Keywords: cost effectiveness, operational costs, secondary education, reduction, appropriate fees, access, quality of education.

Background to the Problem

A high demand for education has been recorded at primary and secondary levels in Kenya. For example, enrolment in secondary schools rose from 30,120 (20,553 boys and 9,567 girls) in 1963 to 652,283 (345,416 boys and 306,867 girls) in 2000 (Orodho & Njeru, 2003b, p. 19) and was expected to increase to 732,501 in 2003 (Daily Nation, 20th March 2004). The

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enrolment ratio per province in 2000 is given in Figure 1. High enrolments were recorded in non-ASAL (i.e. high economic potential) regions of Central, Western and Nyanza provinces. This demand led to massive increases in the spending on education. To ease the budget strain on the exchequer, the government introduced cost sharing strategy between the government and parents through Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth that set procedures for reducing this expenditure to 30% of the total recurrent expenditure. This meant increased cost sharing in the financing of education and training, and called for the use of more cost effective measures in the utilization of educational facilities, equipment, materials and personnel (Republic of Kenya, 1988, p. 117).

The government recommended Kshs 26,900, Kshs 22,500 and Kshs 10,500 for national, provincial and district (day) secondary schools respectively as fees to be paid by parents (Gikandi, Mweu, 2006). However, it has not been possible to maintain the fees at these levels because parents are made to pay extra charges for development projects and other supplementary services. The payments for these items vary from school to school and from region to region. For example, day scholar students in Rachuonyo District in Kenya paid Kshs 10,320 and boarders Kshs 12,380 for these extra expenses in 1999 (Gogo, 2002, p. 61) while in high cost schools these figures are as high as Kshs 40,000.

Kenya Parliamentary Committee on Education called for the reduction of the development levy of Kshs 2,000 per student per year to relieve parents of the burden and make secondary education affordable to all (Sunday Nation, 23rd July 2006). The 4,000 plus head teachers of secondary schools requested the government to introduce free secondary education. Schools were owed Kshs. 12 billion and they threatened to stop releasing students' certificates. They demanded for a subsidy of secondary education by providing free tuition and paying salaries for non-teaching staff. This would leave only the cost of boarding to be funded by parents. The other option to ease the problem of fees was to levy a 2% education levy on government taxes (Siringi & Mbabazi, 2006, p. 1). A reduction in school fees at the secondary level would greatly improve access to secondary schools particularly in rural areas and for children of the low-income group. Given this background, it was important to find out the cost effective measures necessary to reduce operational costs of secondary education.

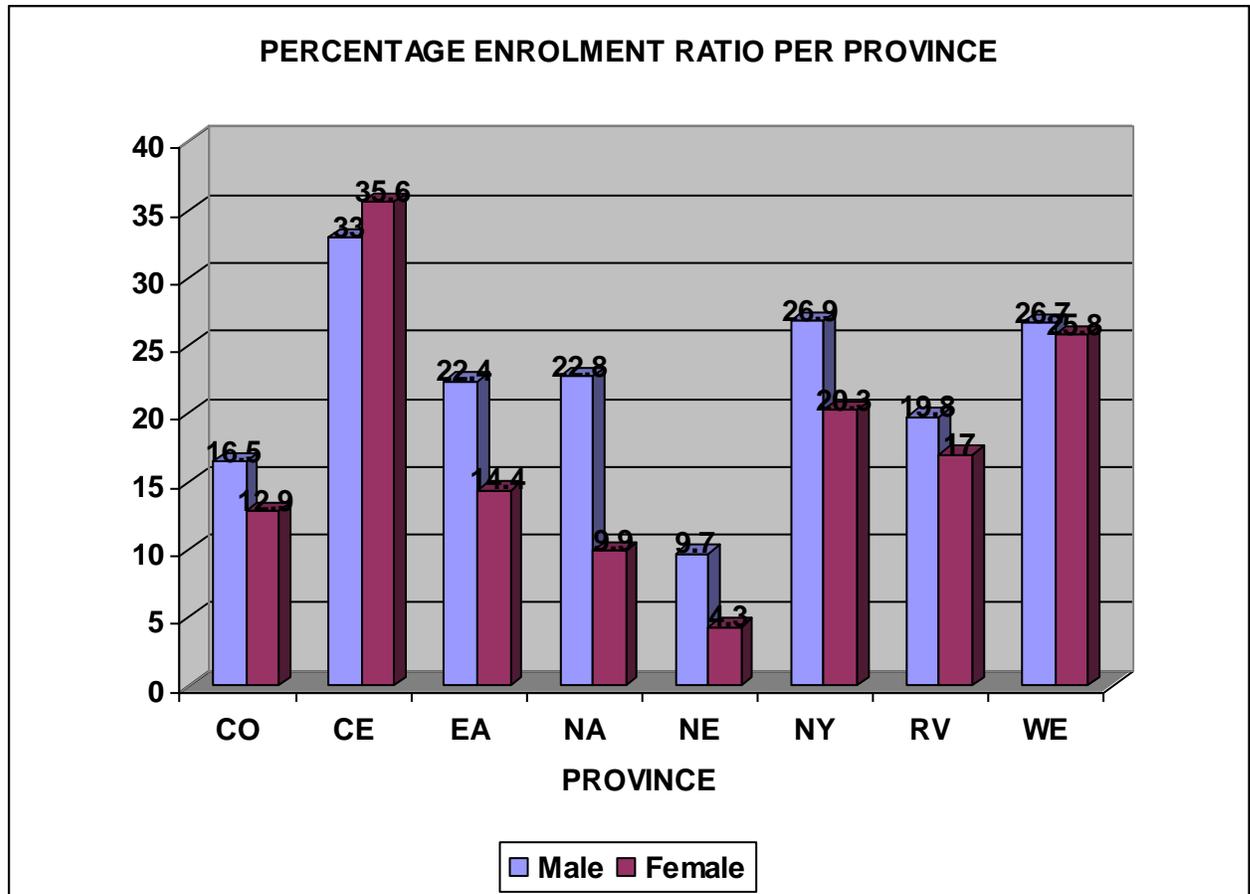


Figure 1: Enrolment Ratio per Province in Kenya in 2000

KEY: CO – Coast CE – Central EA – Eastern NA – Nairobi NE – North Eastern
 NY – Nyanza RV – Rift Valley WE – Western

Statement of the Problem

The government typically contributes only one third for each secondary school pupil, with the balance coming from the households to cater for development costs, personal recurrent costs, and tuition and boarding fees. In 1995 the government subsidy for primary schools was Kshs 1,520 and for universities it was Kshs 61,730. The corresponding figures for households were Kshs 782.16 and Kshs 4,424 for primary and university respectively. However, at the secondary level, the households paid more than the government (i.e. Kshs 8,006 compared to Kshs 4,077 for the government). Indeed, fees accounted for 84% of the total secondary school expenditure per pupil (Orodho & Njeru, 2003a).

The distribution of incomes in Kenya is skewed in favour of the higher income groups. In 1999 the top 10% of the households in Kenya commanded 42.72% of the total income while the bottom 10% had only 0.76%. In Nyanza Province the figures were 42.81% and 0.63% respectively and in Nairobi Province they were 45.2% and 1.61% respectively. Similarly, the distribution in rural areas was 41.06% and 0.84% and in urban it was 39.04% and 1.39%

respectively (Society for International Development, 2004: 5). These differences translate into the differences in ability to pay school fees with the rural folk and the poor being more disadvantaged than the urban population and the rich respectively.

It is necessary to raise secondary enrolment rates especially among the low-income groups and in rural areas where the cost of schooling is even more critical. However, the high private cost of secondary education appears to be the key to understanding the low secondary enrolment rates. If the policy objective is to increase secondary enrolments among the lower deciles, then there is need to reduce the burden of the households involved (World Bank, 1995). For this reason, it was imperative to find ways through which the operational costs of public secondary education could be reduced particularly where the household incomes are generally low like in Nyando District in Kenya.

Purpose of the Study

The purpose of this study was to examine cost effective measures necessary to reduce operational costs of secondary education in Kenya with particular reference to Nyando District. Specifically the study intended to:

1. Examine the annual secondary school budgets vis-à-vis the actual amounts spent on each vote head in a school calendar year.
2. Assess the expenditure of secondary schools to ascertain if there were any wastage through overpricing and purchase of items not budgeted for.
3. Examine how frequent the secondary school finances were audited and the impact of such audits on financial management.
4. Determine the effect of unit expenditure on supplementary services on student enrolment and quality of secondary education.
5. Establish the appropriate amount of fees parents should pay at the secondary school level in rural public secondary schools.

Research Questions

This study attempted to answer the following questions:

1. What is the annual unit expenditure per vote head?
2. How much does the actual expenditure per vote head differ from the budget estimates?
3. What is the impact of auditing on efficient financial resource utilization in secondary schools?
4. What is the most appropriate amount of fees that parents should pay at the secondary school level in rural areas?
5. What is the effect of unit expenditure on supplementary services on student enrolment?

6. What is the effect of unit expenditure on supplementary services on quality of secondary education?

Significance of the Study

The study intended to examine the cost effective measures necessary to reduce the operational costs of secondary education. The findings thereof would be of value both to practice and to the theory of financing secondary education in Kenya with particular emphasis on rural secondary schools.

Theoretically, the study would contribute to an understanding of the cost effective measures necessary in reducing the operational costs of secondary education in rural Kenya. It would yield useful information to the policy makers in education, and be a reference point for educationists and researchers who are interested in finding more information on how to reduce the cost of secondary education.

In practical terms, the study would help education economists and planners to come up with effective methods of reducing secondary education cost, and would enable parents to have affordable costs to share in education and improve access to secondary education.

Assumptions of the Study

This study was carried out on the basis of the assumptions that:

1. All secondary schools prepare budget estimates at the beginning of each year and that these estimates are strictly followed.
2. Head teachers employ effective control measures in their financial management.
3. Scores in KCSE examinations are an indicator of student achievement in secondary education.

Theoretical Framework

The theoretical framework for this study involved the cost function. In this function, the total cost of sending a student to a secondary school in a year is the sum total of the unit recurrent cost and unit development cost. In equation form, this function is expressed as:

$$C = C_1 + C_2 \dots\dots\dots (1)$$

where C is the unit total cost
 C₁ is the unit recurrent cost
 C₂ is the unit development cost

The unit recurrent cost in this study was taken to be a function of the unit total non-salary costs (Jolly, 1969: 39). This can be expressed as:

$$C_1 = f(k) \dots\dots\dots (2)$$

where C_1 is the unit recurrent cost
 k is the unit total non-salary costs

The total non-salary costs, k , is the cost that is not spent on teachers' salaries. It is a function of many factors that include expenditure on learning/teaching materials (SES), repairs, maintenance and improvements (RMI), contingencies, activities, personal emoluments for employees of Board of Governors (PEM), local transport and travelling (LT&T), supplementary services that include school uniforms among other subsidiary levies (SUS). This study was interested in finding out which of these levies could be reduced to ease the burden of fee payment by parents and thereby lower the cost of secondary education. Money spent as pocket money was excluded because the amount parents give vary from time to time and the figures are not readily available. Taking the unit total non-salary costs as the dependent variable, we have:

$$k = f(x_1, x_2, x_3, \dots, x_n) \dots\dots\dots (3)$$

where k is the unit total non-salary costs
 x_n are the factors that affect the unit total non-salary costs

Hypotheses

The following hypotheses, stated in null form, guided this study:

1. There is no significant relationship between student enrolment and unit expenditure on supplementary services.
2. There is no significant relationship between KCSE mean score and unit expenditure on supplementary services.

Scope and Limitations of the Study

This study was done in rural public secondary schools in Nyando district in Kenya. There were a number of limitations to this study:

1. The study was limited to 35 public secondary schools in Nyando District in Kenya instead of covering the whole nation due to time and financial constraints.
2. Data on school expenditure were difficult to access due to their inaccuracy and lack of proper filing systems by school administrators.
3. The study was carried out in rural secondary schools and the findings thereof may not be used to generalize for urban schools and the entire nation. However, it is applicable to all schools and areas in which performance remains low despite the payment for supplementary services.
4. The comparison was about performance and costs yet it was difficult to establish the costs that go strictly to Form 4 students. Hence the average costs for the entire student population was used to represent the costs used for Form 4 students.

Literature Review

The Kenya government introduced cost sharing in 1988 with the aim of making the beneficiaries of education, students, parents and the community, pay part of the education cost. At the secondary level students cater for operational costs through payment of school fees with the exception of teachers' salaries. However, cost sharing has become burdensome to parents and has led to problems of decline in enrolment and completion rates with serious implications on gender imbalance at secondary and tertiary levels of education (Republic of Kenya, 1997, p. 134).

High dropout rate has been mainly caused by the increasing cost of keeping children in school due to the high cost of education, low income of parents and unfavourable socio-cultural factors in certain communities (Karani et al., 1995). Gogo (2002, p. 64) noted that parents were unable to meet their school fees obligations because their incomes were generally low. This accounted for 57.69% of the responses. The other reasons were unemployment (21.15%), large families (13.46%) and single parenthood (3.85%). Apathy towards education and increasing number of orphans were also cited as reasons for this inability to pay fees.

The 1999 Report of the Commission of Inquiry into the Education System of Kenya (the Koech Report) recommended, among other things, the critical examination of the education budget with a view to reallocating resources from areas of low rates of social returns to the areas with high rates of social returns. Hence, in higher education where the social returns are relatively low compared to private returns, parents and sponsors be made to contribute more than they are presently contributing. Secondly, students from poor and disadvantaged areas to be offered educational bursaries, loans and other appropriate support. Thirdly, there is potential to reduce the share of salaries in total expenditure through the development of sustainable pupil/teacher ratios, which have fallen to very low levels in the past few years. Lastly, financial management be strengthened through reduction of costs and strict control on expenditure, rationalization of various categories of staff (administrative and support) to ensure optimum utilization of available manpower, base academic programmes on the needs of the economy and encourage economic fee paying students and delink accommodation and catering from academic programmes at the universities.

The government's objectives and policies during the plan period 1997 to 2001 were related to increasing enrolment and completion rates, streamlining financing of education and improving the relevance of education within the context of industrialization (Republic of Kenya, 1997, p. 238). To do this the government was to shift more resources from post primary to primary education, remove subsidies to boarding services not directly related to education, introduce a ceiling on government subsidies per student and make government support be student-based and not school-based.

Orodho and Njeru (2003a) noted that cost sharing created a heavy burden on households to an estimated expenditure between 30% and 44% of their annual incomes on education nationally. In particular, in Central province they spend 71.3%, Nyanza 67.9%, Western

64.1%, North Eastern 41.3%, Rift Valley 41.2% and Coast 40%. In addition, urban households spent a large proportion of their incomes on secondary education (Kshs. 34,923 per child) while households in high potential rural areas spent the least proportion of Kshs. 21,170 per child. At the national level, the households spent Kshs. 24,370 per child on secondary education.

The government operates a bursary scheme at the secondary level through the Ministry of Education, Science and Technology. This is within the auspices of the Social Dimensions of Development Programme targeting the poor and vulnerable groups. However, several issues have emerged that make this scheme quite ineffective and inefficient. Bursary funds are not enough for all eligible needy students. The eighteen national schools get 5% of the total bursary funds in any fiscal year. The other schools get funds in proportion to the school size, in terms of student enrolment and without reference to boarding status and whether the school is boys, girls or mixed. Secondly, the allocation per province has varied according to perceived economic well-being of the province. The provinces located in economically marginal Arid and Semi Arid Lands (ASAL regions) where most communities are poor and vulnerable have got higher proportions. Hence Coast Province got Kshs 569.40 per enrolled student per year, North Eastern Kshs 508, Eastern Kshs 406.80 and Rift Valley Kshs 365 per student. On the other hand, Nairobi got Kshs 285.30, Nyanza Kshs 224.70, Central Kshs 219.70 and Western Kshs 205.50 while the national average was Kshs. 318 (Njeru & Orodho, 2003a).

Secondly, there are weak administrative systems and questionable bursary eligibility criteria. Needy students have varying amounts of outstanding fees after receiving bursary funds. In 2003 the allocation per needy student was estimated at Kshs 675 at the national level, which constituted only 6.4% of the outstanding fees (Orodho & Njeru, 2003a). Bursary fund is both insufficient to meet the objectives of enhancing access to, retention and participation in secondary education thereby reducing the dropout rate among the poor. A Kenyan Assistant Minister for Education suggested a minimum of Kshs 10,000 per student (East African Standard, 3rd June 2004). Unfortunately students receive as low as Kshs 700 due to cheap politics by Members of Parliament (East Africa Standard, 4th June 2004).

Orodho and Njeru (2003a) recommended the use of more innovative and viable strategies for enhancing access to and participation in secondary education through private investment, special secondary school levy on luxurious commodities, increasing bursary from 500 million Kenya shillings to 1.5 billion Kenya shillings, allowing and providing guidance to introduction of fee waiver systems as well as income generating activities such as farming to subsidize for poor students' fees shortfalls. They noted that a good bursary system should cover not less than 60% of the average and regular financial requirements of the applicant. On government assistance to secondary education, they recommended:

- (i) Government spending should be re-structured to reflect increased relative budgetary support particularly regarding development expenditure.

- (ii) Ensure government assistance goes into instructional and related materials and equitably distributed across all regions according to the relative poverty levels of the areas. Efficient utilization of resources also needed emphasis.
- (iii) In view of global emphasis on basic education, the government should incorporate secondary education into mainstream basic education.
- (iv) The government, academia and other stakeholders should review the cost-sharing policy at the secondary school level to make it cheaper for parents to pay.

Up to 37.3% of the secondary expenditure is spent on indirect educational costs namely uniforms, books and stationery, pocket money and transport. This becomes the critical element in secondary school education financing. Orodho and Njeru (2003a) recommended the regulation of fees guidelines, monitoring effectiveness of indirect secondary school levies such as holiday and weekend tuition and MOCK examination fees and proper accountability of funds from income-generating projects.

Out-of-school tuition or 'coaching' has been exploited and converted into a money minting enterprise. Teachers deliberately fail to cover the syllabus during the normal school hours and wait to teach during the extra hours to make a quick buck. This is blamed on 8-4-4 system of education due to its wide curriculum. The grand effect of all these is to increase fees beyond the reach of an average parent (Ibid).

This study was interested in looking at operational costs as opposed to innovations in the total cost of education. Operational costs are catered for by parents at the secondary school level and it is these costs that have become too high for them leading to high dropout and low completion rates. The expenditure of secondary schools and the impact of auditing for improved efficient utilization of financial resources were assessed in order to determine how best the operational costs of secondary education could be reduced.

Research Methodology

Descriptive survey research design was used for this study because it attempts to show and document current conditions or attitudes and to describe what exists at the moment in a given context (Wimmer & Dominick, 1987, p. 102). Cross-sectional research design was used to explain the magnitude of the relationship between the variables. This research method also allows for the formulation and testing of hypotheses. (Chandran, 2004: 80).

The study embraced both qualitative and quantitative methods of data collection and analysis. Quantitative methods are concerned with aggregates, group properties, general tendencies, averages and proportions which were vital aspects of this research. A qualitative method, on the other hand, is a rigorous approach to data collection, analysis and report writing that enables the researcher to verify the accuracy of the account given (Robson, 2002, p. 98; p.166). Stratified random sampling technique was used to get a sample of 35 secondary schools (72.9% of the 48 public schools in the district) from the study population. The schools were divided into day/boarding and day, and boys, girls and mixed and the

corresponding sample taken from each strata.

The questionnaire was the major instrument for data collection. The questionnaire was used to ensure freedom of expression and accountability on the information given by the respondents. There were three separate questionnaires, one for head teachers, one for District Schools' Auditor and one for the District Education Officer and each questionnaire had specific areas to cover. Both open-ended and closed-ended questions were used in the questionnaire. The interview schedule dwelt on the reasons for low enrolment in secondary schools, availability of internal bursary, reasons for failing to pay fees in time and how bright needy students are assisted to remain in school. It also gave information on how best the fees could be reduced to improve access to secondary education.

Secondary data were sourced to give more information on student enrolment, amount of fees charged by the schools, income and expenditure of schools and the population of the secondary school age children in the district. Secondary data are readily available as compared to primary data (Howard & Sharp, 1983, p. 141). Pre-testing the instruments was done through a pilot study of two boarding provincial schools, one girls and the other boy's school to identify problem areas and need for restructuring some questions.

Internal and external validity and reliability control included ensuring that the same respondents approached were the ones who filled the questionnaires. The questions had written instructions to help the respondents give the correct information and that only questions relevant to the information required for the study were included. On ethical issues, the information given was treated confidentially and the respondents' names were not disclosed to protect them. The principle of voluntary consent was observed where the respondents willingly participated in the research.

Data analysis incorporated descriptive statistics, time trends and multiple linear regression methods. The data were converted into percentages and averages and organized for computer analysis. Multiple linear regression analysis using Statistical Package for Social Sciences (SPSS 8.0 version) computer analysis was employed to show the individual effect and the combined effect of the independent variables on the dependent variable. The assumptions of linear regression analysis, the adequacy of the regression model, multi-collinearity, homoscedasticity, outliers, linearity and omission of important independent variables were considered and discussed. The dependent variables, student enrolment and KCSE mean score were tested at 0.05 levels for significance in a two-tailed test.

Research Findings

Access and Quality of Secondary Education

At the time of its inception in 1998 Nyando district had 33 secondary schools. This number rose to 52 in 2004, an increase of 63.5%. Out of the 52 schools, four were private. Over half the schools (65.71%) were day while 34.29% were partly day and partly boarding; no district school had full boarding facilities. There were two girls' schools while the rest were mixed

schools. In addition, nine schools (25.71%) were provincial schools and the rest (74.29%) were district schools.

There was a general increase in the number of students enrolled from 5112 in 2001 to 5751 in 2004. Enrolment increased by 3.79% in 2002, 6.73% in 2003 and 1.55% in 2004. If all the schools visited were to enrol an average of 45 students per class, there was an extra space for 957 students. This would have increased the enrolment in these schools by 41.9%. Unfortunately these positions could not be taken up due to drop out of pregnant girls causing, high school fees, low retention rates due to poverty, catchment area that is sparsely populated, high number of orphans (both partial and total), famine in the region and parents taking care of several other children in schools and/or colleges.

The proportion of students sent home for fees ranged from 50% to 80% of the total school population. This interrupted learning, as the schools had to wait for those sent home to come back. Unfortunately students took four days to two weeks to come back to school. This translates to between 12 days to 6 weeks being wasted every term. Many students were able to pay between Kshs 500 and Kshs 1,000 irrespective of the fee arrears and some would still owe between Kshs 6,000 to Kshs 10,000, while others would come back with only a pledge to pay.

Schools were, however, assisting some bright needy students through recommending their names to organizations such as NEEMA, Kano Plains Bursary Group, CCF Nyakach, CCF Kano, Mina Trust Fund and World Vision, provision of the Constituency Bursary Fund, relief food provided by the government being turned into bursary allocations, teachers raising money on harambee basis, sponsorship from individuals, work study programmes and some top-performing students being maintained by the schools. However, these interventions only reached a small fraction of those who needed assistance.

Student enrolment had a mean of 167 students per school in 2004, a minimum of 76 students and a maximum of 382 students. The average enrolment of 167 students was low compared to the Ministry of Education's recommendation that a secondary school should have at least three streams with 540 students for the school to be efficient in its utilization of resources. All the six independent variables for student enrolment were positively correlated with each other. Unit expenditure on SES had the highest correlations of 0.792 and 0.715 with unit expenditures on ESS and BES respectively. It had the lowest correlation of 0.211 with unit expenditure on SUS and correlations of 0.555 and 0.547 with unit expenditures on ACT and PEM respectively. ESS had correlations of 0.466, 0.618 and 0.687 with PEM, ACT and BES respectively. SUS had correlations of 0.342, 0.527, 0.350 and 0.533 with ESS, PEM, ACT and BES respectively. PEM had correlations of 0.482 and 0.667 with ACT and BES respectively. Finally, ACT had a correlation of 0.614 with BES. These correlations show that SUS had the lowest correlations with SES (0.211), ESS (0.342) and ACT (0.350).

The dependent variable, student enrolment, had over 0.6 correlation coefficients with its independent variables. It had the highest correlation of 0.787 with ESS and the lowest correlation of 0.672 with ACT. It had correlations of 0.723, 0.675, 0.628 and 0.728 with SES,

SUS, PEM and BES respectively. According to Elifson et al. (1998, p. 194), the correlations were either moderate (between 0.31 and 0.70) or large (0.71 and above). This implies that the higher the expenditure on secondary education, the higher the student enrolment.

According to the regression analysis using the stepwise method, all the independent variables had stable coefficients of 0.0285, 0.0155, 0.0465, 0.0066, 0.0486 and – 0.0089 for SES, SUS, ESS, PEM, ACT and BES respectively. Hence all the independent variables were predictors of student enrolment in secondary schools.

The coefficient of multiple determinations, R^2 , for all the independent variables was 0.870. This means that the independent variables were predictors of student enrolment and accounted for 87% of the variability of student enrolment in this study. Hence there is a strong relationship between student enrolment and its independent variables. This value of 0.870 is a measure of the regression equation's accuracy in predicting the number of students enrolled regardless of the context of the problem (Billingsby et al., 1986, p. 434). The unexplained variability of 13% is small and could have been due to data collection deficiencies in the variables used or by other casual factors not included in the model.

The computed t-value for SUS of 5.071 was higher than the critical t-value (2.042). The null hypothesis that there is no significant relationship between unit SUS and student enrolment is rejected and the alternate hypothesis that there is a significant relationship between unit SUS and student enrolment accepted. The computed value of t for SES was 2.527 and ESS was 2.322. Hence SES and ESS were also significant predictors of student enrolment. The other independent variables had computed t-values of 0.351, 1.865 and – 0.883 for PEM, ACT and BES respectively. They were not significant predictors of student enrolment.

The mean score in the Kenya Certificate of Secondary Education (KCSE) indicates the level of performance in secondary school examinations. A mean score of 3.5 to 4.5 (mean grade of D+) is considered a pass and the maximum points attainable in KCSE is 12. The overall mean score for the district was 5.85 in 2001. It went down to 5.41 in 2002 before rising to 5.63 in 2003 and then 6.02 in 2004. The percentage that performed below 6.0 points was 76.95% in 2001, 76.94% in 2002, 77.14% in 2003 and 71.43% in 2004.

Motivational programmes for teachers included the provision of lunch, ten o'clock and four o'clock tea and cash given on prize giving days. Students who joined universities got a stipend of Kshs 2,000 while continuing students got exercise books or vouchers.

The dependent variable for quality of secondary education, KCSE mean score per school, had a mean of 5.13 points, a minimum of 3.60 and a maximum of 7.71 in 2004. The average mean score of 5.13 is below half the maximum figure of 12.0 (i.e. 6.0). KCSE mean score had the highest correlation coefficient with unit expenditure on SES of $r = 0.569$. This was followed by unit expenditure on PEM ($r = 0.536$), unit expenditure on ACT ($r = 0.489$), unit expenditure on ESS ($r = 0.466$) and unit expenditure on BES ($r = 0.434$). All these correlations were moderate while its correlation with unit expenditure on supplementary services was the lowest at $r = 0.410$.

According to the regression analysis model all the independent variables had stable coefficients of 0.00061 for SES, 0.00013 for SUS, 0.00021 for ESS, 0.00051 for PEM, 0.00076 for ACT and -0.00038 for BES. The corresponding t-values were 2.318, 1.794, 0.071, -0.454, 1.156 and -1.608 for SES, SUS, ESS, PEM, ACT and BES respectively. Hence all the independent variables were significant in determining the KCSE mean score. The coefficient of multiple determinations for all the independent variables was 0.501. Hence all the independent variables in the regression model, accounted for 50.1% of the variability of KCSE mean score. The unexplained variability of 49.9% was relatively high.

The computed value of t for unit expenditure on supplementary services was 1.794 which is less than the critical value of t (1.794 < 2.042). The null hypothesis that there was no significant relationship between unit expenditure on supplementary services and KCSE mean score, therefore, was not rejected and the alternative hypothesis that there was a significant relationship between unit expenditure on supplementary services and KCSE mean score rejected.

Income and Expenditure in Secondary Education

Table 1 shows the unit income received by secondary schools for the years 2001 to 2004.

Table 1: Unit income for secondary schools (2001 – 2004)

Source	2001		2002		2003		2004	
	Amount	%	Amount	%	Amount	%	Amount	%
Fee	9735	96.8	10235	93.6	12114	89.8	13260	90.7
Bursary	232	2.3	345	3.2	326	2.4	412	2.8
NGOs	95	0.9	353	3.2	852	6.3	660	4.5
Grants	-	-	-	-	110	0.8	109	0.8
Harambee	-	-	-	-	83	0.6	169	1.2
Total	10062	100	10933	100	13485	100	14610	100

Fee was the main source of income for secondary schools accounting for between 89.8% in 2003 and 96.8% in 2001 of all the income the schools generated. Grants and harambees contributed negligible incomes; grants accounting for 0.8% in both 2003 and 2004 while harambees accounted for 0.6% in 2003 and 1.2% in 2004. The contribution of NGOs was higher than government bursary. In contrast the amount charged per student per year ranged between Kshs 14,400 to Kshs 25,038 for day schools and from Kshs 16,800 to Kshs 32,100 for boarding students.

The amount of fee charged for supplementary services ranged between Kshs 3,700 and Kshs 11,738 per student for day scholars and between Kshs 5,200 and Kshs 12,600 for boarding students. These fees accounted for between 26.06% and 50.66% of the total fees charged for day students and between 22.22% and 38.07% for boarders. This means that day scholars paid relatively more money for supplementary services than boarders. The fees charged excluding supplementary services ranged from Kshs 10,500 to Kshs 13,350 for day scholars

and for boarding students it was Kshs 23,400 to 33,100.

The unit amount of the difference between the budget estimates and the actual expenditure per vote head is recorded in Table 2 for the years 2001 to 2004.

Table 2: Percentage unit budget less actual expenditure

Year	Unit budget less expenditure	Unit income	Percentage
2001	249	10062	2.47
2002	928	10933	8.49
2003	91	13485	0.67
2004	1471	14610	10.07

In all the four years, LT&T, RMI, contingencies and BES had negative differences indicating over expenditure. The vote heads that had savings were SES, personal emoluments, holiday tuition, activity and EWC. There was an overall positive difference in all the four years. These were Kshs 249 in 2001, Kshs 928 in 2002, Kshs 91 in 2003 and Kshs 1471 in 2004. The implication of this analysis is that the excess amounts are actually excess charges. In 2004, for example, the difference accounted for 10.07% of the unit income received from fees. This is a high proportion that if removed could relieve parents of the burden of high fees.

With savings from the SES vote head, the charges for computer services, educational tours, tuition and awards could be well covered by the SES vote head. This is particularly true for computer expenses that were combined with the expenses on the SES vote head; they were not reflected separately on the trial balances. They were entered under PEM (for staff hired to teach the subject) and SES (for maintenance and purchase of materials).

Table 3 shows the unit excess income for the schools. The unit amount of fee arrears less amount owing to creditors increased from Kshs 1056 in 2001 to Kshs 1486 in 2004. If all fees were received and all creditors paid their dues this amount would be excess. In effect the total amount that was expected to be collected by the schools exceeded the expenditure by Kshs 1305 in 2001 and rose to Kshs 2957 in 2004.

Table 3: Unit excess income

Year	Budget less expenditure	Arrears less credits	Excess income
2001	249	1056	1305
2002	928	1358	2286
2003	91	1461	1552
2004	1471	1486	2957

Most of the secondary schools visited (88.57%) used the tendering system in the purchase of their supplies while 10.43% used both tendering and direct purchases. A good percentage of the head teachers (74.29%) felt that the system was effective and 25.71% said it was not effective. Unfortunately, only 34.29% of the schools tendered for all services. Key supplies such as laboratory equipment, shop items, textbooks and stationery and even building materials were not tendered. There were over expenditure in BES, LT&T, RMI and contingencies. However, it was not possible to identify any wastage

Many schools (94.28%) had their transactions recorded in serialized documents. This is the first step in good financial management. This was followed by writing of regular financial reports that were done monthly (62.86%), monthly and annually (25.71%) and semi-annually (5.71%). In addition, 71.43% of the secondary schools had their books of accounts audited annually as required, 22.86% had the books audited but not regularly while 5.71% of the schools did not respond to this question. The audited reports were implemented by all the schools.

Appropriate Fees for Secondary Education

All schools reported that the Boards of Governors read and approved the budget estimates for the year 2004 between October and December 2003. Budgets done before the year begins are important for planning purposes for they control haphazard expenditure that is not guided by a plan. Most of the schools (88%) used the previous year's budget as a benchmark for the subsequent year.

The tendering system, which is an open method of making requisitions and eliminates the purchase of unbudgeted items or over pricing of goods and services, has been proposed by governments as one of the best ways of ensuring the right procurement procedures. Up to 88.57% of the schools reported that they used the tendering system to procure goods and services required in the schools. The system was effective in twenty-six schools (74.29%) and not effective in 25.71% of the schools.

The system was not effective in schools with poor payments of fees, resulting in limited cash flow making it difficult for tenders to be paid in good time. Some suppliers did not go for tenders due to small businesses involved in such tenders and there were times when fees were paid in kind and as such these goods and services could not be tendered. Tenders were not done for all items. In particular, the purchase of foodstuffs fluctuating prices and unreliable suppliers were experienced.

Only the Principal, Deputy Principal, the respective Heads of Departments and the school's accounts clerk (or bursar) were allowed to make requisitions for goods and services in secondary schools, though not all schools followed this rule. Only one school had the Principal as the sole person authorized to make requisitions. A good number of schools (94.28%) had all their financial transactions recorded. This enabled the school administration and auditors to establish the financial status of the school. All schools preferred payment of fees through cash and money orders or postal orders while some accepted payments in kind, supply of bricks, vegetables, firewood and cereals. All money collected was kept in the bank and only withdrawn when needed though only 37% banked money before spending while 57% used both cash and bank payments. Banking resulted in appropriate use of the funds collected and thereby kept expenditure in check.

All the secondary schools reported that they had the required serialised accounting documents. This is necessary to ensure that all transactions were correctly recorded to make it easy for auditing. Financial reports were also prepared regularly (both monthly and annually) for auditing purposes.

Auditing is the examination of financial statements, including notes, of an organization in order to verify the existence of assets, the accuracy of the accounts receivable and check balances and investment securities. (Antony, Reece & Hertenstein, 1995, p. 454). Schools that had their reports discussed annually were twenty five (71.43%), 22.86% had no specific timing for their reports while 5.71% never responded. The problems facing schools were late submission of books of accounts for auditing and late auditing by auditors. However, apart from two schools that never responded to this question, all schools had the recommendations of their audited accounts implemented. This is encouraging for audit reports give guidelines that lead to better financial management. They highlighted the strengths and weaknesses of the institutions and enabled the institutions to adjust their operations for effectiveness and efficiency.

Many head teachers (77.14%) believed that it was not feasible to reduce fees; that fees should be increased instead. This is because the school budgets reflected the lowest fees despite consistent increase in prices of goods and services thereby straining the budget because the existing charges per vote head could not provide quality education. Responses on fee payment was poor and it would be ideal to reduce fees but it is not practical. However, to reduce the cost of secondary education in order to increase access at this level of education there is need for government subsidy and/or grants. Unfortunately, even after the introduction of government grants to the tune of Kshs. 10,265 per student per year in 2008, parents and head teachers were still complaining that the cost of secondary education was still unbearably high due to huge increases in prices of school uniform, stationery and food among other items (Muindi, 2009, p. 6). The amount of fees proposed by the head teachers ranged from Kshs 10,500 to Kshs 20,000 per annum for day schools and between Kshs 22,000 and Kshs 25,000 for students who wanted boarding facilities.

The cost of supplementary services could be reduced to increase access given that its effect on quality was low as shown by the district's continued low KCSE mean score. The main focus here is to improve access if the quality remains static. However, each school could be allowed to establish its own fees but with strict guidance and control from the Ministry of Education; to reduce dropout rates and increase access to secondary education without compromising the quality of secondary education.

Conclusions

The purpose of this study was to examine secondary school budgets vis-à-vis the actual amounts spent per vote head with the aim of finding out if there were any wastage. This study found out that unit excess income over expenditure ranged from Kshs 1305 in 2001 to Kshs 2957 in 2004. Indeed, excess income per student of Kshs 2,957 in 2004 added to the average charges for supplementary services of Kshs 6,856 gives Kshs 9,813, which the parents could be relieved of. Given that auditing was carried out as required though the frequency varied from school to school, these are amounts that the schools could do without and should not have been charged.

All the six independent variables were predictors of student enrolment accounting for 87% of the changes in enrolment. The hypothesis that unit expenditure on supplementary services had no relationship with student enrolment was rejected. In addition, the six independent variables were also predictors of KCSE mean score accounting for 50.1% of the variability of KCSE mean score. The hypothesis that unit expenditure on supplementary services had no relationship with KCSE mean score was not rejected. Unit expenditure on supplementary services, despite taking a large proportion of the cost of secondary education, had the least effect on KCSE mean score and its reduction is necessary.

Recommendations and Issues for Further Research

There should be fees reduction if the government of Kenya expects 180 students in a single stream school and 360 in a double stream school, which was not the case in Nyando District due to the high cost of secondary education. The average class size was as low as 30 students instead of 45. There should be reduction in supplementary services charges because supplementary services had the least contribution to performance, as noted in the regression analysis, and yet it accounted for at least a quarter of the fees paid. Secondly, prudent financial management can lead to reduction in operational costs of secondary education. Thirdly, CDF funds should be used more in the provision of infrastructure and development in secondary schools.

Areas for further research include finding out the impact of auditing on cost reduction, the proportion of students retained in school through the provision of government bursary, the impact of government subsidy of tuition on access to secondary education and the effect of reducing supplementary services on performance at the secondary level.

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